MCAS

### MASSACHUSETTS DEPARTMENT OF EDUCATION

**MASSACHUSETTS
COMPREHENSIVE
ASSESSMENT
SYSTEM**

# *Release of
Spring 2001
Test Items*

**June 2001
Massachusetts Department of Education**

## Massachusetts Department of Education

*This document was prepared by the Massachusetts Department of Education.*
Dr. David P. Driscoll, Commissioner of Education

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# Commissioner's Foreword

Dear Colleagues:

The Massachusetts Comprehensive Assessment System (MCAS) is the Commonwealth's statewide testing program for public school students, developed in response to the Education Reform Law of 1993. MCAS is based exclusively on the rigorous academic learning standards contained in the Massachusetts *Curriculum Frameworks*. These *Frameworks* and the MCAS program have been developed with the direct and active involvement of educators from across Massachusetts and with the support of the Board of Education. Together, the *Frameworks* and MCAS are designed to raise the academic achievement of all students in the Commonwealth.

The purpose of this document is to share with educators and the public all of the test items on which the 2001 MCAS student results are based. The release of these items provides considerable information regarding the kinds of knowledge and skills that students are expected to demonstrate on the MCAS tests. Local educators are encouraged to use this document together with their school's *Test Item Analysis Reports* (to be issued this fall) to identify strengths and weaknesses in curriculum and instruction, and to guide the changes necessary to more effectively serve students.

You will find this document on the Internet at **www.doe.mass.edu.** Please note that, due to some publishers' restrictions on copyright permissions, the paper version of this document contains some MCAS test materials that cannot be included on the Internet version.

Thank you for your support as we work together to strengthen education for our students in Massachusetts.

Sincerely,

David P. Driscoll
Commissioner of Education

# Table of Contents

# I. Document Purpose and Structure

# Document Purpose and Structure

## Purpose

The purpose of this document is to share with educators and the public the **common test items** from the spring 2001 MCAS tests. Release of these items is intended to provide additional information regarding the kinds of knowledge and skills that students are expected to demonstrate on MCAS. Local educators will be able to use this information to identify strengths and weaknesses in their curriculum and instruction, and to guide the changes necessary to more effectively meet their students' needs.

This document is also intended to be used by school and district personnel as a companion document to the school- and district-level *Test Item Analysis Reports*. Each school receives a Fall 2001 release of *Test Item Analysis Report* for each content area at each grade level tested (e.g., grade 10 Mathematics). These reports provide data generated from student responses to common items only. Each report lists, for the school receiving the report, the names of all enrolled students in that grade, and shows how each student answered each common item in that content area. The report identifies each item as multiple-choice, open-response, short-answer, or a writing prompt, and identifies the item's MCAS reporting category. Item numbers in this document correlate directly to the "Item Numbers" in the *Test Item Analysis Reports*.

In addition, this document will assist school and district personnel in interpreting and using the results reported on the *Subject Area Subscore* pages of the Fall 2001 *School* and *District Reports*. The *Subject Area Subscore* pages will report results through MCAS reporting categories specific to each content area, and represent the only instance in which MCAS results from both common and matrix-sampled items are combined and reported.

This document lists the MCAS reporting category for each common item as it is referenced in that content area's *Test Item Analysis Report* and in the *School* and *District Report Subject Area Subscore* pages.

## Structure

Each subsequent chapter of this document contains information for one grade level and one content area (e.g., Chapter III = Grade 3 English Language Arts). The English Language Arts chapter for each grade (except Grade 3) contains information for both the ELA Composition (Section A) and the ELA Language and Literature (Section B) tests for that grade. Due to copyright restrictions, certain common English Language Arts reading passages are not included in the Internet version of this document.

Each chapter begins with a list of the Massachusetts *Curriculum Framework* learning standards that are assessed by MCAS in that chapter's content area.[1] Applicable *Framework* page numbers are also identified. History and Social Science chapters list the *Framework* core knowledge topics assessed by MCAS after the learning standards list.

Each chapter next identifies the MCAS reporting categories under which test results in that content area are reported to schools and districts.

Finally, the chapter presents all common test items used to generate spring 2001 MCAS test results for that chapter's grade and content area. Each item's reporting category is listed in the shaded bar underneath the item, along with information on the learning standard or group of standards it assesses. The shaded bar for each History and Social Science item also lists the core knowledge topic assessed by the item, whenever applicable.

Correct answers for all multiple-choice questions are indicated by check marks. Correct answers for short-answer questions are shown in text boxes following the questions.

Responses to open-response items and compositions written in response to writing prompts are scored individually. An overview of procedures for scoring these responses and compositions is presented in the MCAS fact sheet, "Facts on Scoring of Student Answers to Open-Response Questions and Writing Prompts," which is available on the Department's Internet site at **www.doe.mass.edu/mcas.** Scoring procedures will also be explained further in the MCAS document, *Guide to Interpreting the 2001 MCAS Reports for Schools and Districts,* due for release in fall 2001. (Similar *Guides* are currently available on the Department's Internet site for previous years' MCAS *School* and *District Reports.*)

Materials in this document are shown in the same order in which they were presented in test booklets. The heading for each group of items indicates the test session within which those items appeared in the spring 2001 Test Booklets.

[1] In the spring 2001 MCAS administration, certain learning standards/core knowledge topics/reporting categories were not tested by common items, but were tested by matrix-sampled questions; these standards/topics/categories **are** also included in this document.

Materials are **not** formatted exactly as they appeared in Student Test Booklets. For instance, in order to present items most efficiently in this document, the following modifications have been made:

▌ Some fonts and/or font sizes have been changed and/or reduced.

▌ Some graphics that appeared above questions in Student Test Booklets are shown instead to the side. In these instances, text in the item or in the directions that indicates the position of the graphic may be modified or deleted.

▌ Most graphics have been reduced in size from their appearance in Student Test Booklets; however, they maintain the same proportions in each case.

Copies of the grade 4 Mathematics Tool Kit and the grades 6, 8, and 10 Mathematics Reference Sheets used by students during MCAS Mathematics test sessions are provided in Appendix A to supplement the Mathematics chapters of this document.

# II. Overview

# MCAS 2001
## English Language Arts Tests

The MCAS 2001 English Language Arts (ELA) tests are based on the **1997** *English Language Arts Curriculum Framework*.[2]

# A. *MCAS* English Language Arts Guide *Update*

The following information updates and supersedes that given in the MCAS publication, *Guide to the Massachusetts Comprehensive Assessment System: English Language Arts* (1998).

### ELA Composition Test

▌ The MCAS English Language Arts Composition test (grades 4, 7, 8, and 10) no longer includes a "Short Session" (short composition).

▌ The scoring area for ELA Compositions labeled "Focus and Development" in the *Guide* is now referred to as "Topic Development."

▌ A separate ELA Composition Make-Up Test is issued and administered at each grade level (grades 4, 7, 8, and 10). Each grade's Make-Up Test uses a different writing prompt than the one appearing on the regularly scheduled ELA Composition test for that grade. Both writing prompts are considered **common items.**

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[2] A draft of a second edition of the *English Language Arts Curriculum Framework*, which incorporates minor refinements to and clarifications of the learning standards, was submitted to the Massachusetts Board of Education for review in June 2000. The public comment period on this document ended October 2, 2000; the Board accepted this draft in November 2000. Beginning with the **2002** MCAS administration, MCAS ELA tests will be based on the learning standards as presented in this 2000 *Framework*.

## Reporting Categories

Individual students receive one MCAS English Language Arts score/performance level.

For grade 3, ELA performance levels are generated from the results of the Grade 3 Reading Test. In 2001, results for this test will be based on multiple-choice items only.

For grades 4, 7, 8, and 10, a student's results from both the ELA Composition and the ELA Language and Literature tests are combined to generate one overall English Language Arts score for that student. These students also receive comments from scorers about their ELA Compositions.

School and district MCAS English Language Arts results are reported under the following MCAS reporting categories:

❚ Language

❚ Literature

❚ Composition (*not applicable to the Grade 3 Reading Test*)

  •Topic/Idea Development
  •Use of Standard English Conventions

# B. Grade 3 MCAS Reading Test

## Learning Standards Assessed

The MCAS Grade 3 Reading Test assessed learning standards 4 through 17 of the *Framework's* **Language** and **Literature** strands.

## Test Structure

### Item Types

The MCAS Grade 3 Reading Test, which is similar in design to the grade 4 ELA Language and Literature test, included **multiple-choice** and **open-response** questions (items). Since this test included no Composition strand component, no writing prompt was included.

The approximate distribution of test items on each test form by type is shown in Table ELA1 below. The table also shows how items are distributed between the common and matrix-sampled portions of the test.

| Table ELA1. MCAS 2001 Grade 3 Reading Test<br>Approximate Number of Test Items Per Form by Type | | | |
|---|---|---|---|
| | Item Type | | |
| | Multiple-Choice | Open-Response | Total Items Per Test Form |
| Common | 40 | 2* | 42 |
| Matrix-Sampled | 8 | 1 | 9 |
| Total Per Form | 48 | 3 | 51 |

\* Scaled score and performance level results for students, schools, and districts will be based solely on multiple-choice items. Item-analysis results for open-response items will be returned to schools in the fall of 2001.

### Framework *Strands*

The approximate distribution of **common** score points across the two *Framework* strands by item type is shown in Table ELA2 below.

| Table ELA2. MCAS 2001 Grade 3 Reading Test<br>Approximate Percentage of Total COMMON ITEM Score Points by Strand | | | | | | |
|---|---|---|---|---|---|---|
| | Language Strand | | Literature Strand | | Totals | |
| | # of Points | % of Total | # of Points | % of Total | # of Points | % of Total |
| Multiple-Choice | 7 | 18 | 33 | 82 | 40 | 100 |
| Open-Response | 0 | 0 | 0 | 0 | 0 | 0 |
| Totals | 7 | 18 | 33 | 82 | 40 | 100 |

*Reading Passages*

On the MCAS Grade 3 Reading Test, developmentally appropriate reading passages were followed by either a small set (3-4 multiple-choice and 1 open-response) or a large set (6-8 multiple-choice and 1 open-response) of related questions. Approximately 50% of the reading passages are by authors listed in Appendices A and B of the 1997 *Framework*. A range of literary and non-literary texts, such as those listed below, were used:

- short stories
- chapter books
- poetry
- plays
- myths, legends, fables
- biographies/autobiographies
- interviews
- letters
- diary entries
- newspaper articles
- instructions
- advertisements

## Test Administration

The Grade 3 Reading Test was administered in three test sessions:

- Session 1 recommended time = 60 minutes
- Session 2 recommended time = 45 minutes
- Session 3 recommended time = 45 minutes

These recommended times update information provided in the Commissioner's memorandum dated November 6, 2000.

Please note that students recorded their answers directly in their test booklets rather than in a separate answer booklet, as is the case for all other MCAS tests. Dictionaries were not allowed during the Grade 3 Reading Test, with the exception of word-to-word bilingual dictionaries used by LEP students.

## Reporting of Results

Results reported in 2001 for the MCAS Grade 3 Reading test will be based exclusively on multiple-choice items.

Scores for open-response items will be returned to schools to assist in local evaluation of curriculum and instruction.

# C. Grade 4 MCAS English Language Arts Test

## Test Structure

### Item Types

The MCAS Grade 4 English Language Arts test was presented in two parts:

▌ the ELA Composition test, which assessed learning standards from the *Framework's* **Composition** strand through a **writing prompt**

▌ the ELA Language and Literature test, which assessed learning standards 4 through 17 of the *Framework's* **Language** and **Literature** strands, and included **multiple-choice** and **open-response** questions (items)

These two tests are further described below. The *Framework* learning standards they assess are presented at the beginning of the MCAS Grade 4 English Language Arts test chapter in this document.

The approximate distribution of items by type on each test is shown in Table ELA3 below. The table also shows how items are distributed between the common and matrix-sampled portions of the test.

| Table ELA3. MCAS 2001 Grade 4 English Language Arts Test Approximate Number of Test Items Per Form by Type | | | | |
|---|---|---|---|---|
| | *Item Type* | | | |
| | **Writing Prompt** | **Multiple-Choice** | **Open-Response** | **Total Items** |
| **Common** | 1 | 36 | 4 | **41** |
| **Matrix-Sampled** | 0 | 12 | 2 | **14** |
| **Total Per Form** | **1** | **48** | **6** | **55** |

Framework *Strands*

The approximate distribution of **common** score points across the three *Framework* strands is shown in Table ELA4 below.

| | Language Strand | | Literature Strand | | Composition Strand | | Totals | |
|---|---|---|---|---|---|---|---|---|
| | # of Points | % of Total | # of Points | % of Total | # of Points | % of Total | # of Points | % of Total |
| **Multiple-Choice** | 6 | 8 | 30 | 42 | — | — | **36** | **50** |
| **Open-Response** | — | — | 16 | 22 | — | — | **16** | **22** |
| **Writing Prompts** | — | — | — | — | 20 | 28 | **20** | **28** |
| **Totals** | **6** | **8** | **46** | **64** | **20** | **28** | **72** | **100** |

Table ELA4. MCAS 2001 Grade 4 English Language Arts Test Approximate Percentage of Total COMMON ITEM Score Points by Strand

## Grade 4 ELA Composition

The Composition portion of the grade 4 MCAS English Language Arts test assessed students' skill at writing in a **narrative** mode that chronicled and/or described a particular event or experience. The test was structured to include some of the key elements of the writing process: drafting, revising, and finalizing.

The ELA Composition test included **two test sessions** (recommended time: 45 minutes per session) administered on the same day, with a short break between the sessions. In the first test session, students responded to a writing prompt by preparing a first draft of their writing. Following the break, students returned to revise this first draft into a second draft, which was submitted for scoring.

Students were allowed access to an English-language dictionary (a minimum of one per classroom) during ELA Composition test sessions.

## Grade 4 ELA Language and Literature

The grade 4 MCAS ELA Language and Literature test was administered in **three test sessions** (recommended time: 60 minutes per session).

All test items on the Language and Literature component of the grade 4 MCAS English Language Arts test were linked to developmentally appropriate reading passages, approximately 50% of which are by authors listed in Appendices A and B of the 1997 *Framework*. Both literary (approximately 60%) and non-literary (approximately 40%) passage types appeared on the grade 4 ELA Language and Literature test.

Passages were followed by either a small item set (3-4 multiple-choice and 1 open-response) or a large item set (6-8 multiple-choice and 1 open-response).

No reference materials were allowed during ELA Language and Literature test sessions, with the exception of bilingual word-to-word dictionaries used by LEP students.

# D. Grade 7 MCAS English Language Arts Test

## Test Structure

### Item Types

The MCAS Grade 7 English Language Arts test, which is similar in design to the grade 8 English Language Arts test, was presented in two parts:

▌ the ELA Composition test, which assessed learning standards from the *Framework's* **Composition** strand through a **writing prompt**

▌ the ELA Language and Literature test, which assessed learning standards 4 through 17 of the *Framework's* **Language** and **Literature** strands, and included **multiple-choice** and **open-response** questions (items)

The approximate distribution of items by type on each test is shown in Table ELA5 below. The table also shows how items are distributed between the common and matrix-sampled portions of the test.

| | Table ELA5. MCAS 2001 Grade 7 English Language Arts Test Approximate Number of Test Items by Type | | | |
|---|---|---|---|---|
| | **Item Type** | | | |
| | **Writing Prompt** | **Multiple-Choice** | **Open-Response** | **Total Items** |
| **Common** | 1 | 36 | 4 | **41** |
| **Matrix-Sampled** | 0 | 12 | 2 | **14** |
| **Totals Per Form** | **1** | **48** | **6** | **55** |

Framework *Strands*

The approximate distribution of **common** score points across the three *Framework* strands is shown in Table ELA6 below.

| | Language Strand | | Literature Strand | | Composition Strand | | Totals | |
|---|---|---|---|---|---|---|---|---|
| **Table ELA6. MCAS 2001 Grade 7 English Language Arts Test Approximate Percentage of Total COMMON ITEM Score Points by Strand** | | | | | | | | |
| | # of Points | % of Total | # of Points | % of Total | # of Points | % of Total | # of Points | % of Total |
| **Multiple-Choice** | 6 | 8 | 30 | 42 | — | — | 36 | 50 |
| **Open-Response** | — | — | 16 | 22 | — | — | 16 | 22 |
| **Writing Prompt** | — | — | — | — | 20 | 28 | 20 | 28 |
| **Totals** | 6 | 8 | 46 | 64 | 20 | 28 | 72 | 100 |

## Grade 7 ELA Composition

The Composition portion of the grade 7 MCAS English Language Arts test assessed students' skill at writing in an informative mode that shares knowledge and conveys messages, instructions, and ideas. The test was structured to include some of the key elements of the writing process: drafting, revising, and finalizing.

The ELA Composition test included two test sessions (recommended time: 45 minutes per session) administered on the same day, with a short break between the sessions. In the first test session, students responded to a writing prompt by preparing a first draft of their writing. Following the break, students returned to revise this first draft into a second draft, which was submitted for scoring.

Students were allowed access to an English-language dictionary (a minimum of one per classroom) during ELA Composition test sessions.

# E. Grade 8 MCAS English Language Arts Test

## Test Structure

The grade 8 MCAS English Language Arts test was administered for the final time in the MCAS 2001 administration. It served as a bridge to provide students who were in grade 8 during the 2000-2001 school year with an MCAS ELA score prior to taking the high-stakes grade 10 English Language Arts test.

Only **common** items appeared on the 2001 grade 8 MCAS English Language Arts test. No matrix-sampled items were included because the grade 8 English Language Arts test was administered for the final time in the MCAS 2001 administration, and no further test development is necessary. Therefore, the 2001 test included fewer items than previously administered grade 8 MCAS ELA tests have included. Since MCAS student scores have always been based on common items only, comparisons of 2001 grade 8 ELA student scores with past years' results are still valid. However, school and district Subject Area Subscore results for 2001 grade 8 English Language Arts will **not** be parallel to past years' reported results.

### *Item Types*

The 2001 grade 8 English Language Arts test was presented in two parts:

▎ the ELA Composition test, which assessed learning standards from the *Framework's* **Composition** strand through a **writing prompt**

▎ the ELA Language and Literature test, which assessed learning standards 4 through 17 of the *Framework's* **Language** and **Literature** strands, and included **multiple-choice** and **open-response** questions (items)

The approximate distribution of items by type on each test is shown in Table ELA7 below.

| Table ELA7. MCAS 2001 Grade 8 English Language Arts Test Approximate Number of Test Items by Type | | |
|---|---|---|
| Writing Prompt | Multiple-Choice | Open-Response |
| 1 | 36 | 4 |

Framework *Strands*

The approximate distribution of score points across the three *Framework* strands is shown in Table ELA8 below.

| | Language Strand | | Literature Strand | | Composition Strand | | Totals | |
|---|---|---|---|---|---|---|---|---|
| **Table ELA8. MCAS 2001 Grade 8 English Language Arts Test** <br> **Approximate Percentage of Total COMMON ITEM Score Points by Strand** | | | | | | | | |
| | # of Points | % of Total | # of Points | % of Total | # of Points | % of Total | # of Points | % of Total |
| **Multiple-Choice** | 5 | 7 | 31 | 43 | — | — | 36 | 50 |
| **Open-Response** | — | — | 16 | 22 | — | — | 16 | 22 |
| **Writing Prompt** | — | — | — | — | 20 | 28 | 20 | 28 |
| **Totals** | 5 | 7 | 47 | 65 | 20 | 28 | 72 | 100 |

## Grade 8 ELA Composition

The Composition portion of the grade 8 MCAS English Language Arts test assessed students' skill at writing in a **persuasive** mode that takes a stand on an issue and convinces the reader to take the same stand. The test was structured to include some of the key elements of the writing process: drafting, revising, and finalizing.

The ELA Composition test included **two test sessions** (recommended time: 45 minutes per session) administered on the same day, with a short break between the sessions. In the first test session, students responded to a writing prompt by preparing a first draft of their writing. Following the break, students returned to revise this first draft into a second draft, which was submitted for scoring.

Students were allowed access to an English-language dictionary (a minimum of one per classroom) during ELA Composition test sessions.

## Grade 8 ELA Language and Literature

The 2001 grade 8 MCAS ELA Language and Literature test was administered in **two test sessions** (recommended time: 45 minutes per session).

All test items on the Language and Literature component of the grade 8 MCAS English Language Arts test were linked to developmentally appropriate reading passages, approximately 50% of which are by authors listed in Appendices A and B of the 1997 *Framework*. Both literary (approximately 60%) and non-literary (approximately 40%) passage types appeared on the grade 8 ELA Language and Literature test.

Passages were followed by either a small item set (3-4 multiple-choice and 1 open-response) or a large item set (6-8 multiple-choice and 1 open-response).

No reference materials were allowed during ELA Language and Literature test sessions, with the exception of bilingual word-to-word dictionaries used by LEP students.

# F. Grade 10 MCAS English Language Arts Test

## Test Structure

### Item Types

The MCAS Grade 10 English Language Arts test was presented in two parts:

▮ the ELA Composition test, which assessed learning standards from the *Framework's* **Composition** strand through a **writing prompt**

▮ the ELA Language and Literature test, which assessed learning standards 4 through 17 of the *Framework's* **Language** and **Literature** strands, and included **multiple-choice** and **open-response** questions (items)

The approximate distribution of items by type on each test is shown in Table ELA9 below. The table also shows how items are distributed between the common and matrix-sampled portions of the test.

| Table ELA9. MCAS 2001 Grade 10 English Language Arts Test Approximate Number of Test Items by Type | | | | |
|---|---|---|---|---|
| | Item Type | | | |
| | Writing Prompt | Multiple-Choice | Open-Response | Total Items |
| **Common** | 1 | 36 | 4 | **41** |
| **Matrix-Sampled** | 0 | 12 | 2 | **14** |
| **Total Per Form** | **1** | **48** | **6** | **55** |

Framework *Strands*

The approximate distribution of **common** score points across the three *Framework* strands is shown in Table ELA10 below.

| | Language Strand | | Literature Strand | | Composition Strand | | Totals | |
|---|---|---|---|---|---|---|---|---|
| | # of Points | % of Total | # of Points | % of Total | # of Points | % of Total | # of Points | % of Total |
| **Multiple-Choice** | 6 | 8 | 30 | 42 | — | — | **36** | **50** |
| **Open-Response** | — | — | 16 | 22 | — | — | **16** | **22** |
| **Writing Prompt** | — | — | — | — | 20 | 28 | **20** | **28** |
| **Totals** | **6** | **8** | **46** | **64** | **20** | **28** | **72** | **100** |

Table ELA10. MCAS 2001 Grade 10 English Language Arts Test
Approximate Percentage of Total COMMON ITEM Score Points by Strand

## Grade 10 ELA Composition

The Composition portion of the grade 10 MCAS English Language Arts test assessed students' skill at **literary analysis,** using their knowledge of literary elements, themes, and structures to analyze an excerpt from a literary text. The test was structured to include some of the key elements of the writing process: drafting, revising, and finalizing.

The ELA Composition test included **two test sessions** (recommended time: 45 minutes per session) administered on the same day, with a short break between the sessions. In the first test session, students responded to a writing prompt by preparing a first draft of their writing. Following the break, students returned to revise this first draft into a second draft, which was submitted for scoring.

Students were allowed access to an English-language dictionary (a minimum of one per classroom) during ELA Composition test sessions.

## Grade 10 ELA Language and Literature

The grade 10 MCAS ELA Language and Literature test was administered in **three test sessions** (recommended time: 45 minutes per session) scheduled on May 15 (sessions 1 and 2) and May 16 (session 3), 2001.

All test items on the Language and Literature component of the grade 10 MCAS English Language Arts test were linked to developmentally appropriate reading passages, approximately 50% of which are by authors listed in Appendices A and B of the 1997 *Framework*. Both literary (approximately 60%) and non-literary (approximately 40%) passage types appeared on the grade 10 ELA Language and Literature test.

Passages were followed by either a small item set (3-4 multiple-choice and 1 open-response) or a large item set (6-8 multiple-choice and 1 open-response).

No reference materials were allowed during ELA Language and Literature test sessions, with the exception of bilingual word-to-word dictionaries used by LEP students.

# MCAS 2001 Mathematics Tests
## A. *New 2000* Mathematics Curriculum Framework

The Massachusetts Board of Education adopted a revision of the *Mathematics Curriculum Framework* in July 2000. The final Framework was presented to the public in November 2000. This 2000 *Framework* replaces the 1996 *Framework* used as the basis for past MCAS tests. Revisions incorporated in the 2000 *Framework* will **not** affect results reported for the 2001 MCAS tests (see "Learning Standards Assessed in 2001" below). The 2000 document is available on the Department's website at **www.doe.mass.edu/frameworks**.

The 2000 *Framework* implements minor revisions to the 1996 *Framework* that are designed to clarify, strengthen, and provide more options for the organization and assessment of mathematics courses at the secondary level. One revision, for example, is the grouping of learning standards into narrower grade spans (preK-K, 1-2, 3-4, 5-6, 7-8, 9-10, and 11-12) in response to requests from schools for clarity and specificity in the standards. Another revision is the articulation of learning standards for year-long courses in Algebra I, Geometry, Algebra II, and Precalculus, in addition to integrated-course learning standards similar to those defined in the 1996 *Framework*.

The 2000 *Framework* renames and expands the mathematics strands from four to five, as follows:

- ❚ Number Sense and Operations

- ❚ Patterns, Relations, and Algebra

- ❚ Geometry

- ❚ Measurement

- ❚ Data Analysis, Statistics, and Probability

The 1996 "Geometry and Measurement" strand was separated into two strands in the new Framework to align with the format of the National Council of Teachers of Mathematics (NCTM) *Principles and Standards for School Mathematics*.

### Learning Standards Assessed in 2001

The MCAS 2001 Mathematics tests are based on the 2000 *Mathematics Curriculum Framework*. **However, student, school, and district scores for 2001 will be based solely**

on learning standards COMMON to both the 1996 and the 2000 *Mathematics Curriculum Frameworks*. Comparison of the 2001 student, school, and district MCAS mathematics scores with previous years' results will, therefore, still be valid.

Although the 2001 MCAS tests included matrix-sampled test items that were based on learning standards new to the 2000 *Framework*, such test items will **not** be used to determine student, school, or district scores in 2001.

# B. MCAS Mathematics Guide *Update*

**Assessment expectations** defined in the *Guide* do not cross-reference to the 2000 *Framework* learning standards.

Almost all of the **sample questions and materials** provided in the *Guide* are still relevant to the learning standards assessed on the 2001 MCAS Mathematics tests.

## Tool Kits and Reference Sheets

A Grade 6 Mathematics Reference Sheet, containing formulas, and a Grade 6 Mathematics Tool Kit, containing a punch-out ruler and protractor, were provided for student reference during test administration. Samples are provided in Appendix A of this document.

## Calculator Use

Students in grades 8 and 10 were allowed to use calculators during two of the three MCAS Mathematics test sessions. All test items for the calculator sessions of the MCAS Mathematics tests were developed assuming use of a four-function calculator with a square root key. Although students were permitted to use more sophisticated calculators, those calculators offered no testing advantage over a four-function calculator with a square root key.

Calculator use was **not** allowed during administration of **any** grade 4 or grade 6 MCAS Mathematics test session.

## Reporting and Reporting Categories

Individual students receive one MCAS Mathematics score/performance level.

The reporting categories listed in the *Guide* are no longer applicable. School and district MCAS Mathematics results will be reported in 2001 under the following reporting categories (which mirror the MCAS reporting categories for the 2000 test results):

❚ Number Sense and Operations

❚ Patterns, Relations, and Algebra

❚ Geometry and Measurement (this reporting category will be split into separate reporting categories after 2001 to parallel the strands of the new *Framework*)

❚ Data Analysis, Statistics, and Probability

# C. What's New for Mathematics 2001?

## MCAS Grade 6 Mathematics Test

In order to measure student performance in mathematics between the grades of 4 and 8, an MCAS Mathematics test was added at grade 6.

The grade 6 MCAS Mathematics test was field-tested in 2000 and was administered for the first time in 2001. **Scaled score and performance level results for the 2001 test will be fully reported for students, schools, and districts.**

The grade 10 section of this chapter (section G) includes a special note about the 2000 *Framework's* learning standards and the 2001 grade 10 test.

# D. Grade 4 MCAS Mathematics Test

## Learning Standards Assessed

The 2001 grade 4 MCAS Mathematics test was based solely on learning standards **common** to the pre-K-4 grade span of the 1996 *Framework* and either the 3-4 or an earlier grade span of the 2000 *Framework*.

### Clarification: Number Sense and Operations Strand
Although learning standard 4.N.16 of the new *Framework* requires students to round numbers through 100,000, the 2001 test required students to round only through 10,000.

Also, although most of learning standard 4.N.12 is intended to be assessed locally, the 2001 tests **assessed** students on the multiplication of two digits by two digits.

### Clarification: Geometry Strand
In the 2000 *Framework*, learning standard 4.G.6 has been limited to apply to the first quadrant only, as follows:

> ❚ using ordered pairs of numbers and/or letters, graph, locate, identify points, and describe paths (first quadrant).

### Clarification: Data Analysis, Statistics, and Probability Strand
The 2001 test did **not** require grade 4 students to **create** circle graphs, e.g., pie charts, but it **did** present pie charts as graphs to be matched or read.

## Test Structure

*Item Types*

The grade 4 MCAS Mathematics test included multiple-choice, short-answer, and open-response questions (items). The approximate distribution of items by type on each test form is shown in Table M1 below. The table also shows how items are distributed between the common and matrix-sampled portions of the test.

| | Item Type | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Multiple-Choice | | Short-Answer | | Open-Response | | Total Items Per Test Form | |
| | # of Items | % of Total Score | # of Items | % of Total Score | # of Items | % of Total Score | # of Items | % of Total Score |
| **Common** | 29 | 54 | 5 | 9 | 5 | 37 | **39** | **100** |
| **Matrix-Sampled** | 7 | — | 1 | — | 1 | — | **9** | **—** |
| **Total Per Form** | **36** | **54** | **6** | **9** | **6** | **37** | **48** | **100** |

**Table M1. MCAS 2001 Grade 4 Mathematics Test
Approximate Number of Test Items Per Form by Type**

*Thinking Skills*

The approximate distribution of **common** score points by mathematical thinking skill is shown in Table M2 below.

**Table M2. MCAS 2001 Grade 4 Mathematics Test
Approximate Percentage of Total COMMON ITEM Score Points by Mathematical Thinking Skill**

| Thinking Skill | Score Points | Percent of Total Points |
|---|---|---|
| Procedural | 22 | 41 |
| Conceptual | 22 | 41 |
| Application/Problem-Solving | 10 | 18 |
| **Totals** | **54** | **100** |

*Framework Strands*

The approximate distribution of **common** score points by *Framework* strand is shown in Table M3 below.

| Table M3. MCAS 2001 Grade 4 Mathematics Test Approximate Percentage of Total COMMON ITEM Score Points by *Framework* Strand | | |
|---|---|---|
| *Framework* Strand | Score Points | Percent of Total Points |
| Number Sense and Operations | 19 | 35 |
| Patterns, Relations, and Algebra | 11 | 20 |
| Geometry and Measurement | 13 | 25 |
| Data Analysis, Statistics, and Probability | 11 | 20 |
| **Totals** | **54** | **100** |

## Test Administration

The grade 4 MCAS Mathematics test was administered in **two test sessions** (recommended time: 60 minutes per session).

Calculator use was **not** allowed during **any** grade 4 MCAS Mathematics test session.

A Mathematics Tool Kit containing punch-out manipulatives was provided with the test for student reference. Other than the grade 4 Mathematics Tool Kit, no reference materials were allowed during any grade 4 MCAS Mathematics test session (with the exception of bilingual word-to-word dictionaries used by LEP students).

# E. Grade 6 MCAS Mathematics Test

## Learning Standards Assessed

The grade 6 MCAS Mathematics test was based on the learning standards defined in the 2000 *Mathematics Curriculum Framework*. The grade 6 learning standards are presented at the beginning of the Grade 6 Mathematics test chapter of this document.

## Test Structure

### Item Types

The grade 6 MCAS Mathematics test included multiple-choice, short-answer, and open-response questions (items). The approximate distribution of items by type on each test form is shown in Table M4 below. The table also shows how items are distributed between the common and matrix-sampled portions of the test.

| Table M4. MCAS 2001 Grade 6 Mathematics Test Approximate Number of Test Items Per Form by Type | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Item Type | | | | | | | |
| | Multiple-Choice | | Short-Answer | | Open-Response | | Total Items Per Test Form | |
| | # of Items | % of Total Score | # of Items | % of Total Score | # of Items | % of Total Score | # of Items | % of Total Score |
| Common | 29 | 54 | 5 | 9 | 5 | 37 | 39 | 100 |
| Matrix-Sampled | 7 | — | 1 | — | 1 | — | 9 | — |
| Totals Per Form | 36 | 54 | 6 | 9 | 6 | 37 | 48 | 100 |

### Thinking Skills

The approximate distribution of **common** score points by mathematical thinking skill is shown in Table M5 below.

| Table M5. MCAS 2001 Grade 6 Mathematics Test Approximate Percentage of Total COMMON ITEM Score Points by Mathematical Thinking Skill | | |
|---|---|---|
| Thinking Skill | Score Points | Percent of Total Points |
| Procedural | 20 | 37 |
| Conceptual | 20 | 37 |
| Application/Problem-Solving | 14 | 26 |
| Totals | 54 | 100 |

Framework *Strands*

The approximate distribution of **common** score points by *Framework* strand is shown in Table M6 below.

| Table M6. MCAS 2001 Grade 6 Mathematics Test Approximate Percentage of Total COMMON ITEM Score Points by *Framework* Strand | | |
|---|:---:|:---:|
| *Framework* Strand | Score Points | Percent of Total Points |
| Number Sense and Operations | 18 | 33 |
| Patterns, Relations, and Algebra | 14 | 26 |
| Geometry and Measurement | 14 | 26 |
| Data Analysis, Statistics, and Probability | 8 | 15 |
| Totals | 54 | 100 |

## Test Administration

The grade 6 MCAS Mathematics test was administered as follows:

▮ Three test sessions (recommended time: 45 minutes per session)

▮ Sessions 2 and 3 may have been administered on the same day.

▮ Calculator use was **not** allowed during **any** grade 6 MCAS Mathematics test session.

▮ A Grade 6 Mathematics Reference Sheet, containing formulas and a punch-out ruler and protractor, was provided for student reference.

Students were permitted to use the grade 6 Mathematics Reference Sheet during all test sessions. No other reference materials were allowed during any grade 6 MCAS Mathematics test session (with the exception of bilingual word-to-word dictionaries used by LEP students).

# F. Grade 8 MCAS Mathematics Test

## Learning Standards Assessed

The 2001 grade 8 MCAS Mathematics test was based solely on learning standards **common** to both the 1996 and the 2000 *Mathematics Curriculum Frameworks*.

*Moved Standards*
The 2000 *Framework* moved selected learning standards from grade 8 to grades 11-12; the following standards (listed as they appeared in the 1996 *Framework*) were therefore not tested at grade 8 in 2001:

### Statistics and Probability: Probability

▌ model situations by devising and carrying out experiments or simulations to determine probabilities

▌ describe the power of using a probability model by comparing experimental results with mathematical expectations

▌ make predictions that are based on experimental or theoretical probabilities and determine their reasonableness

▌ develop and explain an appreciation for the pervasive use of probability in the real world

Additionally, the topic of recursive patterns, e.g., Fibonacci numbers, was moved to grades 9-10.

## Test Structure

### *Item Types*

The grade 8 MCAS Mathematics test included multiple-choice, short-answer, and open-response questions (items). The approximate distribution of items by type on each test form is shown in Table M7 below. The table also shows how items are distributed between the common and matrix-sampled portions of the test.

| | Table M7. MCAS 2001 Grade 8 Mathematics Test Approximate Number of Test Items Per Form by Type | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **Item Type** | | | | | | | |
| | **Multiple-Choice** | | **Short-Answer** | | **Open-Response** | | **Total Items Per Test Form** | |
| | # of Items | % of Total Score | # of Items | % of Total Score | # of Items | % of Total Score | # of Items | % of Total Score |
| **Common** | 29 | 54 | 5 | 9 | 5 | 37 | **39** | **100** |
| **Matrix-Sampled** | 7 | — | 1 | — | 1 | — | **9** | — |
| **Total Per Form** | **36** | **54** | **6** | **9** | **6** | **37** | **48** | **100** |

### *Thinking Skills*

The approximate distribution of **common** score points by mathematical thinking skill is shown in Table M8 below.

| Table M8. MCAS 2001 Grade 8 Mathematics Test Approximate Percentage of Total COMMON ITEM Score Points by Mathematical Thinking Skill | | |
|---|---|---|
| **Thinking Skill** | **Score Points** | **Percent of Total Points** |
| Procedural | 14 | 26 |
| Conceptual | 16 | 30 |
| Application/Problem-Solving | 24 | 44 |
| **Totals** | **54** | **100** |

**Framework *Strands***

The approximate distribution of **common** score points by *Framework* strand is shown in Table M9 below.

| Table M9. MCAS 2001 Grade 8 Mathematics Test Approximate Percentage of Total COMMON ITEM Score Points by *Framework* Strand | | |
|---|---|---|
| ***Framework* Strand** | **Score Points** | **Percent of Total Points** |
| Number Sense and Operations | 14 | 26 |
| Patterns, Relations, and Algebra | 15 | 28 |
| Geometry and Measurement | 14 | 26 |
| Data Analysis, Statistics, and Probability | 11 | 20 |
| **Totals** | **54** | **100** |

## Test Administration

The grade 8 MCAS Mathematics test was administered as follows:

❚ Three test sessions (recommended time: 45 minutes per session)

❚ Calculator use was **not** allowed during **session 1**. Calculators were permitted during sessions 2 and 3 only.

❚ Sessions 2 and 3 may have been administered on the same day.

❚ A Mathematics Reference Sheet was provided with the Student Test Booklet for student use.

Students were permitted to use the grade 8 Mathematics Reference Sheet during all test sessions and calculators during only sessions 2 and 3. No other reference materials were allowed during any grade 8 MCAS Mathematics test session (with the additional exception of bilingual word-to-word dictionaries used by LEP students).

# G. Grade 10 MCAS Mathematics Test

## Learning Standards Assessed

The 2001 grade 10 MCAS Mathematics test was based solely on learning standards **common** to both the 1996 and the 2000 *Mathematics Curriculum Frameworks*.

*Moved Standards and Assessment Expectations*
The 2000 *Framework* moved selected learning standards from grade 10 to higher grades; the following standards and assessment expectations (listed as they appeared in the 1996 *Framework*) will therefore not be tested at grade 10 in 2001:

### Number Sense: Mathematical Structure

▮ identify and apply properties of other finite systems; e.g., modular systems, 2 x 2 matrices, defined operations

### Patterns, Relations, and Functions: Trigonometry

▮ apply trigonometry to problem situations involving right triangles

### Statistics and Probability: Statistics

▮ design a statistical experiment to study a problem, conduct the experiment, and interpret and communicate the outcomes

## Test Structure

*Item Types*
The grade 10 MCAS Mathematics test included multiple-choice, short-answer, and open-response questions (items). The approximate distribution of test items by type is shown in Table M10. The table also shows how items are distributed between the common and matrix-sampled portions of the test.

| Table M10. MCAS 2001 Grade 10 Mathematics Test Approximate Number of Test Items Per Form by Type | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Item Type | | | | | | | |
| | Multiple-Choice | | Short-Answer | | Open-Response | | Total Items Per Test Form | |
| | # of Items | % of Total Score | # of Items | % of Total Score | # of Items | % of Total Score | # of Items | % of Total Score |
| Common | 32 | 53 | 4 | 7 | 6 | 40 | 42 | 100 |
| Matrix-Sampled | 7 | — | 1 | — | 1 | — | 9 | — |
| Totals Per Form | 39 | 53 | 5 | 7 | 7 | 40 | 51 | 100 |

*Thinking Skills*

The approximate distribution of **common** score points by mathematical thinking skill is shown in Table M11 below.

| Table M11. MCAS 2001 Grade 10 Mathematics Test Approximate Percentage of Total COMMON ITEM Score Points by Mathematical Thinking Skill | | |
|---|---|---|
| Thinking Skill | Score Points | Percent of Total Points |
| Procedural | 15 | 25 |
| Conceptual | 18 | 30 |
| Application/Problem-Solving | 27 | 45 |
| Totals | 60 | 100 |

**Framework** *Strands*

The approximate distribution of **common** score points by *Framework* strand is shown in Table M12 below.

| Table M12. MCAS 2001 Grade 10 Mathematics Test Approximate Percentage of Total COMMON ITEM Score Points by *Framework* Strand | | |
|---|---|---|
| *Framework* Strand | Score Points | Percent of Total Points |
| Number Sense and Operations | 12 | 20 |
| Patterns, Relations, and Algebra | 18 | 30 |
| Geometry and Measurement | 18 | 30 |
| Data Analysis, Statistics, and Probability | 12 | 20 |
| Totals | 60 | 100 |

# MCAS 2001

# *Science and Technology/Engineering Tests*

# A. *New 2000* Science and Technology/Engineering Curriculum Framework

The Massachusetts Board of Education adopted a revised version of the *Science and Technology Curriculum Framework* on December 20, 2000. Following is a list of highlights of the 2000 *Science and Technology/Engineering Curriculum Framework*:

❚ The revised learning standards are organized into narrower grade-spans (preK-2, 3-5, 6-8, and 9-10) to allow teachers to design instruction and local assessments more effectively. These groupings of learning standards allow for more specificity in assessment expectations for each grade-span.

❚ In order to clarify the disciplinary content of each strand, the 2000 *Framework* renames the four strands to the following four content strands: Earth Science; Life Science; The Physical Sciences; and Technology.

❚ Selected content changes in the 2000 *Framework* are highlighted below.

•Several Physical Sciences learning standards were shifted to different grade-spans in order to ensure developmental appropriateness.
•The topic of genetics has been emphasized through all grade-spans.
•Standards in the Earth Science domain were added to include change over time.

❚ At the high school level, there are five sets of learning standards for one-year introductory courses in earth science, life science, chemistry, physics, and technology/engineering. The selected standards that will be assessed by MCAS tests are designated in **bold** as **core standards**.

❚ Also at the high school level, a two-year integrated science program for grades 9-10 will be comprised of certain core standards, which are marked by an asterisk. These integrated-science core learning standards are also summarized in Appendix I of the *Framework*.

# B. Grade 5 MCAS
## Science and Technology/Engineering Test

### Learning Standards Assessed

The grade 5 MCAS Science and Technology/Engineering test was based on the learning standards of the 2000 *Science and Technology/Engineering Curriculum Framework*.

### Test Structure

#### Item Types
The grade 5 MCAS Science and Technology/Engineering test included multiple-choice and open-response questions (items). The approximate distribution of test items by type is shown in Table ST1 below.

The table also shows how items are distributed between the common and matrix-sampled portions of the test. In order to develop a sufficient number of common items for future tests, there is a larger proportion of matrix-sampled items on the 2001 test than on other or future tests.

| | Item Type | | | | | |
|---|---|---|---|---|---|---|
| | **Multiple-Choice** | | **Open-Response** | | **Total Items Per Test Form** | |
| | # of Items | % of Total Score | # of Items | % of Total Score | # of Items | % of Total Score |
| **Common** | 18 | NA | 2 | NA | **20** | **NA** |
| **Matrix-Sampled** | 23 | — | 4 | — | **27** | **—** |
| **Total Per Form** | **41** | **NA** | **6** | **NA** | 47 | **NA** |

Table ST1. MCAS 2001 Grade 5 Science and Technology/Engineering Test Approximate Number of Test Items Per Form by Type

Table ST2 shows the expected proportions of common and matrix-sampled items on the 2002 and subsequent tests.

| Table ST2. MCAS 2001 Grade 5 Science and Technology/Engineering Test Approximate Number of Test Items Per Form by Type | | | | | | |
|---|---|---|---|---|---|---|
| | Item Type | | | | | |
| | Multiple-Choice | | Open-Response | | Total Items Per Test Form | |
| | # of Items | % of Total Score | # of Items | % of Total Score | # of Items | % of Total Score |
| Common | 34 | 63 | 5 | 37 | 39 | 100 |
| Matrix-Sampled | 7 | — | 1 | — | 8 | — |
| Total Per Form | 41 | 63 | 6 | 37 | 47 | 100 |

**Framework *Strands***

Score points will be approximately equally distributed among the *Framework* strands of Earth Science, Life Science, The Physical Sciences, and Technology/Engineering.

## Test Administration

The grade 5 MCAS Science and Technology/Engineering test was administered as follows:

❚ Two test sessions (recommended time: 60 minutes per session)

❚ Calculators were **not** allowed during **any** grade 5 Science and Technology/Engineering test session.

No reference materials were allowed during any grade 5 Science and Technology/Engineering test session (with the exception of bilingual word-to-word dictionaries used by LEP students).

## Limited Reporting of Results

Because the 2000 *Framework* has only recently been adopted, schools need a period of time to align their curriculum and instruction. Therefore, only item analysis results will be reported in 2001 for the grade 5 MCAS Science and Technology/Engineering test. No scaled score or performance level results will be generated in 2001.

It is expected that scaled score and performance level results for this test will be fully reported for students, schools, and districts beginning in 2002.

# C. Grade 8 MCAS
## Science and Technology/Engineering Test

### Learning Standards Assessed

The grade 8 MCAS Science and Technology/Engineering test was based on the learning standards of the 2000 *Science and Technology/Engineering Curriculum Framework*.

### Test Structure

*Item Types*

The grade 8 MCAS Science and Technology/Engineering test included multiple-choice and open-response questions (items). The approximate distribution of items by type on each test form is shown in Table ST3 below.

The table also shows how items are distributed between the common and matrix-sampled portions of the test. In order to develop a sufficient number of common items for future tests, there was a larger proportion of matrix-sampled items on the 2001 test than on other or future tests.

| | Table ST3. MCAS 2001 Grade 8 Science and Technology/Engineering Test Approximate Number of Test Items Per Form by Type | | | | | |
|---|---|---|---|---|---|---|
| | **Item Type** | | | | | |
| | **Multiple-Choice** | | **Open-Response** | | **Total Items Per Test Form** | |
| | # of Items | % of Total Score | # of Items | % of Total Score | # of Items | % of Total Score |
| **Common** | 18 | NA | 2 | NA | 20 | NA |
| **Matrix-Sampled** | 23 | — | 4 | — | 27 | — |
| **Total Per Form** | 41 | NA | 6 | NA | 47 | NA |

Table ST4 shows the expected proportions of common and matrix-sampled items on the 2002 and subsequent tests.

| Table ST4. MCAS 2001 Grade 8 Science and Technology/Engineering Test Approximate Number of Test Items Per Form by Type | | | | | | |
|---|---|---|---|---|---|---|
| | Item Type | | | | | |
| | Multiple-Choice | | Open-Response | | Total Items Per Test Form | |
| | # of Items | % of Total Score | # of Items | % of Total Score | # of Items | % of Total Score |
| Common | 18 | 69 | 2 | 31 | 20 | 100 |
| Matrix-Sampled | 23 | — | 4 | — | 27 | — |
| Total Per Form | 41 | 69 | 6 | 31 | 47 | 100 |

Framework *Strands*

Score points will be approximately equally distributed among the *Framework* strands of Earth Science, Life Science, The Physical Sciences, and Technology/Engineering.

## Test Administration

The grade 8 MCAS Science and Technology/Engineering test was administered as follows:

▮ Three test sessions (recommended time: 45 minutes per session)

▮ Sessions 2 and 3 may have been administered on the same day.

▮ Calculators were **not** allowed during **any** grade 8 Science and Technology/Engineering test session.

No reference materials were allowed during any grade 8 Science and Technology/Engineering test session (with the exception of bilingual word-to-word dictionaries used by LEP students).

## Sample Items

Many of the MCAS Guide's sample questions and the items released in the *Release of Test Items* documents for 1998, 1999, and 2000 illustrate how the 2001 test assesses the learning standards of the 2000 *Framework*. These documents are available on the Department's website at **www.doe.mass.edu/mcas**.

## Limited Reporting of Results

Because the 2000 *Framework* has only recently been adopted, schools need a period of time to align their curriculum and instruction. Therefore, only item analysis results will be reported in 2001 for the grade 8 MCAS Science and Technology/Engineering test. No scaled score or performance level results will be generated in 2001. It is expected that scaled score and performance level results for this test will be fully reported for students, schools, and districts beginning in 2002.

# MCAS 2001
## *History and Social Science Tests*

The MCAS 2001 History and Social Science tests were based on the **1997** *History and Social Science Curriculum Framework*.[3]

# A. MCAS History and Social Science Guide
## *Update*

Information given in the publication, *Guide to the Massachusetts Comprehensive Assessment System: History and Social Science, Spring 1999*, for grades 8 and 10 is still applicable to the 2001 tests in those grades.

## Reporting and Reporting Categories

Individual students receive one MCAS History and Social Science score/performance level. School and district MCAS History and Social Science results are reported through the following reporting categories:

- U.S. History (except for grade 10)

- World History

- Geography

- Economics

- Civics and Government

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[3] A draft of a revised *History and Social Science Curriculum Framework* is being prepared for review by the Massachusetts Board of Education. Following a public comment period, the revised *Framework* is expected to be finalized in 2001 and to serve as the basis for future MCAS History and Social Science tests.

# B. What's New for
# History and Social Science 2001

## No MCAS Grade 4 History and Social Science Test

Grade 4 students are no longer tested in history or social science beginning with the 2001 MCAS administration.

## MCAS Grade 5 History and Social Science Test

A grade 5 MCAS History and Social Science test was administered for the first time in 2001. This grade 5 test replaced the grade 4 test administered in past years, and serves to reduce MCAS testing at grade 4.

## MCAS Grade 10 History and Social Science Test

The grade 10 MCAS History and Social Science test was restructured to be administered in two 60-minute test sessions (rather than three 45-minute sessions).

# C. Grade 5 MCAS History and Social Science Test

## Core Knowledge Topics Assessed

The grade 5 MCAS History and Social Science test assessed the following *Framework* core knowledge topics:

▪ The United States, 1(a) through 3(g)

▪ The World, 1(a) through 1(d)

## Test Structure

### *Item Types*

The grade 5 MCAS History and Social Science test included multiple-choice and open-response questions (items). The approximate distribution of items by type on each test form is shown in Table H1 below. The table also shows how items are distributed between the common and matrix-sampled portions of the test.

| | Item Type | | | | | |
|---|---|---|---|---|---|---|
| | Multiple-Choice | | Open-Response | | Total Items Per Test Form | |
| | # of Items | % of Total Score | # of Items | % of Total Score | # of Items | % of Total Score |
| **Common** | 34 | NA | 5 | NA | **39** | NA |
| **Matrix-Sampled** | 7 | — | 1 | — | **8** | — |
| **Total Per Form** | **41** | **NA** | **6** | **NA** | 47 | **NA** |

**Table H1. MCAS 2001 Grade 5 History and Social Science Test
Approximate Number of Test Items Per Form by Type**

### Framework *Strands*

The approximate distribution of **common** score points by *Framework* strand is shown in Table H2 below.

**Table H2. MCAS 2001 Grade 5 History and Social Science Test
Approximate Percentage of Total COMMON ITEM Score Points by *Framework* Strand**

| *Framework* Strand | Score Points | Percent of Total Points |
|---|---|---|
| **History**<br>    U.S. History | 24 | NA |
|     World History | 12 | NA |
| **Geography** | 6 | NA |
| **Economics** | 6 | NA |
| **Civics and Government** | 6 | NA |
| **Totals** | **54** | **NA** |

Framework *Core Knowledge Topics*

The approximate distribution of **common** score points by *Framework* core knowledge topic is shown in Table H3 below.

| Table H3. MCAS 2001 Grade 5 History and Social Science Test<br>Approximate Percentage of Total COMMON ITEM Score Points by *Framework* Core Knowledge Topic | | | |
|---|---|---|---|
| *Framework* Core Knowledge Topic | Score Points | Percent of Total Points for Items Associated with a Core Knowledge Topic | |
| | | U.S. History | World History |
| Early America and the Americans (Beginning to 1650) | 10 | 18 | |
| Settlements, Colonies, and Emerging American Identity (1600 to 1763) | 5 | 9 | |
| The American Revolution: Creating a New Nation (1750 to 1815) | 9 | 17 | |
| Human Beginnings and Early Civilizations (Prehistory to 1000 B.C.) | 12 | | 22 |
| Totals | 36 | 44 | 22 |

## Test Administration

The grade 5 MCAS History and Social Science test was administered in **three test sessions** (recommended time: 40 minutes per session).

No reference materials were allowed during any grade 5 History and Social Science test session (with the exception of bilingual word-to-word dictionaries used by LEP students).

## Limited Reporting of Results

Only item analysis results will be reported in 2001 for the grade 5 MCAS History and Social Science test. No scaled score or performance level results will be generated in 2001.

It is expected that scaled score and performance level results for this test will be fully reported for students, schools, and districts beginning in 2002.

# D. Grade 8 MCAS History and Social Science Test

## Core Knowledge Topics Assessed

The grade 8 MCAS History and Social Science test assessed the following *Framework* core knowledge topics:

▐ The United States, 3(d) through 5(i)

▐ The World, 1(a) through 1(c)

## Test Structure

### Item Types

The grade 8 MCAS History and Social Science test included multiple-choice and open-response questions (items). The approximate distribution of items by type on each test form is shown in Table H4 below. The table also shows how items are distributed between the common and matrix-sampled portions of the test.

| | Table H4. MCAS 2001 Grade 8 History and Social Science Test Approximate Number of Test Items Per Form by Type | | | | | |
|---|---|---|---|---|---|---|
| | *Item Type* | | | | | |
| | Multiple-Choice | | Open-Response | | Total Items Per Test Form | |
| | # of Items | % of Total Score | # of Items | % of Total Score | # of Items | % of Total Score |
| **Common** | 34 | 63 | 5 | 37 | 39 | 100 |
| **Matrix-Sampled** | 7 | — | 1 | — | 8 | — |
| **Total Per Form** | 41 | NA | 6 | 37 | 47 | 100 |

**Framework *Strands***

The approximate distribution of **common** score points by *Framework* strand is shown in Table H5 below.

| Table H5. MCAS 2001 Grade 8 History and Social Science Test<br>Approximate Percentage of Total COMMON ITEM Score Points by *Framework* Strand | | |
|---|---|---|
| *Framework* Strand | Score Points | Percent of Total Points |
| **History**<br>    U.S. History | 24 | 44 |
|     World History | 12 | 22 |
| **Geography** | 7 | 13 |
| **Economics** | 6 | 11 |
| **Civics and Government** | 5 | 10 |
| **Totals** | **54** | **100** |

**Framework *Core Knowledge Topics***

The approximate distribution of **common** score points by *Framework* core knowledge topic is shown in Table H6 below.

| Table H6. MCAS 2001 Grade 8 History and Social Science Test<br>Approximate Percentage of Total COMMON ITEM Score Points by *Framework* Core Knowledge Topic | | | |
|---|---|---|---|
| *Framework* Core Knowledge Topic | Score Points | Percent of Total Points for Items Associated with a Core Knowledge Topic | |
| | | U.S. History | World History |
| **The American Revolution: Creating a New Nation (1750 to 1815)** | 5 | 9 | |
| **Expansion, Reform, and Economic Growth (1800 to 1861)** | 9 | 17 | |
| **The Civil War and Reconstruction (1859 to 1877)** | 10 | 18 | |
| **Human Beginnings and Early Civilizations (Prehistory to 1000 B.C.)** | 2 | | 4 |
| **Classical Civilizations of the Ancient World (1000 B.C. to c. 500 A.D.)** | 9 | | 16 |
| **Growth of Agricultural and Commerical Civilizations (500 to 1500 A.D.)** | 1 | | 2 |
| **Totals** | **36** | **44** | **22** |

## Test Administration

The grade 8 MCAS History and Social Science test was administered in **three test sessions** (recommended time: 45 minutes per session).

No reference materials were allowed during any grade 8 History and Social Science test session (with the exception of bilingual word-to-word dictionaries used by LEP students).

# E. Grade 10 MCAS History and Social Science Test

## Core Knowledge Topics Assessed

The grade 10 MCAS History and Social Science test assessed the following *Framework* core knowledge topics:

◼ The World, 3(a) through 7(k)

Grade 10 students were not tested on any United States core knowledge topic; any questions related to the United States involve the United States as it relates to the "world stage."

## Test Structure

### Item Types

The grade 10 MCAS History and Social Science test included multiple-choice and open-response questions (items). The approximate distribution of items by type on each test form is shown in Table H7 below. The table also shows how items are distributed between the common and matrix-sampled portions of the test.

| Table H7. MCAS 2001 Grade 10 History and Social Science Test Approximate Number of Test Items Per Form by Type | | | | | | |
|---|---|---|---|---|---|---|
| | *Item Type* | | | | | |
| | Multiple-Choice | | Open-Response | | Total Items Per Test Form | |
| | # of Items | % of Total Score | # of Items | % of Total Score | # of Items | % of Total Score |
| **Common** | 36 | NA | 4 | NA | 42 | NA |
| **Matrix-Sampled** | 6 | — | 1 | — | 7 | — |
| **Total Per Form** | 42 | NA | 5 | NA | 49 | NA |

## Framework *Strands*

The approximate distribution of **common** score points by *Framework* strand is shown in Table H8 below.

| Table H8. MCAS 2001 Grade 10 History and Social Science Test Approximate Percentage of Total COMMON ITEM Score Points by *Framework* Strand | | |
|---|---|---|
| *Framework* Strand | Score Points | Percent of Total Points |
| **History:** World History | 40 | NA |
| **Geography** | 6 | NA |
| **Economics** | 7 | NA |
| **Civics and Government** | 7 | NA |
| **Totals** | **60** | **NA** |

## Framework *Core Knowledge Topics*

The approximate distribution of **common** score points by *Framework* core knowledge topic is shown in Table H9 below.

| Table H9. MCAS 2001 Grade 10 History and Social Science Test Approximate Percentage of Total COMMON ITEM Score Points by *Framework* Core Knowledge Topic | | |
|---|---|---|
| *Framework* Core Knowledge Topic | Score Points | Percent of Total Points for Items Associated with a Core Knowledge Topic |
| **Growth of Agricultural and Commerical Civilizations (500 to 1500 A.D.)** | 10 | NA |
| **Emergence of a Global Age (1450 to 1750)** | 8 | NA |
| **The Age of Revolutionary Change (1700 to 1914)** | 7 | NA |
| **The World in the Era of Great Wars (1900 to 1945)** | 7 | NA |
| **The World from 1945 to the Present** | 8 | NA |
| **Totals** | **40** | **NA** |

## Test Administration

The grade 10 MCAS History and Social Science test was administered in **two test sessions** (recommended time: 60 minutes per session).

No reference materials were allowed during any grade 10 History and Social Science test session (with the exception of bilingual word-to-word dictionaries used by LEP students).

# III. English Language Arts, Grade 3

# Language and Literature

# English Language Arts, Grade 3
## Language and Literature

The spring 2001 MCAS English Language Arts Language and Literature test was based on the learning standards of two content strands of the Massachusetts *English Language Arts Curriculum Framework* (1997):

❚ Language

❚ Literature

# Curriculum Framework *Learning Standards*

The learning standards for the *Language* and *Literature* strands are listed below and are directly quoted from the *Framework;* applicable *Framework* page numbers are shown in parentheses.

## Language (*Framework,* pp. 28–31)

### Learning Standard 4

Students will acquire and use correctly an advanced reading vocabulary of English words, identifying meanings through an understanding of word relationships.

### Learning Standard 5

Students will identify, describe, and apply knowledge of the structure of the English language and standard English conventions for sentence structure, usage, punctuation, capitalization, and spelling.

### Learning Standard 6

Students will describe and analyze how oral dialects differ from each other in English, how they differ from written standard English, and what role standard American English plays in informal and formal communication.

### Learning Standard 7

Students will describe and analyze how the English language has developed and been influenced by other languages.

# Literature (*Framework,* pp. 38–50)

### Learning Standard 8

Students will decode accurately and understand new words encountered in their reading materials, drawing on a variety of strategies as needed, and then use these words accurately in . . . writing.

### Learning Standard 9

Students will identify the basic facts and essential ideas in what they have read, heard, or viewed.

### Learning Standard 10

Students will identify, analyze, and apply knowledge of the characteristics of different genres.

### Learning Standard 11

Students will identify, analyze, and apply knowledge of theme in literature and provide evidence from the text to support their understanding.

### Learning Standard 12

Students will identify, analyze, and apply knowledge of the structure and elements of fiction and provide evidence from the text to support their understanding.

### Learning Standard 13

Students will identify, analyze, and apply knowledge of the structure, elements, and meaning of nonfiction or informational material and provide evidence from the text to support their understanding.

### Learning Standard 14

Students will identify, analyze, and apply knowledge of the structure, elements, and theme of poetry and provide evidence from the text to support their understanding.

### Learning Standard 15

Students will identify and analyze how an author's choice of words appeals to the senses, creates imagery, suggests mood, and sets tone.

**Learning Standard 16**

Students will compare and contrast similar myths and narratives from different cultures and geographic regions.

**Learning Standard 17**

Students will interpret the meaning of literary works, nonfiction, films, and media by using different critical lenses and analytic techniques.

# MCAS Reporting Categories

In *Test Item Analysis Reports* and on the *Subject Area Subscore* pages of the MCAS *School* and *District Reports,* ELA Language and Literature test results are reported under the following two MCAS reporting categories:

- ▌ Language

- ▌ Literature

# MCAS Spring 2001 Common Test Items
# ELA Language and Literature, Grade 3

## Test Sessions

MCAS ELA Language and Literature Student Test Booklets (except Grade 8 ELA) included 3 separate test sessions. Each session included selected readings, followed by multiple-choice and open-response questions.

## Reference Materials and Tools

No reference materials or tools were allowed during any ELA Language and Literature test session.

## Cross-Reference Information

The shaded bar underneath each item indicates the item's MCAS reporting category and which *Framework* learning standard it assesses. The parentheses indicate the page in this document where the learning standard may be found.

## Session 1, Reading Selection #1

*In this story, a boy named Sam solves a problem in a very interesting way. Read this story to find out what his problem is, and how he solves it. Answer the questions that follow.*



## Apartment Building
by Eileen Spinelli

Sam wanted a pet. A little one. A big one. One that flew or walked. Any kind of pet at all.

But Mrs. Cabot, the landlady, said: "NO PETS!" And that was that.

Sam's mom and dad bought him fuzzy stuffed bears and a kite in the shape of a kitten and a plastic parrot on a stick. But he wanted a *live* pet. And that was that.

Sam tried to change Mrs. Cabot's mind. He told her he would get a quiet pet. He told her he would keep it clean. He told her he would not let the pet scratch the woodwork or jump through the hedges.

But Mrs. Cabot looked Sam square in the eye and said: "NO PETS!"

One day Sam heard Mrs. Cabot screaming in the hallway. He rushed over. "What's wrong, Mrs. Cabot?"

"A mouse!" she shrieked. "I saw a mouse!"

"I thought you had a rule, Mrs. Cabot. No pets allowed."

"It wasn't a *pet* mouse," the landlady squawked. "It was a plain old terrorize-the-building type of mouse."

Sam grinned. "What you need, Mrs. Cabot, is a cat."

While it was true that Mrs. Cabot hated cats, there was something she hated even more – mice! And so that very day, Mrs. Cabot went to the animal shelter and found herself a cat.

The next time Sam saw Mrs. Cabot, he said, "I see you have a cat."

"Yes indeed," she replied.

"Does that mean I can get a pet?" Sam asked.

"No, it does not!" snapped Mrs. Cabot. "If I let you get a pet, I'd have to let everyone get a pet. Then I'd be running a zoo and not an apartment building!"

Another day Sam was coming home from school. Police cars surrounded the apartment building. "What happened, Mrs. Cabot?" he asked.

"I was robbed!" she cried. "They took my radio and my penny bank and my entire collection of salt and pepper shakers!"

"That's too bad," said Sam, shaking his head. "What you need is a good watchdog."

While it was true that Mrs. Cabot hated dogs, there was something she hated even more – robbers! And so that very day, Mrs. Cabot went to the kennel and bought herself a dog.

A week later Sam found Mrs. Cabot dusting the stairs. There were tears in her eyes.

"You look sad," said Sam.

"I *am* sad," replied Mrs. Cabot. "My very best friend in all the world is moving away."

"I'm sorry to hear that," said Sam.

"She and I would talk for hours," sniffled Mrs. Cabot.

"Can't you talk to Mr. Cabot?" asked Sam.

Mrs. Cabot shook her head. "Mr. Cabot likes to read the newspaper. He likes to watch TV. He likes to build shelves for his wrench collection. But he doesn't like to talk."

"What you need, Mrs. Cabot, is a parrot."

Mrs. Cabot dabbed at her eyes with the hem of her apron. "A parrot?"

Sam nodded. "Parrots love to talk."

While it was true that Mrs. Cabot hated birds, there was something she hated even more – not having anyone to talk with.

And so that very day, Mrs. Cabot went to The Exotic Bird Shop and bought herself a parrot that talked all the way home.

In spring the grass grew green and thick and tall. Mrs. Cabot tried to mow the lawn, but every time she pushed the mower, she sneezed.

"Bless you," said Sam.

"Thank you," said Mrs. Cabot, between sneezes.

"Do you have a cold?" Sam asked.

Mrs. Cabot blew her nose. Sneezed. Pushed the mower. Then sneezed again. "No. I have allergies."

"You shouldn't be mowing grass, then," said Sam.

"I know that," replied Mrs. Cabot, sneezing. "But Mr. Cabot hurt his back. So he can't mow the grass."

"Maybe I could," offered Sam.

"That's kind of you," said Mrs. Cabot. "But you're too small."

Sam smiled. "I know just what you need."

"What's that?" asked Mrs. Cabot.

"A goat!" Sam laughed. "A goat will eat every bit of grass. You'll never have to mow again."

While it was true that Mrs. Cabot hated goats, there was something she hated even more – sneezing! And so that very day, she drove to a farm and came back with a goat.

A month later Sam found Mrs. Cabot hammering a For Sale sign into the front lawn.

"Are you selling the building?" asked Sam.

"I don't want to," sighed Mrs. Cabot. "But I'm so busy taking care of the cat and the dog and the parrot and the goat that I don't have time for anything else. The laundry room is full of cobwebs. The stairs are full of dust. And as for the hedges – well, see for yourself."

Sam patted Mrs. Cabot on the shoulder. "What you need is a pet-sitter."

Mrs. Cabot stopped hammering. "But who on earth would take care of all those pets?"

Sam's grin was as wide as a wheelbarrow. "I know just the person," he said. "And he even lives in the building!"

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## Session 1, Multiple-Choice Questions

**1** Who are the MAIN characters in this story?

Ⓐ    the cat, dog, parrot, and goat

Ⓑ    Sam, his mother, and his father

✔ Ⓒ    Sam and Mrs. Cabot

Ⓓ    Mrs. Cabot and her pets

*Reporting Category/*Learning Standard for Item 1: ***Literature/*Learning Standard 9 (p. 52)**

"A mouse!" she shrieked. "I saw a mouse!"

**2** The word ***shrieked*** means

Ⓐ    whispered.

Ⓑ    sighed.

✔ Ⓒ    screamed.

Ⓓ    asked.

*Reporting Category/*Learning Standard for Item 2: ***Literature/*Learning Standard 8 (p. 52)**

**3** How did Sam try to change Mrs. Cabot's mind about letting him have a pet?

Ⓐ    He said he would help mow the lawn.

Ⓑ    He offered to cut the hedges and clean the woodwork.

Ⓒ    He offered to share his pet with her.

✔ Ⓓ    He promised his pet would be no trouble.

*Reporting Category/*Learning Standard for Item 3: ***Literature/*Learning Standard 12 (p. 52)**

> "Yes indeed," she replied.

**4** Which word in this sentence is a VERB?

&Ⓐ yes

Ⓑ indeed

Ⓒ she

✔ Ⓓ replied

*Reporting Category*/Learning Standard for Item 4: ***Language***/**Learning Standard 5 (p. 51)**

**5** All of Mrs. Cabot's pets were the SAME in what way?

Ⓐ She bought all of them from the same pet store.

✔ Ⓑ She chose all of them to help her in some way.

Ⓒ They were all pets Sam did not want.

Ⓓ They were all easy to take care of.

*Reporting Category*/Learning Standard for Item 5: ***Literature***/**Learning Standard 12 (p. 52)**

> Mrs. Cabot dabbed at her eyes with the hem of her apron.

**6** The word ***dabbed*** means

Ⓐ painted.

Ⓑ fanned.

✔ Ⓒ patted.

Ⓓ glued.

*Reporting Category*/Learning Standard for Item 6: ***Literature***/**Learning Standard 8 (p. 52)**

**7** Who did Sam think would be a good pet-sitter for Mrs. Cabot?

✔    Ⓐ    himself

       Ⓑ    his father

       Ⓒ    Mr. Cabot

       Ⓓ    the goat

*Reporting Category/*Learning Standard for Item 7: ***Literature/*Learning Standard 12 (p. 52)**

**8** What is the MAIN IDEA of this story?

✔    Ⓐ    Sometimes you can get what you want by helping others.

       Ⓑ    Sometimes you can find pets at an animal shelter.

       Ⓒ    Sometimes you can find work to do around an apartment.

       Ⓓ    Sometimes you can meet new people near your home.

*Reporting Category/*Learning Standard for Item 8: ***Literature/*Learning Standard 11 (p. 52)**

**Session 2, Reading Selection #1**

*Read the two poems about friends and then answer the questions that follow.*

# Since Hanna Moved Away

by *Judith Viorst*

Students read a passage titled "Since Hanna Moved Away" and then answered
questions 9 through 12.
Due to copyright restrictions the passage cannot be released to the public
in this document.

**Reading Passage:**

# Poem

I loved my friend.
He went away from me.
There's nothing more to say.
The poem ends,
Soft as it began—
I loved my friend.

*—Langston Hughes*

## Session 2, Multiple-Choice Questions

> Velvet feels like hay.

**9**  In the above sentence, the word *hay* is what part of speech?

   Ⓐ  a verb

✔  Ⓑ  a noun

   Ⓒ  an adjective

   Ⓓ  an adverb

*Reporting Category/*Learning Standard for Item 9: *Language/*Learning Standard 5 (p. 51)

> Every handsome dog's a mutt.

**10**  In the sentence above, the word *mutt* means

✔  Ⓐ  an ugly dog.

   Ⓑ  an angry dog.

   Ⓒ  a frightened dog.

   Ⓓ  a friendly dog.

*Reporting Category/*Learning Standard for Item 10: *Language/*Learning Standard 4 (p. 51)

**11**  What word BEST describes the feeling in both poems?

✔  Ⓐ  sadness

   Ⓑ  anger

   Ⓒ  worry

   Ⓓ  fear

*Reporting Category/*Learning Standard for Item 11: *Literature/*Learning Standard 15 (p. 52)

**12** What is the MAIN idea of BOTH poems?

    Ⓐ   Everyone needs a best friend.

    Ⓑ   To have a friend, you must be a friend.

✔    Ⓒ   We miss friends when they go away.

    Ⓓ   It is hard to make a friend.

*Reporting Category/*Learning Standard for Item 12: ***Literature/*Learning Standard 11 (p. 52)**

## Session 2, Reading Selection #2

*What made Robert Ballard search the bottom of the ocean for the Titanic? Read the following article to find out and then answer the questions that follow.*

# Found at Last

Students read a passage titled "Found at Last" and then answered

questions 13 through 18.

Due to copyright restrictions the passage cannot be released to the public

in this document.

**Reading Passage:**

From THE TITANIC LOST...AND FOUND by Judy Donnelly.
Text copyright © 1987 by Judy Donnelly Gross. Reprinted by permission of Random House
Children's Books, a division of Random House, Inc.

## Session 2, Multiple-Choice Questions

**13** The word Titanic starts with a CAPITAL LETTER because it is

   Ⓐ    a helping verb.

   Ⓑ    an adjective.

✔   Ⓒ    a proper noun.

   Ⓓ    a pronoun.

*Reporting Category/*Learning Standard for Item 13: ***Language/****Learning Standard 5 (p. 51)*

**14** Why did it take such a long time for someone to find the ship?

   Ⓐ    Other scientists did not know where to look.

✔   Ⓑ    The ship was down deeper than divers could go.

   Ⓒ    No one was interested in trying to find it.

   Ⓓ    The ship was covered with mud and seaweed.

*Reporting Category/*Learning Standard for Item 14: ***Literature/****Learning Standard 9 (p. 52)*

**15** Before Robert Ballard planned his search trip, what did he have to do?

   Ⓐ    Stock his ship with food and water.

   Ⓑ    Save his money.

   Ⓒ    Study movies of the Titanic.

✔   Ⓓ    Study maps, photos, and books.

*Reporting Category/*Learning Standard for Item 15: ***Literature/****Learning Standard 9 (p. 52)*

**16** How was Robert Ballard able to locate the ship so far under water without having to get wet?

- Ⓐ He was able to use radar.

- Ⓑ He sent other people down.

- Ⓒ He used a giant anchor on the bottom.

✔ Ⓓ He used a robot with a video camera.

*Reporting Category/*Learning Standard for Item 16: ***Literature/*Learning Standard 9 (p. 52)**

> So many people had set out on the voyage.

**17** In the sentence above, the word ***voyage*** means

✔ Ⓐ long trip.

- Ⓑ march.

- Ⓒ rescue mission.

- Ⓓ picnic.

*Reporting Category/*Learning Standard for Item 17: ***Language/*Learning Standard 4 (p. 51)**

**18** Robert Ballard did NOT tell anyone where he found the Titanic because he was afraid

- Ⓐ it would rot away.

- Ⓑ it would be crushed by an iceberg.

✔ Ⓒ treasure hunters would steal from it.

- Ⓓ no one would be able to find it again.

*Reporting Category/*Learning Standard for Item 18: ***Literature/*Learning Standard 9 (p. 52)**

## Session 2, Reading Selection #3

*It takes a special person to be an astronaut. Read what made Sally Ride special and then answer the questions that follow.*

# SALLY RIDE
# ASTRONAUT
by June Behrens

4 . . . 3 . . . 2 . . . 1 . . . 0 . . . Lift-off!

The rocket engines roar as *Challenger* leaves the launchpad. Over a half million people are at Cape Canaveral, Florida, to watch. In less than three minutes the spacecraft is thirty miles up. Soon it disappears from sight.
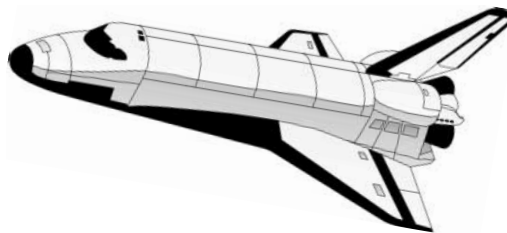
This is the second flight of *Challenger*. It carries a crew of five. Aboard is mission specialist Sally Ride, age thirty-two. She is a pioneer, the first American woman in space. Sally Ride is also the youngest American astronaut to circle the earth in a spacecraft.

Sally knew she could do anything she wanted to do when she was a little girl growing up in Encino. Sally believed in herself. She had the will of a winner in school and in sports.

The neighborhood boys knew they'd have stiff competition in their baseball and football games when Sally was on the field. She was as good as any of them. Sally worked and played to make her team the best.

Sally was nine when Dr. Ride took a leave from his work in the schools. For a year the family traveled in Europe. Sally and her sister "Bear," aged seven, saw just how big the world is. What a great adventure, learning about other people in other countries!

Sally Ride was one of 8,900 people who wanted to be in the NASA astronaut training program. NASA is short for National Aeronautics and Space Administration. NASA looked for winners, people who were the best in their fields. Just 35 of the 8,900 applicants were chosen for the NASA astronaut class of 1978. Sally Ride was one of the six women chosen.

When *Challenger* lifted off the pad at Kennedy Space Center in Cape Canaveral, the world watched. Everyone listened as the astronaut team reported activities to Mission Control in Houston.

"The thing that I'll remember most about the flight is that it was fun," said Sally Ride. "In fact, I'm sure it was the most fun that I will ever have in my life."

## Session 2, Multiple-Choice Questions

> 4 . . . 3 . . . 2 . . . 1 . . . 0 . . . Lift-Off!

**19** The story begins this way in order to

   Ⓐ    tell you the number of paragraphs in the selection.

   Ⓑ    show that Sally Ride was good at arithmetic.

   Ⓒ    tell how many astronauts were on the flight.

✔   Ⓓ    make you think of a rocket blasting off.

*Reporting Category/*Learning Standard for Item 19: ***Literature/*Learning Standard 13 (p. 52)**

> Soon it disappears from sight.

**20** The word *disappears* means

✔   Ⓐ    goes away.

   Ⓑ    falls down.

   Ⓒ    drops.

   Ⓓ    climbs.

*Reporting Category/*Learning Standard for Item 20: ***Language/*Learning Standard 4 (p. 51)**

> Sally Ride is also the youngest American astronaut to circle the earth in a spacecraft.

**21** In this sentence the word *astronaut* means

   Ⓐ    a special type of rocket ship.

✔   Ⓑ    a person who travels in space.

   Ⓒ    where NASA is located.

   Ⓓ    people who work at an airport.

*Reporting Category/*Learning Standard for Item 21: ***Literature/*Learning Standard 8 (p. 52)**

> ... boys knew they'd have stiff
> competition ...

**22**  In this phrase, ***they'd*** stands for

&#9400; they had.

&#9401; they will.

✔ &#9402; they would.

&#9403; they can.

**23**  Which statement BEST describes why Sally Ride was successful?

&#9400; She played baseball and football with boys.

✔ &#9401; She believed in herself and had the will of a winner.

&#9402; She traveled with her sister and parents in Europe.

&#9403; She learned about people in other countries.

**24**  This story is an example of a

&#9400; fable.

&#9401; poem.

&#9402; mystery.

✔ &#9403; biography.

**Session 2, Open-Response Question**

**25** Name TWO important reasons Sally Ride was a successful astronaut. Explain why each reason was important using details from the story in your answer.

*Reporting Category/*Learning Standard for Item 25: *Literature/***Learning Standard 9 (p. 52)**

## Session 3, Reading Selection #1

*This story tells you about one of the greatest baseball players ever. The writer tells you many stories about James "Cool Papa" Bell, but there is one he wants you to remember. As you read, think about why you should remember that one. Answer the questions that follow.*

# The Coolest Papa Ever

The Macmillan Book of Baseball Stories

Students read a passage titled "The Coolest Papa Ever" and then answered questions 26 through 33.

Due to copyright restrictions, the passage cannot be released to the public in this document.

**Reading Passage:**

Reprinted with the permission of Simon & Schuster Books for Young Readers, an imprint of Simon & Schuster Children's Publishing Division from THE MACMILLAN BOOK OF BASEBALL STORIES by Terry Egan, Stan Friedmann, and Mike Levine. Copyright© 1992 Terry Egan, Stan Friedmann, and Mike Levine.

## Session 3, Multiple-Choice Questions

**26** How does the author think Cool Papa compares to Superman?

Ⓐ Cool Papa was smarter than Superman.

Ⓑ Cool Papa was stronger than Superman.

Ⓒ Cool Papa was faster than a speeding bullet.

✔ Ⓓ Cool Papa was faster than Superman.

*Reporting Category/*Learning Standard for Item 26: ***Literature/*Learning Standard 9 (p. 52)**

James "Cool Papa" Bell

**27** "Cool Papa" is in QUOTATION MARKS (" ") to show it is

Ⓐ part of a conversation.

✔ Ⓑ a nickname.

Ⓒ a baseball term.

Ⓓ his real name.

*Reporting Category/*Learning Standard for Item 27: ***Language/*Learning Standard 5 (p. 51)**

**28** James Bell did NOT play in the major leagues because

Ⓐ he was better than the other players.

Ⓑ he could not run fast enough.

✔ Ⓒ his skin was black.

Ⓓ his arthritis was causing him problems.

*Reporting Category/*Learning Standard for Item 28: ***Literature/*Learning Standard 9 (p. 52)**

> Bell also stood to earn a bonus for leading the league in hitting.

**29** What does *bonus* mean in this sentence?

✔ Ⓐ extra money

Ⓑ new job

Ⓒ new name

Ⓓ extra bases

*Reporting Category/*Learning Standard for Item 29: ***Literature/*Learning Standard 8 (p. 52)**

**30** This story is an example of nonfiction because it

✔ Ⓐ is about a real person.

Ⓑ has a setting.

Ⓒ has believable characters.

Ⓓ is about an injustice.

*Reporting Category/*Learning Standard for Item 30: ***Literature/*Learning Standard 10 (p. 52)**

**31** James Bell was MOST interested in

Ⓐ becoming a famous baseball player.

✔ Ⓑ seeing African Americans play on major league baseball teams.

Ⓒ being the best baseball player in the world.

Ⓓ learning to run faster than any other baseball players.

*Reporting Category/*Learning Standard for Item 31: ***Literature/*Learning Standard 9 (p. 52)**

**32** What word does NOT describe James Bell?

✔   Ⓐ   slow

    Ⓑ   strong

    Ⓒ   proud

    Ⓓ   powerful

*Reporting Category/*Learning Standard for Item 32: ***Literature/*Learning Standard 13 (p. 52)**

## Session 3, Open-Response Question

**33** What kind of person was James "Cool Papa" Bell? Explain your answer using details from the story.

*Reporting Category/*Learning Standard for Item 33: ***Literature/*Learning Standard 13 (p. 52)**

## Session 3, Reading Selection #2

*Read this article from* What's Behind the Word *to learn the history of some words. Answer the questions that follow.*

# Every Word Has a History

Students read a passage titled "Every Word Has A History" and then answered questions 34 through 38.

Due to copyright restrictions, the passage cannot be released to the public in this document.

**Reading Passage:**

"Every Word Has a History", from WHAT'S BEHIND THE WORD? by Harold S. Longman, copyright © 1968 by Harold Longman. Used by permission of Coward-McCann & Geoghegan, an imprint of Penguin Putnam Books for Young Readers, a division of Penguin Putnam Inc.

## Session 3, Multiple-Choice Questions

**34** Where would you look to find more information about the words in the article?

✔ Ⓐ in a dictionary

Ⓑ in a magazine

Ⓒ in a road map

Ⓓ in a book of myths

*Reporting Category*/Learning Standard for Item 34: **Literature/**Learning Standard 10 (p. 52)

**35** Which word is a COMPOUND word?

Ⓐ together

Ⓑ umbrella

✔ Ⓒ breakfast

Ⓓ that's

*Reporting Category*/Learning Standard for Item 35: **Language/**Learning Standard 5 (p. 51)

**36** Which English word comes from the Italian language?

Ⓐ breakfast

Ⓑ papyrus

Ⓒ umbra

✔ Ⓓ umbrella

*Reporting Category*/Learning Standard for Item 36: **Language/**Learning Standard 7 (p. 51)

**37** According to the article, most people fast

   Ⓐ   all day.

✔   Ⓑ   when they sleep.

   Ⓒ   all the time.

   Ⓓ   when they are sick.

*Reporting Category/*Learning Standard for Item 37: ***Literature/*Learning Standard 13 (p. 52)**

**38** According to this article, papyrus was used in ancient times to make

   Ⓐ   shade.

   Ⓑ   river plants.

   Ⓒ   umbrellas.

✔   Ⓓ   thin sheets.

*Reporting Category/*Learning Standard for Item 38: ***Literature/*Learning Standard 9 (p. 52)**

**Session 3, Reading Selection #3**

*You are going to read a folktale from Norway. It tells about a hungry bear and a fox with a string of fish. Read it and then answer the questions that follow.*

# Why the Bear Has a Stumpy Tail

### by P.C. Asbjornsen and J. Moe

One winter day, the Bear met the Fox, who was slinking along with a string of fish he had stolen.

"Hi, stop a minute, Mr. Fox! Where did you get those fish?" demanded the Bear.

Now the Fox, as you know, is a sly one indeed. He didn't want the Bear to know that he had stolen the fish. So he said, "Oh, my Lord Bruin, I've been out fishing and caught them."

Well, the Bear was hungry and thought he would enjoy some fish. So he asked the Fox to tell him how to go about catching fish.

"Oh, it is quite easy," answered the Fox, "and soon learned. You have only to go down to the river and cut a hole in the ice. Then you put your tail in the hole and keep it there as long as you can. Don't mind if it hurts a little. That will be the fish biting. The longer you keep your tail in the hole, the more fish you will catch. Then, all at once, pull out your tail. But be sure to give a good hard pull."

Well, the Bear did as the Fox said. Before long, he was very cold, and his tail really hurt. But he kept his tail in the hole until he was sure that he must have caught a great many fish.

Then, remembering what the Fox had said, he gave a really hard pull. But what he didn't know was that his tail was frozen in the ice. So when he pulled, his tail snapped off short. And that is why, to this day, the Bear has a stumpy tail.

## Session 3, Multiple-Choice Questions

> "Hi, stop a minute, Mr. Fox! Where did you get those fish?"

**39** What punctuation tells you someone is saying these sentences?

✔ Ⓐ quotation marks

Ⓑ exclamation point

Ⓒ question mark

Ⓓ commas

*Reporting Category/*Learning Standard for Item 39: ***Language/*Learning Standard 5 (p. 51)**

**40** Why did the Fox make up the story about how he caught the fish?

Ⓐ He thought a silly story would amuse the Bear.

✔ Ⓑ He did not want to tell the Bear that he had stolen the fish.

Ⓒ He wanted the Bear to think he was very smart.

Ⓓ He hoped the Bear would follow his directions and catch some fish.

*Reporting Category/*Learning Standard for Item 40: ***Literature/*Learning Standard 9 (p. 52)**

**41** The Bear's tail hurt while he had it in the hole because

Ⓐ fish were biting it.

Ⓑ he had to keep it still for so long.

Ⓒ it was broken off.

✔ Ⓓ the water froze around it.

*Reporting Category/*Learning Standard for Item 41: ***Literature/*Learning Standard 12 (p. 52)**

> And that is why, to this day, the Bear has a stumpy tail.

**42** The word *stumpy* means

   Ⓐ   furry.

✔   Ⓑ   short.

   Ⓒ   long.

   Ⓓ   ugly.

*Reporting Category/*Learning Standard for Item 42: ***Literature/**Learning Standard 8 (p. 52)*

# IV. English Language Arts, Grade 4

## A. Composition
## B. Language and Literature

# English Language Arts, Grade 4
# A. Composition

The spring 2001 MCAS English Language Arts Composition test was based on the learning standards of the *Composition* strand of the Massachusetts *English Language Arts Curriculum Framework* (1997).

# Curriculum Framework *Learning Standards*

The learning standards for the *Composition* strand are listed below and are directly quoted from the *Framework;* applicable *Framework* page numbers are shown in parentheses.

## Composition (*Framework,* pp. 56–60)

### Learning Standard 19

Students will write compositions with a clear focus, logically related ideas to develop it, and adequate detail.

### Learning Standard 20

Students will select and use appropriate genres, modes of reasoning, and speaking styles when writing for different audiences and rhetorical purposes.

### Learning Standard 21

Students will demonstrate improvement in organization, content, paragraph development, level of detail, style, tone, and word choice (diction) in their compositions after revising them.

### Learning Standard 22

Students will use knowledge of standard English conventions to edit their writing.

# MCAS Reporting Category

In *Test Item Analysis Reports* and on the *Subject Area Subscore* pages of the MCAS *School* and *District Reports,* ELA Composition test results are reported under the MCAS reporting category of Composition.

# MCAS Spring 2001 Common Test Items
## ELA Composition, Grade 4

## Test Sessions

MCAS ELA Composition Student Test Booklets included 2 separate test sessions, administered on the same day with a short break between sessions. During the first session, each student wrote a first draft of a composition in response to the following writing prompt. During the second session, each student revised his/her first draft and submitted his/her second draft for scoring.

## Reference Materials and Tools

At least one dictionary per classroom was provided for student use during ELA Composition test sessions. No other reference materials or tools were allowed during either ELA Composition test session.

## Cross-Reference Information

The shaded bar following the writing prompt indicates this item's MCAS reporting category and which *Framework* learning standards it assesses.

## Grade 4 Writing Prompt

**WRITING ASSIGNMENT**

Think about people you know or have met. Choose ONE person who has made a big difference in your life. Write about that person AND describe his or her positive effect on your life.

*Reporting Category/*Learning Standard for Item 1: ***Composition/***Learning Standards 19-22 (p. 85)

## Grade 4 Make-up Prompt

**WRITING ASSIGNMENT**

Being a good friend is important. Describe what you think a good friend should be like.

*Reporting Category/*Learning Standard for Item 1 (Make-up Prompt): ***Composition/***Learning Standards 19-22 (p. 85)

# English Language Arts, Grade 4
# B. Language and Literature

The spring 2001 MCAS English Language Arts Language and Literature test was based on the learning standards of two content strands of the Massachusetts *English Language Arts Curriculum Framework* (1997):

❚ Language

❚ Literature

## Curriculum Framework *Learning Standards*

The learning standards for the *Language* and *Literature* strands are listed below and are directly quoted from the *Framework;* applicable *Framework* page numbers are shown in parentheses.

### Language (*Framework,* pp. 28–31)

**Learning Standard 4**

Students will acquire and use correctly an advanced reading vocabulary of English words, identifying meanings through an understanding of word relationships.

**Learning Standard 5**

Students will identify, describe, and apply knowledge of the structure of the English language and standard English conventions for sentence structure, usage, punctuation, capitalization, and spelling.

**Learning Standard 6**

Students will describe and analyze how oral dialects differ from each other in English, how they differ from written standard English, and what role standard American English plays in informal and formal communication.

**Learning Standard 7**

Students will describe and analyze how the English language has developed and been influenced by other languages.

# Literature (*Framework,* pp. 38–50)

### Learning Standard 8

Students will decode accurately and understand new words encountered in their reading materials, drawing on a variety of strategies as needed, and then use these words accurately in . . . writing.

### Learning Standard 9

Students will identify the basic facts and essential ideas in what they have read, heard, or viewed.

### Learning Standard 10

Students will identify, analyze, and apply knowledge of the characteristics of different genres.

### Learning Standard 11

Students will identify, analyze, and apply knowledge of theme in literature and provide evidence from the text to support their understanding.

### Learning Standard 12

Students will identify, analyze, and apply knowledge of the structure and elements of fiction and provide evidence from the text to support their understanding.

### Learning Standard 13

Students will identify, analyze, and apply knowledge of the structure, elements, and meaning of nonfiction or informational material and provide evidence from the text to support their understanding.

### Learning Standard 14

Students will identify, analyze, and apply knowledge of the structure, elements, and theme of poetry and provide evidence from the text to support their understanding.

### Learning Standard 15

Students will identify and analyze how an author's choice of words appeals to the senses, creates imagery, suggests mood, and sets tone.

**Learning Standard 16**

Students will compare and contrast similar myths and narratives from different cultures and geographic regions.

**Learning Standard 17**

Students will interpret the meaning of literary works, nonfiction, films, and media by using different critical lenses and analytic techniques.

# MCAS Reporting Categories

In *Test Item Analysis Reports* and on the *Subject Area Subscore* pages of the MCAS *School* and *District Reports*, ELA Language and Literature test results are reported under the following two MCAS reporting categories:

▌Language

▌Literature

# MCAS Spring 2001 Common Test Items
# ELA Language and Literature, Grade 4

## Test Sessions

MCAS ELA Language and Literature Student Test Booklets included 3 separate test sessions. Each session included selected readings, followed by multiple-choice and open-response questions.

## Reference Materials and Tools

No reference materials or tools were allowed during any ELA Language and Literature test session.

## Cross-Reference Information

The shaded bar underneath each item indicates the item's MCAS reporting category and which *Framework* learning standard it assesses. The parentheses indicate the page in this document where the learning standard may be found.

## Session 1, Reading Selection #1

*Read this selection about a girl who forgot something important on the school bus and is faced with a big problem. Answer the questions that follow.*

# The Skirt
### by Gary Soto

After stepping off the bus, Miata Ramirez turned around and gasped, "Ay!" The school bus lurched, coughed a puff of stinky exhaust, and made a wide turn at the corner. The driver strained as he worked the steering wheel like the horns of a bull.

Miata yelled for the driver to stop. She started running after the bus. Her hair whipped against her shoulders. A large book bag tugged at her arm with each running step, and bead earrings jingled as they banged against her neck.

"My skirt!" she cried loudly. "Stop!"

She had forgotten her *folklórico* skirt. It was still on the bus.

• • •

"Please stop!" Miata yelled as she ran after the bus. Her legs kicked high and her lungs burned from exhaustion.

She needed that skirt. On Sunday after church she was going to dance *folklórico.* Her troupe had practiced for three months. If she was the only girl without a costume, her parents would wear sunglasses out of embarrassment. Miata didn't want that.

The skirt had belonged to her mother when she was a child in Hermosillo, Mexico. What is Mom going to think? Miata asked herself. Her mother was always scolding Miata for losing things. She lost combs, sweaters, books, lunch money, and homework. One time she even lost her shoes at school. She had left them on the baseball field where she had raced against two boys. When she returned to get them, the shoes were gone.

Worse, she had taken her skirt to school to show off. She wanted her friends to see it. The skirt was old, but a rainbow of shiny ribbons still made it pretty. She put it on during lunchtime and danced for some of her friends. Even a teacher stopped to watch.

What am I going to do now? Miata asked herself. She slowed to a walk. Her hair had come undone. She felt hot and sticky.

She could hear the bus stopping around the corner. Miata thought of running through a neighbor's yard. But that would only get her in trouble.

"Oh, man," Miata said under her breath. She felt like throwing herself on the ground and crying. But she knew that would only make things worse. Her mother would ask, "Why do you get so dirty all the time?"

• • •

What am I going to do now? she asked herself. She prayed that Ana [her friend] would find the skirt on the bus. She's got to see it, Miata thought. *It's right there. Just look, Ana.*

As Miata rounded the corner onto her block she saw her brother, Little Joe, and his friend Alex. They were walking with cans smashed onto the heels of their shoes, laughing and pushing each other. Their mouths were fat with gum.

Little Joe waved a dirty hand at Miata. Miata waved back and tried to smile.

• • •

If Ana doesn't pick up the skirt, she thought, I'll have to dance in a regular skirt. It was Friday, late afternoon. It looked like a long weekend of worry.

### Session 1, Multiple-Choice Questions

**2** In the first paragraph, the author states that the driver ". . . worked the steering wheel like the horns of a bull." This is an example of

   A. a synonym.

✔   B. a simile.

   C. dialect.

   D. slang.

*Reporting Category/*Learning Standard for Item 2: ***Literature/*Learning Standard 15 (p. 89)**

**3** The word ***folklórico*** comes from

   A. classical music.

   B. New England dialect.

✔   C. a language other than English.

   D. standard American English.

*Reporting Category/*Learning Standard for Item 3: ***Language/*Learning Standard 7 (p. 88)**

**4** Why did Miata take the skirt to school?

✔   A. She was proud of it.

   B. She was in a class play.

   C. It was her day for "Show and Tell."

   D. Ana wanted to borrow it.

*Reporting Category/*Learning Standard for Item 4: ***Literature/*Learning Standard 12 (p. 89)**

**5** From this selection, we can tell that Miata is

   A. tall.

✔   B. forgetful.

   C. smart.

   D. funny.

*Reporting Category/*Learning Standard for Item 5: ***Literature/*Learning Standard 12 (p. 89)**

## Session 1, Open-Response Question

6   The selection ends with the statement, "It looked like a long weekend of worry." Explain this statement, using specific information from the selection in your answer.

*Reporting Category/*Learning Standard for Item 6: ***Literature/*Learning Standard 12 (p. 89)**

## Session 1, Reading Selection #2

*Read the selections about bicycles and answer the questions that follow.*

# Michael Built a Bicycle

### by Jack Prelutsky

Students read a passage titled "Michael Built a Bicycle" and then answered
questions 7 through 15.
Due to copyright restrictions, the passage cannot be released to the public
in this document.

**Reading Passage:**

TEXT COPYRIGHT © 1984 BY JACK PRELUTSKY
Used by permission of Harper Collins Publishers.

*Are you well prepared to be a safe bicycle rider? Read these rules to see.*

# BICYCLE RULES OF THE ROAD

- Know and follow all the bicycle rules for riding in your city or town.
- Put front and rear reflectors and pedal reflectors on your bike.
- Wear a helmet to protect your head.
- Always use hand signals for slowing down, stopping, or turning.
- Keep both hands on the handlebars except when giving hand signals.
- Ride on the right side of the road with the flow of traffic.
- When riding with others, always ride single file.
- Watch out for people walking.
- Watch out for cars pulling into traffic.
- Watch out for car doors being opened suddenly.
- Slow down before crossing streets.
- Walk your bike across busy street crossings.
- Do not carry other people on your bike.
- Never stunt ride or show off.
- Always lock your bike when not in use.
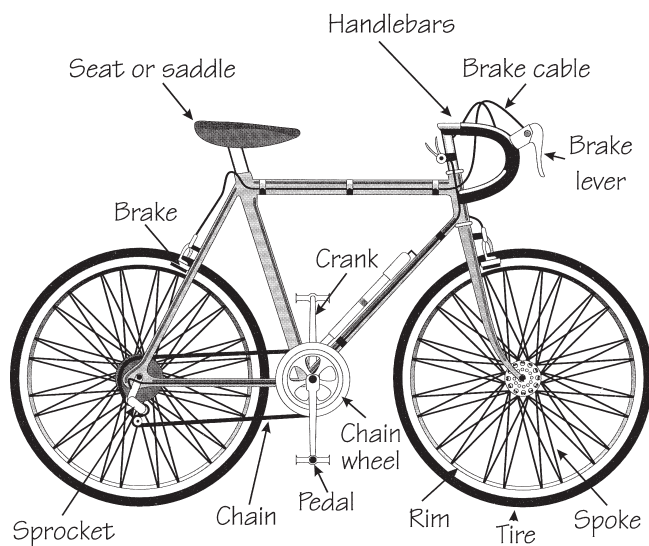


"Bicycle Rules of the Road" from A SOFT PILLOW FOR AN ARMADILLO in HEATH READING by Alvermann, et al. Copyright © 1989 by D.C. Heath & Company. Reprinted by permission of Houghton Mifflin Company. All rights reserved.

## Session 1, Multiple-Choice Questions

**7** The selection "Bicycle Rules of the Road" can best be classified as

✔ A. informational writing.

B. diary writing.

C. poetic writing.

D. descriptive writing.

*Reporting Category/*Learning Standard for Item 7: ***Literature/*Learning Standard 10 (p. 89)**

**8** Which behavior breaks the "Bicycle Rules of the Road"?

A. signaling when you turn left

B. wearing gloves in cold weather

C. riding single file on back roads

✔ D. sharing your seat while you pedal

*Reporting Category/*Learning Standard for Item 8: ***Literature/*Learning Standard 13 (p. 89)**

**9** According to the diagram, the ***sprocket*** is on the

A. handlebars.

B. front wheel.

✔ C. back wheel.

D. pedals.

*Reporting Category/*Learning Standard for Item 9: ***Literature/*Learning Standard 13 (p. 89)**

**10** In the diagram, the ***saddle*** is another word for the

A. brake.

✔ B. seat.

C. gears.

D. handlebars.

*Reporting Category/*Learning Standard for Item 10: ***Literature/*Learning Standard 9 (p. 89)**

**11** As used in the diagram, the word *spoke* is a

✔    A. noun.

     B. verb.

     C. adjective.

     D. pronoun.

*Reporting Category/*Learning Standard for Item 11: ***Language/*Learning Standard 5 (p. 88)**

**12** In the third stanza of the poem, "Michael Built a Bicycle," the word *bumbershoot* most likely means

     A. a door.

     B. an axle.

✔    C. an umbrella.

     D. a curtain.

*Reporting Category/*Learning Standard for Item 12: ***Literature/*Learning Standard 8 (p. 89)**

**13** Why is the first word in each stanza of the poem capitalized?

     A. They are proper nouns.

✔    B. Each begins a sentence.

     C. A section of the poem ends.

     D. A rhyme pattern begins.

*Reporting Category/*Learning Standard for Item 13: ***Language/*Learning Standard 5 (p. 88)**

**14** Michael's bicycle is described as *unsuitable* for speed. This means that the bicycle is

     A. under the speed.

✔    B. not made for speed.

     C. likely to speed.

     D. built to speed.

*Reporting Category/*Learning Standard for Item 14: ***Literature/*Learning Standard 8 (p. 89)**

## Session 1, Open-Response Question

**15** Explain why Michael's bicycle would be unsuitable for speed. Use THREE details from the selections to support your explanation.

*Reporting Category/*Learning Standard for Item 15: ***Literature/*Learning Standard 13 (p. 89)**

*Read the story below about the invention of radio. Then answer the questions that follow.*

■

# The Little Black Box Called Radio

■

**When the English customs officials first saw it,
they thought it might be a bomb or some new spy equipment.
Little did they know that the little black box would revolutionize communications!**
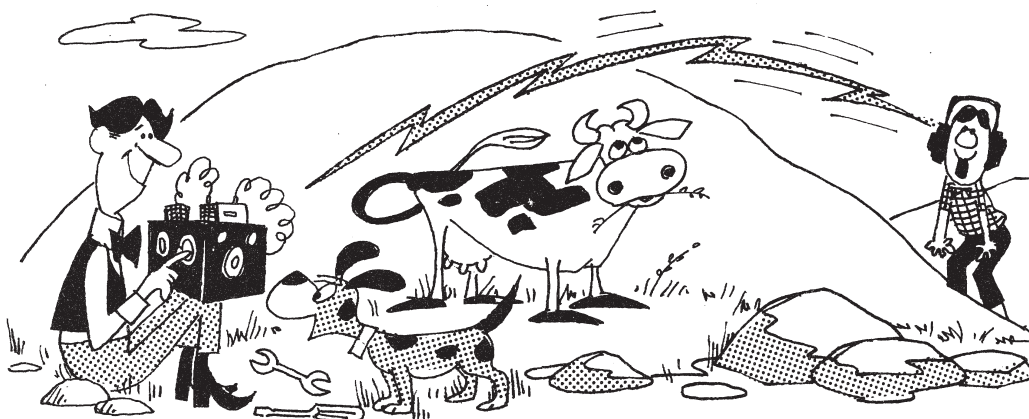
It was the year 1895, and 21-year-old Guglielmo Marconi tried a little experiment in his backyard with the help of his brother, Alfonso. To do it, Marconi used a black box filled with batteries, wires, and dials. With it, he was able to transmit radio signals over a small hill in his home town of Bologna, Italy. This funny-looking little machine was the world's first practical radio.

Marconi's countrymen didn't seem to be interested in his amazing invention. When he tried to sell it to the Italian government, they turned him down. So he left his home town and traveled to England. Customs officials at the English border were suspicious of the black box Marconi was carrying. They nearly took it apart before deciding it was safe to bring into the country.

Marconi's black box impressed the head of the British Navy, and in a short time the inventor was operating his own wireless telegraph company. At first, Marconi's black box was used for ship-to-shore communications, and by 1901 he was able to send a message 3,000 miles across the Atlantic Ocean. The message consisted of the single letter "S".

Meanwhile, people on both sides of the Atlantic were already thinking of the black box as a means of entertainment. On Christmas Eve in 1906, Reginald Aubrey Fessenden of Brant Rock, Massachusetts, became the first radio "disc jockey." His first program had a little something for everyone: Fessenden played the violin, delivered a speech, read from the Bible, and even played

a record. The broadcast carried for only five miles, but that didn't make much difference, for no homes had radios to pick up the signals. The only listeners were nearby ships equipped with Marconi's invention. Fessenden's second broadcast on New Year's Eve was more successful. Due to good weather conditions, the program was heard as far away as the West Indies.

A few years later, another enterprising 21-year-old appeared on the scene. His name was David Sarnoff. Working as a telegraph operator, Sarnoff was the first person to pick up the distress signals from the sinking ship *Titanic*, in 1912. Sarnoff stayed at his post for three days without a break and relayed the *Titanic's* survivor list to the world. It was a dramatic event and gave radio a big boost in publicity.

It also gave Sarnoff a brilliant idea. He suggested to Marconi that a "radio music box" be developed, one which could be placed in the home, like the already-popular phonograph, and be used for entertainment purposes.

Three years later, the first radio corporation of America — RCA — was formed. And in 1920, KDKA in Pittsburgh, the first radio station in the world, hit the air waves.

## Session 1, Multiple-Choice Questions

**16** What important event is shown in the cartoon?

✔ A. Marconi and his brother testing the new invention

    B. English customs officials taking Marconi's radio apart

    C. Reginald Fessenden becoming the first radio "disc jockey"

    D. the broadcast of the *Titanic's* survivor list

*Reporting Category/*Learning Standard for Item 16: ***Literature/*Learning Standard 13 (p. 89)**

**17** The person who had the idea of putting radios in people's homes was

    A. Guglielmo Marconi.

    B. Alfonso Marconi.

    C. Reginald Fessenden.

✔ D. David Sarnoff.

*Reporting Category/*Learning Standard for Item 17: ***Literature/*Learning Standard 9 (p. 89)**

**18** The first radio station in the world was started in

    A. Italy.

    B. the West Indies.

✔ C. the United States.

    D. England.

*Reporting Category/*Learning Standard for Item 18: ***Literature/*Learning Standard 13 (p. 89)**

**19** "The Little Black Box Called Radio" is an example of

    A. drama.

    B. fiction.

✔ C. nonfiction.

    D. poetry.

*Reporting Category/*Learning Standard for Item 19: ***Literature/*Learning Standard 10 (p. 89)**

## Session 2, Reading Selection #1

*Read this selection about a valuable plant then answer the questions that follow.*

# COTTON

from *Unraveling Fibers*

by Patricia A. Keeler and Francis X. McCall, Jr.

Students read a passage titled "Cotton" and then answered
questions 20 through 28.
Due to copyright restrictions, the passage cannot be released to the public
in this document.

**Reading Passage:**

## Session 2, Multiple-Choice Questions

**20** The MAIN purpose of this selection is to

   A. convince the reader to buy cotton products.

   B. describe the beauty of the cotton plant and its blossoms.

   C. describe the cotton picker and cotton gin.

✔   D. tell the reader how cotton is grown and harvested.

*Reporting Category/*Learning Standard for Item 20: ***Literature/*Learning Standard 10 (p. 89)**

**21** In the sentence, "When a cotton plant is about two months old, it begins to bloom," the pronoun ***it*** replaces the word

   A. boll.

✔   B. plant.

   C. months.

   D. bloom.

*Reporting Category/*Learning Standard for Item 21: ***Language/*Learning Standard 5 (p. 88)**

**22** Cotton fibers form around the

   A. bolls.

   B. pink flowers.

   C. stem of the plants.

✔   D. cottonseeds.

*Reporting Category/*Learning Standard for Item 22: ***Literature/*Learning Standard 9 (p. 89)**

**23** Farmers know that it is time to pick cotton when it

   A. turns pink.

✔   B. dries and fluffs out.

   C. forms a boll.

   D. falls off the plant.

*Reporting Category/*Learning Standard for Item 23: ***Literature/*Learning Standard 13 (p. 89)**

24 Cotton is harvested in the

✔     A.  fall.

      B.  winter.

      C.  spring.

      D.  summer.

*Reporting Category/*Learning Standard for Item 24: ***Literature/***Learning Standard 9 (p. 89)

25 The MAIN purpose of the pictures in this selection is to

      A.  illustrate how cotton is planted.

      B.  display the beauty of the cotton plant.

✔     C.  show the stages of growth of cotton.

      D.  demostrate how cotton is picked.

*Reporting Category/*Learning Standard for Item 25: ***Literature/***Learning Standard 13 (p. 89)

26 What does the cotton gin do?

      A.  It rinses the cotton clean.

      B.  It picks the cotton.

✔     C.  It separates fibers from seeds.

      D.  It bales the cotton.

*Reporting Category/*Learning Standard for Item 26: ***Literature/***Learning Standard 9 (p. 89)

27 The many twists in the cotton fiber makes cotton

      A.  expensive.

      B.  warm.

✔     C.  stretchy.

      D.  scratchy.

*Reporting Category/*Learning Standard for Item 27: ***Literature/***Learning Standard 9 (p. 89)

## Session 2, Open-Response Question

28  In your own words, explain how cotton grows from seed to harvest. Use specific information from the selection in your answer.

*Reporting Category/*Learning Standard for Item 28: ***Literature/*Learning Standard 13 (p. 89)**

## Session 3, Reading Selection #1

*The introduction below is told by a man called Uncle Karl who lived at the same time as Beethoven. The letters that follow were exchanged between Uncle Karl and his nephew, Christoph. Read the introduction and the letters and answer the questions that follow.*

*From*
# *Beethoven Lives Upstairs*
*by Barbara Nichol*

Students read a passage titled "Beethoven Lives Upstairs" and then answered questions 29 through 37.
Due to copyright restrictions, the passage cannot be released to the public in this document.

**Reading Passage:**

## Session 3, Multiple-Choice Questions

**29** What part of speech is the word *flooded* in the phrase ". . . the people of Vienna flooded into the streets"?

A. noun

✔ B. verb

C. preposition

D. adjective

*Reporting Category/*Learning Standard for Item 29: *Language/***Learning Standard 5 (p. 88)**

**30** Why is Ludwig van Beethoven still famous more than 150 years after his death?

A. He was a great church man.

B. Many people still read his books.

✔ C. He was a great composer.

D. Christoph wrote letters about him.

*Reporting Category/*Learning Standard for Item 30: *Literature/***Learning Standard 9 (p. 89)**

**31** In the introduction, we learn that nine priests blessed Beethoven's coffin. This helps the reader conclude that Beethoven was

A. old.

B. clever.

C. deaf.

✔ D. important.

*Reporting Category/*Learning Standard for Item 31: *Literature/***Learning Standard 12 (p. 89)**

**32** Christoph's uncle said he was surprised that his nephew had written to him. Why did Christoph write to his uncle?

    A. Christoph wanted to help his uncle.

✔    B. He wanted his uncle's help.

    C. He did not have any friends.

    D. Bonn was his favorite city.

*Reporting Category/*Learning Standard for Item 32: ***Literature/*Learning Standard 12 (p. 89)**

**33** Which term best describes the TONE of Christoph's letter to his uncle?

    A. humorous

✔    B. serious

    C. sarcastic

    D. cheerful

*Reporting Category/*Learning Standard for Item 33: ***Literature/*Learning Standard 15 (p. 89)**

**34** In Christoph's letter, the words "Dear Uncle" are the part of a letter called

    A. the body.

✔    B. the greeting.

    C. the heading.

    D. the closing.

*Reporting Category/*Learning Standard for Item 34: ***Literature/*Learning Standard 13 (p. 89)**

**35** The phrase "dreadful noise" is found in the third paragraph of Christoph's letter. What does the word ***dreadful*** mean?

    A.  hopeful

    B.  careful

✔   C.  awful

    D.  helpful

*Reporting Category/*Learning Standard for Item 35: ***Literature/*Learning Standard 8 (p. 89)**

**36** According to Uncle Karl, what accounts for Beethoven's strange behavior?

    A.  The twins cry all day.

    B.  He misses Bonn, his hometown.

    C.  The weather bothers him.

✔   D.  He is working on a symphony.

*Reporting Category/*Learning Standard for Item 36: ***Literature/*Learning Standard 9 (p. 89)**

## Session 3, Open-Response Question

**37** Describe what the reader can learn about Ludwig van Beethoven from Uncle Karl's introduction and the letters. Use THREE details from the introduction and the letters in your answer.

*Reporting Category/*Learning Standard for Item 37: ***Literature/*Learning Standard 12 (p. 89)**

**Session 3, Reading Selection #2**

*Read the short fable below and answer the questions that follow.*

# The Dove and The Ant

by Aesop

An Ant was speeding along on its three pair of legs when suddenly, it stopped.

"I'm thirsty," the Ant said aloud.

"Why don't you get a drink of water from the brook?" cooed a Dove perched in a nearby tree. "The brook is close by. Just be careful you don't fall in."

The Ant sped to the brook and began to drink.

A sudden wind blew the Ant into the water.

"Help!" the Ant cried, "I'm drowning!"

The Dove knew it had to act quickly to save the Ant. With its beak, the Dove broke a twig from the tree. Then, the Dove flew over the brook with the twig and dropped it to the Ant.

The Ant climbed onto the twig and floated ashore.

Not long afterward, the Ant saw a Hunter. He was setting a trap to catch the Dove.

The Dove began to fly toward the trap.

The Ant knew it had to act quickly to save the Dove.

The Ant opened its strong jaws and bit the bare ankle of the Hunter.

"Ouch!" the Hunter cried.

The Dove heard the Hunter and flew away.

*One good turn deserves another.*
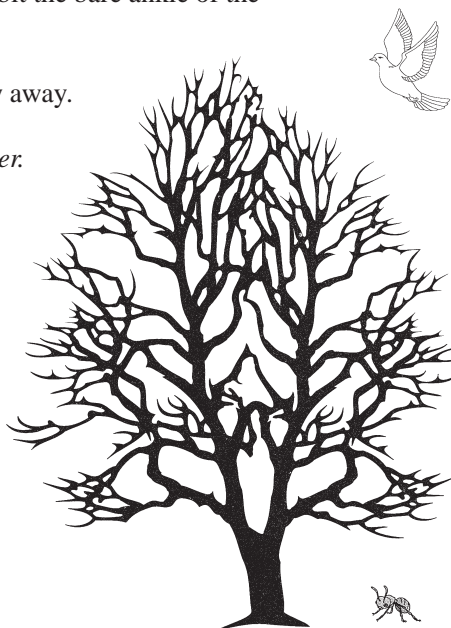
## Session 3, Multiple-Choice Questions

**38** The Ant had to act quickly because

✔ A. the Dove was flying toward the trap.

B. the Hunter was running away.

C. it wanted to show it was brave.

D. it might drop the twig.

*Reporting Category/*Learning Standard for Item 38: ***Literature/*Learning Standard 9 (p. 89)**

> Why don't you get a drink of water from the brook?

**39** In the sentence above, the punctuation mark used after the word ***brook*** shows the sentence is

A. a statement.

✔ B. a question.

C. an exclamation.

D. a command.

*Reporting Category/*Learning Standard for Item 39: ***Language/*Learning Standard 5 (p. 88)**

**40** Which word helps the reader HEAR what the word means?

A. bit

B. flew

✔ C. cooed

D. act

*Reporting Category/*Learning Standard for Item 40: ***Literature/*Learning Standard 15 (p. 89)**

**41** The reader can tell that this selection is a fable because it contains

   A.  dialogue and action.

✔  B.  talking animals and a moral.

   C.  easy words and short sentences.

   D.  an insect, a bird, and a hunter.

*Reporting Category/*Learning Standard for Item 41: ***Literature/**Learning Standard 10 (p. 89)*

# V. English Language Arts, Grade 7

## A. Composition
## B. Language and Literature

# English Language Arts, Grade 7
# A. Composition

The spring 2001 MCAS English Language Arts Composition test was based on the learning standards of the *Composition* strand of the Massachusetts *English Language Arts Curriculum Framework* (1997).

# Curriculum Framework *Learning Standards*

The learning standards for the *Composition* strand are listed below and are directly quoted from the *Framework;* applicable *Framework* page numbers are shown in parentheses.

## Composition (*Framework,* pp. 56–60)

### Learning Standard 19

Students will write compositions with a clear focus, logically related ideas to develop it, and adequate detail.

### Learning Standard 20

Students will select and use appropriate genres, modes of reasoning, and speaking styles when writing for different audiences and rhetorical purposes.

### Learning Standard 21

Students will demonstrate improvement in organization, content, paragraph development, level of detail, style, tone, and word choice (diction) in their compositions after revising them.

### Learning Standard 22

Students will use knowledge of standard English conventions to edit their writing.

# MCAS Reporting Category

In *Test Item Analysis Reports* and on the *Subject Area Subscore* pages of the MCAS *School* and *District Reports,* ELA Composition test results are reported under the MCAS reporting category of Composition.

# MCAS Spring 2001 Common Test Items
# ELA Composition, Grade 7

## Test Sessions

MCAS ELA Composition Student Test Booklets included 2 separate test sessions, administered on the same day with a short break between sessions. During the first session, each student wrote a first draft of a composition in response to the following writing prompt. During the second session, each student revised his/her first draft and submitted his/her second draft for scoring.

## Reference Materials and Tools

At least one dictionary per classroom was provided for student use during ELA Composition test sessions. No other reference materials or tools were allowed during either ELA Composition test session.

## Cross-Reference Information

The shaded bar following the writing prompt indicates this item's MCAS reporting category and which *Framework* learning standards it assesses.

## Grade 7 Writing Prompt

**WRITING ASSIGNMENT**

Age has a funny way of making changes. It is probably easy for you to look back and see that you and your friends have made some major changes since you left the elementary grades. Your teachers and friends may be different, your school may be different, and some of your interests are probably different.

Think back to fourth grade and describe how school has changed for you as a seventh grader.

*Reporting Category/*Learning Standard for Item 1: ***Composition/*Learning Standards 19-22 (p. 119)**

## Grade 7 Make-up Prompt

**WRITING ASSIGNMENT**

The editors of a new magazine for young adults have contacted your school. They are looking for a variety of appealing descriptions of memorable characters or people. These descriptions will appear in the first issue of this magazine. You are invited to submit a description of the most memorable character or person that you have ever met or read about.

The editors are looking for descriptions that make the character or person come alive for the audience.

*Reporting Category/*Learning Standard for Item 1 (Make-up Prompt): ***Composition/*Learning Standards 19-22 (p. 119)**

# English Language Arts, Grade 7
## B. Language and Literature

The spring 2001 MCAS English Language Arts Language and Literature test was based on the learning standards of two content strands of the Massachusetts *English Language Arts Curriculum Framework* (1997):

▮ Language

▮ Literature

## Curriculum Framework *Learning Standards*

The learning standards for the *Language* and *Literature* strands are listed below and are directly quoted from the *Framework;* applicable *Framework* page numbers are shown in parentheses.

### Language (*Framework,* pp. 28–31)

**Learning Standard 4**

Students will acquire and use correctly an advanced reading vocabulary of English words, identifying meanings through an understanding of word relationships.

**Learning Standard 5**

Students will identify, describe, and apply knowledge of the structure of the English language and standard English conventions for sentence structure, usage, punctuation, capitalization, and spelling.

**Learning Standard 6**

Students will describe and analyze how oral dialects differ from each other in English, how they differ from written standard English, and what role standard American English plays in informal and formal communication.

**Learning Standard 7**

Students will describe and analyze how the English language has developed and been influenced by other languages.

# Literature (*Framework,* pp. 38–50)

### Learning Standard 8

Students will decode accurately and understand new words encountered in their reading materials, drawing on a variety of strategies as needed, and then use these words accurately in . . . writing.

### Learning Standard 9

Students will identify the basic facts and essential ideas in what they have read, heard, or viewed.

### Learning Standard 10

Students will identify, analyze, and apply knowledge of the characteristics of different genres.

### Learning Standard 11

Students will identify, analyze, and apply knowledge of theme in literature and provide evidence from the text to support their understanding.

### Learning Standard 12

Students will identify, analyze, and apply knowledge of the structure and elements of fiction and provide evidence from the text to support their understanding.

### Learning Standard 13

Students will identify, analyze, and apply knowledge of the structure, elements, and meaning of nonfiction or informational material and provide evidence from the text to support their understanding.

### Learning Standard 14

Students will identify, analyze, and apply knowledge of the structure, elements, and theme of poetry and provide evidence from the text to support their understanding.

### Learning Standard 15

Students will identify and analyze how an author's choice of words appeals to the senses, creates imagery, suggests mood, and sets tone.

**Learning Standard 16**

Students will compare and contrast similar myths and narratives from different cultures and geographic regions.

**Learning Standard 17**

Students will interpret the meaning of literary works, nonfiction, films, and media by using different critical lenses and analytic techniques.

# MCAS Reporting Categories

In *Test Item Analysis Reports* and on the *Subject Area Subscore* pages of the MCAS *School* and *District Reports,* ELA Language and Literature test results are reported under the following two MCAS reporting categories:

▌Language

▌Literature

# MCAS Spring 2001 Common Test Items
## ELA Language and Literature, Grade 7

## Test Sessions

MCAS ELA Language and Literature Student Test Booklets included 3 separate test sessions. Each session included selected readings, followed by multiple-choice and open-response questions.

## Reference Materials and Tools

No reference materials or tools were allowed during any ELA Language and Literature test session.

## Cross-Reference Information

The shaded bar underneath each item indicates the item's MCAS reporting category and which *Framework* learning standard it assesses. The parentheses indicate the page in this document where the learning standard may be found.

## Session 1, Reading Selection #1

*In 1947 Jackie Robinson signed with the Brooklyn Dodgers and became the first African American to play major league baseball. In* I Never Had It Made, *he describes both his professional and his personal life. The excerpt below describes a time during his first season with the Dodgers. As you read it, think about what it tells about Jackie Robinson's character. Read the excerpt and use the information from the excerpt to answer the questions that follow.*

# I Never Had It Made

BY JACKIE ROBINSON

Students read a passage titled *I Never Had it Made* and then answered

questions 2 through 8.

Due to copyright restrictions, the passage cannot be released to the public

in this document.

**Reading Passage:**

© 2000 Rachel Robinson under license by CMG Worldwide.

## Session 1, Multiple-Choice Questions

*Use the definitions below to answer question 2.*

> **accommodate** *v.* **1.** hold; have room for: *This automobile is large enough to accommodate 6 adults.* **2.** help out; oblige: *I needed directions to the mall, but no one could accommodate me.* **3.** supply with a place to live for a time: *Tourists are accommodated here.* **4.** make suitable; adjust: *She accommodated herself well to her new surroundings.*

**2** In paragraph 1, Robinson says the "Benjamin Franklin Hotel . . . refused to accommodate me." What is the **best** definition of *accommodate* as it is used in this sentence?

   A. definition 1

   B. definition 2

✔    C. definition 3

   D. definition 4

*Reporting Category/*Learning Standard for Item 2: ***Literature/**Learning Standard 8 (p. 123)*

**3** Robinson was surprised that Pee Wee Reese was friendly mostly because Robinson

   A. wanted to be a team captain.

✔    B. was rumored to be Reese's replacement.

   C. was shorter than Reese.

   D. received a large bonus.

*Reporting Category/*Learning Standard for Item 3: ***Literature/**Learning Standard 9 (p. 123)*

**4** Paragraph 4 begins with the sentence, "Reese's tolerant attitude of withholding judgment to see if I would make it was translated into positive support soon after we became teammates." Which sentence below comes closest to expressing the same idea?

   A. "Reese tolerated me only when he realized we would be teammates, whether he liked it or not."

   B. "Reese and I had a hard time communicating until someone translated what he was saying to me."

   C. "When Reese first met me, he tried his best to ignore me, but eventually he accepted my being there."

✔   D. "At first Reese simply left me alone, but soon he actively helped me."

*Reporting Category/*Learning Standard for Item 4: ***Literature/*Learning Standard 13 (p. 123)**

**5** What was the result of Reese's putting his arm around Robinson?

✔   A. The heckling stopped at that game.

   B. No one ever heckled Robinson again.

   C. Robinson could stay at any hotel he wanted.

   D. Both Reese and Robinson were heckled from then on.

*Reporting Category/*Learning Standard for Item 5: ***Literature/*Learning Standard 9 (p. 123)**

**6** What is the **main** subject of this excerpt?

    A. the abuse Robinson took when he became a Dodger

    B. the difficulties of breaking into major league baseball

    C. the evils caused when fans heckle players

✔    D. the beginning of a friendship between Robinson and Reese

*Reporting Category/*Learning Standard for Item 6: ***Literature/*Learning Standard 13 (p. 123)**

**7** "I Never Had It Made" is considered an autobiography because it

    A. tells what life was like in the past.

✔    B. was written by the person it is about.

    C. is a true story.

    D. was written about a real person.

*Reporting Category/*Learning Standard for Item 7: ***Literature/*Learning Standard 10 (p. 123)**

## Session 1, Open-Response Question

8 What does Jackie Robinson reveal about himself and his attitude toward life in this excerpt? Use information from the story to support your answer.

*Reporting Category/*Learning Standard for Item 8: ***Literature/*Learning Standard 13 (p. 123)**

## Session 1, Reading Selection #2

*In this poem, a song takes the poet to a new place. Can you tell where that is? Read the poem below. Use the information from the poem to answer the questions that follow.*

### I ASK MY MOTHER TO SING

She begins, and my grandmother joins her.
Mother and daughter sing like young girls.
If my father were alive, he would play
his accordion and sway like a boat.

5    I've never been in Peking, or the Summer Palace,
nor stood on the great Stone Boat to watch
the rain begin on Kuen Ming Lake, the picnickers
running away in the grass.

But I love to hear it sung;
10   how the waterlilies fill with rain until
they overturn, spilling water into water,
then rock back, and fill with more.

Both women have begun to cry.
But neither stops her song.

*—Li-Young Lee*

## Session 1, Multiple-Choice Questions

**9** The grandmother and mother sing a song about

✔ A. fond memories.

B. tragic events in the past.

C. the father riding on a boat.

D. waterlilies made of stone.

*Reporting Category/*Learning Standard for Item 9: ***Literature/*Learning Standard 14 (p. 123)**

**10** In line 1, the pronoun "she" refers to the

A. poet.

B. grandmother in the poem.

C. young girl.

✔ D. mother in the title.

*Reporting Category/*Learning Standard for Item 10: ***Language/*Learning Standard 5 (p. 122)**

**11** In line 11, the phrase "spilling water into water" describes

A. the mirroring effect of water in a lake.

B. raindrops falling into waterlilies.

✔ C. water falling from a waterlily into a lake.

D. raindrops falling into a lake.

*Reporting Category/*Learning Standard for Item 11: ***Literature/*Learning Standard 15 (p. 123)**

**12** What makes "I Ask My Mother to Sing" a poem?

✔ A. It is written in verse form.

B. It is very short.

C. It tells about people singing.

D. It tells an interesting story.

*Reporting Category/*Learning Standard for Item 12: ***Literature/*Learning Standard 10 (p. 123)**

## Session 1, Open-Response Question

**13** Why do you think the women continue to sing their song even though they have begun to cry? Use information from the poem to support your answer.

*Reporting Category/*Learning Standard for Item 13: *Literature/***Learning Standard 14 (p. 123)**

## Session 1, Reading Selection #3

*Not only are dolphins acrobats in the water, they love music, at least according to this legend of ancient Greece. Read the legend below. Use the information from the legend to answer the questions that follow.*

### Arion and the Dolphin

a legend from Ancient Greece retold by Norah Montgomerie

Students read a passage titled "Arion and the Dolphin" and then answered questions 14 through 18.

Due to copyright restrictions, the passage cannot be released to the public in this document.

**Reading Passage:**

"Arion and the Dolphin" retold by Norah Montgomerie in TO READ AND TO TELL. Published by Bodley Head.

## Session 1, Multiple-Choice Questions

**14** In the first sentence, which word is a **pronoun** that refers to Arion?

A. musician

B. wherever

✔ C. he

D. people

*Reporting Category/*Learning Standard for Item 14: ***Language/*Learning Standard 5 (p. 122)**

**15** Arion thought he should go to the music competition because he wanted to

A. make the king proud of him by winning.

B. win the bag of gold.

✔ C. compete against other fine musicians.

D. visit Sicily and travel on the king's ship.

*Reporting Category/*Learning Standard for Item 15: ***Literature/*Learning Standard 9 (p. 123)**

**16** In refusing to remain in Sicily after the competition, Arion showed that he

A. was stubborn.

B. missed his home.

C. was foolish.

✔ D. kept his word.

*Reporting Category/*Learning Standard for Item 16: ***Literature/*Learning Standard 12 (p. 123)**

**17** The captain and crew of the ship decided to kill Arion because of their

✔ A. greed and mistrust.

B. hatred and revenge.

C. disappointment.

D. ignorance.

*Reporting Category/*Learning Standard for Item 17: ***Literature/*Learning Standard 12 (p. 123)**

**18** What characteristic theme of legends can be found in this story?

✔ A. A hero is helped or saved by unusual forces or in unexpected ways.

B. A hero must complete a series of tasks to save his or another's life.

C. A hero travels under a disguise so that no one can recognize him.

D. A hero does a kindness for another that later is returned to him.

*Reporting Category/*Learning Standard for Item 18: ***Literature/*Learning Standard 16 (p. 124)**

## Session 2, Reading Selection #1

*This chapter from a book titled* Maud Martha *by Gwendolyn Brooks tells how the girls and their mother feel about Papa and their home. Read the chapter below. Use the information from the chapter to answer the questions that follow.*

# home

by Gwendolyn Brooks

Students read a passage titled "home" and then answered

questions 19 through 26.

Due to copyright restrictions, the passage cannot be released to the public

in this document.

**Reading Passage:**

From "Maud Martha." © 1991 Gwendolyn Brooks. Published by THIRD WORLD PRESS, Chicago.

## Session 2, Multiple-Choice Questions

**19** In paragraph 3, what is implied by the sentence, "Those flats, as the girls and Mama knew well, were burdens on wages twice the size of Papa's"?

✔ A. The family could not afford to move to the nicer flats.

B. Mama did not want to talk about the flats any more.

C. The flats were not as nice as the house.

D. The family members were not saying how they really felt.

*Reporting Category/*Learning Standard for Item 19: ***Literature/*Learning Standard 11 (p. 123)**

**20** "The rain would drum with as sweet a dullness nowhere but here." What part of speech is *drum* in this sentence?

A. adjective

B. noun

✔ C. verb

D. adverb

*Reporting Category/*Learning Standard for Item 20: ***Language/*Learning Standard 5 (p. 122)**

**21** Reread paragraphs 6 through 8. What is the mistake referred to in these paragraphs?

A. Mama did not want Maud Martha's help in keeping the house warm.

✔ B. Maud Martha had pointed out one of the things they would miss.

C. Mama and Helen did not understand what Maud Martha said.

D. Maud Martha had criticized the house.

*Reporting Category/*Learning Standard for Item 21: ***Literature/*Learning Standard 9 (p. 123)**

**22** In paragraph 18, what feeling do the words "hurl" and "shake" show about the three who waited for Papa?

✔   A. their anxiety to learn his news

     B. their admiration of his calmness and patience

     C. their anger at having to wait so long

     D. their sadness at the thought of leaving their home

*Reporting Category/*Learning Standard for Item 22: ***Literature/*Learning Standard 15 (p. 123)**

**23** In paragraph 21, "Her eyes were lamps turned on" is an example of

✔   A. metaphor.

     B. onomatopoeia.

     C. alliteration.

     D. simile.

*Reporting Category/*Learning Standard for Item 23: ***Literature/*Learning Standard 15 (p. 123)**

**24** The suspense of this excerpt centers on whether

     A. the family can find a nice flat in a good neighborhood.

     B. Maud Martha can convince the family to stay.

     C. Mama and Helen will come to love the house.

✔   D. Papa can get an extension on the home loan.

*Reporting Category/*Learning Standard for Item 24: ***Literature/*Learning Standard 12 (p. 123)**

**25** What is the **main** point of this chapter?

     A. Family members should learn to get along with each other.

     B. Some people are never satisfied with what they have.

✔   C. People often attempt to make the best of a difficult situation.

     D. Change is often an exciting part of life.

*Reporting Category/*Learning Standard for Item 25: ***Literature/*Learning Standard 11 (p. 123)**

## Session 2, Open-Response Question

26  Helen's words at the end of the chapter contradict her previous statements about moving. Explain how and why Helen's statements change. Use information from the story to support your answer.

*Reporting Category/*Learning Standard for Item 26: ***Literature/*Learning Standard 12 (p. 123)**

*In "The Mid-Atlantic Ridge," legend and myth are mixed with science—with interesting results!
Read the article below. Use the information from the article to answer the questions that follow.*

## THE MID-ATLANTIC RIDGE
### by Kathryn Lasky

1   No creature from literature has been called more rotten names than the Midgard Serpent. Ugly Ring, Water-soaked Earth Band, Deadly-cold Serpent, and Twisted Bay-Menacer are but a few of the insulting names given it by the Norse saga writers. Earth scientists simply call it the Mid-Atlantic Ridge. It is a geologic reality, not a fictional creature.

2   The Mid-Atlantic Ridge is a submarine ridge that belts the earth along the middle of the ocean floor from the Arctic to the Antarctic. In only one place on its route, however, does the ridge heave itself out of the ocean. That place is Iceland, and its location explains why Iceland has so many volcanic eruptions. The country is situated smack in the middle of the serpent's course. And wherever the serpent twitches, the earth convulses—the ocean explodes and fire is spit into the sky.

3   This is why: The earth is a sphere made up of layers. The top layer is the crust, where life occurs. Humans, animals, plants live here. Not all of the crust is visible, however; some of it is covered with oceans and soil. The crust, scientists have learned, is not just one whole chunk. Similar to a jigsaw puzzle, it is made up of pieces called plates. The layer beneath the crust is the mantle. The mantle is made up of hot rock, and nothing can live there.

4   Hot rock is also called *molten rock*, or *magma*, and it can flow like hot tar. Although it is hard to imagine, the crust where we live actually floats on this deep, deep sea of molten hot rock. The plates of the crust then sail about like little ships on a sea of tar. They do not sail quickly—just a few inches every year—and their cargo is whatever is on top of them—oceans, islands, or even entire continents.

5   In places called *rifts* the plates tear apart from each other. Then molten rock in the mantle sometimes squishes out of the rift. Over hundreds of thousands of years, molten rock, welling up from the rifts under the sea, has hardened into a series of ridges. These ridges run like a belt, a seam, or, some might say, a serpent across the floor of the earth's ocean all around the globe. In the Mid-Atlantic Ridge the plates move apart. In the mid-ocean ridge of the Pacific the plates collide, with one sliding under another. Whether the plates pull apart or collide, the result is the same— magma from the earth's mantle wells up, causing volcanic eruptions and adding mass to the trailing edges of the plates.

SEA LEVEL

MAGMA

PLATES

MOLTEN ROCK RISING
FROM THE MANTLE
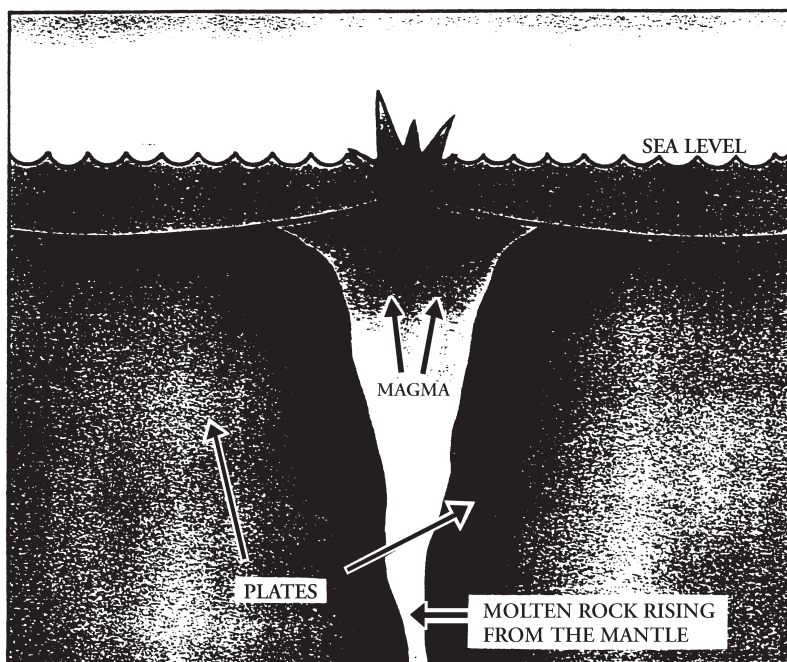
6    Such volcanic activity—both beneath the surface of the sea and on dry land—has been recorded from the time the Viking sailors plied the icy waters in their slender dragon ships, more than a thousand years ago. In the 10,000 to 15,000 years since the last ice age, more than 150 volcanoes have been active in Iceland. Lava covers nearly one-tenth of the country's surface. As far back as the sixth century, Irish monks who found their way to Iceland in leather boats described flames leaping from the sea, which could only be the fires of submarine volcanic eruptions.

7    In Iceland everyone—including scientists—knows the sagas, the stories of their ancestors. These tales of the violence and the turmoil of the Norsemen's world, their warlike gods, their giant beasts that spit fire, seem to fit the geologic turmoil of the land. Although scientists know it is a ridge, they often call it a serpent, and they are alert to every wiggle: they know that when the serpent twitches extraordinary events can happen.

## Session 3, Multiple-Choice Questions

**27** The writer's purpose in writing this article was to

A. instruct the reader about how to locate the Mid-Atlantic Ridge on a map.

B. persuade the reader that the Midgard Serpent is the Mid-Atlantic Ridge.

C. entertain the reader with stories, myths, and legends.

✔ D. inform the reader about the Mid-Atlantic Ridge.

*Reporting Category/*Learning Standard for Item 27: ***Literature/*Learning Standard 10 (p. 123)**

**28** In paragraph 2, the expression "the serpent twitches" represents what event?

A. the ocean surging up on the land

B. the Midgard Serpent flying into a rage

✔ C. the plates of earth's crust tearing apart from each other

D. the molten rock flowing into the water

*Reporting Category/*Learning Standard for Item 28: ***Literature/*Learning Standard 15 (p. 123)**

*Use the dictionary entry below to answer question 37.*

**belt**: *v* **1.** to encircle or fasten with a belt. **2.** to beat with or as if with a belt. **3.** to sing in a forceful manner or style. **4.** to move or act in a speedy, vigorous, or violent manner.

**29** Which definition **most closely** matches the meaning of *belts* as it is used in paragraph 2?

✔ A. definition 1

B. definition 2

C. definition 3

D. definition 4

*Reporting Category/*Learning Standard for Item 29: ***Language/*Learning Standard 4 (p. 122)**

**30** "Whether the plates pull apart or collide . . ." The word *collide* in this phrase from paragraph 5 means

✔  A.  hit.

  B.  separate.

  C.  sink.

  D.  rise.

**31** "As far back as the sixth century . . ." The word *sixth* in this phrase from paragraph 6 is what part of speech?

  A.  noun

  B.  pronoun

✔  C.  adjective

  D.  adverb

**32** The flames leaping from the sea that were observed by Irish monks were **most likely**

  A.  the sun's reflection on the ocean surface.

  B.  eruptions from distant Iceland.

✔  C.  underwater volcanoes exploding above the water's surface.

  D.  rafts of molten lava floating on the sea.

**33** The purpose of the diagram provided with the article is to show the

    A. location of the Mid-Atlantic Ridge.

    B. formation of Iceland.

    C. layers of the earth in order.

✔    D. results of plate movement in the crust.

*Reporting Category/*Learning Standard for Item 33: ***Literature/*Learning Standard 13 (p. 123)**

**34** "The plates of the crust then sail about like little ships on a sea of tar." What purpose does this comparison serve?

✔    A. It provides a visual image for what the author is describing.

    B. It suggests some of the dangers of earth's crust.

    C. It makes it seem as if earth's crust is an ocean.

    D. It shows that magma is hot.

*Reporting Category/*Learning Standard for Item 34: ***Literature/*Learning Standard 15 (p. 123)**

**Session 3, Open-Response Question**

35  Why do people living in Iceland have a particular interest in the Mid-Atlantic Ridge? Use information from the article to support your answer.

*Reporting Category/*Learning Standard for Item 35: ***Literature/*Learning Standard 13 (p. 123)**

*In 1848, Abraham Lincoln was a 38-year-old lawyer in Springfield, Illinois. His stepmother, Sally Bush Lincoln, was then living on a farm in Coles County, Illinois, with her son Johnston and his family. Having trouble making ends meet, Johnston wrote to Lincoln for a loan. As you read the letter, decide why Abraham Lincoln makes an unusual offer to his stepbrother. Read the letter below. Answer the questions that follow.*

# ABRAHAM LINCOLN DENIES A LOAN

Students read a passage titled "Abraham Lincoln Denies a Loan" and then

answered questions 36 through 41.

Due to copyright restrictions, the passage cannot be released to the public

in this document.

**Reading Passage:**

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by William J. Bennett. Copyright © 1993 by William J. Bennett.

## Session 3, Multiple-Choice Questions

**36** Why does Lincoln suggest that Johnston should mend his ways for his children's sake?

   A. Johnston needs to supply them with a crop.

✔   B. Johnston provides a poor example to follow.

   C. Johnston is spending their money.

   D. Johnston will live as long as they do.

*Reporting Category/*Learning Standard for Item 36: ***Literature/*Learning Standard 13 (p. 123)**

**37** Lincoln points out that his offer is better than a loan because Johnston will

   A. be able to keep his land.

   B. have three times as much money in the end.

✔   C. have changed his life for the better.

   D. be thought of as a man who cannot pay his debts.

*Reporting Category/*Learning Standard for Item 37: ***Literature/*Learning Standard 9 (p. 123)**

**38** "If you can't now live *with* the land, how will you then live without it?" The purpose of the italicized word in this sentence is to emphasize an

✔   A. important idea.

   B. unfinished thought.

   C. unpleasant situation.

   D. unusual word.

*Reporting Category/*Learning Standard for Item 38: ***Language/*Learning Standard 5 (p. 122)**

**39** Why does Lincoln suggest in his letter that lending the money based on the deed to Johnston's land would not be a good idea?

    A. It would not provide enough money to get Johnston out of debt.

    B. Lincoln really does not want the farmland Johnston offers in return for the money.

    C. If Lincoln did lend the money, it would ruin Johnston's reputation.

✔    D. It would only be a temporary solution for Johnston's problems.

*Reporting Category/*Learning Standard for Item 39: ***Literature/*Learning Standard 9 (p. 123)**

**40** What does Lincoln mean that his advice is worth "eight times eighty dollars"?

    A. Johnston should be willing to pay Lincoln back all the money he owes him after he gets some money saved.

✔    B. Johnston will be far better off going along with Lincoln's proposal than simply getting a loan.

    C. Johnston will receive from Lincoln eight dollars for every dollar earned.

    D. Johnston will be able to make $640 in the next year, if he works hard.

*Reporting Category/*Learning Standard for Item 40: ***Literature/*Learning Standard 15 (p. 123)**

**41** Which of the following quotes would Lincoln **most likely** have used in his letter to Johnston?

    A. "There are no secrets better kept than the secrets that everybody guesses."
                 *— George Bernard Shaw*

    B. "People who know little are usually great talkers, while men who know much say little."
                  *— Jean-Jacques Rousseau*

✔    C. "If little labor, little are the gains; man's fortunes are according to his pains."
                  *— Robert Herrick*

    D. "Don't throw stones at your neighbors, if your own windows are glass."
                  *— Benjamin Franklin*

*Reporting Category/*Learning Standard for Item 41: ***Literature/*Learning Standard 13 (p. 123)**

# VI. English Language Arts, Grade 8

## A. Composition
## B. Language and Literature

# English Language Arts, Grade 8
# A. Composition

The spring 2001 MCAS English Language Arts Composition test was based on the learning standards of the *Composition* strand of the Massachusetts *English Language Arts Curriculum Framework* (1997).

## Curriculum Framework *Learning Standards*

The learning standards for the *Composition* strand are listed below and are directly quoted from the *Framework;* applicable *Framework* page numbers are shown in parentheses.

### Composition (*Framework,* pp. 56–60)

**Learning Standard 19**

Students will write compositions with a clear focus, logically related ideas to develop it, and adequate detail.

**Learning Standard 20**

Students will select and use appropriate genres, modes of reasoning, and speaking styles when writing for different audiences and rhetorical purposes.

**Learning Standard 21**

Students will demonstrate improvement in organization, content, paragraph development, level of detail, style, tone, and word choice (diction) in their compositions after revising them.

**Learning Standard 22**

Students will use knowledge of standard English conventions to edit their writing.

## MCAS Reporting Category

In *Test Item Analysis Reports* and on the *Subject Area Subscore* pages of the MCAS *School* and *District Reports,* ELA Composition test results are reported under the MCAS reporting category of *Composition*.

# MCAS Spring 2001 Common Test Items
# Composition, Grade 8

## Test Sessions

MCAS ELA Composition Student Test Booklets included 2 separate test sessions, administered on the same day with a short break between sessions. During the first session, each student wrote a first draft of a composition in response to the following writing prompt. During the second session, each student revised his/her first draft and submitted his/her second draft for scoring.

## Reference Materials and Tools

At least one dictionary per classroom was provided for student use during ELA Composition test sessions. No other reference materials or tools were allowed during either ELA Composition test session.

## Cross-Reference Information

The shaded bar following the writing prompt indicates this item's MCAS reporting category and which *Framework* learning standards it assesses.

## Grade 8 Writing Prompt

Each year many children are involved in accidents while riding on their bikes, scooters, or while skateboarding, rollerblading, and skiing. Some people suggest that there should be a law requiring a person under the age of 16 to wear a helmet while engaging in any of these activities. Others disagree, arguing that wearing protective gear like helmets takes all the fun out of these sports.

Imagine that Massachusetts is considering such a law. Your class has been assigned to write an essay for the state legislature. Your essay will be sent to lawmakers who will then decide whether to draft the new law and put it to a vote.

**WRITING ASSIGNMENT**

Write a persuasive essay stating whether children under the age of 16 should be required to wear helmets while biking, scooting, skateboarding, rollerblading, and skiing. Give at least two reason to support your position.

Remember, you must argue in such a convincing manner that others will agree with you. The outcome of the state legislature's vote on helmets could be decided by your essay.

*Reporting Category/*Learning Standard for Item 1: ***Composition/*Learning Standards 19-22 (p. 153)**

## Grade 8 Make-up Prompt

Suppose the school committee is considering a proposal to lengthen the school day by two hours. During these two hours, all students would remain in their classrooms to get help with their homework from teachers, parents, or volunteers. Some people suggest that this additional time would help students improve their schoolwork and grades. Others disagree, arguing that the school day is long enough and that children should be able to enjoy some free time.

Imagine that everyone in your classroom is writing an essay about this idea. The best essay will be provided for a committee of parents and teachers to consider as they try to decide whether this new plan is a good idea.

**WRITING ASSIGNMENT**

Write a persuasive essay stating whether the school day should be lengthened by two hours so that all students can get help with homework. Give at least two reasons to support your position.

Remember, you must argue in such a convincing manner that others will agree with you. Whether or not two hours will be added to your school day to work on homework could depend on what you write.

*Reporting Category/*Learning Standard for Item 1 (Make-up Prompt): ***Composition/*Learning Standards 19-22 (p. 153)**

# English Language Arts, Grade 8
# B. Language and Literature

The spring 2001 MCAS English Language Arts Language and Literature test was based on the learning standards of two content strands of the Massachusetts *English Language Arts Curriculum Framework* (1997):

❚ Language

❚ Literature

# Curriculum Framework *Learning Standards*

The learning standards for the *Language* and *Literature* strands are listed below and are directly quoted from the *Framework;* applicable *Framework* page numbers are shown in parentheses.

## Language *(Framework,* pp. 28–31)

### Learning Standard 4

Students will acquire and use correctly an advanced reading vocabulary of English words, identifying meanings through an understanding of word relationships.

### Learning Standard 5

Students will identify, describe, and apply knowledge of the structure of the English language and standard English conventions for sentence structure, usage, punctuation, capitalization, and spelling.

### Learning Standard 6

Students will describe and analyze how oral dialects differ from each other in English, how they differ from written standard English, and what role standard American English plays in informal and formal communication.

### Learning Standard 7

Students will describe and analyze how the English language has developed and been influenced by other languages.

# Literature (*Framework,* pp. 38–50)

### Learning Standard 8

Students will decode accurately and understand new words encountered in their reading materials, drawing on a variety of strategies as needed, and then use these words accurately in . . . writing.

### Learning Standard 9

Students will identify the basic facts and essential ideas in what they have read, heard, or viewed.

### Learning Standard 10

Students will identify, analyze, and apply knowledge of the characteristics of different genres.

### Learning Standard 11

Students will identify, analyze, and apply knowledge of theme in literature and provide evidence from the text to support their understanding.

### Learning Standard 12

Students will identify, analyze, and apply knowledge of the structure and elements of fiction and provide evidence from the text to support their understanding.

### Learning Standard 13

Students will identify, analyze, and apply knowledge of the structure, elements, and meaning of nonfiction or informational material and provide evidence from the text to support their understanding.

### Learning Standard 14

Students will identify, analyze, and apply knowledge of the structure, elements, and theme of poetry and provide evidence from the text to support their understanding.

### Learning Standard 15

Students will identify and analyze how an author's choice of words appeals to the senses, creates imagery, suggests mood, and sets tone.

**Learning Standard 16**

Students will compare and contrast similar myths and narratives from different cultures and geographic regions.

**Learning Standard 17**

Students will interpret the meaning of literary works, nonfiction, films, and media by using different critical lenses and analytic techniques.

# MCAS Reporting Categories

In *Test Item Analysis Reports* and on the *Subject Area Subscore* pages of the MCAS *School* and *District Reports,* ELA Language and Literature test results are reported under the following two MCAS reporting categories:

❚ Language

❚ Literature

# MCAS Spring 2001 Common Test Items
# ELA Language and Literature, Grade 8

## Test Sessions

MCAS Grade 8 ELA Language and Literature Student Test Booklets included 2 separate test sessions. Each session included selected readings, followed by multiple-choice and open-response questions.

## Reference Materials and Tools

No reference materials or tools were allowed during any ELA Language and Literature test session.

## Cross-Reference Information

The shaded bar underneath each item indicates the item's MCAS reporting category and which *Framework* learning standard it assesses. The parentheses indicate the page in this document where the learning standard may be found.

## Session 1, Reading Selection #1

*The Inner Tube by Gary Soto tells about a plan that worked out even better than expected. Read the story and answer the questions that follow.*

# THE  INNER  TUBE

by  Gary  Soto

1    The tractor inner tube hung in defeat on a nail, accompanied by three flies swinging back and forth, sentries of all that goes unused in a garage. The heat was oppressive for July, especially so for a one-car garage full of the smells of paint remover and open jars of red salmon eggs. I stepped over boxes of old clothes and warped magazines, a lawn mower, and oily engine parts. I kicked over a lampshade, the bulb bursting its brittle glass, and pushed aside fishing tackle. I reached for the inner tube and touched the rigging of a spider web. I pulled it off quickly and leaped through the debris to the patio. Sweat flooded my face and forked down my arms. I grabbed our hose and washed the inner tube, a slack mouth that I carried over my shoulder to a friend's house.

2    David had a tire patch kit. He inflated the inner tube with a bicycle pump, and it filled unevenly, one side growing fat like a swollen mouth backhanded by a mean brother. He let the air out, stomped it flat as a shadow, and tried again. Again the air swelled to one side. We stared at the inner tube in confusion.

3    I asked, "What's wrong with it?"

4    David didn't say anything. Instead, he jumped up and down on the fat side, but although I joined his weight, laughing as I jumped, the air wouldn't move to the skinny side. After that, we stopped because there was no time to waste. Kathy's pool party was at 1:00, and it was already a quarter after twelve.

5    We lowered our ears and listened for the hiss of air.

6    "Put your finger there," David said once we found the puncture. I licked a finger and pressed it into the deflating tube while he squeezed the glue and got the matches ready. But first he scratched the puncture so the patch would stick. I removed my finger, and he buffed the tube back and forth with the rough lid of the tire patch kit. He then smeared the glue and lit the match, the blue flame exciting us for a few seconds. He quickly fit the patch over the puncture and counted to twenty before taking his finger away. We lassoed the inner tube, now nearly deflated, onto the handlebars of my bicycle.

7      We sat under his cool sycamore waiting for the patch to dry. I asked David what went on at a "pool party," and he said he thought there would be cake and ice cream and races in the pool. I thought about this for a while. The only party that I knew was a birthday party, so when I received an invitation in the mail to a "pool party," I thought it involved the kind of *pool* that my stepfather and uncle shot at Uncle Tom's Tavern. After I caught on, I began to plan what to wear and what to take. I had a snorkel and fins, but my brother had lent the snorkel to his loudmouth friends and it disgusted me that I should fill my mouth with the rubber thing that others had sucked in dirty canals. And the fins were too small; they left painful rings on the insteps of my feet. At the last minute I remembered the inner tube.

8      David and I got up and poked the patch tenderly, as if it were a wound. The inner tube was healed. He pumped it up until it was huge, and a hollow *thump* resounded when I flicked a finger against the taut skin. I got on my bicycle, and with the inner tube crossed over my shoulder, David gave me a good push. The bike wobbled, but straightened as my legs strained for speed. I was off to a "pool party."

9      By the time I arrived I was sweaty and nearly dead from not seeing oncoming cars, because every time I turned left the inner tube blocked my view of the road.

10     The mother who answered the door clapped her hands and said, "Wow!" When I had difficulty getting the inner tube through the front door, she suggested that I go along the side of the house to the backyard. I rolled and pushed and lugged the inner tube, and when everyone saw me come around a bush, they yelled, "Gary's got a tire." I was more than sweaty. My once clean T-shirt was now smeared black along the front, and my hair, earlier parted on the right side and smelling sweetly of Wildroot hair cream, was flat as a blown-over hut. I licked my lips and tasted the hair cream.

11     When Kathy said hello, I waved my invitation at her and told her I nearly got killed by three cars. Then I jumped into the pool and stayed under for a long time. I was hot, so oiled up by the two-mile ride with an inner tube on my shoulder. I surfaced, got out, and threw the tube in the water. Someone asked, "How come it's big on one side?"

12     I shrugged, leaped in, and came up among an armada of pink and yellow air mattresses and an inflated plastic swan with a drooping neck. I tried to climb onto the swan, but it sank under my weight. I swam over to my tube, which was like a doctor's couch on the water, huge and plush. Two boys joined me, then a girl, and finally Kathy and her best friend. We floated around the pool, pushing aside the air mattresses and dunking the plastic swan for good. We stood up on the tube, the boys on the fat side, the girls on the skinny side, and bounced up and down, sometimes falling off but quickly climbing back on. We jumped and laughed, until a toe peeled off the patch and our feet began to mash the deflating tube. Stinky bubbles hissed on the water, and we began to sink, very slowly and happily.

13     The "pool party" was more than cake and ice cream. We had burgers as well, with potato chips and plenty of punch. I swam as much as I could. By the time I left—the last boy to go home—my eyes were red and my hair was parted down the middle from diving a hundred times into the pool. I enjoyed a cool ride home with the breathless inner tube hanging exhausted around my neck.

Gary Soto, "The Inner Tube" from *A Summer Life* © 1990 by University Press of New England.

### Session 1, Multiple-Choice Questions

**2** In paragraph 1 the author says, "Sweat flooded my face and forked down my arms." What does *forked* mean?

✔ A. ran in separate streams

B. scraped and scratched

C. poured

D. gleamed

*Reporting Category/*Learning Standard for Item 2: ***Literature/*Learning Standard 8 (p. 157)**

**3** Gary took the inner tube to David's house because

A. he wanted David to see it.

B. they were going to the pool party together.

✔ C. he needed help inflating it.

D. David knew how to fix its lopsidedness.

*Reporting Category/*Learning Standard for Item 3: ***Literature/*Learning Standard 9 (p. 157)**

**4** With what characteristic of the inflated inner tube were the boys dissatisfied?

A. size

✔ B. shape

C. color

D. smell

*Reporting Category/*Learning Standard for Item 4: ***Literature/*Learning Standard 9 (p. 157)**

**5** The author includes the discussion between the boys about what a pool party is in order to

✔ A. show that Gary has never been to a pool party before.

B. illustrate that David is much older than Gary.

C. help the reader understand what will happen at the pool party.

D. indicate that Gary did not want to go to the pool party.

*Reporting Category/*Learning Standard for Item 5: ***Literature/*Learning Standard 12 (p. 157)**

**6** "At the last minute I remembered the inner tube." A comma could be inserted correctly after which of the following words?

A. last

✔ B. minute

C. I

D. remembered

*Reporting Category/*Learning Standard for Item 6: ***Language/*Learning Standard 5 (p. 156)**

**7** When she saw the inner tube, the mother who answered the door was

A. confused.

B. disappointed.

C. dismayed.

✔ D. impressed.

*Reporting Category/*Learning Standard for Item 7: ***Literature/*Learning Standard 9 (p. 157)**

**8** In paragraph 12, the author uses the word "armada," which means a naval force of many ships, to suggest the

A. partygoers had been fighting.

B. difference between the inner tube and the air mattresses.

✔ C. large number of plastic air mattresses.

D. feeling Gary had of being attacked.

*Reporting Category/*Learning Standard for Item 8: ***Literature/*Learning Standard 15 (p. 157)**

**9** Describing the inner tube as having a "slack mouth" and being "breathless" and "exhausted" are examples of

A. onomatopoeia.

B. alliteration.

C. irony.

✔ D. personification.

*Reporting Category/*Learning Standard for Item 9: ***Literature/*Learning Standard 15 (p. 157)**

## Session 1, Open-Response Question

**10** Describe Gary's personality. Explain your answer using information from the story as evidence.

*Reporting Category/*Learning Standard for Item 10: ***Literature/*Learning Standard 12 (p. 157)**

**Session 1, Reading Selection #2**

*The following article tells what people have thought and done about rabies over time. Read the article and answer the questions that follow.*

# People and Rabies
## by Elaine Landau

Students read a passage titled "People and Rabies" and then answered
questions 11 through 14.
Due to copyright restrictions, the passage cannot be released to the public
in this document.

**Reading Passage:**

## Session 1, Multiple-Choice Questions

**11** If you wanted to find the origin of the word *rabies*, which source would be **most** helpful?

    A. an almanac

    B. a thesaurus

    C. an atlas

✔    D. a dictionary

*Reporting Category/*Learning Standard for Item 11: ***Language/*Learning Standard 7 (p. 156)**

**12** Which paragraph describes the first successful use of a rabies vaccine?

    A. 2

    B. 3

✔    C. 4

    D. 5

*Reporting Category/*Learning Standard for Item 12: ***Literature/*Learning Standard 13 (p. 157)**

**13** In paragraph 5, which of the following is **not** mentioned as an improvement in rabies treatment?

    A. an increase in safety

    B. fewer side effects

    C. the number of shots

✔    D. reduced costs

*Reporting Category/*Learning Standard for Item 13: ***Literature/*Learning Standard 9 (p. 157)**

**14** This article can **best** be described as nonfiction because it

✔    A. presents factual information.

    B. describes a person who was cured of rabies.

    C. follows events chronologically.

    D. tells about an incurable disease.

*Reporting Category/*Learning Standard for Item 14: ***Literature/*Learning Standard 10 (p. 157)**

## Session 1, Reading Selection #3

*As you read the Greek myth* Baucis and Philemon, *think about the way the gods are treated. When you have finished reading, answer the questions that follow.*

# Baucis and Philemon

Students read a passage titled "Baucis and Philemon" and then answered questions 15 through 23.

Due to copyright restrictions, the passage cannot be released to the public in this document.

**Reading Passage:**

"Baucis and Philemon," from LORD OF THE SKY by Doris Gates, copyright (c) 1972 by Doris Gates. Used by permission of Viking Penguin, a division of Penguin Putnam Inc.

## Session 1, Multiple-Choice Questions

*Use the dictionary entry below to answer question 15.*

> **de·scend** \di-send′\ *vb* [**ME** *descenden*, fr. **OF** *descendre*, fr. **L** *descendere*] **1:** to pass from a higher place or level to a lower one—**de·scend·ible** *adj*

**15** Which part of this dictionary entry would you use to find the origin of the word *descend*?

A. \di-send′\

✔ B. [**ME** *descenden*, fr. **OF** *descendre*, fr. **L** *descendere*]

C. **1:** to pass from a higher place or level to a lower one

D. **de·scend·ible** *adj*

*Reporting Category/*Learning Standard for Item 15: ***Language/**Learning Standard 7 (p. 156)*

**16** The questions in paragraph 1 are used by the author to

✔ A. provide the motivation for the actions of Zeus and Hermes.

B. give examples of the kinds of questions gods answer.

C. predict future events that will occur in the story.

D. provide a flashback of previous events that will help to explain future events.

*Reporting Category/*Learning Standard for Item 16: ***Literature/**Learning Standard 12 (p. 157)*

**17** In paragraph 8, the author describes the house of Baucis and Philemon to show that the

A. old couple owned their own home.

B. gods were hungry, tired, and thirsty.

C. gods felt uncomfortable in a poor house.

✔ D. old couple was very poor.

*Reporting Category/*Learning Standard for Item 17: ***Literature/**Learning Standard 12 (p. 157)*

**18**  In paragraph 8, what does the word *quest* mean?

A.  business

B.  walk

✔  C.  search

D.  conversation

> *Reporting Category/*Learning Standard for Item 18: ***Literature/*Learning Standard 8 (p. 157)**

**19**  The author uses paragraphs 13–20 to

✔  A.  show the generosity with which the old couple treated their guests.

B.  contrast the old couple with the rich citizens' slaves.

C.  demonstrate that poor people can always be counted on to help strangers.

D.  point out how very poor the old couple was.

> *Reporting Category/*Learning Standard for Item 19: ***Literature/*Learning Standard 12 (p. 157)**

**20**  The old couple realized their visitors were gods when the

A.  couch became covered with the finest cloth imaginable.

B.  cabin was warmed by a fire which leaped up and produced a cheerful light.

✔  C.  level of wine in the bowl remained the same even after much had been poured.

D.  table was suddenly covered with plentiful food and drink.

> *Reporting Category/*Learning Standard for Item 20: ***Literature/*Learning Standard 9 (p. 157)**

**21**  This story is a myth because

A.  the author of the story is unknown.

B.  the author teaches the reader a lesson about life.

C.  it tells about ancient Greece.

✔  D.  it is a story about gods from an ancient culture.

> *Reporting Category/*Learning Standard for Item 21: ***Literature/*Learning Standard 10 (p. 157)**

22    At the end of the story Zeus says, "Any food is fit for gods when generously shared." His comment is an example of

✔     A.  theme.

      B.  genre.

      C.  tone.

      D.  imagery.

*Reporting Category*/Learning Standard for Item 22: ***Literature*/Learning Standard 11 (p. 157)**

## Session 1, Open-Response Question

**23** Explain why the gods were so pleased with Baucis and Philemon's treatment of them. Use specific details from the story to support your explanation.

*Reporting Category/*Learning Standard for Item 23: ***Literature/*Learning Standard 11 (p. 157)**

## Session 2, Reading Selection #1

*Sometimes military people are not the only heroes during wartime. Read "Dolley Madison Saves the National Pride" to see how the wife of President James Madison became a hero of the War of 1812. Answer the questions that follow.*

### Dolley Madison Saves the National Pride

Students read a passage titled "Dolley Madison Saves the National Pride" and then answered questions 24 through 29.

Due to copyright restrictions, the passage cannot be released to the public in this document.

**Reading Passage:**

Reprinted with the permission of Simon & Schuster from THE BOOK OF VIRTUES by William J. Bennett. Copyright © 1993 by William J. Bennett.

## Session 2, Multiple-Choice Questions

**24** What is the **main** purpose of paragraphs 1 through 3 of this selection?

    A. to give a brief description of the War of 1812

    B. to summarize the content of Dolley Madison's letter

    C. to explain why the portrait of Washington was important

✔    D. to help the reader understand the content of the letter

*Reporting Category/*Learning Standard for Item 24: ***Literature/*Learning Standard 13 (p. 157)**

**25** Why was the frame of Washington's portrait broken?

    A. It could not fit into the wagon.

✔    B. It could not be properly removed from the wall in the limited amount of time.

    C. It was not suitable for the portrait.

    D. It was destroyed with the portrait to keep it from the British.

*Reporting Category/*Learning Standard for Item 25: ***Literature/*Learning Standard 9 (p. 157)**

**26** In paragraph 5, Dolley Madison does not allow the servant to lay a trap for the British when they enter the house because she

    A. is afraid the servant will be careless and hurt himself.

    B. does not want the house harmed.

✔    C. thinks it would be wrong to blow up the British soldiers.

    D. does not think the trap would work.

*Reporting Category/*Learning Standard for Item 26: ***Literature/*Learning Standard 13 (p. 157)**

**27** In paragraph 6, Mrs. Madison writes, "I can descry only groups of military, wandering in all directions . . ." The context of the paragraph suggests that the word *descry* means

    A. shout at.

✔    B. see.

    C. mourn.

    D. tell about.

*Reporting Category/*Learning Standard for Item 27: ***Literature/*Learning Standard 8 (p. 157)**

28  The last two sentences of the letter indicate that Dolley Madison decides to

A.  surrender to the British when they come.

B.  stay until her husband arrives.

C.  direct traffic on the road out of town.

✔   D.  leave before the road gets too crowded.

*Reporting Category/*Learning Standard for Item 28: ***Literature/****Learning Standard 9 (p. 157)*

## Session 2, Open-Response Question

**29** Explain why "Dolley Madison Saves the National Pride" is an appropriate title for this selection. Support your answer with **two** incidents described in the selection.

*Reporting Category/*Learning Standard for Item 29: ***Literature/****Learning Standard 9 (p. 157)*

*Read the poem entitled "Summer Night" and answer the questions that follow.*

# Summer  Night

The sounds
Of the Harlem night
Drop one by one into stillness.
The last player-piano is closed.
5  The last victrola ceases with the
"Jazz Boy Blues."
The last crying baby sleeps
And the night becomes
Still as a whispering heartbeat.
10  I toss
Without rest in the darkness,
Weary as the tired night,
My soul
Empty as the silence,
15  Empty with a vague,
Aching emptiness,
Desiring,
Needing someone,
Something.

20  I toss without rest
In the darkness
Until the new dawn,
Wan and pale,
Descends like a white mist
25  Into the court-yard.

*—Langston  Hughes*

## Session 2, Multiple-Choice Questions

**30** Lines 1–6 of the poem describe the

    A. joy of living in Harlem.

✔    B. sounds of night falling on Harlem.

    C. music of Harlem.

    D. sadness found in Harlem.

*Reporting Category/*Learning Standard for Item 30: ***Literature/*Learning Standard 14 (p. 157)**

**31** What does the poet suggest about the noise and bustle of Harlem?

✔    A. They cover a deep loneliness.

    B. They make it impossible to think.

    C. They keep people awake most of the night.

    D. They make a lively place in which to live.

*Reporting Category/*Learning Standard for Item 31: ***Literature/*Learning Standard 14 (p. 157)**

**32** In line 12, the word "weary" is an adjective modifying

✔    A. I.

    B. darkness.

    C. night.

    D. silence.

*Reporting Category/*Learning Standard for Item 32: ***Language/*Learning Standard 5 (p. 157)**

**33** In line 23, *wan* means

    A. bright.

    B. unusual.

✔    C. colorless.

    D. puffy.

*Reporting Category/*Learning Standard for Item 33: ***Literature/*Learning Standard 8 (p. 157)**

## Session 2, Reading Selection #3

*Which is smarter, a wolf or a dog? Read this article by Dorothy Hinshaw Patent to learn about how one group of researchers tried to answer this question. When you have finished reading, answer the questions that follow.*

# How Smart are Wolves and Dogs?
### by Dorothy Hinshaw Patent

Students read a passage titled "How Smart are Wolves and Dogs?" and then answered questions 34 through 41.

Due to copyright restrictions, the passage cannot be released to the public in this document.

**Reading Passage:**

Excerpt from "The Wolf and the Dog" in HOW SMART ARE ANIMALS?, copyright © 1990 by Dorothy Hinshaw Patent, reprinted by permission of Harcourt, Inc.

## Session 2, Multiple-Choice Questions

**34** Why did the researchers change the puzzle after each experiment?

    A. They wanted to discover if hunger made the animals act differently.

    B. They wanted to see how the animals used their paws.

    C. They wanted to observe how the animals reacted to different foods.

✔    D. They wanted to test the intelligence of the animals.

*Reporting Category/*Learning Standard for Item 34: ***Literature/*Learning Standard 9 (p. 157)**

**35** The purpose of the first three paragraphs of this article is to

✔    A. describe a set of experiments involving wolf puppies.

    B. show how dogs and wolves are different.

    C. explain what the researchers hoped to find out.

    D. demonstrate how appetites of wolf puppies differ.

*Reporting Category/*Learning Standard for Item 35: ***Literature/*Learning Standard 13 (p. 157)**

**36** The author describes "one trait humans have selected in dogs" to explain why

    A. dogs are so much like wolves.

    B. researchers tested both dogs and wolves.

✔    C. dogs responded to the researchers as they did.

    D. wolves and dogs are equally smart.

*Reporting Category/*Learning Standard for Item 36: ***Literature/*Learning Standard 13 (p. 157)**

**37** This article can **best** be described as

✔    A. nonfiction.

    B. a true-life adventure story.

    C. a science fiction story.

    D. fantasy.

*Reporting Category/*Learning Standard for Item 37: ***Literature/*Learning Standard 10 (p. 157)**

**38** In the sentence, "But the dogs really weren't being stupid—they were just being dogs," the dash could be correctly replaced by

   A. the word *and*.

   B. a space (no word or punctuation).

   C. an exclamation point.

✔   D. a semicolon.

*Reporting Category/*Learning Standard for Item 38: ***Language/*Learning Standard 5 (p. 156)**

**39** The researchers discovered that when faced with a puzzle, the dog pups reacted by

   A. trial-and-error attempts to solve it.

   B. attempting to get out of the cage.

✔   C. trying to get help from a human.

   D. searching for their mother.

*Reporting Category/*Learning Standard for Item 39: ***Literature/*Learning Standard 9 (p. 157)**

**40** This article could **best** be included in a book about

   A. training different types of animals.

✔   B. intelligence and learning among animals.

   C. eating habits among canines.

   D. differences among breeds of dogs.

*Reporting Category/*Learning Standard for Item 40: ***Literature/*Learning Standard 13 (p. 157)**

## Session 2, Open-Response Question

**41** What were the traits of the wolves and the traits of the dogs that determined how they reacted to the puzzles in these experiments? Explain your answer using information from the article.

*Reporting Category/*Learning Standard for Item 41: ***Literature/*Learning Standard 9 (p. 157)**

# VII. English Language Arts, Grade 10

## A. Composition
## B. Language and Literature

# English Language Arts, Grade 10
## A. Composition

The spring 2001 MCAS English Language Arts Composition test was based on the learning standards of the *Composition* strand of the Massachusetts *English Language Arts Curriculum Framework* (1997).

# Curriculum Framework *Learning Standards*

The learning standards for the *Composition* strand are listed below and are directly quoted from the *Framework;* applicable *Framework* page numbers are shown in parentheses.

## Composition (*Framework,* pp. 56–60)

### Learning Standard 19

Students will write compositions with a clear focus, logically related ideas to develop it, and adequate detail.

### Learning Standard 20

Students will select and use appropriate genres, modes of reasoning, and speaking styles when writing for different audiences and rhetorical purposes.

### Learning Standard 21

Students will demonstrate improvement in organization, content, paragraph development, level of detail, style, tone, and word choice (diction) in their compositions after revising them.

### Learning Standard 22

Students will use knowledge of standard English conventions to edit their writing.

# MCAS Reporting Category

In *Test Item Analysis Reports* and on the *Subject Area Subscore* pages of the MCAS *School* and *District Reports,* ELA Composition test results are reported under the MCAS reporting category of Composition.

# MCAS Spring 2001 Common Test Items
## ELA Composition, Grade 10

### Test Sessions

MCAS ELA Composition Student Test Booklets included 2 separate test sessions, administered on the same day with a short break between sessions. During the first session, each student wrote a first draft of a composition in response to the following writing prompt. During the second session, each student revised his/her first draft and submitted his/her second draft for scoring.

### Reference Materials and Tools

At least one dictionary per classroom was provided for student use during ELA Composition test sessions. No other reference materials or tools were allowed during either ELA Composition test session.

### Cross-Reference Information

The shaded bar following the writing prompt indicates this item's MCAS reporting category and which *Framework* learning standards it assesses.

## Grade 10 Writing Prompt

**WRITING ASSIGNMENT**

A frequent theme in literature is the conflict between the individual and society.

From a work of literature you have read in or out of school, select a character who struggles with society. In a well-developed composition, identify the character and explain why this character's conflict with society is important.

*Reporting Category/*Learning Standards for Item 1: ***Composition/*Learning Standards 19-22 (p. 185)**

## Grade 10 Make-up Prompt

**WRITING ASSIGNMENT**

Often in literature one moment or event stands out.

From a work of literature you have read in or out of school, select an important moment or event. In a well-developed composition, identify the moment or event and explain why it is important.

*Reporting Category/*Learning Standards for Item 1 (Make-up prompt): ***Composition/*Learning Standards 19-22 (p. 185)**

# English Language Arts, Grade 10
# B. Language and Literature

The spring 2001 MCAS English Language Arts Language and Literature test was based on the learning standards of two content strands of the Massachusetts *English Language Arts Curriculum Framework* (1997):

▌ Language

▌ Literature

## Curriculum Framework *Learning Standards*

The learning standards for the *Language* and *Literature* strands are listed below and are directly quoted from the *Framework;* applicable *Framework* page numbers are shown in parentheses.

### Language (*Framework,* pp. 28–31)

**Learning Standard 4**

Students will acquire and use correctly an advanced reading vocabulary of English words, identifying meanings through an understanding of word relationships.

**Learning Standard 5**

Students will identify, describe, and apply knowledge of the structure of the English language and standard English conventions for sentence structure, usage, punctuation, capitalization, and spelling.

**Learning Standard 6**

Students will describe and analyze how oral dialects differ from each other in English, how they differ from written standard English, and what role standard American English plays in informal and formal communication.

**Learning Standard 7**

Students will describe and analyze how the English language has developed and been influenced by other languages.

# Literature (*Framework,* pp. 38–50)

## Learning Standard 8

Students will decode accurately and understand new words encountered in their reading materials, drawing on a variety of strategies as needed, and then use these words accurately in . . . writing.

## Learning Standard 9

Students will identify the basic facts and essential ideas in what they have read, heard, or viewed.

## Learning Standard 10

Students will identify, analyze, and apply knowledge of the characteristics of different genres.

## Learning Standard 11

Students will identify, analyze, and apply knowledge of theme in literature and provide evidence from the text to support their understanding.

## Learning Standard 12

Students will identify, analyze, and apply knowledge of the structure and elements of fiction and provide evidence from the text to support their understanding.

## Learning Standard 13

Students will identify, analyze, and apply knowledge of the structure, elements, and meaning of nonfiction or informational material and provide evidence from the text to support their understanding.

## Learning Standard 14

Students will identify, analyze, and apply knowledge of the structure, elements, and theme of poetry and provide evidence from the text to support their understanding.

## Learning Standard 15

Students will identify and analyze how an author's choice of words appeals to the senses, creates imagery, suggests mood, and sets tone.

**Learning Standard 16**

Students will compare and contrast similar myths and narratives from different cultures and geographic regions.

**Learning Standard 17**

Students will interpret the meaning of literary works, nonfiction, films, and media by using different critical lenses and analytic techniques.

# MCAS Reporting Categories

In *Test Item Analysis Reports* and on the *Subject Area Subscore* pages of the MCAS *School* and *District Reports,* ELA Language and Literature test results are reported under the following two MCAS reporting categories:

▮ Language

▮ Literature

# MCAS Spring 2001 Common Test Items
# ELA Language and Literature, Grade 10

## Test Sessions

MCAS ELA Language and Literature Student Test Booklets included 3 separate test sessions. Each session included selected readings, followed by multiple-choice and open-response questions.

## Reference Materials and Tools

No reference materials or tools were allowed during any ELA Language and Literature test session.

## Cross-Reference Information

The shaded bar underneath each item indicates the item's MCAS reporting category and which *Framework* learning standard it assesses. The parentheses indicate the page in this document where the learning standard may be found.

## Session 1, Reading Selection #1

*This article from* The New Yorker *magazine explains how one determined person obtained her desired job. Read the article and answer the questions that follow.*

### Lego
### from *The New Yorker*
### January 14, 1991

1    Growing up in Queens in the sixties and seventies, Francie Berger knew exactly what she wanted from life: more Lego building bricks. She received her first set, a gift from her parents, when she was three. Gradually, she added to her holdings. She liked to build houses, and she wished that she could build bigger ones. As a teenager, she began writing to Lego Systems, Inc., the American division of the toy's Danish manufacturer, to ask if she could order, say, two million standard red bricks. The company said that she could not. In college—where she majored in architecture, figuring that building real houses was the adult occupation that came closest to her favorite activity—she wrote more letters. At some point, it occurred to her that she might be able to get a job at Lego itself. She began calling the company on a monthly basis, and she once dropped by its headquarters, in Enfield, Connecticut. "By then," Berger recalls, "they knew who I was." The person who was dispatched to get rid of her told her to send a resume, by mail, after graduation. Undeterred, she spent part of her senior year using Lego bricks to build a scale model of a farm. The model served both as her senior thesis and as a job application. Seeing no way out, Lego hired her, in 1984, for a three-week trial period. She has been with the company ever since, and is perhaps the most satisfied worker in the history of employment.

2    Berger's job is building things out of Lego bricks. Her works include the six-foot-tall red-bearded pirate that stands in the Lego department of F.A.O. Schwartz, on Fifth Avenue, and the six-foot-tall roller coaster, part of an animal amusement park, in the window of the Toys "R" Us in Herald Square. They also include the thirteen-foot-tall (and twenty-seven-and-a-half-foot-wide) replica of the United States Capitol which, along with a number of models of other national landmarks and monuments, recently spent a little more than a month on display at A. & S. Plaza, on West Thirty-third Street. All these models are made entirely of Lego bricks (the Capitol contains more than half a million), and all were assembled by Lego's staff of model-designers and model-

builders, of which Berger is the head. The company uses the models as promotions. The Capitol was part of a travelling show that visited ten shopping malls during 1990 and is now in the process of being split up and parcelled out to various children's museums. Most people, upon seeing the Capitol model, have two reactions. The first is "Hey, the White House!" The second is "I can't believe somebody built that out of Lego bricks!"

3    "When we build a model, we don't use any bricks that you can't buy in stores, and we don't alter them or cut them or do anything weird to them," Berger told us not long ago, when we went to visit her in Enfield. "First, the designers draw the model on special graph paper that is scaled to the bricks. Then they build a prototype without gluing it, to prove that it can be done. Then the model-builders make an exact copy and glue it together. They also make sure it's as hollow as possible, so it will be easier to move around." Some of the moving around is done in two custom-built air-ride semitrailers.

4    Lego's model-builders work at long tables that can be raised and lowered hydraulically. The tables are connected to an elaborate ventilation system that whisks away fumes from the glue, which is kept in Elmer's bottles but is actually methyl ethyl ketone, a potent solvent that causes the plastic of the bricks to fuse. Once a model has been glued, it can be taken out into the parking lot of a shopping mall, say, and washed down with a garden hose or scrubbed with Formula 409. It can also be left outside for just about as long as you like. The visitors' parking lot at the company headquarters is furnished with an earlier version of the Capitol model, which is kept there year-round. . . .

5    Berger's job didn't exist when she was hired. At that time, all the models used by Lego's American division were made in Denmark and shipped to the United States. To Berger, that seemed nutty. Why not build those models right here in America, and why not let Francie Berger build them? Today, she supervises two other designers and half a dozen full-time model-builders. All these people are, in effect, manifestations of her determination to spend her life doing the thing she likes best.

## Session 1, Multiple-Choice Questions

**2** According to this article, why did Francie Berger major in architecture?

✔ A. Architecture reminded her of playing with Lego bricks.

B. Her father, an architect, wanted her to enter his occupation.

C. Lego Systems, Inc. encouraged her to be an architect.

D. Architecture is a very high-paying profession.

*Reporting Category/*Learning Standard for Item 2: *Literature/***Learning Standard 9 (p. 189)**

**3** In paragraph 1, the author's statement, "Seeing no way out, Lego hired her . . ." means that

A. Lego Systems, Inc. legally could not deny Francie employment.

B. architects had proven to be the company's best employees.

C. the company was severely understaffed and needed employees.

✔ D. Francie proved to the company that she would be a suitable employee.

*Reporting Category/*Learning Standard for Item 3: *Literature/***Learning Standard 13 (p. 189)**

**4** What is the main reason Lego Systems, Inc. sends large models of buildings to various sites?

✔ A. It is good advertising for the company.

B. They are created as donations to museums.

C. The models show special Lego bricks to the public.

D. It is the only way some people can see these buildings.

*Reporting Category/*Learning Standard for Item 4: *Literature/***Learning Standard 9 (p. 189)**

**5** When building a model, Lego's staff of model-designers and model-builders do all of the following **except**

A. use bricks that are available to everyone.

B. draw the model on special graph paper.

C. build an exact-scale prototype.

✔ D. attach wheels to the bottom of the model.

*Reporting Category/*Learning Standard for Item 5: *Literature/***Learning Standard 9 (p. 189)**

**6** In the sentence, "Lego's model-builders work at long tables that can be raised and lowered hydraulically," what part of speech is the word *hydraulically*?

   A. adjective

   B. verb

✔   C. adverb

   D. noun

*Reporting Category/*Learning Standard for Item 6: ***Language/*Learning Standard 5 (p. 188)**

**7** The author mentions that the large models made by Lego's staff can be washed and scrubbed in order to emphasize the

   A. cleanliness of the Lego operation.

   B. company's concern for the environment.

✔   C. solid construction of the models.

   D. authenticity of the Lego bricks.

*Reporting Category/*Learning Standard for Item 7: ***Literature/*Learning Standard 13 (p. 189)**

**8** Which best describes the content of this article?

   A. persuasive

   B. autobiographical

✔   C. informational

   D. fictional

*Reporting Category/*Learning Standard for Item 8: ***Literature/*Learning Standard 10 (p. 189)**

## Session 1, Open-Response Question

**9** Mark Twain said, "Make your vocation your vacation." Explain how this quotation relates to this article. Use specific evidence from the article to support your answer.

*Reporting Category/*Learning Standard for Item 9: ***Literature/*Learning Standard 13 (p. 189)**

## Session 1, Reading Selection #2

*This poem by Mitsuye Yamada contains a lesson. Read the poem carefully and answer the questions that follow.*

### A BEDTIME STORY

by Mitsuye Yamada (b. 1923)

Once upon a time,
an old Japanese legend
goes as told
by Papa,
5  an old woman traveled through
many small villages
seeking refuge
for the night.
Each door opened
10 a sliver
in answer to her knock
then closed.
Unable to walk
any further
15 she wearily climbed a hill
found a clearing
and there lay down to rest
a few moments to catch
her breath.

20 The village town below
lay asleep except
for a few starlike lights.
Suddenly the clouds opened
and a full moon came into view
25 over the town.

The old woman sat up
turned toward
the village town
and in supplication
30 called out
Thank you people
of the village,
If it had not been for your
kindness
35 in refusing me a bed
for the night
these humble eyes would never
have seen this
memorable sight.

40 Papa paused, I waited.
In the comfort of our
hilltop home in Seattle
overlooking the valley,
I shouted
45 "That's the *end*?"

Yamada, Mitsuye, *Camp Notes and Other Writings.* Copyright © 1992 Mitsuye Yamada. Reprinted by permission of Rutgers University Press.

## Session 1, Multiple-Choice Questions

**10** In line 29, the word *supplication* **most nearly** means

✔ A. prayer.

B. humiliation.

C. desperation.

D. anger.

*Reporting Category/*Learning Standard for Item 10: *Language/*Learning Standard 4 (p. 188)

**11** The old woman's situation at the end of the story is

A. helpless.

B. ecstatic.

C. frantic.

✔ D. ironic.

*Reporting Category/*Learning Standard for Item 11: *Literature/*Learning Standard 15 (p. 189)

**12** In the last line, the speaker shouts "That's the *end*?" because the speaker

✔ A. does not understand the point of the story.

B. had not been paying attention.

C. wants to stay up later.

D. is relieved the story is finished.

*Reporting Category/*Learning Standard for Item 12: *Literature/*Learning Standard 14 (p. 189)

## Session 1, Reading Selection #3

*The following poem is one of Shakespeare's many love sonnets. As you read the poem, pay attention to poetic structure and theme. When you have finished reading, answer the questions that follow.*

### *Sonnet* 116

Let me not to the marriage of true minds
Admit impediments. Love is not love
Which alters when it alteration finds
Or bends with the remover to remove.
5  O, no! It is an ever-fixed mark
That looks on tempests and is never shaken.
It is the star to every wand'ring bark,
Whose worth's unknown, although his heighth be taken.
Love's not Time's fool, though rosy lips and cheeks
10  Within his bending sickle's compass come.
Love alters not with his brief hours and weeks,
But bears it out even to the edge of doom.
     If this be error and upon me proved,
     I never writ, nor no man ever loved.

*—William Shakespeare*

"Sonnet 116" by William Shakespeare. In the public domain.

## Session 1, Multiple-Choice Questions

**13** In line 2 of the poem, what does the word *impediments* mean?

    A. inconsistencies

✔    B. obstacles

    C. independence

    D. virtues

*Reporting Category/*Learning Standard for Item 13: ***Language/*Learning Standard 4 (p. 188)**

**14** What is the rhyme scheme of this poem?

    A. ABBA CDDC EFFE GG

    B. ABC ABC DEF DEF GG

    C. AA BB CC DD EE FF GG

✔    D. ABAB CDCD EFEF GG

*Reporting Category/*Learning Standard for Item 14: ***Literature/*Learning Standard 14 (p. 189)**

**15** What is the theme of "Sonnet 116"?

✔    A. True love remains steady.

    B. Even the strongest love is temporary.

    C. Love changes as life changes.

    D. Age and time alter love.

*Reporting Category/*Learning Standard for Item 15: ***Literature/*Learning Standard 14 (p. 189)**

## Session 1, Open-Response Question

**16**  "Sonnet 116" does not have a title linked to the text; rather its title distinguishes it from Shakespeare's other sonnets.

- What title would you give to "Sonnet 116"?

- Provide evidence from the poem to support your answer.

*Reporting Category/*Learning Standard for Item 16: ***Literature/*Learning Standard 14 (p. 189)**

## Session 2, Reading Selection #1

*The following selection is an excerpt from* The Grapes of Wrath, *a novel by John Steinbeck that chronicles the lives of the Joad family during the Great Depression. This scene occurs early in the story, when Tom Joad returns to his family from prison. Read the excerpt and answer the questions that follow.*

## The Grapes of Wrath
### by John Steinbeck

Students read a passage titled "The Grapes of Wrath" and then answered questions 17 through 25.

Due to copyright restrictions the passage cannot be released to the public in this document.

**Reading Passage:**

From THE GRAPES OF WRATH by John Steinbeck, copyright 1939, renewed © 1967 by John Steinbeck. Used by permission of Viking Penguin, a division of Penguin Putnam Inc.

## Session 2, Multiple-Choice Questions

**17** Ma Joad made it a practice to deny hurt or fear in herself because she

    A. was eager to begin the journey.

✔    B. wanted to be an example for her family.

    C. was not a brave person.

    D. wanted to hide her feelings from neighbors.

*Reporting Category/*Learning Standard for Item 17: ***Literature/*Learning Standard 9 (p. 189)**

**18** When Ma Joad makes laughter out of "inadequate materials" it means that she

✔    A. finds joy in small things.

    B. laughs at inappropriate times.

    C. enjoys worn-out clothing.

    D. acts in unpredictable ways.

*Reporting Category/*Learning Standard for Item 18: ***Literature/*Learning Standard 12 (p. 189)**

**19** Which phrase most accurately describes Ma Joad?

    A. bitter and joyless

✔    B. cornerstone of her family

    C. emotionally fragile

    D. disciplinarian of her family

*Reporting Category/*Learning Standard for Item 19: ***Literature/*Learning Standard 12 (p. 189)**

**20** The first nine sentences of this excerpt contain numerous examples of

✔    A. visual imagery.

    B. irony.

    C. sentence fragments.

    D. symbolism.

*Reporting Category/*Learning Standard for Item 20: ***Literature/*Learning Standard 15 (p. 189)**

**21** The sentence "From her position as healer, her hands had grown sure and cool and quiet; and faultless in judgment as a goddess" begins with

    A.  a split infinitive.

    B.  an independent clause.

✔    C.  a prepositional phrase.

    D.  a gerund phrase.

*Reporting Category/*Learning Standard for Item 21: ***Language/*Learning Standard 5 (p. 188)**

**22** Which element of fiction is most developed in this excerpt?

    A.  plot

    B.  setting

✔    C.  characterization

    D.  theme

*Reporting Category/*Learning Standard for Item 22: ***Literature/*Learning Standard 12 (p. 189)**

**23** Which is the strongest indication of how Tom feels about his mother?

    A.  He doesn't tell her he is coming home.

    B.  He brought no gifts for her.

    C.  He assures her he has his parole papers.

✔    D.  He bites his lip to hold back his emotion.

*Reporting Category/*Learning Standard for Item 23: ***Literature/*Learning Standard 12 (p. 189)**

**24** The author says that Ma Joad's joy was "nearly like sorrow" to emphasize

    A.  her fear that Tom had changed in prison.

✔    B.  the intensity of her emotions at Tom's return.

    C.  her sadness that they were moving.

    D.  the possibility that Tom was home illegally.

*Reporting Category/*Learning Standard for Item 24: ***Literature/*Learning Standard 15 (p. 189)**

## Session 2, Open-Response Question

**25** In the last paragraph, the author writes, "Then she knew, and her control came back, and her hand dropped." Based on the description of Ma Joad in this excerpt, explain what she knew and how that influenced her actions. Use specific information from the entire excerpt to support your answer.

*Reporting Category/*Learning Standard for Item 25: ***Literature/*Learning Standard 12 (p. 189)**

*This essay by Loren Eiseley is from his book* The Unexpected Universe. *Read the essay and answer the questions that follow.*

# The Angry Winter
by Loren Eiseley

The time comes when creatures whose destinies have crossed somewhere in the remote past are forced to appraise each other as though they were total strangers. I had been huddled beside the fire one winter night, with the wind prowling outside and shaking the windows. The big shepherd dog on the hearth before me occasionally glanced up affectionately, sighed, and slept. I was working, actually, amidst the debris of a far greater winter.

10 On my desk lay the lance points of ice age hunters and the heavy leg bone of a fossil bison. No remnants of flesh attached to these relics. The deed lay more than ten thousand years remote. It was represented here by naked flint and by bone so mineralized it rang when struck. As I worked on in my little circle of light, I absently laid the bone beside me on the floor. The hour had crept toward midnight. A grating noise, a heavy rasping of big teeth diverted me. I looked down.

20 The dog had risen. That rock-hard fragment of a vanished beast was in his jaws and he was mouthing it with a fierce intensity I had never seen exhibited by him before.

"Wolf," I exclaimed, and stretched out my hand. The dog backed up but did not yield. A low and steady rumbling began to rise in his chest, something out of a long-gone midnight. There was nothing in that bone to taste, but ancient shapes were moving in his mind and determining his

30 utterance. Only fools gave up bones. He was warning me.

"Wolf," I chided again.

As I advanced, his teeth showed and his mouth wrinkled to strike. The rumbling rose to a direct snarl. His flat head swayed low and wickedly as a reptile's above the floor. I was the most loved object in his universe, but the past was fully alive in him now. Its shadows were whispering in his mind. I knew he was not bluffing. If I made 40 another step he would strike.

Yet his eyes were strained and desperate. "Do not," something pleaded in the back of them, some affectionate thing that had followed at my heel all the days of his mortal life, "do not force me. I am what I am and cannot be otherwise because of the shadows. Do not reach out. You are a man, and my very god. I love you, but do not put out your hand. It is midnight. We are in another time, in the snow."

50 "The *other* time," the steady rumbling continued while I paused, "the other time in the snow, the big, the final, the terrible snow, when the shape of this thing I hold spelled life. I will not give it up. I cannot. The shadows will not permit me. Do not put out your hand."

I stood silent, looking into his eyes, and heard his whisper through. Slowly I drew back in understanding. The snarl diminished, ceased. As I

retreated, the bone slumped to the floor. He
60 placed a paw upon it, warningly.

And were there no shadows in my own mind, I
wondered. Had I not for a moment, in the grip of
that savage utterance, been about to respond, to
hurl myself upon him over an invisible haunch ten
thousand years removed? Even to me the shadows
had whispered—to me, the scholar in his study.

"Wolf," I said, but this time, holding a familiar
leash, I spoke from the door indifferently. "A
walk in the snow." Instantly from his eyes that
70 other visitant receded. The bone was left lying.
He came eagerly to my side, accepting the leash
and taking it in his mouth as always.

A blizzard was raging when we went out, but
he paid no heed. On his thick fur the driving snow
was soon clinging heavily. He frolicked a little—
though usually he was a grave dog—making up to
me for something still receding in his mind. I felt
the snowflakes fall upon my face, and stood
thinking of another time, and another time still,
80 until I was moving from midnight to midnight
under ever more remote and vaster snows. Wolf

came to my side with a little whimper. It was he who
was civilized now. "Come back to the fire,"
he nudged gently, "or you will be lost."
Automatically I took the leash he offered. He led
me safely home and into the house.

"We have been very far away," I told him
solemnly. "I think there is something in us that we
had both better try to forget." Sprawled on the
90 rug, Wolf made no response except to thump his
tail feebly out of courtesy. Already he was mostly
asleep and dreaming. By the movement of his feet
I could see he was running far upon some errand
in which I played no part.

Softly I picked up his bone—our bone,
rather—and replaced it high on a shelf in my
cabinet. As I snapped off the light the white glow
from the window seemed to augment itself and
shine with a deep, glacial blue. As far as I could
100 see, nothing moved in the long aisles of my
neighbor's woods. There was no visible track, and
certainly no sound from the living. The snow
continued to fall steadily, but the wind, and the
shadows it had brought, had vanished.

## Session 3, Multiple-Choice Questions

**26** The first sentence in this excerpt

✔     A. introduces the theme.

     B. creates the setting of the story.

     C. introduces the characters.

     D. develops the plot line.

*Reporting Category/*Learning Standard for Item 26: ***Literature/*Learning Standard 11 (p. 189)**

**27** In line 9, to what does "a far greater winter" refer?

     A. the previous, windy winter

✔     B. a period in the ice age

     C. swirling snow outside the study

     D. a long winter from the author's past

*Reporting Category/*Learning Standard for Item 27: ***Literature/*Learning Standard 12 (p. 189)**

**28** In the simile in lines 35–36, "His flat head swayed low and wickedly as a reptile's above the floor," the comparison is between

✔     A. the motion of the dog's and reptile's heads.

     B. the shape of the dog's and reptile's heads.

     C. a human skull and the reptile's head.

     D. a reptile's teeth and the dog's snarl.

*Reporting Category/*Learning Standard for Item 28: ***Literature/*Learning Standard 15 (p. 189)**

**29**

This item was not included in determining 2001 MCAS scores for students, schools, and districts.

**30** What is the significance of the sentence in lines 65–66, "Even to me the shadows had whispered—to me, the scholar in his study"?

✔ A. All living creatures are susceptible to instincts.

B. Shadows usually appear only to dogs and other animals.

C. The man is hearing supernatural voices.

D. The study is usually an impenetrable sanctuary.

*Reporting Category/*Learning Standard for Item 30: ***Literature/*Learning Standard 12 (p. 189)**

**31** In line 98, what does *augment* mean?

A. diminish

B. polish

✔ C. increase

D. detach

*Reporting Category/*Learning Standard for Item 31: ***Literature/*Learning Standard 8 (p. 189)**

**32** What do "shadows" represent throughout this essay?

A. moving objects

B. nightfall

C. archeological rules

✔ D. inherited instincts

*Reporting Category/*Learning Standard for Item 32: ***Literature/*Learning Standard 15 (p. 189)**

**33** The following is a dictionary entry for the word *relic*:

> **relic** (re lik) *n.* **1a.** something that has survived decay or deterioration **b.** a belief or custom remaining as a trace of an earlier culture or outmoded practice **2.** something cherished for its age or associations with a person, place or event; keepsake [ME *relik* <OFr *relique* <Lat. *reliquiae*, sacred relics <Lat. Remains <*relinquere*, to leave behind]

According to this entry, from which language did the word *relic* originate?

A. Middle English

B. English

C. Old French

✔ D. Latin

*Reporting Category/*Learning Standard for Item 33: ***Language/*Learning Standard 7 (p. 188)**

**Session 3, Open-Response Question**

**34** Explain the significance of the statement in lines 82 and 83, "It was he who was civilized now," as it applies to both the man and the dog. Use specific evidence from the essay to support your answer.

*Reporting Category/*Learning Standard for Item 34: ***Literature/**Learning Standard 12 (p. 189)*

### Session 3, Reading Selection #2

*The following selection, an excerpt from* The Autobiography of an Ex-Colored Man *by James Weldon Johnson, tells of an episode in the author's childhood. Read the excerpt and answer the questions that follow.*

## *from* The Autobiography of an Ex-Colored Man
### by James Weldon Johnson

Students read a passage titled "The Autobiography of an Ex-Colored Man" and then answered questions 35 through 41.

Due to copyright restrictions the passage cannot be released to the public in this document.

**Reading Passage:**

## Session 3, Multiple-Choice Questions

**35** What is one indication that this excerpt is autobiographical?

✔ A. It is told from the first-person point of view.

B. Most of the characters are children.

C. The setting is a classroom.

D. It shows favorable characteristics of the author.

*Reporting Category/*Learning Standard for Item 35: ***Literature/*Learning Standard 10 (p. 189)**

**36** In paragraph 2, the author uses the metaphor "bound to me with hooks of steel" to emphasize

A. the appearance of his new acquaintance.

B. his use of available classroom materials.

✔ C. the strength of his friendship with "Red Head."

D. his tendency to take action in any situation.

*Reporting Category/*Learning Standard for Item 36 ***Literature/*Learning Standard 13 (p. 189)**

**37** In paragraph 2, when the author says he felt that "Red Head" and he "were to be friends," it is an example of

A. allusion.

✔ B. foreshadowing.

C. symbolism.

D. irony.

*Reporting Category/*Learning Standard for Item 37: ***Literature/*Learning Standard 13 (p. 189)**

**38** The author suggests that his friendship with "Red Head" was initially based on

A. agreement on most ideas.

✔ B. perceived mutual need.

C. shared classroom activities.

D. interest in the same hobbies.

*Reporting Category/*Learning Standard for Item 38: ***Literature/*Learning Standard 13 (p. 189)**

**39** In the last sentence of paragraph 2, what does the word *simultaneous* mean?

    A. instantaneous

    B. similar

    C. at a very basic level

✔    D. at the same time

*Reporting Category/*Learning Standard for Item 39: ***Language/*Learning Standard 4 (p. 188)**

**40** The narrator describes the students' reactions when "Red Head" **first** misspells his word. The students' different reactions depend on whether or not they

✔    A. know the correct spelling.

    B. feel sympathy for "Red Head."

    C. understand the teacher's directions.

    D. are paying attention to the situation.

*Reporting Category/*Learning Standard for Item 40: ***Literature/*Learning Standard 13 (p. 189)**

**41** In paragraph 4, when the author says he has "waited anxiously for many a turn of the wheel of fortune," he means he has often

    A. tried to win big jackpots through gambling.

    B. waited in line to apply for a job.

✔    C. felt stress about what might happen next.

    D. been nervous about spelling.

*Reporting Category/*Learning Standard for Item 41: ***Literature/*Learning Standard 15 (p. 189)**

# VIII. Mathematics,

# Grade 4

# Mathematics, Grade 4

The spring 2001 MCAS Mathematics test was based on the learning standards of the Massachusetts *Mathematics Curriculum Framework* (2000). The *Framework* identifies five major content strands:

- ❚ Number Sense and Operations

- ❚ Patterns, Relations, and Algebra

- ❚ Geometry

- ❚ Measurement

- ❚ Data Analysis, Statistics and Probability

# Curriculum Framework *Learning Standards*

Learning standards are grouped below by substrand and are directly quoted from the *Framework*; applicable *Framework* page numbers are shown in parentheses.

## Learning Standards for Grades 3-4
## Number Sense and Operations (*Framework*, p. 22)

*Students engage in problem solving, communicating, reasoning, connecting, and representing as they:*

- ❚ Exhibit an understanding of the base ten number system by reading, modeling, writing, and interperting whole numbers to at least 100,000; demonstrating an understanding of the values of the digits; and comparing and ordering the numbers.

- ❚ Represent, order, and compare large numbers (to at least 100,000) using various forms, including expanded notation (e.g., $853 = 8 \times 100 + 5 \times 10 + 3$).

- ❚ Demonstrate an understanding of fractions as parts of unit wholes, as parts of a collection, and as locations on the number line.

- ❚ Select, use, and explain models to relate common fractions and mixed numbers (1/2, 1/3, 1/4, 1/5, 1/6, 1/8, 1/10, 1/12, and 1½), find equivalent fractions, mixed numbers, and decimals, and order fractions.

- ❚ Identify and generate equivalent forms of common decimals and fractions less than one whole (halves, quarters, fifths, and tenths).

- ❚ Exhibit an understanding of the base ten number system by reading, naming, and writing decimals between 0 and 1 up to the hundredths.

- Recognize classes (in particular, odds, evens; factors or multiples of a given number; and squares) to which a number may belong, and identify the numbers in those classes. Use these in the solution of problems.

- Use various meanings and models of multiplication and division of whole numbers. Understand and use the inverse relationship between the two operations.

- Select, use, and explain the commutative, associative, and identity properties of operations on whole numbers in problem situations (e.g., $37 \times 46 = 46 \times 37$, $(5 \times 7) \times 2 = 5 \times (7 \times 2)$).

- Select and use appropriate operations (addition, subtraction, multiplication, and division) to solve problems, including those involving money.

- Add and subtract (up to five-digit numbers) and multiply (up to three digits by two digits) accurately and efficiently.[4]

- Divide up to a three-digit whole number with a single-digit divisor (with or without remainders) accurately and efficiently. Interpret any remainders.

- Demonstrate in the classroom an understanding of and the ability to use the conventional algorithm for division of up to a three-digit whole number with a single-digit divisor (with or without remainders). Round whole numbers through 100,000 to the nearest 10, 100, 1000, 10,000 and 100,000.

- Select and use a variety of strategies (e.g., front-end, rounding, and regrouping) to estimate quantities, measures, and the results of whole-number computations up to three-digit whole numbers and amounts of money to $1,000, and to judge the reasonableness of the answer.

- Use concrete objects and visual models to add and subtract common fractions.

[4] Although this standard is appropriate as stated for this grade span, the state assessment program at the 3–4 grade span will test multiplication of only up to two digits by two digits at the present time.

# Patterns, Relations, and Algebra (*Framework*, p. 32)

*Students engage in problem solving, communicating, reasoning, connecting, and representing as they:*

- Create, describe, extend, and explain symbolic (geometric) and numeric patterns, including multiplications patterns like 3, 30, 300, 3000, . . . .

- Use symbol and letter variables (e.g., $\Delta$, x) to represent unknowns or quantities that vary in expressions and in equations or inequalities (mathematical sentences that use $=$, $<$, $>$).

- Determine values of variables in simple equations (e.g., $4106 - \nabla = 37$, $5 = \bigcirc + 3$, and $\square - \bigcirc = 3$).

- Use pictures, models, tables, charts, graphs, words, number sentences, and mathematical notations to interpret mathematical relationships.

- Solve problems involving proportional relationships, including unit pricing (e.g., four apples cost 80¢, so one apple costs 20¢) and map interpretation (e.g., one inch represents five miles, so two inches represent ten miles).

- Determine how change in one variable relates to a change in a second variable (e.g., input-output table).

# Geometry (*Framework*, p. 40)

*Students engage in problem solving, communicating, reasoning, connecting, and representing as they:*

- Compare and analyze attributes and other features (e.g., number of sides, faces, corners, right angles, diagonals, and symmetry) of two- and three-dimensional geometric shapes.

- Describe, model, draw, compare, and classify two- and three-dimensional shapes (e.g., circles, polygons—especially triangles and quadrilaterals—cubes, spheres, and pyramids).

- Identify angles as acute, right, or obtuse.

- Describe and draw intersecting, parallel, and perpendicular lines.

- Using ordered pairs of numbers and/or letters, graph, locate, identify points, and describe paths (first quadrant).

- Describe and apply techniques such as reflections (flips), rotations (turns), and translations (slides) for determining if two shapes are congruent.

- Identify and describe line symmetry in two-dimensional shapes.

- Predict and validate the results of partitioning, folding, and combining two- and three-dimensional shapes.

# Measurement (*Framework*, p. 48)

*Students engage in problem solving, communicating, reasoning, connecting, and representing as they:*

❚ Deomonstrate an understanding of such attributes as length, area, weight, and volume, and select the appropriate type of unit for measuring each attribute.

❚ Carry out simple unit conversions within a system of measurement (e.g., hours to minutes, cents to dollars, yards to feet or inches, etc.).

❚ Identify time to the minute on analog and digital clocks using A.M. and P.M. Compute elapsed time using a clock (e.g., hours and minutes since ...) and using a calendar (e.g., days since ...).

❚ Estimate and find area and perimeter of a rectangle, triangle, or irregular shape using diagrams, models, and grids or by measuring.

❚ Identify and use appropriate metric and English units and tools (e.g., ruler, graduated cyclinder, thermometer) to estimate, measure, and solve problems involving length, area, volume, weight, time, and temperature.

# Data Analysis, Statistics, and Probability (*Framework*, p. 56)

*Students engage in problem solving, communicating, reasoning, connecting, and representing as they:*

❚ Collect and organize data using observations, measurements, surveys, or experiments, and identify appropriate ways to display the data.

❚ Match a representation of a data set such as lists, tables, or graphs (including circle graphs) with the actual set of data.

❚ Construct, draw conclusions, and make predictions from various representations of data sets, including tables, bar graphs, pictographs, line graphs, line plots, and tallies.

❚ Represent the possible outcomes for a simple probability situation (e.g., the probability of drawing a red marble from a bag containing three red marbles and four green marbles).

❚ List and count the number of possible combinations of objects from three sets (e.g., how many different outfits can one make from a set of three shirts, a set of two skirts, and a set of two hats?).

❚ Classify outcomes as certain, likely, unlikely, or impossible by designing and conducting experiments using concrete objects such as counters, number cubes, spinners, or coins.

# MCAS Reporting Categories

In *Test Item Analysis Reports* and on the *Subject Area Subscore* pages of the MCAS *School* and *District Reports,* Mathematics test results are reported under the following five MCAS reporting categories, which are identical to the five *Mathematics Curriculum Framework* content strands:

❚ Number Sense and Operations

❚ Patterns, Relations, and Algebra

❚ Geometry

❚ Measurement

❚ Data Analysis, Statistics, and Probability

# MCAS Spring 2001 Common Test Items
# Mathematics, Grade 4

## Test Sessions

MCAS grade 4 Mathematics Student Test Booklets contained 2 separate test sessions. Each session included multiple-choice, short-answer, and open-response questions.

## Mathematics Tool Kits

During testing, each grade 4 student was provided with a **Mathematics Tool Kit**. A sample of that Tool Kit is included in Appendix A of this document. No calculators or other reference tools or materials were allowed during grade 4 Mathematics testing sessions.

## Cross-Reference Information

The shaded bar underneath each item indicates the item's MCAS reporting category and the *Framework* that contains the learning standards assessed by the item. The parentheses indicate the page in this document where the learning standards may be found.

# Mathematics, Grade 4

## Session 1, Multiple-Choice Questions

**1** Which mixed number shows how much is shaded?
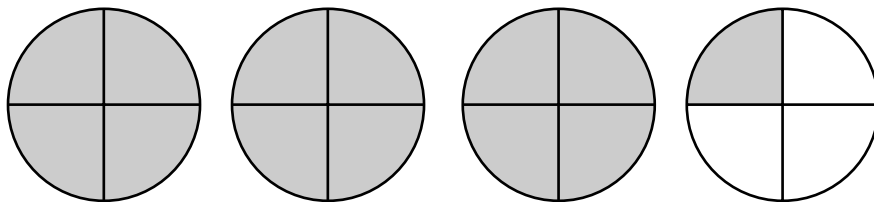


- A. 3
- B. $4\frac{3}{4}$
- ✔ C. $3\frac{1}{4}$
- D. $4\frac{1}{4}$

*Reporting Category* for Item 1: **Number Sense and Operations** (p. 217)

**2** Angie is making hot chocolate with marshmallows for her family. She has 13 marshmallows and 7 mugs. Which number sentence shows how many more marshmallows she needs so she can put 3 marshmallows in each mug?

- ✔ A. $(7 \times 3) - 13 = \square$
- B. $(13 - 7) \times 3 = \square$
- C. $(13 - 3) \times 7 = \square$
- D. $(7 + 3) + 13 = \square$

*Reporting Category* for Item 2: **Number Sense and Operations** (p. 217)

**3** A solid figure has five faces, eight edges, and five corners. Which of the following figures is it?

A.

**cube**

B. ✔

**square pyramid**

C.

**rectangular prism**

D.
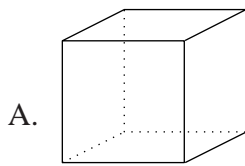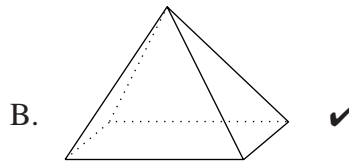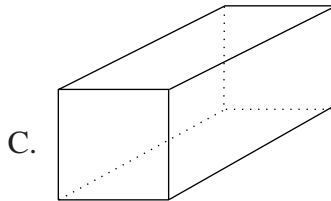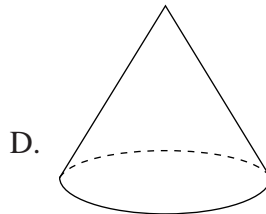
**cone**

*Reporting Category* for Item 3: **Geometry** (p. 219)

**4** Mr. Jordan is buying 3 CDs. Each CD costs $18.99 including tax. Which is the BEST ESTIMATE of the cost of the 3 CDs?

A. $54

✔ B. $57

C. $64

D. $50

*Reporting Category* for Item 4: **Number Sense and Operations** (p. 217)

*Use the chart below to answer question 5.*

**Student Ski Lift Passes
Sold at Jiminy Peak**

| Day of
the Week | Number of
Passes Sold |
|---|---|
| Thursday | 58 |
| Friday | 163 |
| Saturday | 200 |
| Sunday | 175 |
| Monday | 22 |

**5** Which statement below is TRUE?

A. More student passes were sold on Friday than on Sunday.

B. Altogether, more than 500 student passes were sold on Saturday and Sunday.

C. More than 800 passes were sold during this five-day period.

✔ D. More student passes were sold on Thursday and Friday than on Sunday and Monday.

*Reporting Category* for Item 5: ***Data Analysis, Statistics, and Probability*** (p. 220)

**6** Jolanda had 36 ice hockey cards and Kevin had 24. She gave Kevin 5 of her cards. How many more cards does she have than Kevin?

✔ A. 2

B. 4

C. 10

D. 12

*Reporting Category* for Item 6: ***Number Sense and Operations*** (p. 217)

**7** Which rule was used to change the numbers in Column Q to the numbers in Column R?

| Q | R |
|---|---|
| 4 | 8 |
| 8 | 16 |
| 12 | 24 |

A. $Q \times 3 = R$

B. $Q + 3 = R$

C. $Q + 10 = R$

✔ D. $Q \times 2 = R$

*Reporting Category* for Item 7: ***Patterns, Relations, and Algebra*** (p. 219)

**8** Which is another way to write the number 52,068?

A. $5 + 2 + 0 + 6 + 8$

B. $50,000 + 200 + 60 + 8$

✔ C. 52 thousands, 6 tens, 8 ones

D. five thousand two hundred sixty-eight

*Reporting Category* for Item 8: ***Number Sense and Operations*** (p. 217)

**9** Jake is tossing a chip onto different targets. The chip has the best chance of landing on a SHADED space in which target?

A.
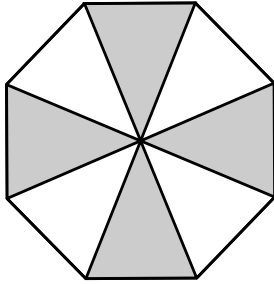
B.
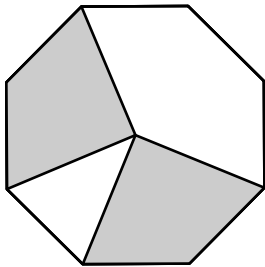
C.
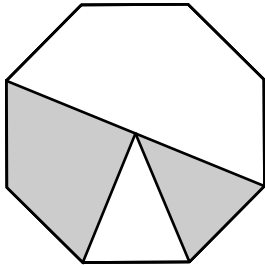
✔ D.
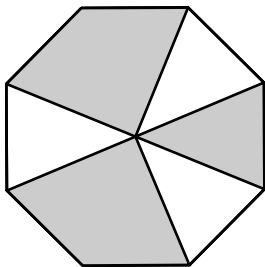
## Session 1, Open-Response Question

*Use the alphabet shown below to answer question 10.*

# ABCDEFGHIJKLMNOPQRSTUVWXYZ

**10**　a. In your Student Answer Book, copy THREE letters above that have ONLY ONE line of symmetry. Draw a dotted line to show the line of symmetry for each letter.

　　b. Copy THREE letters that are NOT symmetrical.

　　c. Copy ONE letter that has at least TWO lines of symmetry. Draw dotted lines to show the lines of symmetry.

*Reporting Category* for Item 10: ***Geometry*** **(p. 219)**

## Session 1, Short-Answer Questions

*Use the clocks below to answer question 11.*
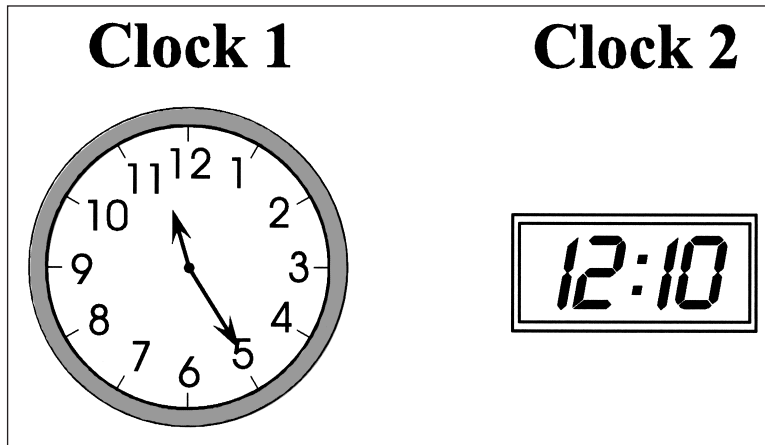
**Clock 1**  **Clock 2**



**11** Clock 1 shows the time Jamal left home in the morning. Clock 2 shows the time he arrived at his grandfather's house that afternoon. How long did it take him to make the trip?

Correct Answer:

45 minutes

*Reporting Category* for Item 11: **Measurement** (p. 220)

**12** Write this decimal as a fraction.

$$0.4 = \underline{\hspace{1cm}}$$

Correct Answer:

$\frac{4}{10}$ or $\frac{2}{5}$

*Reporting Category* for Item 12: **Number Sense and Operations** (p. 217)

## Session 1, Open-Response Question

**13** Look at the three graphs below. They show information about a class of fourth graders. The titles and labels are missing.

**Graph 1**



```
                X
      X    X    X
      X    X    X
      X    X    X    X
      X    X    X    X         X                        X
      0  1  2  3  4  5  6  7  8  9  10 11 12
```

**Graph 2**



```
                                            X
                  X              X          X
             X    X         X    X          X    X          X
             X    X    X    X    X    X    X    X    X    X    X
             0  1  2  3  4  5  6  7  8  9  10 11 12
```

**Graph 3**



```
                       X
                  X    X              X
                  X    X    X         X
             X    X    X    X         X         X         X
        X         X    X    X    X    X    X    X    X    X              X
        25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49
```
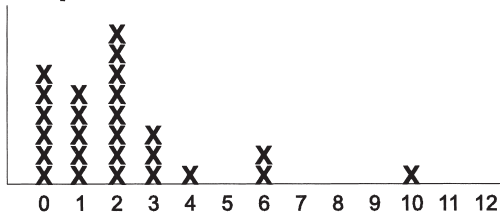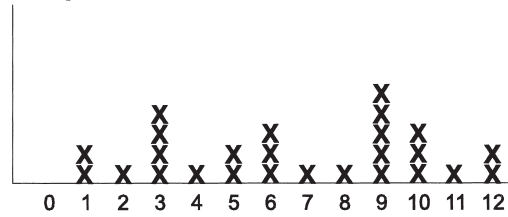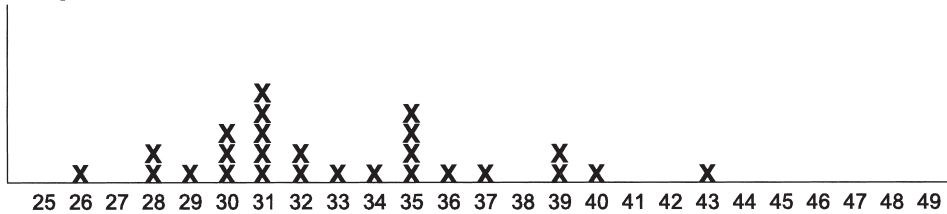
a. Which graph would most likely be titled NUMBER OF BROTHERS AND SISTERS? Explain why you chose that graph.

b. Which graph would most likely be titled AGES OF PARENTS OR GUARDIANS? Explain why you chose that graph.

c. Choose a graph. Write a title for the graph. Explain how your title fits the information in the graph. You may NOT use the titles from parts a and b.

*Reporting Category* for Item 13: **Data Analysis, Statistics, and Probability** (p. 220)

**14** A spinner is divided into 8 equal parts.

- $\frac{2}{8}$ of the spinner is red

- $\frac{1}{4}$ of the spinner is blue

- $\frac{1}{2}$ of the spinner is yellow

Which part of the spinner is LARGEST?
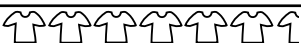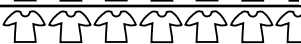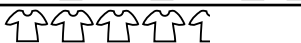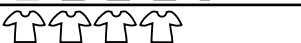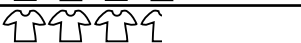
A. red

B. blue

✔ C. yellow

D. They are all the same size.

*Reporting Category* for Item 14: ***Number Sense and Operations*** **(p. 217)**

*Use the pictograph below to answer question 15.*

## T-Shirts Sold

| Monday | 👕👕👕👕👕👕👕 |
| Tuesday | 👕👕👕👕👕👕👕👕👕 |
| Wednesday | 👕👕👕👕👕 |
| Thursday | 👕👕👕👕 |
| Friday | 👕👕👕👕👕 |

👕 = 10 T-shirts

**15** The pictograph shows the number of T-shirts sold each day of School Spirit Week. About how many MORE T-shirts were sold on Tuesday than on Friday?

A. 4

B. 5

C. 40

✔ D. 45

*Reporting Category* for Item 15: *Data Analysis, Statistics, and Probability* (p. 220)

*Use the grid below to answer question 16.*



vertex (vertices)—
a point common to
two sides of a
polygon
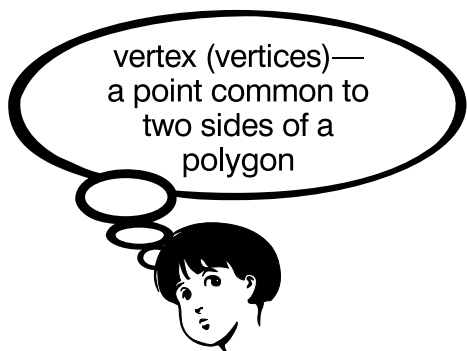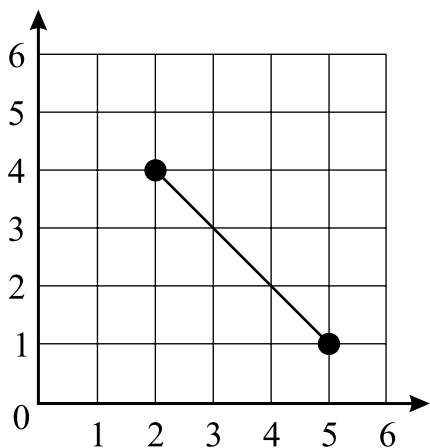
**16** Jeremy is drawing a RIGHT TRIANGLE on the grid above. He has marked two of the vertices of the triangle. Which could be an ordered pair for the third vertex?

✔ A. (5,4)

   B. (1,1)

   C. (6,4)

   D. (5,2)

*Reporting Category* for Item 16: ***Geometry*** (p. 219)

## Session 1, Open-Response Question

*Use the diagram below to answer question 17.*
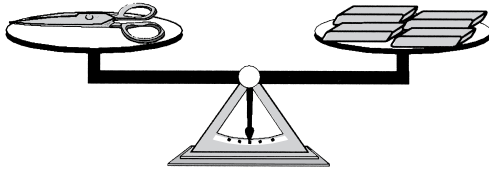


One pair of scissors weighs the same as 4 erasers.
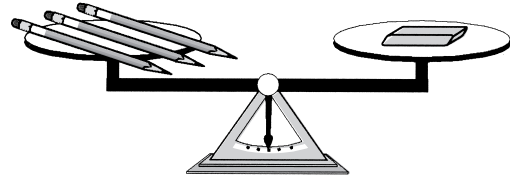
3 pencils weigh the same as 1 eraser.

**17**  a. How many pairs of scissors weigh the SAME AS 12 erasers? Be sure to explain or show how you know you are right.
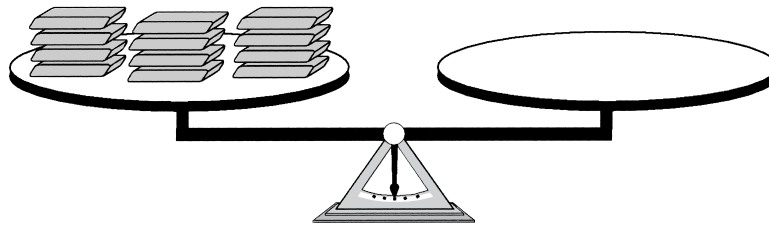


12 erasers weigh the same as _____ scissors.

b. Do three erasers weigh the SAME AS six pencils? Explain or show how you know.

c. How many pencils weigh the SAME AS one pair of scissors? Use pictures, numbers, or words to show how you know.

d. Write ONE number sentence to show how many pencils AND erasers weigh the SAME AS two pairs of scissors.

*Reporting Category* for Item 17: ***Patterns, Relations, and Algebra*** (p. 219)

## Session 2, Multiple-Choice Questions

*Use the pictograph below to answer question 18.*

**Flowers Planted in Amherst Parks**

| Roses | 🌸 🌸 🌸 |
| Daisies | 🌸 🌸 🌸 🌸 🌸 🌸 |
| Tulips | 🌸 🌸 🌸 🌸 🌸 🌸 🌸 |

**18** The pictograph shows the number of flowers planted in Amherst parks, but the key is missing. Townspeople planted 90 roses, 165 daisies, and 210 tulips. How many flowers does each 🌸 represent?

   A. 50

✔ B. 30

   C. 25

   D. 35

*Reporting Category* for Item 18: ***Data Analysis, Statistics, and Probability*** (p. 220)

*Use the diagram below to answer question 19.*
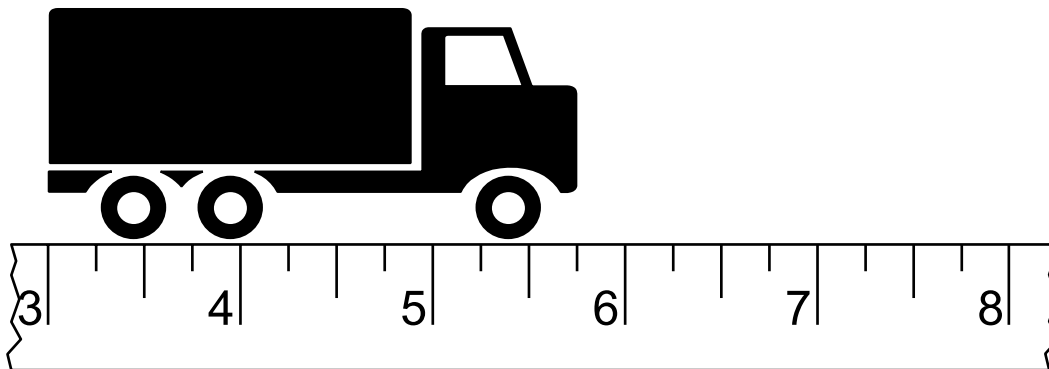


**19** How long is the truck?

    A.  $5\frac{3}{4}$ inches

✔    B.  $2\frac{3}{4}$ inches

    C.  $5\frac{1}{2}$ inches

    D.  $2\frac{1}{2}$ inches

*Reporting Category* for Item 19: ***Measurement*** **(p. 220)**

**20** The table below shows how much money Desmond had in his savings account for each of the last four weeks.

| Week | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Amount in Savings | $2 | $4 | $6 | $8 |

If he continues to save the same amount each week, which number sentence tells how much he will have in week 7?

✔    A. $7 \times \$2 = \$14$

     B. $\$8 + \$8 = \$16$

     C. $\$8 + \$2 = \$10$

     D. $7 \times \$8 = \$56$

*Reporting Category* for Item 20: ***Patterns, Relations, and Algebra*** **(p. 219)**

*Use the grid below to answer question 21.*
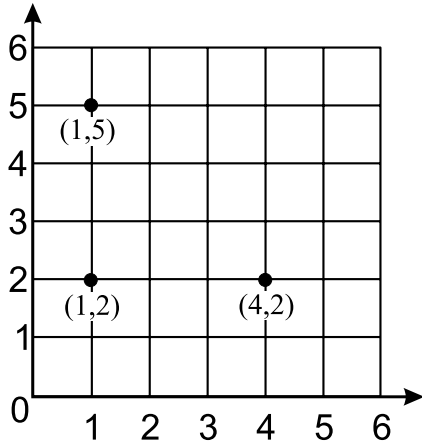


**21** Chantay is drawing a square on the grid above. She has marked three of the corners of the square. What is the ordered pair for the fourth corner?

A. (1,4)

B. (2,1)

✔ C. (4,5)

D. (5,2)

*Reporting Category* for Item 21: **Geometry (p. 219)**

**22** Which of the following is NOT true about 250?

A. It is one-fourth of 1000.

B. It is one-half of 500.

C. It is 10 times 25.

✔ D. It is 25 times 100.

*Reporting Category* for Item 22: **Number Sense and Operations (p. 217)**

**23** Kurt is wrapping a present for a friend. He can choose from 4 patterns of wrapping paper and 3 colors of ribbon. When he wraps the present, he will use 1 pattern of paper and 1 color of ribbon. How many different ways could he wrap the present?

✔ A. 12

B. 7

C. 24

D. 18

*Reporting Category* for Item 23: ***Data Analysis, Statistics, and Probability* (p. 220)**

**24** What number belongs in the box to make this number sentence true?

$$4,056 - \boxed{\phantom{00}} = 2,417$$

A. 1,749

B. 6,473

C. 2,441

✔ D. 1,639

*Reporting Category* for Item 24: ***Patterns, Relations, and Algebra* (p. 219)**

*Use the figure below to answer question 25.*



= 1 whole
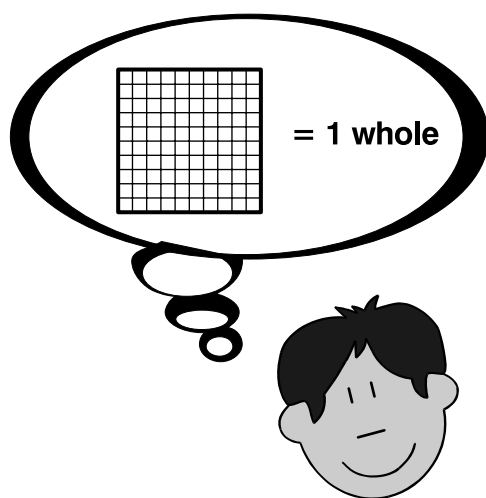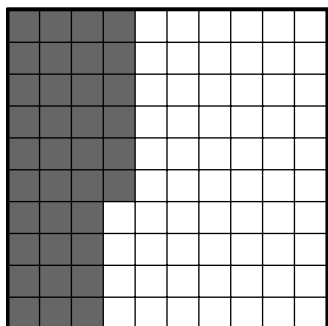
**25** Which decimal tells how much of the large square is SHADED?

✔ A. 0.36

B. 3.6

C. 0.64

D. 6.3

*Reporting Category* for Item 25: *Number Sense and Operations* (p. 217)

*Use the information in the line graph below to answer question 26.*

**Weight of Puppy During First Week**
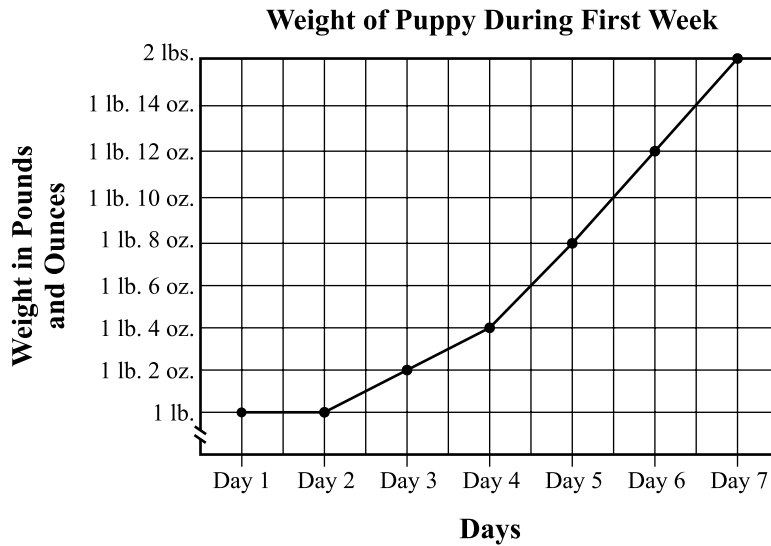


**26** The graph shows the weight gain of a puppy during its first week of life. Which is NOT true about the weight of the puppy?

A. The puppy gained 2 ounces between Day 3 and Day 4.

B. The puppy weighed $1\frac{1}{2}$ pounds on Day 5.

C. The puppy's weight doubled during the first week.

✔ D. The puppy's weight tripled during the first week.

*Reporting Category* for Item 26: ***Data Analysis, Statistics, and Probability*** (p. 220)

## Session 2, Open-Response Question

**27** Marcia and Max are making rectangular place mats.

- The length of each place mat is 15 inches.

- The perimeter of each place mat is 50 inches.

Perimeter is the distance around a figure.

a. They want to put yarn trim around some of the place mats. How many inches of yarn trim will they need for 20 place mats? Show your work.

b. What is the width of each place mat? Use pictures, numbers, or words to show or explain how you know.

c. What is the GREATEST number of place mats they can make from a piece of fabric that is 40 inches wide and 60 inches long? Explain or show how you know.

*Reporting Category* for Item 27: ***Measurement*** **(p. 220)**

## Session 2, Short-Answer Questions

**28** Compute:

$$378 \times 6 = \;?$$

Correct Answer:

2,268

*Reporting Category* for Item 28: **Number Sense and Operations** (p. 217)

*Use the information in the box below to answer question 29.*

Tom, Kevin, and Jackson are going to equally share the 60 stickers in the package they bought. How many stickers will each of them get?

This is a number sentence: $3 + 4 + 2 = 9$

This is NOT a number sentence:

$$
\begin{array}{r}
3 \\
4 \\
+2 \\
\hline
9
\end{array}
$$
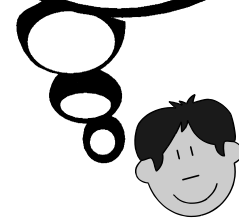
**29** Write a number sentence that can be used to solve the problem above. Be sure to include the answer in your number sentence.

Correct Answer:

$60 \div 3 = 20$ or
$20 + 20 + 20 = 60$

*Reporting Category* for Item 29: **Patterns, Relations, and Algebra** (p. 219)

**30** Find the number that goes in the box below.

$$97 + \square = 182$$

Correct Answer:

85

*Reporting Category* for Item 30: **Patterns, Relations, and Algebra** (p. 219)

## Session 2, Open-Response Question

*Use the information and chart below to answer question 31.*

**31** The fourth-grade class is going on a field trip to the Science Museum.

- They will arrive at the museum at 10:00 A.M. and leave at 2:00 P.M.

- They will have a 30-minute lunch break.

- They would like to see at least four different exhibits.

| Science Museum Exhibits | Time | Length of Show* |
|---|---|---|
| Planetarium | 10:00, 12:00; 2:00, 4:00 | 20 minutes |
| Laser Show | every hour beginning at 10:00 | 15 minutes |
| Electricity | every hour beginning at 10:30 | 30 minutes |
| IMAX Theater | 11:00, 1:00, 3:00 | 1 hour |
| Investigations | 10:00, 12:00, 2:00, 4:00 | 30 minutes |
| General Programs | 10:00 A.M. to 6:00 P.M. | stay as long as you like |

*NOTE: Length of show on chart includes travel time from one exhibit to another.

Write a schedule for the class field trip. Include at least FOUR EXHIBITS the class will visit and the beginning TIME they will see each exhibit. Be sure to include the lunch break in your schedule.

*Reporting Category* for Item 31: ***Number Sense and Operations*** (p. 217)

## Session 2, Multiple-Choice Questions

**32** What is 4,982 rounded to the nearest hundred?

A. 4,000

B. 4,900

C. 4,980

✔ D. 5,000

*Reporting Category* for Item 32: ***Number Sense and Operations*** (p. 217)

**33** Which picture correctly shows $\frac{7}{8}$?

A.

✔ B.

C.

D.
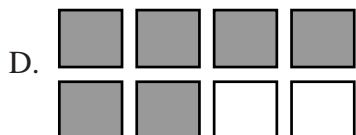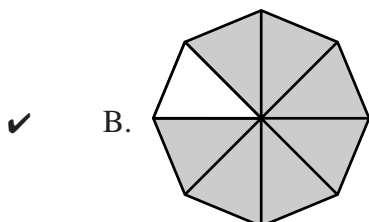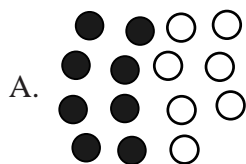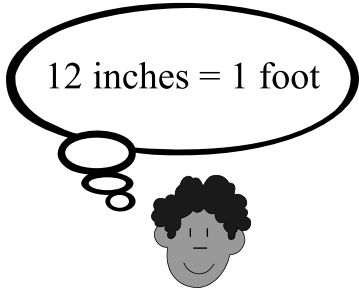
*Reporting Category* for Item 33: ***Number Sense and Operations*** (p. 217)

*Use the information in the chart below to answer answer question 34.*

12 inches = 1 foot

**Growth Rate of Alligators**

| Years 1-5 | 1 foot per year |
|-----------|-----------------|
| Years 6-9 | 3 inches per year |

**34** About how much will an average alligator have grown by the time it is ten years old?

✔ A.  6 feet

B.  9 feet

C.  10 feet

D.  17 feet

*Reporting Category* for Item 34: ***Data Analysis, Statistics, and Probability*** **(p. 220)**

*Use the letter in the box to answer question 35.*

**F**

**35** Which shows the letter after it has been FLIPPED ONCE?

✔ A.

B.

C.

D.
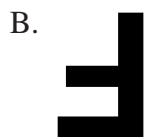
Reporting Category for Item 35: **Geometry** (p. 219)

**36** Which number or numbers can the box stand for to make the number sentence below true?

$$8 \times \square = \square \times 8$$
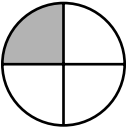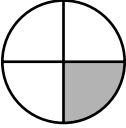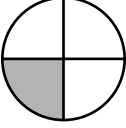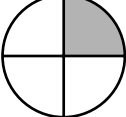
A. 0 only

B. 1 only

C. 0 or 1 only

✔ D. all numbers

*Use the pattern in the box below to answer question 37.*
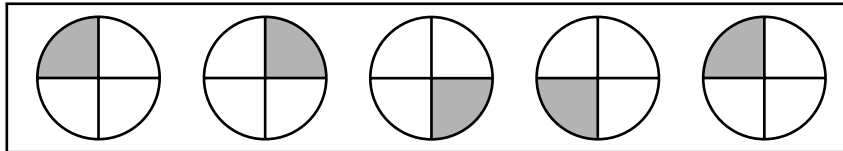
**37** What is the 8th figure in the pattern above?

A.

B.

✔ C.

D.

**38** Which fact is in the same fact family as $72 \div 9 = \square$?

✔ A. $9 \times \square = 72$

B. $72 \times 9 = \square$

C. $\square \div 72 = 9$

D. $9 \div \square = 72$

*Reporting Category* for Item 38: **Number Sense and Operations** (p. 217)

**39** Which pair of numbers makes the number sentence FALSE?

$$\bigcirc \div \square = 20$$

A. $100$, $5$

B. $80$, $4$

C. $60$, $3$

✔ D. $50$, $2$

*Reporting Category* for Item 39: **Patterns, Relations, and Algebra** (p. 219)

# IX. Mathematics, Grade 6

# Mathematics, Grade 6

The spring 2001 MCAS Mathematics test was based on the learning standards of the Massachusetts *Mathematics Curriculum Framework* (2000). The *Framework* identifies five major content strands:

▮ Number Sense

▮ Patterns, Relations, and Algebra

▮ Geometry

▮ Measurement

▮ Data Analysis, Statistics and Probability

# Curriculum Framework *Learning Standards*

Learning standards are grouped below by substrand and are directly quoted from the *Framework*; applicable *Framework* page numbers are shown in parentheses.

## Learning Standard for Grades 5-6
## Number Sense and Operations (*Framework*, p. 25)

*Students engage in problem solving, communicating, reasoning, connecting, and representing as they:*

▮ Demonstrate an understanding of positive integer exponents, in particular, when used in powers of ten (e.g., $10^2$, $10^5$).

▮ Demonstrate an understanding of place value to billions and thousandths.

▮ Represent and compare very large (billions) and very small (thousandths) positive number in various forms such as expanded notation without exponents (e.g., $9724 = 9 \times 1000 + 7 \times 100 + 2 \times 10 + 4$).

▮ Demonstrate an understanding of fractions as a ratio of whole numbers, as parts of units wholes, as part of a collections, and as locations on the number line.

▮ Identify and determine common equivalent fractions, mixed numbers, decimals, and percents.

▮ Find and position integers, fractions, mixed numbers, and decimals (both positive and negative) on the number line.

▮ Compare and order integers (including negative integers), and positive fractions, mixed numbers, decimals, and percents.

▮ Apply number theory concepts including prime and composite numbers, prime factorization, greatest common factor, least common multiple, and divisibility rules for 2, 3, 4, 5, 6, 9, and 10 to the solution problems.

- Select and use appropriate operations to solve problems involving addition, subtraction, multiplication, division, and positive integer exponents with whole numbers, and with positive fractions, mixed numbers, decimals, and percents.

- Use the number line to model addition and subtraction of integers, with the exception of subtracting negative integers.

- Apply the Order of Operations for expressions involving addition, subtraction, multiplication, and division with grouping symbols ( $+$ , $-$ , $\times$ , $\div$ ).

- Demonstrate an understanding of the inverse relationship of addition and subtraction, and use that understanding to simplify computation and solve problems.

- Accurately and efficiently add, subtract, multiply, and divide (with double–digit divisors) whole number and positive decimals.

- Accurately and efficiently add, subtract, multiply, and divide positive fractions and mixed numbers. Simplify fractions.

- Add and subtract integers with the exception of subtracting negative integers.

- Estimate results of computations with whole numbers and with positive fractions, mixed numbers, decimals, and percents. Describe reasonableness of estimates.

## Patterns, Relations, and Algebra (*Framework,* p. 34)

*Students engage in problem solving, communicating, reasoning, connecting, and representing as they:*

- Analyze and determine the rules for extending symbolic, arithmetic, and geometric patterns and progressions (e.g., ABBCCC; 1, 5, 9, 13 ...; 3, 9, 27, ...).

- Replace variables with given values and evaluate/simplify (e.g., $2(\bigcirc) + 3$ when $\bigcirc = 4$).

- Use the properties of equality to solve problems (e.g., if $\square + 7 = 13$, then $\square = 13 - 7$, therefore $\square = 6$; if $3 \times \square = 15$, then $\frac{1}{3} \times 3 \times \square = \frac{1}{3} \times 15$, therefore $\square = 5$).

- Represent real situations and mathematical relationships with concrete models, tables, graphs, and rules in words and with symbols (e.g., input-output tables).

- Solve linear equations using concrete models, tables, graphs, and paper-pencil methods.

- Produce and interpret graphs that represent the relationship between two variables in everyday situations.

- Identify and describe relationships between two variables with a constant rate of change. Contrast these with relationships where the rate of change is not constant.

# Geometry (*Framework*, p. 42)

*Students engage in problem solving communicating, reasoning, connecting, and representing as they:*

- Identify polygons based on their properties, including types of interior angles, perpendicular or parallel sides, and congruence of sides (e.g., squares, rectangles, rhombuses, parallelograms, trapezoids, and isosceles, equilateral, and right triangles).

- Identify three-dimensional shapes (e.g., cubes, prisms, spheres, cones, and pyramids) based on their properties, such as edges and faces.

- Identify relationships among points, lines, and planes (e.g., intersecting, parallel, perpendicular).

- Graph points and identify coordinates of points on the Cartesian coordinate plane (all four quadrants).[5]

- Find the distance between two points on horizontal or vertical number lines.

- Predict, describe, and perform transformations on two-dimensional shapes (e.g., translations, rotations, and reflections).

- Identify types of symmetry, including line and rotational.

- Determine if two shapes are congruent by measuring sides or a combination of sides and angles, as necessary; or by motions or series of motions (e.g., translations, rotations, and reflections).

- Match three-dimensional objects and their two-dimensional representations (e.g., nets, projections, and perspective drawings).

# Measurement (*Framework*, p. 50)

*Students engage in problem solving, communicating, reasoning, connecting, and representing as they:*

- Apply the concepts of perimeter and area to the solution of problems. Apply formulas where appropriate.

- Identify, measure, describe, classify, and construct various angles, triangles, and quadrilaterals.

- Solve problems involving proportional relationships and units of measurement, e.g., same system unit conversions, scale models, maps, and speed.

- Find areas of triangles and parallelograms. Recognize that shapes with the same number of sides but different appearances can have the same area. Develop strategies to find the area of more complex shapes.

- Identify, measure, and describe circles and the relationships of the radius, diameter, circumference, and area (e.g., $d = 2r$, $\pi = C/d$), and use the concepts to solve problems.

---

[5] Although this standard is important and appropriate for this grade span, it will not be included in the state assessment program at the 5-6 grade span at this time.

- Find volumes and surface areas of rectangular prisms.

- Find the sum of the angles in simple polygons (up to eight sides) with and without measuring the angles.

## Data Analysis, Statistics, and Probability (*Framework,* p. 58)

*Students engage in problem solving, communicating, reasoning, connecting, and representing as they:*

- Describe and compare data ses using the concepts of median, mean, mode, maximum and minimum, and range.

- Construct and interpret stem-and-leaf plots, line plots, and circle graphs.

- Use tree diagrams and other models (e.g., lists and tables) to represent possible or actual outcomes of trials. Analyze the outcomes.

- Predict the probability of outcomes of simple experiments (e.g., tossing a coin, rolling a die) and test the predictions. Use appropriate ratios between 0 and 1 to represent the probability of the outcome and associate the probability with the likelihood of the event.

# *MCAS Reporting Categories*

In *Test Item Analysis Reports* and on the *Subject Area Subscore* pages of the MCAS *School* and *District Reports,* Mathematics test results are reported under the following five MCAS reporting categories, which are identical to the five *Mathematics Curriculum Framework* content strands:

- Number Sense and Operations

- Patterns, Relations, and Algebra

- Geometry

- Measurement

- Data Analysis, Statistics, and Probability

# MCAS Spring 2001 Common Test Items
## Mathematics, Grade 6

## Test Sessions

MCAS grade 6 Mathematics Student Test Booklets contained 3 separate test sessions. Each session included multiple-choice and open-response questions. Session 1 also included short-answer questions.

## Reference Materials and Tools

During testing, each grade 6 student was provided with a **Mathematics Reference Sheet**. A sample of the Grade 6 Mathematics Reference Sheet is included in Appendix A of this document.

No calculators or other reference tools or materials were allowed during grade 6 Mathematics testing sessions.

## Cross-Reference Information

The shaded bar underneath each item indicates the item's MCAS reporting category and the *Framework* substrand that contains the learning standards assessed by the item. The parentheses indicate the page(s) in this document where the learning standards may be found.

## Session 1, Multiple-Choice Questions

**1** Ralph gets on his bike at 10 A.M. and rides towards his friend's house 9 miles away. At 10:12 A.M. he has ridden 3 miles. If he keeps going at the same rate, when will he arrive at his friend's house?

A. 10:21 A.M.

B. 10:24 A.M.

✔ C. 10:36 A.M.

D. 10:48 A.M.

*Reporting Category* for Item 1: ***Patterns, Relations, and Algebra*** **(p. 254)**

*Use the triangles shown below to answer question 2.*
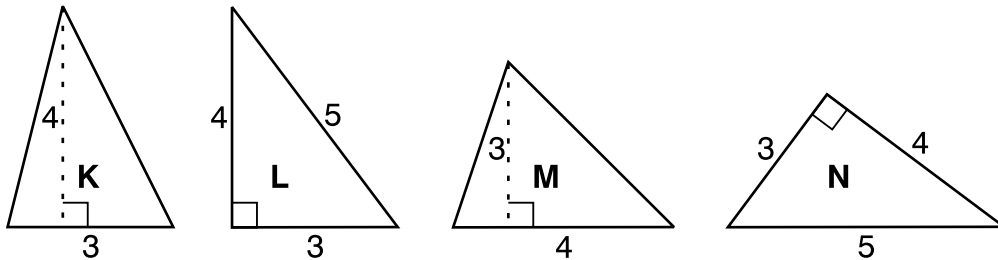


**2** Which triangles are congruent?

A. K and M only

✔ B. L and N only

C. K, L, M, and N

D. No two figures shown are congruent.

*Reporting Category* for Item 2: ***Geometry*** **(p. 255)**

*Use the picture below to answer question 3.*
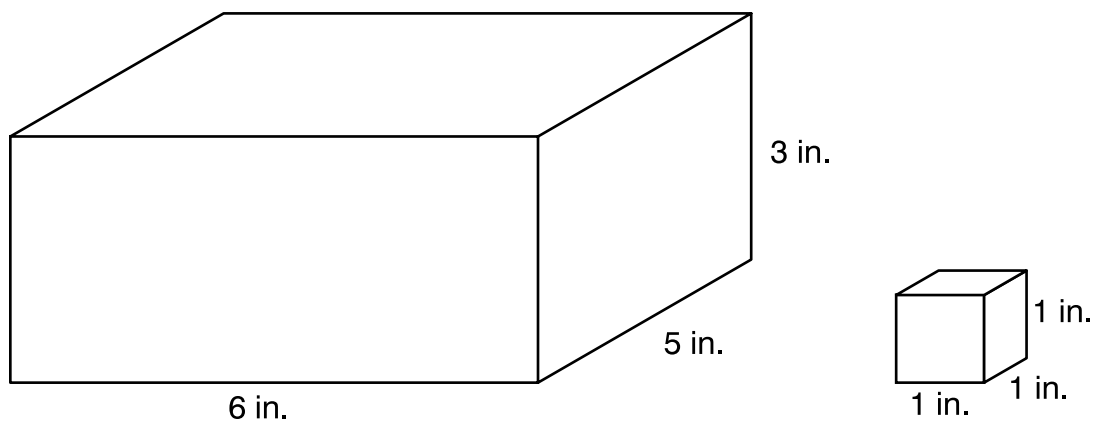


**3** How many 1-in. cubes will completely fill the carton shown?

A. 14

B. 33

✔ C. 90

D. 105

*Reporting Category* for Item 3: ***Measurement* (p. 255)**

**4** Which has the greatest value: $\frac{1}{3}$, 30%, or 0.31?

✔ A. $\frac{1}{3}$

B. 30%

C. 0.31

D. They all have exactly the same value.

*Reporting Category* for Item 4: ***Number Sense and Operations* (p. 253)**

**5** Carlos is planning a birthday party. He and his friends will have dinner at a restaurant and then do an activity afterwards. His choices are listed below.

   Dinner: pizza, hamburgers, barbecue, or seafood

   Activity: skating, amusement park, or movie

How many different combinations of dinner and activity are possible?

   A. 7

   B. 4

✔   C. 12

   D. 24

*Reporting Category* for Item 5: ***Data Analysis, Statistics, and Probability*** **(p. 256)**

## Session 1, Short-Answer Questions

**6** What does *m* equal in this equation?

$$3m + 2 = 17$$

3*m* means 3 times *m*

| Correct Answer: |
|---|
| 5 or $m = 5$ |

**7** Write $2 \times 2 \times 2 \times 3 \times 3 \times 5 \times 5$ in exponential notation.

| Correct Answer: |
|---|
| $2^3 \times 3^2 \times 5^2$ |

**8** What is the greatest common factor of 12 and 28?

| Correct Answer: |
|---|
| 4 |

## Session 1, Open-Response Question

*Use the picture below to answer question 9.*
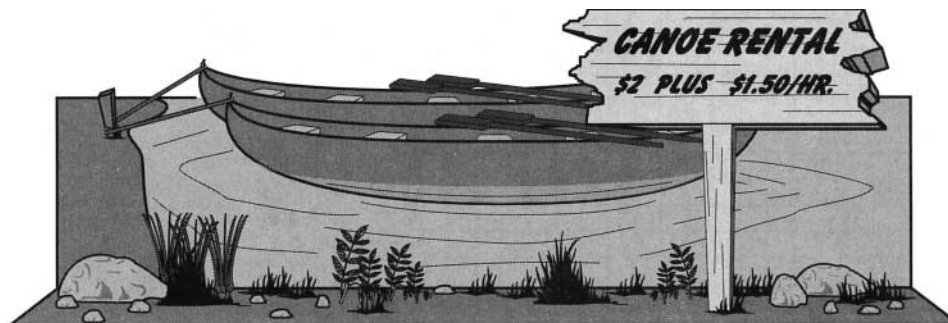


**9** Marion wants to rent a canoe to go out on a lake. The cost is $2.00 plus $1.50 for each hour.

   a. Make a table showing how much it would cost to rent a canoe for 1, 2, 3, and 4 hours.

   b. Using numbers, symbols, and the variable *n*, write an expression for how much it would cost to rent the canoe for *n* hours.

   c. Marion has $14.00. What is the greatest number of hours she can rent the canoe? Show your work or explain how you found your answer.

*Reporting Category* for Item 9: ***Patterns, Relations, and Algebra*** **(p. 254)**

## Session 1, Short Answer Questions

**10** Compute:

$$\frac{11}{12} - \frac{3}{8}$$

Correct Answer:

$$\frac{13}{24}$$

*Reporting Category* for Item 10: **Number Sense and Operations (p. 253)**

*Use the ruler and protractor included in your reference sheet to answer question 11.*

**11** Draw a triangle with exactly one obtuse angle. Label the obtuse angle with the letter *P*.

Correct Answer:
    Sample of Drawing

*P*
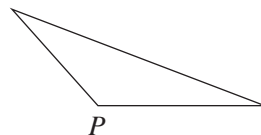
Answers will vary, provided that angle *P* is greater than 90º.

*Reporting Category* for Item 11: **Measurement (p. 255)**

## Session 1, Open-Response Question

*Use the spinner shown below to answer question 12.*
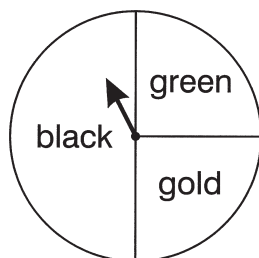


**12** Melinda and Henry are playing a game with this three-color spinner.

a. Henry thinks that the probability of landing on gold is $\frac{1}{3}$. Is Henry correct?

- If he is correct, explain how you know.

- If he is **not** correct, give the correct probability and explain how you know it is correct.

b. If Melinda and Henry will spin the spinner 60 times in the game, about how many times can they expect it to land on each of the three colors? Explain or show how you found your answer.

c. Melinda and Henry started playing the game, and after 30 spins the spinner had landed on black 10 times. Henry told Melinda that this shows that the probability of landing on black must be $\frac{10}{30} = \frac{1}{3}$. Is Henry correct?

- If he is correct, explain how you know.

- If he is **not** correct, tell what is the probability of landing on black. Explain how it is possible that the spinner could have landed on black 10 times out of a total of 30 spins.

*Reporting Category* for Item 12: ***Data Analysis, Statistics, and Probability*** (p. 256)

## Session 2, Multiple-Choice Questions 🚫

*Use the picture below to answer question 13.*
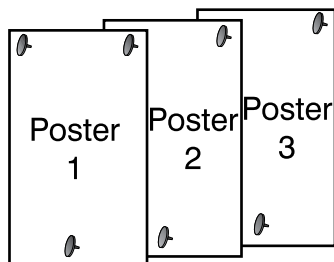


**13** Ethan hung 12 posters in **one** row on his wall using tacks as shown in the picture above. Ethan used 3 tacks for the first poster. He used 2 tacks for each additional poster. How many tacks will he need to hang all 12 posters?

A. 13

✔ B. 25

C. 12

D. 24

*Reporting Category* for Item 13: ***Patterns, Relations, and Algebra*** (p. 254)

*Use the figures below to answer question 14.*


4

5

Figure 1


3

6

Figure 2


5

5

Figure 3


2

10
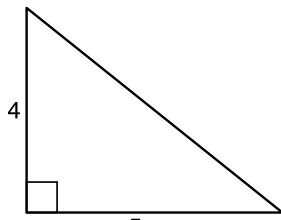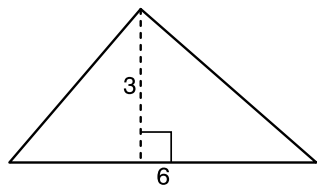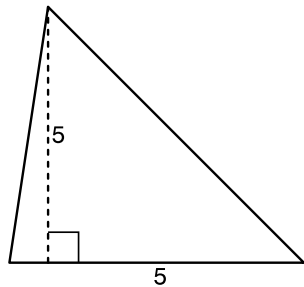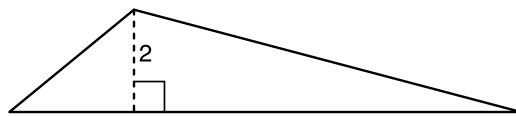
Figure 4

**14** Which two figures have the same area?

✔  A.  Figures 1 and 4

   B.  Figures 1 and 2

   C.  Figures 2 and 3

   D.  Figures 2 and 4

*Reporting Category* for Item 14: **Measurement** (p. 255)

*Use the coupon shown below to answer question 15.*

---

### ¼ OFF COUPON

**Take ¼ off the price of a combo meal!**

(sandwich, large fries, large drink)

---

**15**  The regular price of a combo meal is $5.00. How much money is saved by using the coupon?

A.  $1.00

B.  $3.75

✔  C.  $1.25

D.  $4.00

*Reporting Category* for Item 15: **Number Sense and Operations (p. 253)**

**16**  Jerrod has a bag with 14 green marbles, 8 white marbles, 4 red marbles, and 4 black marbles. If he wants the probability of picking a green marble to be $\frac{1}{2}$, which should Jerrod do?

✔  A.  add two green marbles

B.  remove two white, two red, and two black marbles

C.  remove two green marbles

D.  add two white, two red, and two black marbles

*Reporting Category* for Item 16: **Data Analysis, Statistics, and Probability (p. 256)**

*Use the figure shown below to answer question 17.*
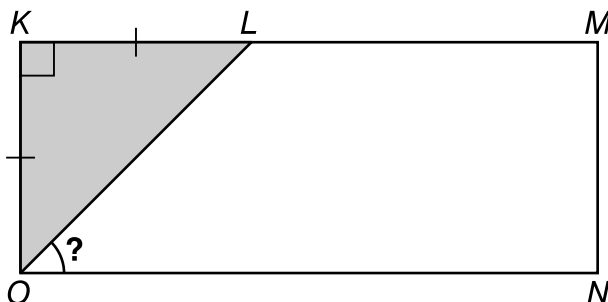


**17** Polygon *KMNO* is a rectangle and the lengths of $\overline{KL}$ and $\overline{KO}$ are equal. What is the measure of angle *LON*?

   A. 30°

✔  B. 45°

   C. 90°

   D. 135°

*Reporting Category* for Item 17: ***Measurement* (p. 255)**

*Use the number pattern below to answer question 18.*

$$1.9, \quad 3.1, \quad 4.3, \quad 5.5, \quad \underline{\phantom{xx}}, \quad \underline{\phantom{xx}}, \quad \underline{\,?\,}, \quad \ldots$$

**18** Which is the **seventh** number in this pattern?

   A. 8.1

   B. 7.9

   C. 6.7

✔  D. 9.1

*Reporting Category* for Item 18: ***Patterns, Relations, and Algebra* (p. 254)**

**19** Donna wants to use ready-made 6-foot long fence sections for her yard. The yard measures 24 feet long and 30 feet wide. How many **fence sections** would she need to enclose her entire yard?

  A. 120

✔ B. 18

  C. 108

  D. 20

*Reporting Category* for Item 19: **Measurement** (p. 255)

**20** The 23 members of the school jazz band are going to perform a concert. They will go to the concert in vans that will safely hold up to 6 students. How many vans will be needed to safely carry all of the students?

  A. 3

  B. 3.5

  C. $3\frac{5}{6}$

✔ D. 4

*Reporting Category* for Item 20: **Number Sense and Operations** (p. 253)

**21** If a whole number is divisible by 2, 3, 4, and 5, then it **must** be divisible by which number?

✔ A. 60

  B. 8

  C. 7

  D. 14

*Reporting Category* for Item 21: **Number Sense and Operations** (p. 253)

**22** Talia is thinking of a number. If she adds 6 to the number and divides the resulting number by 3, she will get 7. What is the original number?

✔    A. 15

     B. 3

     C. 10

     D. 16

*Reporting Category* for Item 22: ***Patterns, Relations, and Algebra*** **(p. 254)**

## Session 2, Open-Response Question

**23** Daniel has invented a new game with its own money system. The money system has the following three coins:

▢                    △                    ○

To challenge his friends to find the relationship among the values of the coins, he gave them the following three coins:

Clue 1:   ▢▢▢▢ is the same as △▢▢ .

Clue 2:   △△△△ is the same as ○▢▢ .

a. Use Clue 1 to find how many rectangles are worth the same as 1 triangle. Use words or pictures to explain your reasoning.

b. Use Clues 1 and 2 to find how many triangles are worth the same as 1 circle. Use words or pictures to explain your reasoning.

c. If 1 rectangle is worth 15 cents in U.S. money, what is the value in U.S. money of the other two coins? Explain how you found your answer.

*Reporting Category* for Item 23: ***Patterns, Relations, and Algebra*** **(p. 254)**

## Session 3, Multiple-Choice Questions 🚫

*Use the pattern below to answer question 24.*
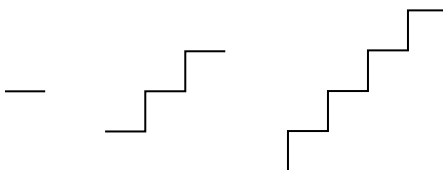


**24** How many line segments are needed to make the **fourth** figure in the pattern?

    A. 11

✔    B. 13

    C. 15

    D. 17

*Reporting Category* for Item 24: ***Patterns, Relations, and Algebra*** (p. 254)

**25** Ramona wants to take piano lessons. There are five piano teachers in her neighborhood. The prices the teachers charge for a half-hour lesson are: $8, $12, $12, $15, and $18. What is the **mean** price for a half-hour lesson?

    A. $8

    B. $10

    C. $12

✔    D. $13

*Reporting Category* for Item 25: ***Data Analysis, Statistics, and Probability*** (p. 256)

**26** A light year is approximately $6 \times 10^{12}$ miles. What is another way to write this number?

✔    A. 6,000,000,000,000

    B. 6,000,000,000

    C. 600,000,000,000

    D. 60,000,000,000,000

*Reporting Category* for Item 26: ***Number Sense and Operations*** (p. 253)

**27** Which shows the translation of pentagon *ABCDE* two units to the left?

A.



B.



C.



✔ D.
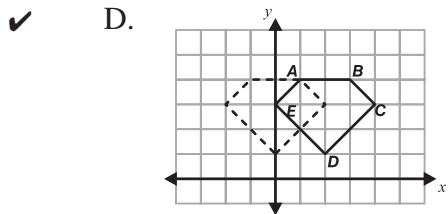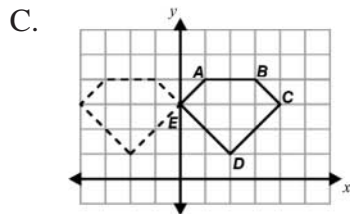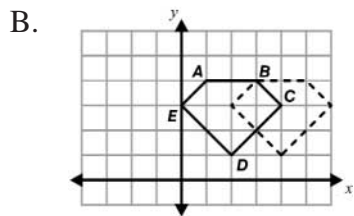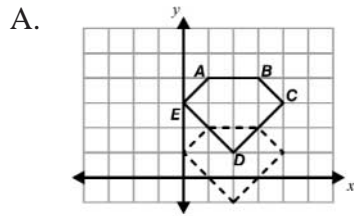
*Use the picture of the balance scale below to answer question 28.*
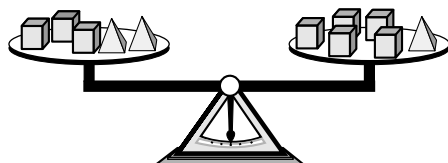


**28** Which sentence is true based on the balance shown by the scale?

A. The weight of △ is the same as the weight of ▭ ▭ ▭.

B. The weight of △ △ is the same as the weight of ▭.

C. The weight of △ △ △ is the same as the weight of ▭.

✔ D. The weight of △ is the same as the weight of ▭ ▭.

*Reporting Category* for Item 28: ***Patterns, Relations, and Algebra*** **(p. 254)**

*Use the graph below to answer question 29.*
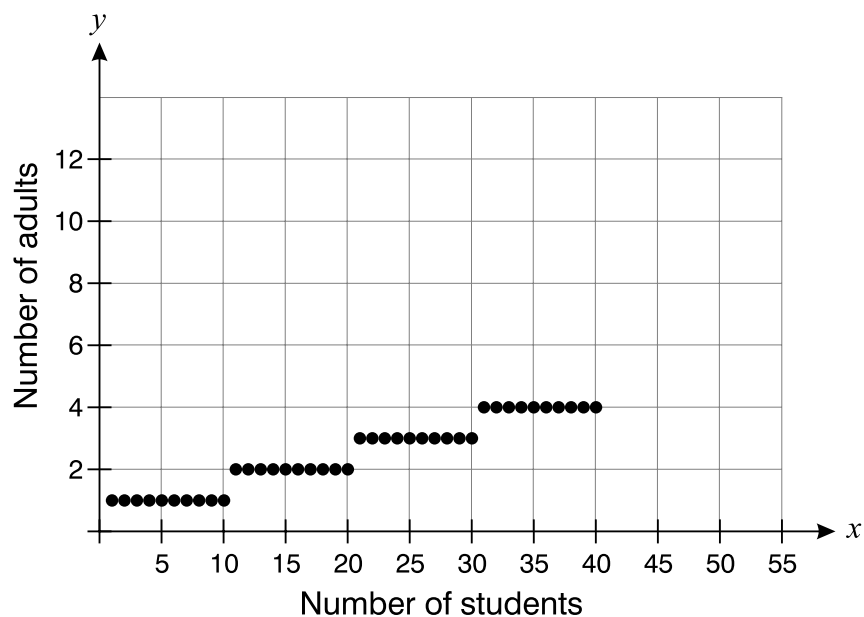


**29** The graph shows how many adults are needed to go on a field trip, based on the number of students going. If the relationship shown by the graph continues, how many adults are needed if 52 students are going on a field trip?

✔    A. 6

     B. 7

     C. 8

     D. 5

*Reporting Category* for Item 29: ***Patterns, Relations, and Algebra*** **(p. 254)**

*Use the figure below to answer question 30.*
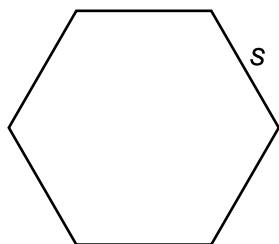


**30** All of the sides of this hexagon have the same length, *s*. Which expression represents the perimeter of this hexagon?

A. $s + 6$

✔ B. $s \times 6$

C. $s \div 6$

D. $s^6$

*Reporting Category* for Item 30: **Measurement** (p. 255)

**31** A garden snail can travel about 5 feet in 2 minutes. At this speed, how far can it travel in one **hour**?

A. 30 feet

B. 25 feet

C. 15 feet

✔ D. 150 feet

*Reporting Category* for Item 31: **Measurement** (p. 255)

**32** Which can be used to find the missing number in the number sentence below?

$3 \times \square = 39$

A.  $3 \div 39$

B.  $3 \times 39$

✔ C.  $39 \div 3$

D.  $39 - 3$

*Reporting Category* for Item 32: ***Patterns, Relations, and Algebra*** (p. 254)

*Use the picture below to answer question 33.*
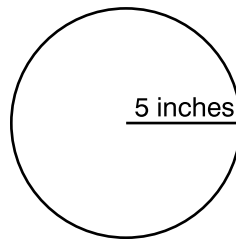


5 inches

**33** A circle has a radius of 5 inches. Which is the best estimate of its circumference?

A.  15 inches

✔ B.  30 inches

C.  $7\frac{1}{2}$ inches

D.  75 inches

*Reporting Category* for Item 33: ***Measurement*** (p. 255)

**34** This is how the 6th graders at Washington Middle School spent their recess time one day:

- 24 played football

- 10 played basketball

- 14 talked to friends

Which shows a ratio of 5 to 7?

A. talked to friends: played basketball

✔ B. played basketball: talked to friends

C. played basketball: played football

D. talked to friends: played football

*Reporting Category* for Item 34: ***Number Sense and Operations* (p. 253)**

**35** Which figure is a polygon?

A.

B.

✔ C.

D.
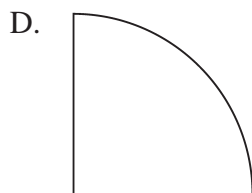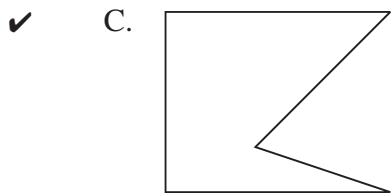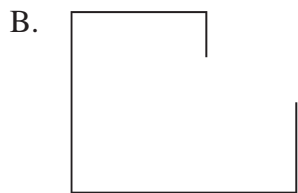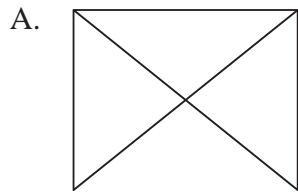
*Use the label below to answer question 36.*

**Nutrition Facts**

Serv. Size: 1 package
Servings per container: 1

**Amount/Serving % DV\* Amount/Serving % DV\***

**Total Calories................................**150

Calories from Fat.....................................90

Vitamin A 0% • Vitamin C 0% • Calcium 2% • Iron 4%
*Percent Daily Values (DV) are
based on a 2,000 calorie diet.

**36** What percent of the total calories comes from fat?

A. 75%

B. 6%

C. 55%

✔ D. 60%

**37** Jamey estimates that there are 9 minutes of commercials for every 60 minutes of television that he watches. Based on his estimate, how many minutes **without** commercials would there be in two hours?

A. 120 minutes

B. 138 minutes

✔ C. 102 minutes

D. 110 minutes

## Session 3, Open-Response Questions

*Use the ruler and protractor included in your reference sheet and the table below to answer question 38.*

> A **right** triangle has one right angle.
>
> An **isosceles** triangle has at least 2 congruent sides.
>
> An **acute** triangle contains three acute angles.
>
> An **obtuse** triangle contains one obtuse angle.

**38** a. Is it possible to draw a right triangle that is isosceles?

- If it is possible, draw such a triangle. Label the parts of the triangle that make it right and isosceles.

- If it is not possible, explain why it is not possible.

b. Is it possible to draw an acute triangle that is isosceles?

- If it is possible, draw such a triangle. Label the parts of the triangle that make it acute and isosceles.

- If it is not possible, explain why it is not possible.

c. Is it possible to draw a right triangle that is obtuse?

- If it is possible, draw such a triangle. Label the parts of the triangle that make it right and obtuse.

- If it is not possible, explain why it is not possible.

*Reporting Category* for Item 38: ***Geometry*** (p. 255)

**39** Jade was invited to participate in a quiz show that has two parts. There are 20 questions in each part.

- In the first part of the quiz show the contestant wins $50 for each correct answer.

- In the second part of the quiz show the contestant wins $100 for each correct answer.

a. Jade got $\frac{7}{10}$ of the 20 questions correct in the first part. How much money did she win? Show or explain how you found your answer.

b. Jade got 40% of the 20 questions correct in the second part. How much money did she win? Show or explain how you found your answer.

c. What part of the total possible money did Jade win? Show your answer in **two** of these three ways: as a fraction, as a decimal, or as a percent.

*Reporting Category* for Item 39: ***Number Sense and Operations*** **(p. 253)**

# X. Mathematics,

# Grade 8

# Mathematics, Grade 8

The spring 2001 MCAS Mathematics test was based on the learning standards of the Massachusetts *Mathematics Curriculum Framework* (2000). The *Framework* identifies five major content strands:

❚ Number Sense and Operations

❚ Patterns, Relations, and Algebra

❚ Geometry

❚ Measurement

❚ Data Analysis, Statistics, and Probability

# Curriculum Framework *Learning Standards*

Learning standards are grouped below by substrand and are directly quoted from the *Framework;* applicable *Framework* page numbers are shown in parentheses.

## Learning Standards for Grades 7-8
## Number Sense and Operations (*Framework*, p. 62)

*Students engage in problem solving, communicating, reasoning, connecting, and representing as they:*

❚ Compare, order, estimate, and translate among integers, fractions and mixed numbers (e.g., rational numbers), decimals, and percents.

❚ Define, compare, order, and apply frequently used irrational numbers, such as $\sqrt{2}$ and $\pi$.

❚ Use ratios and proportions in the solution of problems, in particular, problems involving unit rates, scale factors, and rate of change.

❚ Represent number in scientific notation, and use them in calculations and problems situations.

❚ Apply number theory concepts, including prime factorization and relatively prime numbers, to the solution of problems.

❚ Apply the rules of powers and roots to the solution of problems. Extend the Order of Operations to include positive integer exponents and square roots.

❚ Demonstrate an understanding of the properties of arithmetic operations on rational numbers. Use the associative, commutative, and distributive properties; properties of the identity and inverse elements (e.g., $-7 + 7 = 0$; $3/4 \times 4/3 = 1$); and the notion of closure of a subset of the rational numbers under an operation (e.g., the set of odd integers is closed under multiplication but not under addition).

- Use the inverse relationships of addition and subtraction, multiplication and division, and squaring and finding square roots to simplify computations and solve problems (e.g., multiplying by 1/2 or 0.5 is the same as dividing by 2).

- Estimate and compute with fractions (including simplification of fractions), integers, decimals, and percents (including those greater than 100 and less than 1).

- Determine when an estimate rather than an exact answer is appropriate and apply in problem situations.

- Select and use appropriate operations—addition, subtraction, multiplication, division, and positive integer exponents—to solve problems with rational numbers (including negatives).

## Patterns, Relations, and Algebra (*Framework*, p. 63)

*Students engage in problem solving, communicating, reasoning, connecting, and representing as they:*

- Extend, represent, analyze, and generalize a variety of patterns with tables, graphs, words, and, when possible, symbolic expressions. Include arithmetic and geometric progressions (e.g., compounding).

- Evaluate simple algebraic expressions for given variable values (e.g., $3a^2 - b$ for $a = 3$ and $b = 7$).

- Demonstrate an understanding of the identity $(-x)(-y) = xy$. Use this identity to simplify algebraic expressions (e.g., $(-2)(-x + 2) = 2x - 4$).

- Create and use symbolic expressions and relate them to verbal, tabular, and graphical representations.

- Identify the slope of a line as a measure of its steepness and as a constant rate of change from its table of values, equation, or graph. Apply the concept of slope to the solution of problems.

- Identify the roles of variables with an equation (e.g., $y = mx + b$) expressing y as a function of x with parameters m and b.

- Set up and solve linear equations and inequalities with one or two variables, using algebraic methods, models, and/or graphs.

- Explain and analyze—both quantitatively and qualitatively, using pictures, graphs, charts, or equations—how a change in one variable results in a change in another variable in functional relationships (e.g., $C = \pi d$, $A = \pi r^2$ (A as a function of r), $A_{rectangle} = lw$ ($A_{rectangle}$ as a function of l and w)).

- Use linear equations to model and analyze problems involving proportional relationships. Use technology as appropriate.

- Use tables and graphs to represent and compare linear growth patterns. In particular, compare rates of change and x- and y-intercepts of different linear patterns.

# Geometry (*Framework*, p. 64)

*Students engage in problem solving, communicating, reasoning, connecting, and representing as they:*

- Analyze, apply, and explain the relationship between the number of sides and the sums of the interior and exterior angle measures of polygons.

- Classify figures in terms of congruence and similarity, and apply these relationships to the solution of problems.

- Demonstrate an understanding of the relationships of angles formed by intersecting lines, including parallel lines cut by a transversal.

- Demonstrate an understanding of the Pythagorean theorem. Apply the theorem to the solution of problems.

- Use a straight-edge, compass, or other tools to formulate and test conjectures, and to draw geometric figures.

- Predict the results of transformations on unmarked or coordinate planes and draw the transformed figure (e.g., predict how tessellations transform under translations, reflections, and rotations).

- Identify three-dimensional figures (e.g., prisms, pyramids) by their physical appearance, distinguishing attributes, and spatial relationships such as parallel faces.

- Recognize and draw two-dimensional representations of three-dimensional objects (e.g., nets, projections, and perspective drawings).

# Measurement (*Framework*, p. 65)

*Students engage in problem solving, communicating, reasoning, connecting, and representing as they:*

- Select, convert (within the same system of measurement), and use appropriate units of measurement or scale.

- Given the formulas, convert from one system of measurement to another. Use technology as appropriate.

- Demonstrate an understanding of the concepts and apply formulas and procedures for determining measures, including those of area and perimeter/circumference of parallelograms, trapezoids, and circles. Use technology as appropriate.

- Use ratio and proportion (including scale factors) in the solution of problems, including problems involving similar plane figures and indirect measurement.

- Use models, graphs and formulas to solve simple problems involving rates (e.g., velocity and density).

# Data Analysis, Statistics, and Probability (*Framework,* p. 66)

*Students engage in problem solving, communicating, reasoning, connecting, and representing as they:*

❙ Describe the characteristics and limitations of a data sample. Identify different ways of selecting a sample (e.g., convenience sampling, responses to a survey, random sampling).

❙ Select, create, interpret, and utilize various tabular and graphical representations of data (e.g., circle graphs, histograms, tables, and charts).

❙ Find, describe, and interpret appropriate measures of central tendency (mean, median, and mode) and spread (range) that represent a set of data. Use these notions to compare different sets of data.

❙ Use tree diagrams, tables, organized lists, basic combinatorics ("fundamental counting principle"), and area models to compute probabilities for simple compound events (e.g., multiple coin tosses or rolls of dice).

# MCAS Reporting Categories

In *Test Item Analysis Reports* and on the *Subject Area Subscore* pages of the MCAS *School* and *District Reports,* Mathematics test results are reported under the following five MCAS reporting categories, which are identical to the five *Mathematics Curriculum Framework* content strands:

❚ Number Sense and Operations

❚ Patterns, Relations, and Algebra

❚ Geometry

❚ Measurement

❚ Data Analysis, Statistics, and Probability

# MCAS Spring 2001 Common Test Items
# Mathematics, Grade 8

## Test Sessions

MCAS grade 8 Mathematics Student Test Booklets contained 3 separate test sessions. Each session included multiple-choice, and open-response questions. Session 1 also included short-answer questions.

## Reference Materials and Tools

During testing, each grade 8 student was provided with a **Mathematics Reference Sheet**. A sample of the Grade 8 Mathematics Reference Sheet is included in Appendix A of this document.

During Sessions 2 and 3, each grade 8 student was allowed to use a personal calculator while answering test questions. If any student could not provide his or her own calculator with at least four functions and a square root key, one was provided to that student for use during those sessions. Calculator use was not allowed during Session 1.

No other reference tools or materials were allowed during any grade 8 Mathematics testing sessions.

## Cross-Reference Information

The shaded bar underneath each item indicates the item's MCAS reporting category and the *Framework* substrand that contains the learning standards assessed by the item. The parentheses indicate the page(s) in this document where the learning standards may be found.

## Session 1, Multiple-Choice Questions

**1** (0.5)(0.5)(0.5) is equal to which of the following?

A. 0.000125

B. 0.00125

✔ C. 0.125

D. 1.25

*Reporting Category* for Item 1: **Number Sense and Operations** (p. 285)

**2** Which is the **best** approximation of $\sqrt{72}$?

A. 7.2

B. 9.1

C. 8.9

✔ D. 8.5

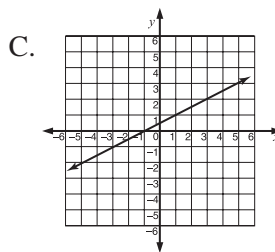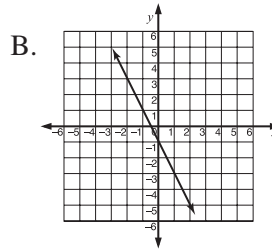*Reporting Category* for Item 2: **Number Sense and Operations** (p. 285)

**3** Which graph contains the points given in the table below?

| x | y |
|---|---|
| ⁻2 | 3 |
| ⁻1 | 1 |
| 1 | ⁻3 |
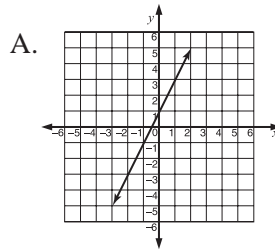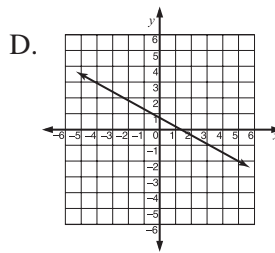
A.

B. ✔

C.

D.

*Use the chart below to answer question 4.*

| Input  | 3  | 4  | 5  | 6  | . . . | $n$ |
|--------|----|----|----|----|-------|-----|
| Output | 10 | 13 | 16 | 19 | . . . | ?   |

**4**  If the input is $n$, what will the output be?

A. $n + 3$

B. $n + 7$

C. $3(n + 2) + 1$

✔ D. $3n + 1$

*Reporting Category* for Item 4: **Patterns, Relations, and Algebra** (p. 286)

**5**  A hole in a piece of metal has a diameter of $3\frac{1}{2}$ inches. Which of the following pipes is the largest that will fit through the hole?

A. a pipe with a diameter of $3\frac{3}{8}$ inches

B. a pipe with a diameter of $3\frac{7}{8}$ inches

C. a pipe with a diameter of $3\frac{5}{16}$ inches

✔ D. a pipe with a diameter of $3\frac{7}{16}$ inches

*Reporting Category* for Item 5: **Number Sense and Operations** (p. 285)

## Session 1, Short-Answer Questions

**6** Each arrangement in this pattern is made up of tiles.



**1st**　　　**2nd**　　　　　**3rd**
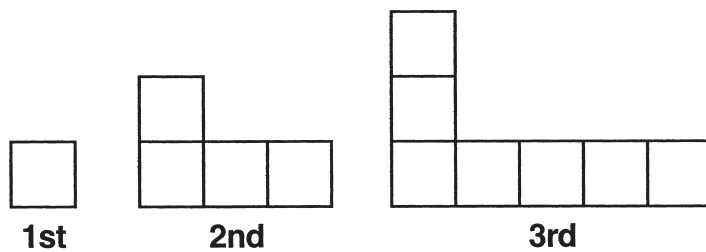
How many tiles will be in the 6th arrangement in the pattern?

Correct Answer:

16

*Reporting Category* for Item 6: ***Patterns, Relations, and Algebra*** **(p. 286)**
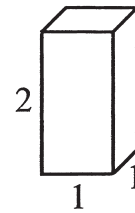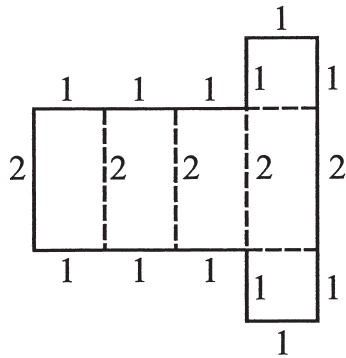
**7** Compute:

$$8 - (-5 + 3 \times 7) =$$

Correct Answer:

$-8$

*Reporting Category* for Item 7: ***Number Sense and Operations*** **(p. 285)**

## Session 1, Open-Response Question

8  The pattern shown below is for a square prism. The lengths of the line segments in the pattern were chosen so that the pattern could be folded along the dotted lines into the prism shown.

a. Make a sketch of a pattern for a triangular prism. Label **each** line segment with a length that will make it possible to fold the pattern into the triangular prism.

b. Make a sketch of a pattern for a cylinder. Label **each** line segment and diameter in your pattern with a length that will make it possible to create the cylinder from the pattern.

*Reporting Category* for Item 8: **Geometry** (p. 287)

## Session 1, Short-Answer Questions

**9**   25% of what number is 100?

Correct Answer:

400

*Reporting Category* for Item 9: **Number Sense and Operations** (p. 285)

**10**   Compute:

$$(-4)^3 =$$

Correct Answer:

$-64$

*Reporting Category* for Item 10: **Number Sense and Operations** (p. 285)

**11**   What does $x$ equal in the equation below?

$$\frac{3x}{4} - 2 = 7$$

Correct Answer:

12 or $x = 12$

*Reporting Category* for Item 11: **Patterns, Relations, and Algebra** (p. 286)

## Session 1, Open-Response Question

**12** An eighth-grade class will perform the first **four** acts in the annual talent show. Every student is in exactly one of the four acts. The order in which the acts will be presented is to be decided by a drawing so that each act has an equal chance of being drawn.

a. Chantal is a member of the eighth-grade class. What is the probability that her act will be presented first?

b. Chantal's act was chosen to be presented first. Make a tree diagram, chart, or list showing all the possible orders in which the **other three acts** could be presented. Use the letters A, B, and C to represent these three acts.

c. Rory, Jesse, and Chantal are all members of the eighth-grade class who will each perform an act. What is the probability that Rory's act will immediately follow Jesse's? Explain how you found your answer.

*Reporting Category* for Item 12: ***Data Analysis, Statistics, and Probability*** (p. 288)

## Session 2, Multiple-Choice Questions

*Use the diagram below to answer question 13.*

**Parking Lot**
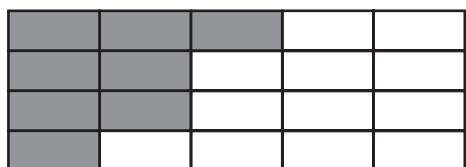


= one parking space

**13** The shaded parts of the diagram represent the spaces that are reserved. What percent of the spaces is reserved?

A. 20%

B. 30%

✔ C. 40%

D. 50%

*Reporting Category* for Item 13: *Number Sense and Operations* (p. 285)

**14** The formula for the volume (*V*) of a cube is
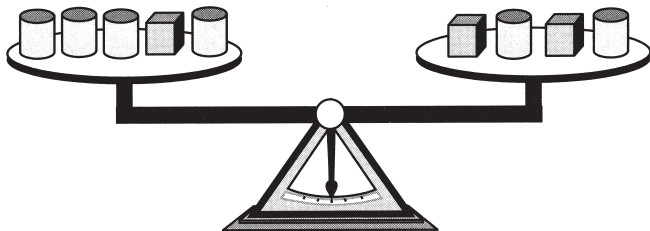
$$V = e^3$$

where *e* is the length of an edge.

An edge of a silver cube is twice as long as an edge of a gold cube. How many times greater is the volume of a silver cube than that of a gold cube?

A. 2 times greater

B. 9 times greater

✔ C. 8 times greater

D. 6 times greater

*Reporting Category* for Item 14: *Patterns, Relations, and Algebra* (p. 286)

*Use the balance scale below to answer question 15.*



**15** Which of the following shows the relationship between the weights of one cylinder and one cube?

✔    A. One cube weighs the same as two cylinders.

     B. One cube weighs the same as four cylinders.

     C. One cylinder weighs the same as two cubes.

     D. One cylinder weighs the same as four cubes.

*Reporting Category* for Item 15: ***Patterns, Relations, and Algebra*** **(p. 286)**

**16** Kayla is assembling a bookcase. She has put a metal piece into a hole in a shelf as shown below. The instructions say to rotate the piece 90° **counterclockwise**. How will the piece look **after** the rotation?

Metal piece

A. ↑

B. →

✔ C. ↓

D. ←
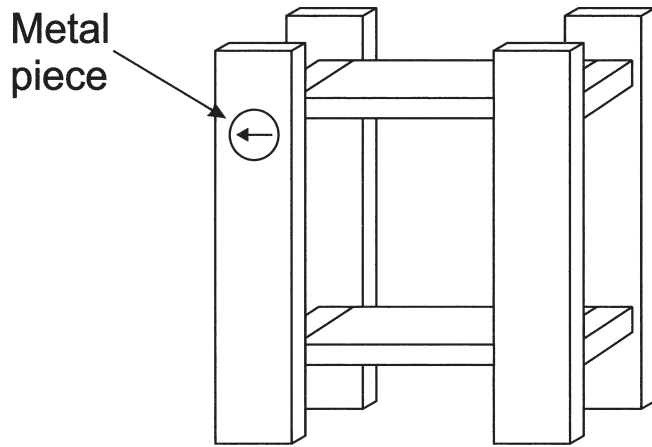
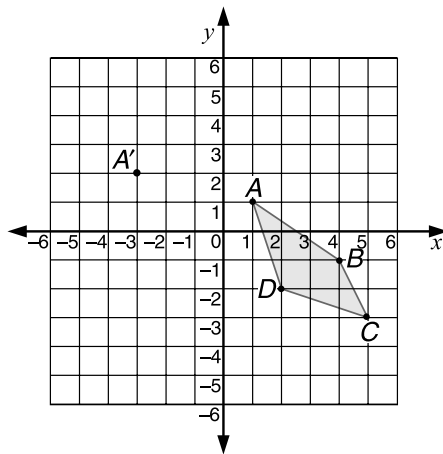**17** Corrine and her brother Jerome have the same birthday.

When Corrine was 8 years old, Jerome was 2.

Which equation shows the relationship between Corrine's age, $C$, and Jerome's age, $J$, at all times during their lives?

A. $C = 4J$

B. $J = 4C$

C. $J = 6 + C$

✔ D. $C = 6 + J$

*Reporting Category* for Item 17: **Patterns, Relations, and Algebra** (p. 286)

*Use the graph below to answer question 18.*



**18** If Figure *ABCD* is translated so that the image of *A* is *A′* at $(-3,2)$, then the coordinates of the image of point *B* will be

✔ A. $(0,0)$.

B. $(-1,4)$.

C. $(-2,-1)$.

D. $(-3,1)$.

*Reporting Category* for Item 18: **Geometry** (p. 287)

**19** In John's homeroom, $\frac{1}{3}$ of the students walk to school and $\frac{1}{4}$ come by car. The remaining 15 come by school bus. How many students are in his homeroom?

   A. 48

   B. 24

✔  C. 36

   D. 21

*Reporting Category* for Item 19: ***Patterns, Relations, and Algebra*** **(p. 286)**

**20** The first eight positions in a pattern are shown below.
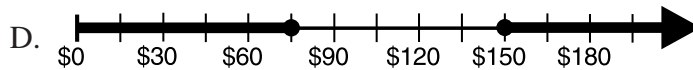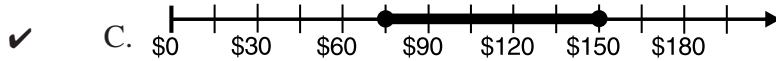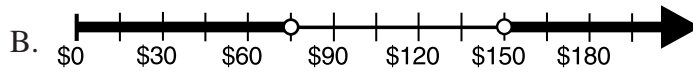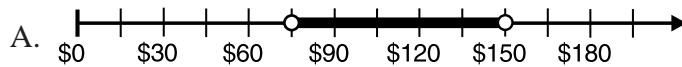
> N, S, E, W, N, S, E, W, . . .

If this pattern continues, which letter would be found at the 103rd position?

✔  A. E

   B. S

   C. N

   D. W

*Reporting Category* for Item 20: ***Patterns, Relations, and Algebra*** **(p. 286)**

**21** Imelda will work 10 to 20 hours per week at her new job and will be paid $7.50 per hour. Which of the following shows how much she can earn per week?

A.

```
|--+--+--+--o==========o--+--+--+-->
$0   $30   $60   $90  $120  $150  $180
```

B.

```
|=====================o--+--+--o=========>
$0   $30   $60   $90  $120  $150  $180
```

✔ C.

```
|--+--+--+--●==========●--+--+--+-->
$0   $30   $60   $90  $120  $150  $180
```

D.

```
|====================●--+--+--●=========>
$0   $30   $60   $90  $120  $150  $180
```

*Reporting Category* for Item 21: **Patterns, Relations, and Algebra (p. 286)**

**22** Eva has four sets of straws. The measurements of the straws are given below. Which set of straws could **not** be used to form a triangle?

A. Set 1: 4 cm, 4 cm, 7 cm

✔ B. Set 2: 2 cm, 3 cm, 8 cm

C. Set 3: 3 cm, 4 cm, 5 cm

D. Set 4: 5 cm, 12 cm, 13 cm

*Reporting Category* for Item 22: **Geometry (p. 287)**

## Session 2, Open-Response Question

**23** An eighth-grade class took a survey and found that the most popular types of music in their school were alternative rock, rap, and classic rock. They took a second survey to find out the students' preference among these three types of music. These are the results for 120 students.

| Favorite Types of Music | | |
|---|---|---|
| **Alternative Rock** | **Rap** | **Classic Rock** |
| 60 | 40 | 20 |

a. Make a rough sketch of a circle graph displaying these data. Tell how many degrees should be in each sector of the graph.

b. Explain how you found the number of degrees for each sector.

*Reporting Category* for Item 23: ***Data Analysis, Statistics, and Probability*** **(p. 288)**

## Session 3, Multiple-Choice Questions

**24** Lee correctly answered 11 out of 13 questions on the math test. To the nearest percent, what percent of the questions did Lee get correct?

    A. 90%

    B. 75%

    C. 80%

✔    D. 85%

*Reporting Category* for Item 24: **Number Sense and Operations** (p. 285)

**25** What is the product of a non-zero number $n$ and its reciprocal?

✔    A.   1

    B.   0

    C.  $-1$

    D.  $n^2$

*Reporting Category* for Item 25: **Number Sense and Operations** (p. 285)

*Use the table below to answer question 35.*

| Term | 1st | 2nd | 3rd | 4th | 5th | 6th |
|------|-----|-----|-----|-----|-----|-----|
| Value | ? | | 24 | 35 | 48 | 63 |

**26** The 3rd, 4th, 5th, and 6th terms of the sequence are given in the table. What number belongs in the first position in the sequence above?

    A. 7

✔    B. 8

    C. 9

    D. 10

*Reporting Category* for Item 26: **Patterns, Relations, and Algebra** (p. 286)

**27** In the figure below:

distance *yz* equals distance *zw* and
distance *xy* equals distance *yw*.

$$X \qquad\qquad Y \quad Z \quad W$$

Distance *yz* equals 4. Distance *xw* equals

A. 4.

B. 8.

✔ C. 16.

D. 12.

**28** The four finalists in the talent search will present their acts in the school talent show. Ms. King must decide which will be the first, second, third, and fourth acts in the show. In how many different ways can she arrange the four acts?

A. 6 ways

B. 16 ways

C. 18 ways

✔ D. 24 ways

**29** The largest natural lake in Massachusetts is Assawompsett Pond which has an area of 2,656 acres. What is the approximate area in square miles?

✔ A. 4 sq. mi.

B. 7 sq. mi.

C. 17 sq. mi.

D. 40 sq. mi.

*Use the advertisement below to answer question 30.*

## Outdoor Rental

**Weekend Canoe Rentals**
Friday to Sunday—$60
All day Saturday or Sunday — $35
Hourly Rate — $8.00 per hour or part of hour

**30**  Marco wants to rent a canoe from 9:00 A.M. to 1:30 P.M. on Saturday. Which of the following correctly compares the cost of renting the canoe for the entire day to the cost of renting the canoe by the hour?

    A. It will cost $5 less if he rents by the hour.

✔   B. It will cost $5 less if he rents by the day.

    C. It will cost $3 less if he rents by the hour.

    D. It will cost $3 less if he rents by the day.

*Reporting Category* for Item 30: ***Number Sense and Operations*** (p. 285)

**31**  So far this term, Calvin has these scores on quizzes:

$$81, \ 86, \ 96, \ 93, \ 84$$

There are two remaining quizzes. What is the lowest mean score he can get on these **two** quizzes to have an overall mean score of 90?

✔   A. 95

    B. 89

    C. 92

    D. 97

*Reporting Category* for Item 31: ***Data Analysis, Statistics, and Probability*** (p. 288)

**32** Al got an estimate for repairs on his bike. The parts will cost $17.50, and the parts and labor together will not be more than $40. Which inequality shows the possible labor costs, *L*?

    A. $40 + 17.50 \geq L$

    B. $40 + L \geq 17.50$

✔    C. $17.50 + L \leq 40$

    D. $L - 17.50 \leq 40$

*Reporting Category* for Item 32: **Patterns, Relations, and Algebra (p. 286)**

**33** Of the 12 songs on Ella's new CD, 3 are her favorites. If her CD player chooses one song at random, what is the probability that it will be one of her favorite songs?

✔    A. $\dfrac{1}{4}$

    B. $\dfrac{3}{4}$

    C. $\dfrac{1}{3}$

    D. $\dfrac{2}{3}$

*Reporting Category* for Item 33: **Data Analysis, Statistics, and Probability (p. 288)**

*Use the figure below to answer question 34.*



**34** The squares in the figure above are congruent. The **perimeter** of the entire figure is 24 units. What is the **area** of one of the **small** squares?

A. 2 square units

✔ B. 4 square units

C. 6 square units

D. 8 square units

*Reporting Category* for Item 34: **Measurement** (p. 287)

**35** Which is the best estimate of the angle between the two hands on a clock at 5:10?

A. 45°

B. 30°

✔ C. 90°

D. 60°

*Reporting Category* for Item 35: **Geometry** (p. 287)

**36** Ricardo drew a rectangle. Which statement **must** be true?

✔    A. Ricardo's figure is a parallelogram.

     B. Ricardo's figure is a regular polygon.

     C. Ricardo's figure is a square.

     D. Ricardo's figure is a rhombus.

*Reporting Category* for Item 36: **Geometry (p. 287)**

**37** Which of the following describes one way to solve this equation?

$$12 - 3x = 5$$

     A. Add $3x$ to both sides, then divide both sides by 3.

     B. Subtract $3x$ from both sides, then multiply both sides by 3.

     C. Add 12 to both sides, then multiply both sides by $-3$.

✔    D. Subtract 12 from both sides, then divide both sides by $-3$.

*Reporting Category* for Item 37: **Patterns, Relations, and Algebra (p. 286)**

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## Session 3, Open-Response Questions

**38** Ms. McCarthy's class is making up number puzzles. These are two of the puzzles.

---

**Manuel's puzzle:**

My number is even.
It is a factor of 198 and a multiple of 9.
It is less than 100.
What is my number?

---

**Haan's puzzle:**

My number is the product of three different
prime numbers.
It is an odd number less than 125.
The sum of its digits is a multiple of 3.
One of its factors is the third prime number.
What is my number?

---

a. What is Manuel's number?

b. What is Haan's number? Explain the strategy you used to find your answer to Haan's puzzle.

c. Write a number puzzle that

- has exactly **three** clues,

- has **one and only one** answer, and

- includes the following words: **factor** and **prime number.**

*Reporting Category* for Item 38: ***Number Sense and Operations*** (p. 285)

**39** Some eighth-grade students want to raise at least $300 for a field trip by selling popcorn and fruit bars. The chart below shows the amount of profit they will make on each sale.

**Profit from Sales**

| Box of popcorn | 60¢ |
| --- | --- |
| Fruit bar | 30¢ |

a. If they sell exactly 500 fruit bars, how many boxes of popcorn will they need to sell to make a total of $300?

b. On the grid in your Student Answer Booklet, draw a graph showing the combinations of boxes of popcorn and fruit bars they must sell to make a total of exactly $300. Let the horizontal axis represent the number of fruit bars. Label that axis to 1,000. Show or describe the calculations you used to find the data points for your graph.

c. Based on last year's sales, the students will probably not be able to sell more than 600 fruit bars. **Using your graph,** explain how you can find the number of boxes of popcorn the students must sell to make a total of $300 if they sell exactly 600 fruit bars. How many boxes of popcorn must they sell?

*Reporting Category* for Item 39: ***Patterns, Relations, and Algebra*** **(p. 286)**

# XI. Mathematics,

# Grade 10

# Mathematics, Grade 10

The spring 2001 MCAS Mathematics test was based on the learning standards of the Massachusetts *Mathematics Curriculum Framework* (2000). The *Framework* identifies five major content strands:

▮ Number Sense and Operations

▮ Patterns, Relations, and Algebra

▮ Geometry

▮ Measurement

▮ Data Analysis, Statistics and Probability

# Curriculum Framework *Learning Standards*

Learning standards are grouped below by substrand and are directly quoted from the *Framework*; applicable *Framework* page numbers are shown in parentheses.

## Learning Standards for Grades 9-10
## Number Sense and Operations (*Framework*, p. 72)

*Students engage in problem solving, communicating, reasoning, connecting, and representing as they:*

▮ Identify and use the properties of operations on real numbers, including the associative, commutative, and distributive properties; the existence of the identity and inverse elements for addition and multiplication; the existence of $n^{th}$ roots of positive real numbers for any positive integer n; and the inverse relationship between taking the $n^{th}$ root of and the $n^{th}$ power of a positive real number.

▮ Simplify numerical expressions, including those involving positive integer exponents; apply such simplifications in the solution of problems.

▮ Use estimation to judge the reasonableness of results of computations and of solutions to problems involving real numbers.

# Patterns, Relations, and Algebra (*Framework*, pp. 72-73)

*Students engage in problem solving, communicating, reasoning, connecting, and representing as they:*

■ Describe, complete, extend, analyze, generalize, and create a wide variety of patterns, including iterative, recursive (e.g., Fibonacci Numbers, linear, quadratic, and exponential functional relationships).

■ Demonstrate an understanding of the relationship between various representations of a line. Determine a line's slope and x- and y-intercepts from its graph or from a linear equation that represents the line. Find a linear equation describing a line from a graph or a geometric description of the line (e.g., by using the "point-slope" or "slope y-intercept" formulas). Explain the significance of a positive, negative, zero, or undefined slope.

■ Add, subtract, and multiply polynomials.

■ Demonstrate facility in symbolic manipulation of polynomial and rational expressions by rearranging and collecting terms; factoring (e.g., $a^2 - b^2 = (a + b)(a - b)$, $x^2 + 10x + 21 = (x + 3)(x + 7)$, $5x^4 + 10x^3 - 5x^2 = 5x^2 (x^2 + 2x - 1)$); identifying and canceling common factors in rational expressions; and applying the properties of positive integer exponents.

■ Find solutions to quadratic equations (with real roots) by factoring.

■ Solve equations and inequalities and apply to the solution of problems.

■ Solve everyday problems that can be modeled using linear, reciprocal, quadratic, or exponential functions. Apply appropriate tabular, graphical, or symbolic methods to the solution. Include compound interest, and direct and inverse variation problems. Use technology when appropriate.

■ Solve everyday problems that can be modeled using systems of linear equations or inequalities. Apply algebraic and graphical methods to the solution. Use technology when appropriate. Include mixture, rate, and work problems.

# Geometry (*Framework*, pp. 73-74)

*Students engage in problem solving, communicating, reasoning, connecting, and representing as they:*

■ Identify figures using properties of sides, angles, and diagonals. Identify the figures' type(s) of symmetry.

- Draw congruent and similar figures using a compass, straightedge, protractor, and other tools such as computer software. Make conjectures about methods of construction. Justify the conjectures by logical arguments. Recognize and solve problems involving angles formed by transversals of coplanar lines.

- Identify and determine the measure of central and inscribed angles and their associated minor and major arcs. Recognize and solve problems associated with radii, chords, and arcs within or on the same circle.

- Apply congruence and similarity correspondences (e.g., $\triangle ABC \cong \triangle XYZ$) and properties of the figures to find missing parts of geometric figures, and provide logical justification.

- Solve simple triangle problems using the triangle angle sum property and/or the Pythagorean theorem.

- Use the properties of special triangles (e.g., isosceles, equilateral, $30°-60°-90°$, $45°-45°-90°$) to solve problems.

- Use rectangular coordinates, calculate midpoints of segments, slopes of lines and segments, and distances between two points, and apply the results to the solutions of problems.

- Find linear equations that represent lines either perpendicular or parallel to a given line and through a point (e.g., by using the "point-slope" form of the equation).

- Draw the results, and interpret transformations on figures in the coordinate plane (e.g., translations, reflections, rotations, scale factors, and the results of successive transformations). Apply transformations to the solutions of problems.

- Demonstrate the ability to visualize solid objects and recognize their projections and cross sections.

- Use vertex-edge graphs to model and solve problems.

## Measurement (*Framework,* pp. 74-75)

*Students engage in problem solving, communicating, reasoning, connecting, and representing as they:*

- Calculate perimeter, circumference, and area of common geometric figures such as parallelograms, trapezoids, circles, and triangles.

■ Given the formula, find the lateral area, surface area, and volume of prisms, pyramids, cylinders, and cones.

■ Relate changes in the measurement of one attribute of an object to changes in other attributes (e.g., how changing the radius or height of a cylinder affects its surface area or volume).

## Data Analysis, Statistics, and Probability (*Framework,* p. 75)

*Students engage in problem solving, communicating, reasoning, connecting, and representing as they:*

■ Select, create, and interpret an appropriate graphical representation (e.g., scatterplot, table, stem-and-leaf plots, box-and-whisker plots, circle graph, line graph, and line plot) for a set of data and use appropriate statistics (e.g., mean, median, range, and mode) to communicate information about the data. Use these notions to compare different sets of data.

■ Approximate a line of best fit (trend line) given a set of data (e.g., scatterplot). Use technology when appropriate.

■ Describe and explain how the relative sizes of a sample and the population affect the validity of predictions from a set of data.

# MCAS Reporting Categories

In *Test Item Analysis Reports* and on the *Subject Area Subscore* pages of the MCAS *School* and *District Reports,* Mathematics test results are reported under the following five MCAS reporting categories, which are identical to the five *Mathematics Curriculum Framework* content strands:

❚ Number Sense and Operations

❚ Patterns, Relations, and Algebra

❚ Geometry

❚ Measurement

❚ Statistics, Data Analysis, and Probability

# MCAS Spring 2001 Common Test Items
# Mathematics, Grade 10

## Test Sessions

MCAS grade 10 Mathematics Student Test Booklets contained 3 separate test sessions. Each session included multiple-choice and open-response questions. Session 1 also included short-answer questions.

## Reference Materials and Tools

During testing, each grade 10 student was provided with a **Mathematics Reference Sheet**. A sample of the Grade 10 Mathematics Reference Sheet is included in Appendix A of this document.

During Sessions 2 and 3, each grade 10 student was allowed to use a personal calculator while answering test questions. If any student could not provide his or her own calculator with at least four functions and a square root key, one was provided to that student for use during those sessions. Calculator use was not allowed during Session 1.

No other reference tools or materials were allowed during any grade 10 Mathematics testing sessions.

## Cross-Reference Information

The shaded bar underneath each item indicates the item's MCAS reporting category and the *Framework* substrand that contains the learning standards assessed by the item. The parentheses indicate the page(s) in this document where the learning standards may be found.

## Session 1, Multiple-Choice Questions

**1** The value of $\dfrac{51.92 \times 202}{4.93}$ is closest to
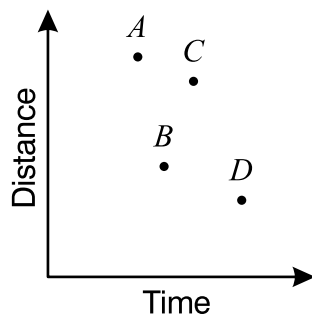
   A. 20.

   B. 200.

✔   C. 2,000.

   D. 20,000.

*Reporting Category* for Item 1: ***Number Sense and Operations*** **(p.315)**

**2** If $4 + 2(3x - 4) = 8$, then $3x - 4$ equals

   A. 4.

✔   B. 2.

   C. 8.

   D. 6.

*Reporting Category* for Item 2: ***Number Sense and Operations*** **(p.315)**

**3** The scatter plot below gives information about four different car trips.



Which point represents the trip with the fastest average speed?

✔ A. point *A*

B. point *B*

C. point *C*

D. point *D*

*Reporting Category* for Item 3: ***Data Analysis, Statistics, and Probability* (p. 318)**

**4** $2^4 \cdot 3^4$ is the same as

A. $5^4$.

B. $5^8$.

✔ C. $6^4$.

D. $6^8$.

*Reporting Category* for Item 4: ***Number Sense and Operations* (p.315)**

**5** Let $a$, $x$, and $y$ represent real numbers with $a > 0$ and $x > y$. Which of the following statements is **not** true?

    A. $ax > ay$

✔    B. $ay > ax$

    C. $x + a > y + a$

    D. $x - a > y - a$

*Reporting Category* for Item 5: **Number Sense and Operations** (p.315)

**6** $2\sqrt{5}$ is between

    A. 2 and 3.

✔    B. 4 and 6.

    C. 6 and 9.

    D. 9 and 12.

*Reporting Category* for Item 6: **Number Sense and Operations** (p.315)

**7** The sophomore class plans to sell T-shirts with the school's name on them. The cost of each T-shirt alone is $3.50, and the printing cost of each is $0.75. If the class plans on selling each printed T-shirt for $11, what expression can you use to calculate the class profit for selling $n$ printed T-shirts?

    A. $11.00 - (3.50 + 0.75)n$

    B. $11.00n - (3.50 + 0.75)$

    C. $11.00 - 3.50 - 0.75n$

✔    D. $(11.00 - 3.50 - 0.75)n$

*Reporting Category* for Item 7: **Patterns, Relations, and Algebra** (p.316)

*You may want to use the following coordinate plane to help you answer question 8.*
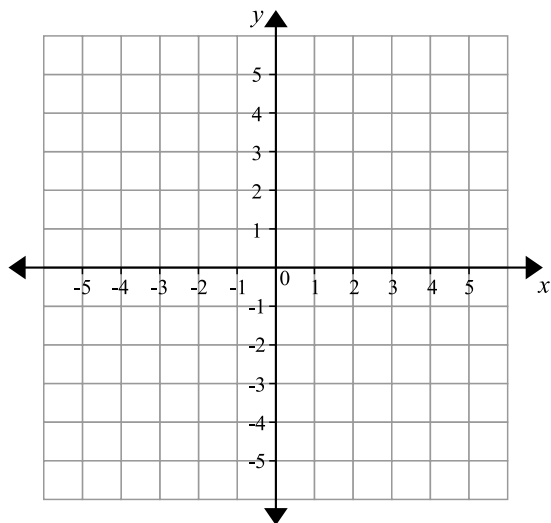


**8** As the result of a transformation, the image of the point $(-1,3)$ is $(-3,1)$. This is an example of a reflection across the

   A. line $y = x$.

✔   B. line $y = -x$.

   C. $x$-axis.

   D. $y$-axis.

*Reporting Category* for Item 8: ***Geometry*** **(p.316)**

**9** Julie designed a target computer game. On her computer screen, the circular targets look like the circular areas shown below.



1ft    2ft
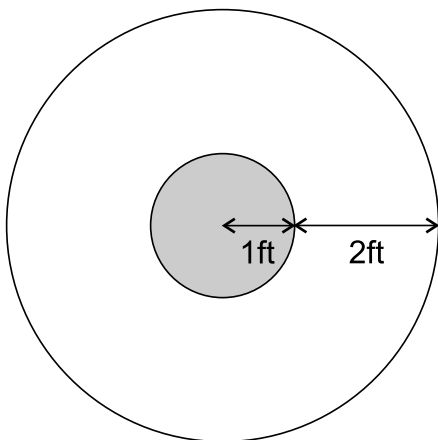
If the computer randomly generates a dot that lands within the circular areas, what is the approximate probability that the dot will land in the **shaded** area?

✔ A. $\dfrac{1}{9}$

B. $\dfrac{2}{9}$

C. $\dfrac{1}{3}$

D. $\dfrac{2}{3}$

*Reporting Category* for Item 9: ***Data Analysis, Statistics, and Probability*** (p. 288)

**10** Which of the following is **always** true?

✔  A.  The product of any two integers is an integer.

B.  The quotient of any two integers is an integer.

C.  The product of any two irrational numbers is irrational.

D.  The quotient of any two irrational numbers is irrational.

*Reporting Category* for Item 10: **Number Sense and Operations** (p.315)
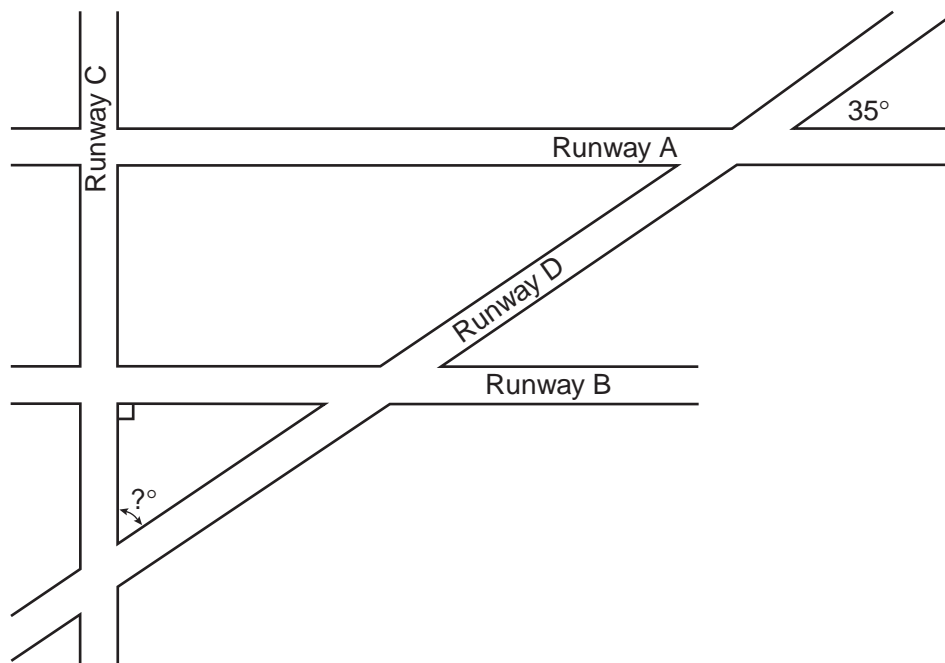
## Session 1, Short-Answer Questions

**11** In Oak Park, a picnic table is located 70 feet from the water fountain and 90 feet from the swings. What is the longest possible distance that the water fountain could be from the swings?

Correct Answer:

160 feet

*Reporting Category* for Item 11: ***Geometry*** **(p. 287)**

*Use the diagram below to answer question 12.*



**12** Runways A and B are parallel to each other and perpendicular to Runway C. If Runway D makes a 35° angle with Runway A as shown in the diagram, what is the measure of the angle marked in the diagram between Runways C and D?
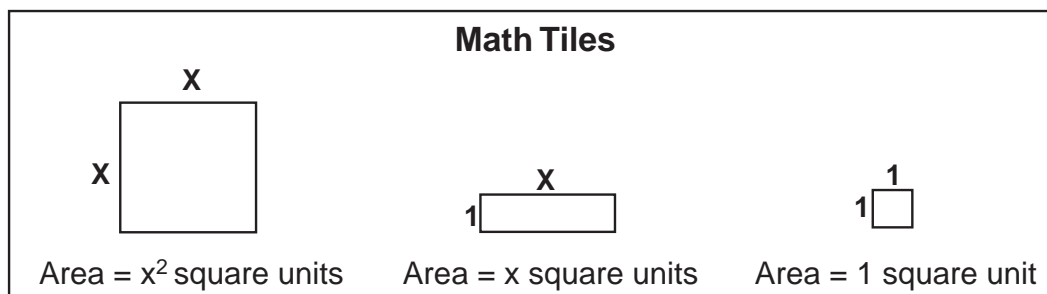
Correct Answer:

55°

*Reporting Category* for Item 12: ***Geometry*** **(p. 287)**
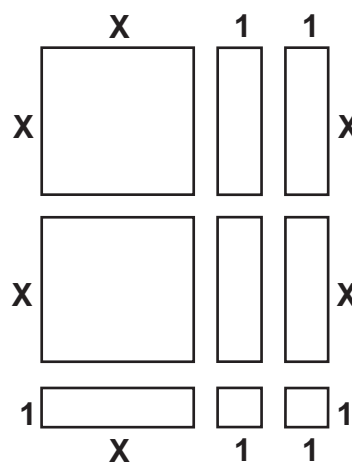
## Session 1, Open-Response Question

*Use the figure below to answer question 13.*

**Math Tiles**

X

X

Area = $x^2$ square units

X

1

Area = x square units

1

1

Area = 1 square unit

**13**  In the figures below, math tiles were used to build rectangular arrays to represent each of the quadratic expressions.

X

X  X

X  X

1  ▭  1
X

x(x + 1) or $x^2$ + x

X    1    1

X          X

X          X

X          X

X          X

1 ▭ ▯ ▯ 1
X    1    1
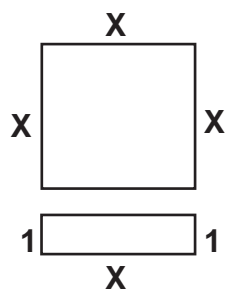
(x + 2)(2x + 1) or $2x^2$ + 5x + 2

a. Show how to build rectangular arrays, if possible, for each of the following expressions using the three math tiles.

$2x^2 + 3x + 1$      $3x^2 + 2x$      $3x^2 + 6x + 5$

b. How can you determine if a rectangular array can be built for an expression?

**14** Find **all** the values of $x$ that satisfy the following equation.

$$x^2 + 2x - 15 = 0$$

> Correct Answer:
>
> $-5$, 3, or $x = -5$ and $x = 3$

*Reporting Category* for Item 14: **Patterns, Relations, and Algebra (p.316)**

**15** At the first stop, $\dfrac{3}{4}$ of the passengers on the bus got off and 8 people got on. A total of 16 passengers were left on the bus. Write an equation that can be solved to find how many passengers were on the bus before the first stop. Let $x$ represent the number of passengers on the bus before the first stop. (You do **not** have to solve the equation.)

> Correct Answer:
>
> $\dfrac{1}{4}x + 8 = 16$ or equivalent equation

*Reporting Category* for Item 15: **Patterns, Relations, and Algebra (p.316)**

## Session 1, Open-Response Question

16  When Elena works on Saturdays, she buys a salad and juice for lunch. There are two take-out restaurants near where she works. The prices in the two restaurants are given below.

| **Hector's To-Go** |
| --- |
| Juice.................$2.00 per bottle |
| Salad bar..........25¢ per ounce |

| **Tammy's Take-Out** |
| --- |
| Juice.................$1.00 per bottle |
| Salad bar..........50¢ per ounce |

a. How many ounces of salad, together with a bottle of juice, can Elena buy at Hector's To-Go for $4.50?

b. Write an equation that shows the cost, *C*, of Elena's lunch at Hector's To-Go if she buys a bottle of juice and *n* ounces of salad.

c. On the grid in your Student Answer Booklet, graph the equation you wrote in part b.

   • Use the horizontal axis for the number of ounces, with each increment representing one ounce.

   • Use the vertical axis for cost, with each increment representing 50¢.

d. What are the different amounts of salad that Elena can buy so her complete lunch is less expensive at Tammy's Take-Out than at Hector's To-Go? Remember that Elena always buys a bottle of juice with her salad. Show or explain how you found your answer.

*Reporting Category* for Item 16: ***Patterns, Relations, and Algebra*** (p.316)

## Session 2, Multiple-Choice Questions

*Use the diagram below to answer question 17.*



225 ft.

45°

(not drawn to scale)
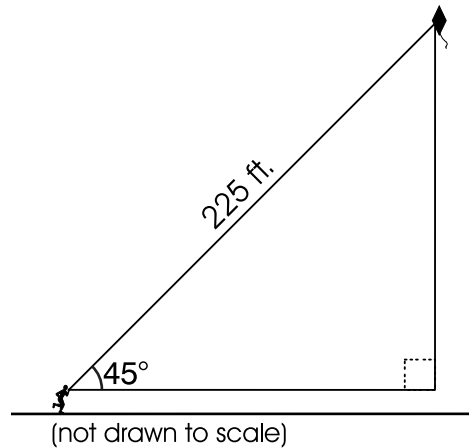
**17** It is believed that the best angle to fly a kite is 45°. If you fly a kite at this angle and let out 225 feet of string, **approximately** how high above the ground will the kite be?

A. 250 feet

B. 200 feet

✔ C. 150 feet

D. 100 feet

*Reporting Category* for Item 17: **Geometry** (p.316)

**18** The table below shows the distribution of CD sales of different types of music in a local store over a three-year period.

### CD Sales

| Type | Year 1 | Year 2 | Year 3 |
|---|---|---|---|
| Rock | 39.4% | 36.2% | 35.6% |
| Pop | 17.8% | 16.5% | 15.5% |
| Rap | 11.6% | 10.4% | 10.7% |
| Country | 7.7% | 7.9% | 7.8% |
| Other | 23.5% | 29.0% | 30.4% |
| **Total Sales (in thousands)** | **$1,732.10** | **$2,269.30** | **$2,639.80** |

Based on this information, from Year 1 to Year 3 the **total dollar value** of this store's sales of pop music

✔ A. increased.

B. decreased.

C. stayed the same.

D. Not enough information is given to tell.

*Reporting Category* for Item 18: ***Data Analysis, Statistics, and Probability*** (p. 288)

*Use the expression below to answer question 19.*

$$2x - 3(5x - 8)$$

**19** Which could be the first step in simplifying the expression above?

A. $2x - 15x + 8$

B. $2x - 15x - 24$

C. $2x - 15x - 8$

✔ D. $2x - 15x + 24$

*Reporting Category* for Item 19: ***Number Sense and Operations*** (p.315)

*Use the pattern below to answer question 20.*

**1,  3,  7,  15,  31,  63**

**20**  The 14th term in this pattern is 16,383. What is the 15th term?

    A.  16,385

    B.  16,415

✔    C.  32,767

    D.  32,781

*Reporting Category* for Item 20: ***Patterns, Relations, and Algebra*** **(p.316)**

## Session 2, Open-Response Questions

**21** Ms. Kemay started a small computer software business seven months ago. The following spreadsheet shows her income and expenses for each of the seven months.
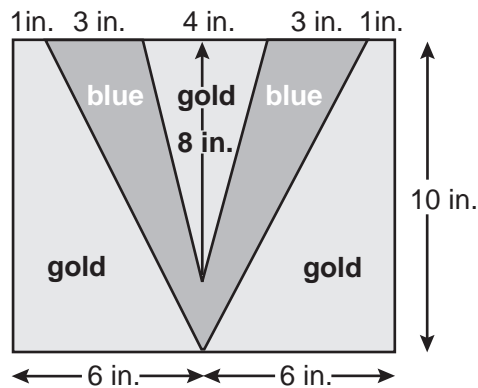
| Kemay Computer Software | | |
|---|---|---|
| **Month** | **Income** | **Expenses** |
| Sept. | $7,550 | $9,700 |
| Oct. | $9,500 | $10,250 |
| Nov. | $11,510 | $10,850 |
| Dec. | $13,400 | $11,280 |
| Jan. | $15,580 | $11,870 |
| Feb. | $17,450 | $12,320 |
| Mar. | $19,620 | $12,950 |

a. On the grid in your Student Answer Booklet, construct two line graphs using the **same axes**, one showing Ms. Kemay's income and one showing her expenses for the seven-month period.

b. Assuming that her income and expenses continue to grow at approximately the same rate, estimate her income and expenses for the month of May. Explain or show how you found your estimates.

c. Again, assuming that her income and expenses continue to grow at approximately the same rate, estimate in which month her profit (profit = income minus expenses) will, for the first time, be greater than $13,000. Explain or show how you found your estimates.

*Reporting Category* for Item 21: ***Number Sense and Operations*** (p.315)

*Use the graphic below to answer question 22.*



```
1in.  3 in.     4 in.     3 in.  1in.

        blue   gold   blue
                8 in.                    10 in.

        gold          gold

    ←— 6 in.—→←— 6 in.—→
```

**22** Students at Viking High School decide to have T-shirts made with a blue "V" inside a gold rectangle as shown in the diagram above.

The costs are as follows:

- plain T-shirt    $8.50
- blue coloring    $0.02 per square inch
- gold coloring    $0.04 per square inch

a. What is the area of the blue "V" in the diagram above? Show your work.

b. Explain how you can determine the area that will be colored gold.

c. What will be the total cost for each T-shirt shown above? Show your work.

*Reporting Category* for Item 22: **Measurement (p.317)**

## Session 3, Multiple-Choice Questions

*Use the map below to answer question 23.*
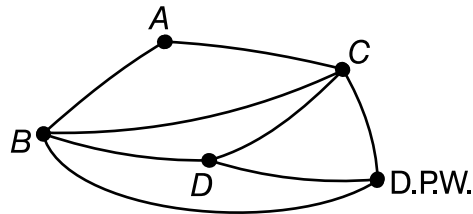


**23** Mr. Hendricks operates a snowplow for the Department of Public Works (D.P.W.). He found that he can

- begin snowplowing at the D.P.W.

- plow every street shown on the map above without going over any street more than once, and

- end at his home.

Where is his home located?

A. at *A*
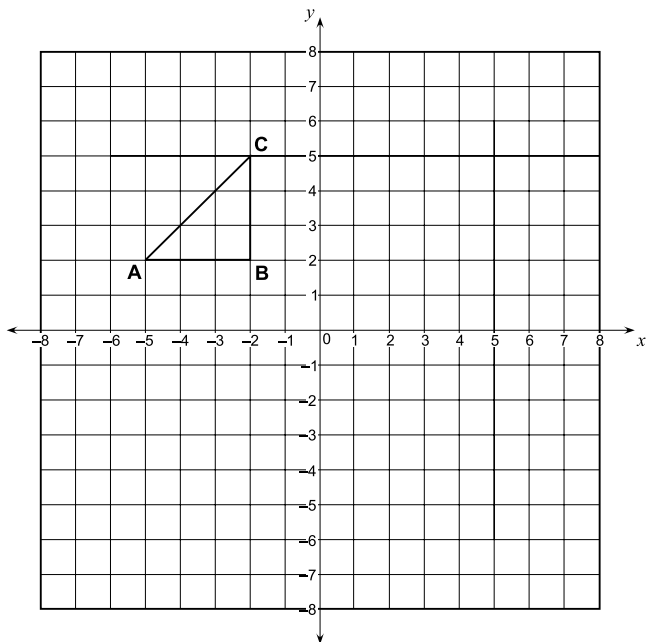
B. at *B*

C. at *C*

✔ D. at *D*

*Reporting Category* for Item 23: ***Geometry*** (p.316)

**24** Which of the following shows an application of the distributive property?

A. $(6xy + 4xy) + 2xz = 6xy + (4xz + 2xz)$

B. $2xy + 3xz + 5xy = 2xy + 5xy + 3xz$

✔ C. $4xy - 12xz = 4x(y - 3z)$

D. $-5xy + 5xy + 3xz = 3xz$

*Reporting Category* for Item 24: ***Number Sense and Operations*** (p.315)

*Use the graph below to answer question 25.*



**25** Suppose that $\Delta ABC$ is reflected over the *x*-axis. What are the coordinates of the image of point *C*?

A. (2,5)

B. (2,−5)

C. (−2,5)

✔   D. (−2,−5)
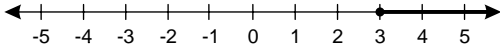
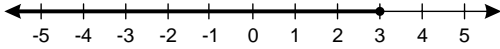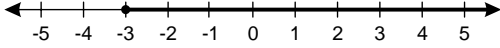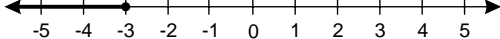**26** A set of 36 cards is numbered with the positive integers from 1 to 36. If the cards are shuffled and one is chosen at random, what is the probability that the number on the card is a multiple of **both 4 and 6**?

✔    A. $\dfrac{1}{12}$

     B. $\dfrac{1}{6}$

     C. $\dfrac{5}{12}$

     D. $\dfrac{2}{3}$

*Reporting Category* for Item 26: **Data Analysis, Statistics, and Probability** (p. 288)

*Use the inequality below to answer question 27.*

$$5 - x \le 8$$

**27** Which graph represents the solution set for the inequality?

A.    ◄—+—+—+—+—+—+—+—+—●━━━►
        -5 -4 -3 -2 -1 0 1 2 3 4 5

B.    ◄━━━━━━━━━━━━━━━━●—+—+—►
        -5 -4 -3 -2 -1 0 1 2 3 4 5

✔   C.    ◄—+—●━━━━━━━━━━━━━━━━►
        -5 -4 -3 -2 -1 0 1 2 3 4 5

D.    ◄━━━━●—+—+—+—+—+—+—+—►
        -5 -4 -3 -2 -1 0 1 2 3 4 5

*Reporting Category* for Item 27: **Patterns, Relations, and Algebra** (p. 286)

**28** Which expression represents the area of the shaded portion of the square below?



$$\longmapsto \quad n \quad \longmapsto$$
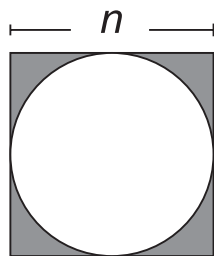
A. $n^2 - \pi n$

B. $n^2 - 2\pi n$

C. $n^2 - (\pi n^2)$

✔ D. $n^2 - \left(\dfrac{n}{2}\right)^2 \pi$

*Reporting Category* for Item 28: **Measurement** (p.317)

**29** The expression $4x^2 + 2x - 6 - x(3 - x)$ is equivalent to

✔ A. $5x^2 - x - 6.$

B. $4x^2 - 2x - 6.$

C. $3x^2 + 2x - 6.$

D. $5x^2 - 6.$

*Reporting Category* for Item 29: **Patterns, Relations, and Algebra** (p.316)

*Use the figure below to answer question 30.*



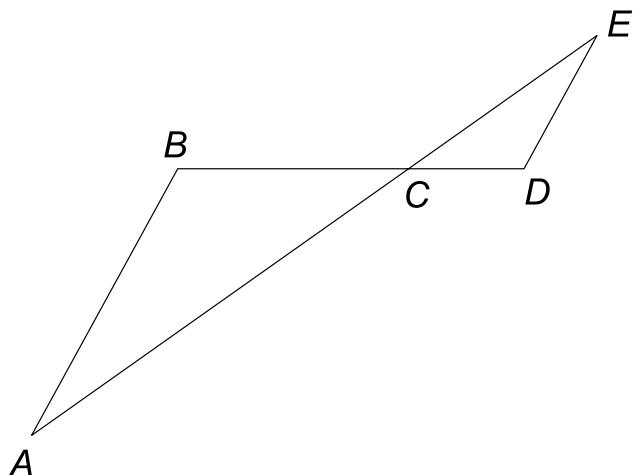30   Which of the following statements gives enough additional information about the figure above to prove that $\triangle ABC$ is similar to $\triangle EDC$?

   A. $\overline{BC}$ is the same length as $\overline{EC}$.

   B. $\overline{BC}$ is twice as long as $\overline{CD}$.

✔   C. $\angle B$ is congruent to $\angle D$.

   D. $\angle BCA$ is congruent to $\angle CED$.

*Reporting Category* for Item 30: **Geometry** (p. 287)

**31** The following formula can be used to calculate the monthly payment, $M$, on a loan:

$$M = \frac{P(rt + 1)}{12t}$$

where $P$ is the principal, $r$ is the annual rate, and $t$ is the length of the loan in years.

Based on this formula, what is the monthly payment on a 2-year loan for $3,000 at an annual rate of 8%?

A. $605

✔ B. $145

C. $480

D. $125

*Reporting Category* for Item 31: ***Patterns, Relations, and Algebra*** **(p.316)**

*Use the triangle below to answer question 32.*
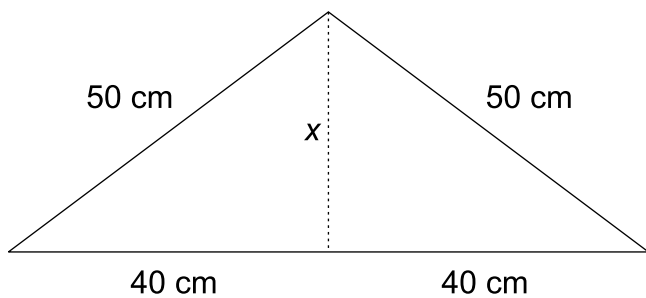


**32** What is the length $x$ of the altitude of the triangle shown above?

    A. 20 cm

    B. 25 cm

✔    C. 30 cm

    D. 40 cm

*Reporting Category* for Item 32: **Geometry** (p.316)

**33** Each ride on the Ferris wheel consists of 6 rotations. If the length of each of the spokes from the center of the wheel to a seat is $t$ feet, how far will each passenger travel during a ride?



**Top**

counter-clockwise

**Bottom**
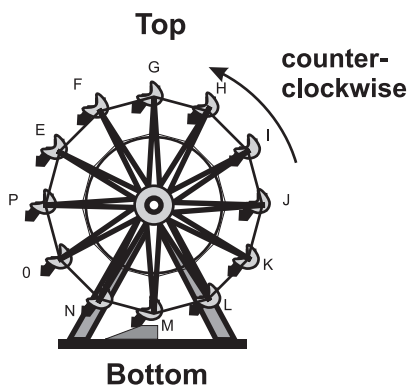
A. $6t$ feet

B. $6\pi t$ feet

C. $12t$ feet

✔ D. $12\pi t$ feet

*Reporting Category* for Item 33: **Measurement** (p.317)

*Use the triangle below to answer question 34.*
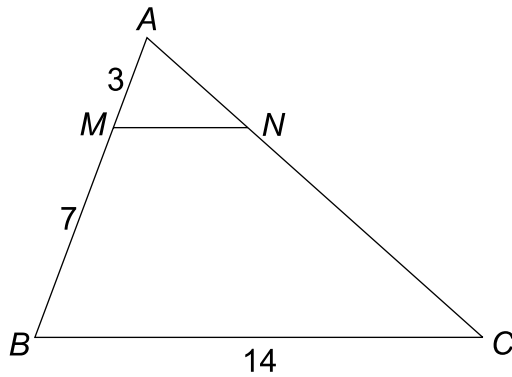


**34** In $\triangle ABC$ above, $\overline{MN}$ is parallel to $\overline{BC}$. What is the length of $\overline{MN}$?

✔    A.  4.2

    B.  6.0

    C.  8.4

    D.  7.0

*Reporting Category* for Item 34: **Geometry** (p. 287)

*Use the graph below to answer question 35.*
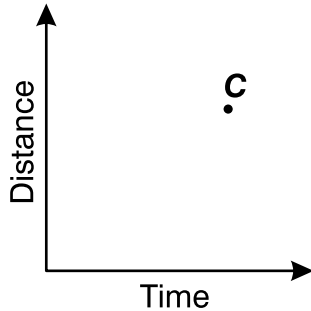


**35** Point *C* on the graph above represents the distance and time that Catlyn traveled on her trip. Which of the following represents her average speed?

    A. *x*-coordinate of point *C*

    B. *y*-coordinate of point *C*

✔    C. slope of line through *C* and (0,0)

    D. distance from the origin to point *C*

*Reporting Category* for Item 35: **Geometry (p.316)**

**36** The mean salary of the ten clerks at the Corner Shop was $8.50 per hour. One of the clerks, who had been making $9.50 per hour, was given a raise of $1.00 per hour. What is the new mean salary of the ten clerks?

    A. $8.50

✔    B. $8.60

    C. $8.80

    D. $9.00

*Reporting Category* for Item 36: **Data Analysis, Statistics, and Probability (p. 288)**

**37** Joseph has two number cubes, each with faces labeled by the numbers −15, −10, −5, 5, 10, and 15.
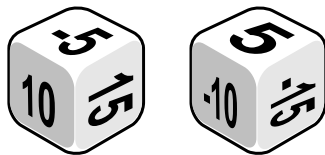


If Joseph rolls the two cubes and adds the resulting numbers, what is the probability that the sum will be 0?

A. $\dfrac{1}{36}$

B. $\dfrac{1}{12}$

C. $\dfrac{1}{4}$

✔ D. $\dfrac{1}{6}$

*Reporting Category* for Item 37: ***Data Analysis, Statistics, and Probability*** (p. 288)

**38** CanCorp is determining the cost of labels for new cans with the dimensions shown below.
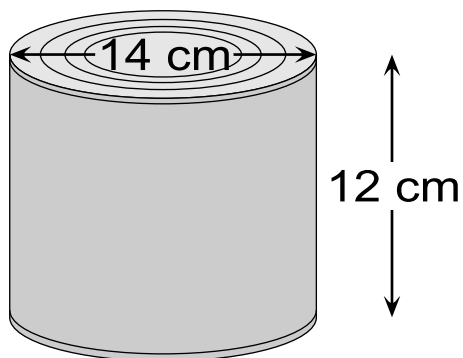


The label for each can will wrap around the side of the can with no overlap. What is the approximate area of one label?

A. 1847 cm$^2$

B. 264 cm$^2$

✔   C. 528 cm$^2$

D. 924 cm$^2$

*Reporting Category* for Item 38: ***Measurement*** **(p.317)**

**39** The box and whisker graph shown below represents the results of a survey of the estimated gas mileage of 100 car models.

```
    +------+------+------+------+------+------+------+
    10     15     20     25     30     35     40     45
```
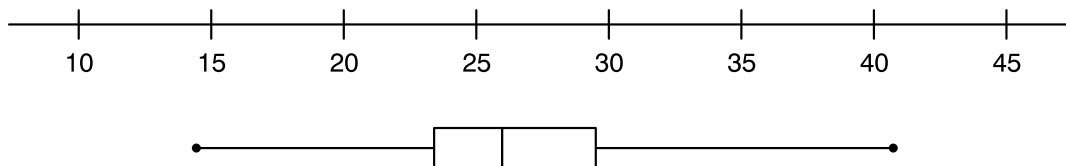
Which statistics—mean, median, mode, range—can be determined from this graph?

A. mean only

B. median only

C. range and mean

✔ D. range and median

---

## Session 3, Open-Response Questions

**40** A class of 25 students is asked to determine approximately how much time the average student spends on homework during a one-week period. Each student is to ask one of his/her friends for the information, making sure that no one student is asked more than once. The numbers of hours spent on homework per week are as follows:

8, 0, 25, 9, 4, 19, 25, 9, 9, 8, 0, 8, 25, 9, 8, 7, 8, 3, 7, 8, 5,
3, 25, 8, 10

a. Find the mean, median, and mode for these data. Explain or show how you found each answer.

b. Based on this sample, which measure (or measures) that you found in part a best describes the typical student? Explain your reasoning.

c. Describe a sampling procedure that would have led to more representative data.

*Reporting Category* for Item 40: ***Data Analysis, Statistics, and Probability*** (p. 288)

*Use the chart below to answer question 41.*

| Billing Plans for Cellular Phone | | | |
| --- | --- | --- | --- |
| | Basic charge per month | Number of free minutes per month | Charge per minute |
| Plan 1 | $16 | 0 | $0.35 |
| Plan 2 | $30 | 50 | $0.15 after free minutes are used |

**41** Mr. Chrostowski is choosing one of the billing plans shown above for his cellular phone. He estimates that he will use the phone less than 50 minutes per month.

a. If he chooses Plan 1 and uses the phone exactly 50 minutes in one month, what will his bill be for that month?

b. Suppose that he chooses Plan 1 and uses the phone $m$ minutes in one month. Write an equation for his total bill, $B$, for that month.

c. On the grid in your Student Answer Booklet, construct a graph that shows the monthly bills for Plan 1 for between 0 and 50 minutes of calls.

d. Using your equation or graph, find the number of minutes of phone use for which the two plans cost the same. Show or explain how you found your answer.

*Reporting Category* for Item 41: ***Patterns, Relations, and Algebra*** (p.316)

# XII. Science and Technology/Engineering, Grade 5

# Science and Technology/Engineering, Grade 5

The spring 2001 MCAS Science and Technology/Engineering test was based on the learning standards of the Massachusetts *Science and Technology/Engineering Curriculum Framework* (2000). The *Framework* defines four content strands:

■   *Strand 1: Earth and Space Science*

■   *Strand 2: Life Science (Biology)*

■   *Strand 3: Physical Sciences (Physics and Chemistry)*

■   *Strand 4: Technology/Engineering*

These MCAS subcategories are specifically referenced in the MCAS document, *Overview of the MCAS 2001 Tests*.

## Curriculum Framework *Learning Standards*

Learning standards are grouped below by *Framework* content strand and related MCAS subcategory.[6]

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[6] A very small percentage—less than 1%—of *Science and Technology/Engineering Curriculum Framework* learning  standards that are impractical to test in a large-scale assessment are not tested by MCAS (e.g., at grade 10: "use a range of exploratory techniques, e.g., experiments, information/literature searches, data logging, research and development"). These learning standards are not included in this document.

# Strand 1: Earth and Space Science Learning Standards

## Rocks and Their Properties

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

- Give a simple explanation of what a mineral is and some examples.

- Identify the physical properties of minerals (hardness, color, luster, cleavage, and streak) and explain how minerals can be tested for these different physical properties.

- Identify and explain the processes that help to determine the origin of metamorphic, igneous, and sedimentary rocks.

## Soil

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

- Explain and give examples of the ways in which soil is formed (the weathering of rock by water and wind and from the decomposition of plant and animal remains).

- Recognize and discuss the different properties of soil, including color, texture (size of particles), the ability to retain water, and the ability to support the growth of plants.

## Weather

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

- Explain how air temperature, moisture, wind speed and direction, and precipitation make up the weather in a particular place and time.

- Distinguish among the various forms of precipitation (rain, snow, sleet, and hail), making connections to the weather in a particular place and time.

- Describe how global patterns such as the jet stream and water currents influence local weather in measurable terms such as temperature, wind direction and speed, and precipitation.

- Differentiate between weather and climate.

## The Water Cycle

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

- Describe how water on earth cycles in different forms and in different locations, including underground and in the atmosphere.

- Give examples of how the cycling of water, both in and out of the atmosphere, has an effect on climate.

### Earth's History

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

▮ Give examples of how the surface of the earth changes due to slow processes such as erosion and weathering, and rapid processes such as landslides, volcanic eruptions, and earthquakes.

### The Earth in the Solar System

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

▮ Recognize that the earth is part of a system called the "solar system" that includes the sun (a star), planets, and many moons. The earth is the third planet from the sun in our solar system.

▮ Recognize that the earth revolves around (orbits) the sun in a year's time and that the earth rotates on its axis once approximately every 24 hours. Make connections between the rotation of the earth and day/night, and the apparent movement of the sun, moon, and stars across the sky.

▮ Describe the changes that occur in the observable shape of the moon over the course of a month.

# Strand 2: Life Science (Biology) Learning Standards

### Characteristics of Plants and Animals

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

▮ Classify plants and animals according to the characteristics that they share.

### Plant Structures and Functions

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

▮ Identify the structures in plants that are responsible for food making, reproduction, growth, and protection.

### Life Cycles

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

▮ Recognize that plants and animals go through predictable life cycles that include birth, growth, development, reproduction, and death.

▮ Describe the major stages that characterize the life cycle of the frog and butterfly as they go through metamorphosis.

## Heredity

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

▮ Differentiate between observed characteristics of plants and animals that are inherited (e.g., color of flower, shape of leaves, color of eyes, number of appendages) and characteristics that are not inherited (e.g., browning of leaves due to too much sun, ability to play soccer).

## Adaptations of Living Things

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

▮ Give examples of how inherited characteristics may change over time due to changes in the environment.

▮ Explain how the structures of living things (e.g., shape of beak or "feet", placement of eyes on head, length of neck) are adaptations to their environment that help them survive. Give examples of how change in the environment has caused some plants and animals to die or move to new locations.

▮ Describe how organisms meet some of their needs in an environment by using behaviors (patterns of activities) in response to information (stimuli) received from the environment. Recognize that some animal behaviors are instinctive (e.g., turtles burying their eggs), and others are learned (e.g., humans building fires for warmth).

▮ Recognize plant behaviors, such as the way seedlings grow with their stems upward and roots downward in response to gravity. Recognize that many plants and animals can survive harsh environments because of seasonal behaviors (e.g., in winter, trees shed leaves, some animals hibernate, and other animals migrate).

▮ Give examples of how organisms can cause changes in their environment to ensure survival. Explain how some of these changes may affect the ecosystem.

## Energy and Living Things

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

▮ Describe how energy derived from the sun is transferred within a food chain from producers to consumers to decomposers.

# Strand 3: Physical Sciences (Physics and Chemistry)

## Properties of Objects and Materials

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

❚ Differentiate between properties of objects (e.g., size, shape, weight) and properties of materials (e.g., color, texture, hardness).

## States of Matter

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

❚ Compare and contrast solids, liquids, and gases based on the basic properties of each state of matter.

❚ Describe how water can be changed from one state to another by adding or taking away heat.

## Forms of Energy

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

❚ Identify the basic forms of energy (light, sound, heat, electrical, and magnetic). Recognize that energy is the ability to cause motion or create change.

❚ Give examples of how energy can be transferred from one form to another.

## Electrical Energy

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

❚ Recognize that electricity in circuits requires a complete loop through which an electrical current can pass, and that electricity can produce light, heat, and sound.

❚ Identify and classify objects and materials that conduct electricity and objects and materials that are insulators of electricity.

❚ Explain how electromagnets can be made and give examples of how they can be used.

## Magnetic Energy

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

❚ Recognize that magnets have poles that repel and attract each other.

- Identify and classify objects and materials that a magnet will attract and objects and materials that a magnet will not attract.

### Sound Energy

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

- Recognize that sound is produced by vibrating objects and requires a medium through which to travel. Relate the rate of vibration to the pitch of the sound.

### Light Energy

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

- Recognize that light travels in a straight line until it strikes an object or travels from one medium to another, and that light can be reflected, refracted, and absorbed.

# Strand 4: Technology/Engineering Learning Standards

### Materials and Tools

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

- Identify materials used to accomplish a design task based on a specific property, i.e. weight, strength, hardness, and flexibility.

- Identify and explain the appropriate materials and tools (hammer, screwdriver, pliers, tape measure, screws, nails and other mechanical fasteners) to construct a given prototype safely.

- Identify and explain the difference between simple and complex machines (e.g., hand can opener that includes multiple gears, wheel, wedge gear, and lever).

### Engineering Design

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

- Identify a problem that reflects the need for shelter, storage, or convenience.

- Describe different ways in which a problem can be represented (e.g., sketches, diagrams, graphic organizers, and lists).

- Identify relevant design features (e.g., size, shape, weight) for building a prototype of a solution to a given problem.

- Compare natural systems with mechanical systems that are designed to serve similar purposes (e.g., bird's wings as compared to an airplane's wings).

# MCAS Spring 2001 Common Test Items
# Science and Technology/Engineering, Grade 5

## Test Sessions

MCAS grade 5 Science and Technology/Engineering Student Test Booklets included 2 separate test sessions. Each session included multiple-choice and open-response questions.

## Reference Materials and Tools

No reference tools or materials were allowed during any Science and Technology/Engineering test session.

## Cross-Reference Information

The shaded bar underneath each item indicates the item's MCAS reporting category and the MCAS subcategory that contains the *Framework* learning standard(s) assessed by the item. The parentheses indicate the page(s) in this document where the learning standard(s) may be found.

## Session 1, Multiple-Choice Questions

*Use the diagram below to answer question 1.*



**1** Which part of the water cycle is represented by arrow 3?

✔ A. evaporation

B. condensation

C. precipitation

D. groundwater

*Reporting Category/*Subcategory for Item 1: ***Earth and Space Science/* The Water Cycle (p. 354)**

# Science and Technology/Engineering, Grade 5

**2** Birds come in a variety of colors, shapes, and sizes. Which usually determines the color, shape, and size of a bird?

    A. the time of year it was born

    B. the type of food the bird eats

    C. the bird's migratory patterns

✔    D. what the bird inherited from its parents

*Reporting Category/Subcategory for Item 2: **Life Science (Biology)/ Heredity (p. 356)***

**3** Which of the following is LEAST responsible for the weathering of rocks?

    A. freezing

    B. plant growth

    C. rain

✔    D. lightning

*Reporting Category/Subcategory for Item 3: **Earth and Space Science/ Earth's History (p. 355)***

**4** To compare the hardness of different minerals, it would be BEST to find

    A. the color of the minerals.

✔    B. which minerals scratch other minerals.

    C. which minerals reflect light most strongly.

    D. the samples that feel smoothest to the touch.

*Reporting Category/Subcategory for Item 4: **Earth and Space Science/ Rocks and Their Properties (p. 354)***

*Use the organisms listed below to answer question 5.*

| LION | SNAIL | HUMAN | ROSE |
|------|-------|-------|------|

**5** Which of the organisms do scientists classify as animals?

    A. lion only

    B. lion and snail only

✔    C. lion, snail, and human only

    D. lion, snail, human, and rose

*Reporting Category/Subcategory for Item 5: **Life Science (Biology)/ Characteristics of Plants and Animals (p. 355)***

6 Which fastener would be BEST to use to fasten together wood for a bookcase so that the fastener will be flush with the wood?

Flush means level. The fastener must not stick out.

✔ A.

B.

C.

D.
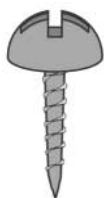
*Reporting Category/*Subcategory for Item 6: ***Technology/Engineering /* Engineering Design (p. 358)**

**7** A function of a plant's roots is to

A. protect the plant.

✔ B. absorb water and minerals.

C. remove waste products.

D. take in food for the plant.

*Reporting Category/*Subcategory for Item 7: ***Life Science (Biology)/*Plant Structures and Functions (p. 355)**

**8** In which picture will the magnets attract each other?

A. | S    N |    | N    S |

B. | N    S |
   | N    S |

✔ C. | S    N |    | S    N |

D. | N    S |    | S    N |

*Reporting Category/*Subcategory for Item 8: ***Physical Sciences (Physics and Chemistry) /*Magnetic Energy (p. 357)**

**9** Which style of doorknob would be easiest for a young child to open?
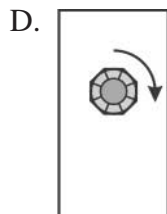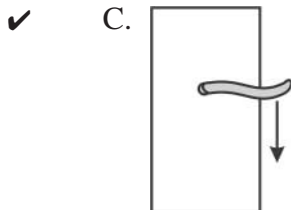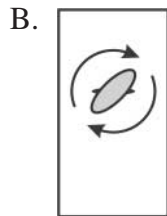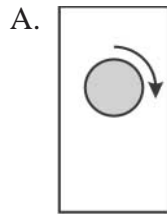
A.



B.



✔ C.



D.



*Reporting Category/*Subcategory for Item 9: ***Technology/Engineering** /* **Engineering Design (p. 358)**

## Session 1, Open-Response Question

*Use the picture below to answer question 10.*

battery          lightbulb in socket
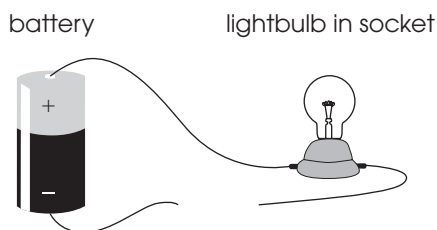
**10** Siobhan gathered the materials shown above for a science experiment. She is going to use the equipment to test different objects to see if each object is a conductor or an insulator. The objects she plans to test are shown below.

| **A** | **B** | **C** | **D** |
|---|---|---|---|
| Penny | Nickel | Plastic Game Piece | Metal Paper Clip |

| **E** | **F** | **G** | **H** |
|---|---|---|---|
| Eraser | Silver Spoon | Plastic Fork | Glass |
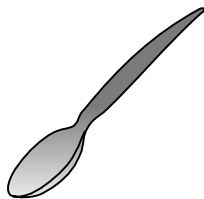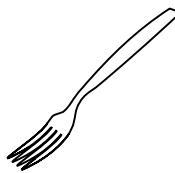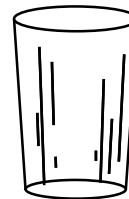
a.  Define "conductor" and "insulator."

b.  Create a chart to show which objects will be conductors and which will be insulators.

*Reporting Category/*Subcategory for Item 10: ***Physical Sciences (Physics and Chemistry)/*Electrical Energy (p. 357)**

## Session 2, Multiple-Choice Questions

*Use the pictures below to answer question 11.*



**1. tomato plant with flowers**  **2. tomato plant with fruit**  **3. dying tomato plant**  **4. seedling**  **5. young tomato plant**

**11** In what order should the pictures be placed to show the life cycle of a tomato plant?

    A. 4, 5, 2, 1, 3

✔    B. 4, 5, 1, 2, 3

    C. 4, 1, 2, 5, 3

    D. 5, 4, 1, 2, 3

*Reporting Category/*Subcategory for Item 11: ***Life Science (Biology)** /* **Life Cycles (p. 355)**

# Science and Technology/Engineering, Grade 5

*Use the calendars below to answer question 12.*

### September

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|
|  |  |  | 1 | 2 | 3 | 4 |
| 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 |
| 26 | 27 | 28 | 29 | 30 |  |  |

### October

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|
|  |  |  |  |  | 1 | 2 |
| 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 24/31 | 25 | 26 | 27 | 28 | 29 | 30 |

**12** There is a full moon on September 14. On which date will the next full moon MOST LIKELY occur?

A. September 21

B. October 1

✔ C. October 13

D. October 31

*Reporting Category/*Subcategory for Item 12: ***Earth and Space Science/* The Earth in the Solar System (p. 355)**

*Use the chart below to answer question 13.*

**Troubleshooting Guide**
**If the machine is not working properly, check the following.**

| | PROBLEM | | | |
|---|---|---|---|---|
| | No Power—power light is not lit. | Fan is working, but little or no mist is produced | Mist is produced but fan does not work. | |
| **CAUSE** | | | | **SOLUTION** |
| Unit is not plugged in. | • | | | Plug unit in. |
| Tank is empty. | | • | | Fill tank with clean water. |
| Tank is too full. | | • | | Remove some water from the tank. |
| Float is dirty. | | • | | Clean the float. |
| Filter is clogged. | | | • | Clean the filter. |
| The tank was washed with detergent. | | • | | Rewash the tank with clean water. |

**13** According to the guide, what should you do if the machine produces mist but the fan does not work?

   A.  Clean the float.

   B.  Remove some water from the tank.

   C.  Plug it in.

✔   D.  Clean the filter.

*Reporting Category/*Subcategory for Item 13: ***Technology/Engineering** /* **Engineering Design (p. 358)**

**14** If a string on a musical instrument like a guitar is made tighter, the sound produced by that string will always be

   A. lower pitched.

✔  B. higher pitched.

   C. louder.

   D. quieter.

*Reporting Category/*Subcategory for Item 14: ***Physical Sciences (Physicis and Chemistry)/* Sound Energy (p. 358)**

**15** In New England, there are noticeable patterns of seasonal change. Which information could you collect to BEST illustrate this change?

✔  A. air temperature

   B. wind speed

   C. amount of precipitation

   D. number of cloudy days

*Reporting Category/*Subcategory for Item 15: ***Earth and Space Science/* Weather (p. 354)**

**16** Which of the following is a consumer?

   A. grain

✔  B. rabbit

   C. vegetable

   D. tree

*Reporting Category/*Subcategory for Item 16: ***Life Science (Biology)/* Energy and Living Things (p. 356)**

**17** Why are some rocks smoother and rounder than others?

   A. They have the shapes of the minerals from which they are made.

✔   B. They were smoothed by the action of wind and water.

   C. They were squeezed up through the soil.

   D. They hardened in rounded pockets of soil.

*Reporting Category/*Subcategory for Item 17: ***Earth and Space Sciences*** */* **Rocks and Their Properties (p. 354)**

*Use the picture to the right to answer question 18.*

**18** After Nita connected a copper wire from one terminal of a battery to the other, the wire became very hot. Why did the wire get hot?

   A. The circuit was not complete.

   B. Air around the wire became electrified.

   C. Chemical energy in the battery produced vibrations.

✔   D. Electrical energy was changed into heat energy.
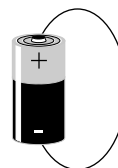
*Reporting Category/*Subcategory for Item 18: ***Physical Sciences (Physics and Chemistry)*** */* **Electrical Energy (p. 357)**

**19** Plants use sunlight to make

   A. soil.

   B. minerals.

✔   C. food.

   D. water.

*Reporting Category/*Subcategory for Item 19: ***Life Science (Biology)*** */* **Energy and Living Things (p. 356)**

## Session 2, Open-Response Question

*Use the pictures below to answer question 20.*

spring

scissors

string

baskets with hooks
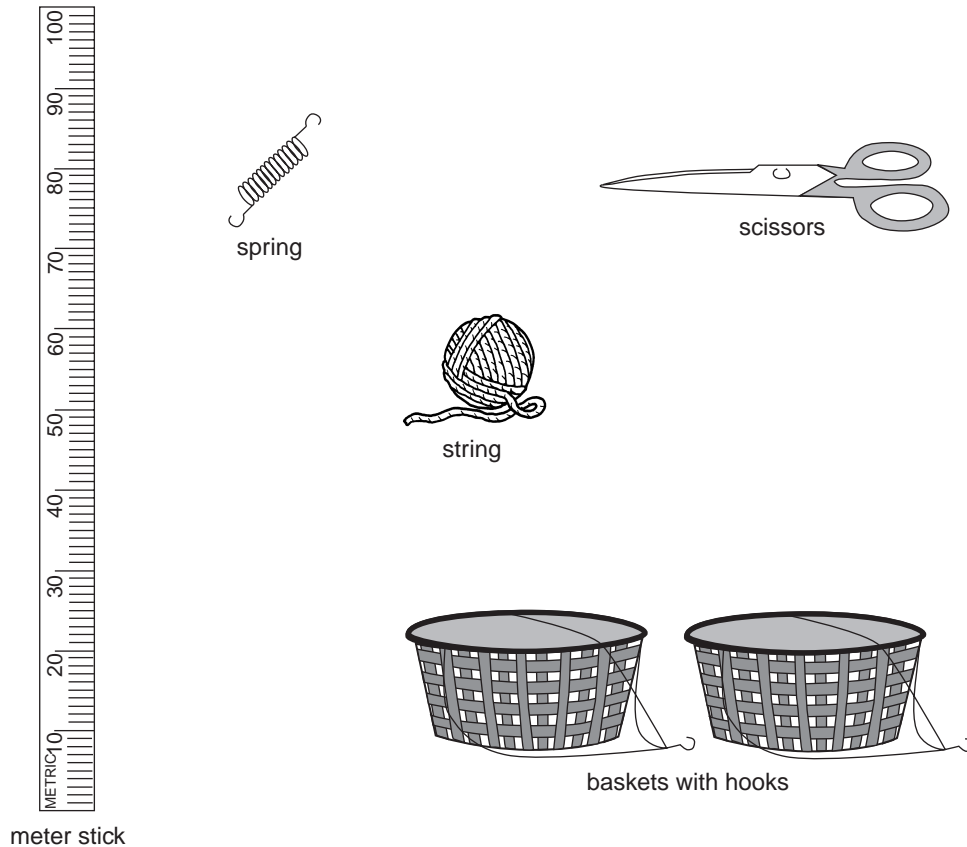
meter stick

**20** Mark has three small rocks about the same size. He wants to know which one is the heaviest but he does not have a scale. Mark has a meter stick, a spring, two baskets with hooks, a pair of scissors, and some string. Explain how Mark could use some or all of these materials to find out which object is heaviest.

*Reporting Category/*Subcategory for Item 20: ***Technology/Engineering /* Materials and Tools (p. 358)**

# XIII. Science and Technology/Engineering, Grade 8

# Science and Technology/Engineering, Grade 8

The spring 2001 MCAS Science and Technology/Engineering test was based on the learning standards of the Massachusetts *Science and Technology Curriculum Framework* (2000). The *Framework* defines four content strands:

▪ *Strand 1: Earth and Space Science*

▪ *Strand 2: Life Science (Biology)*

▪ *Strand 3: Physical Sciences (Physics and Chemistry)*

▪ *Strand 4: Technology/Engineering*

These MCAS subcategories are specifically referenced in the MCAS document, *Overview of the MCAS 2001 Tests*.

# Curriculum Framework *Learning Standards*

Learning standards are grouped below by *Framework* content strand and related MCAS subcategory.[7]

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[7] A very small percentage—less than 1%—of *Science and Technology/Engineering Curriculum Framework* learning standards that are impractical to test in a large-scale assessment are not tested by MCAS (e.g., at grade 10: "use a range of exploratory techniques, e.g., experiments, information/literature searches, data logging, research and development"). These learning standards are not included in this document.

# Strand 1: Earth and Space Science Learning Standards

## Mapping the Earth

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

❚ Recognize, interpret, and be able to create models of the earth's common physical features in various mapping representations, including contour maps.

## Earth's Structure

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

❚ Describe the layers of the solid earth, including the lithosphere, the hot convecting mantle, and the dense metallic core.

## Heat Transfer in the Earth's System

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

❚ Differentiate among radiation, conduction, and convection, the three mechanisms by which heat is transferred through the earth's system. Give examples of each.

❚ Explain the relationship among the energy provided by the sun; the global patterns of atmospheric movement; and the temperature differences among water, land, and atmosphere.

## Earth's History

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

❚ Describe how the movement of the earth's crustal plates causes both slow changes in the earth's surface (e.g., formation of mountains and ocean basins) and rapid ones (e.g., volcanic eruptions and earthquakes).

❚ Describe and give examples of ways in which the earth's surface is built up and torn down by natural processes, including deposition of sediments, rock formation, erosion, and weathering.

❚ Explain and give examples of how physical evidence such as fossils and surface features of glaciation supports theories that the earth has evolved over geological time.

### The Earth in the Solar System

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

- Recognize that gravity is a force that pulls all things on and near the earth toward the center of the earth. Gravity plays a major role in the formation of the planets, stars, and solar system and in determining their motions.

- Describe lunar and solar eclipses, the observed moon phases, and tides. Relate them to the relative positions of the earth, moon, and sun.

- Compare and contrast properties and conditions of objects in the solar system (e.g., sun, planets, and moons) to those on earth (e.g., gravitational force, distance from the sun, speed, movement, temperature, and atmospheric conditions).

- Explain how the tilt of the earth and its revolution around the sun result in an uneven heating of the earth, which in turn causes the seasons.

- Recognize that the universe contains many billions of galaxies, and that each galaxy contains many billions of stars.

# Strand 2: Life Science (Biology) Learning Standards

### Classification of Organisms

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

- Classify organisms into all kingdoms according to characteristics that they share. Be familiar with organisms from each kingdom.

### Structure and Function of Cells

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

- Recognize that all organisms are composed of cells, and that most organisms are single-celled. In these single-celled organisms, one cell must carry out all of the basic functions of life.

- Compare and contrast plant and animal cells, including major organelles (cell membrane, cell wall, nucleus, cytoplasm, chloroplasts, mitochondria, vacuoles).

- Recognize that within cells, many of the basic functions of organisms (e.g., extracting energy from food and getting rid of waste) are carried out. The way in which cells function is similar in all living organisms.

## Systems in Living Things

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

■ Describe the hierarchical organization of multicellular organisms from cells to tissues to organs to systems to organisms.

## Reproduction and Heredity

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

■ Recognize that every organism requires a set of instructions for specifying its traits. Heredity is the passage of these instructions from one generation to another.

■ Recognize that hereditary information is contained in genes located in the chromosomes of each cell. A human cell contains many thousands of different genes.

■ Differentiate between sexual reproduction (offspring inherit half of their genes from each parent) and asexual reproduction (offspring is an identical copy of the parent's cell).

## Evolution and Biodiversity

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

■ Give examples of ways in which genetic variation and environmental factors are causes of evolution and the diversity of organisms.

■ Recognize that evidence drawn from geology, fossils, and comparative anatomy provide the basis of the theory of evolution.

■ Relate the extinction of species to a mismatch of adaptation and the environment.

## Living Things and Their Environment

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

■ Give examples of ways in which organisms interact and have different functions within an ecosystem that enable the ecosystem to survive.

## Energy and Living Things

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

▮ Explain the roles and relationships among producers, consumers, and decomposers in the process of energy transfer in a food web.

▮ Explain how dead plants and animals are broken down by other living organisms and how this process contributes to the system as a whole.

▮ Recognize that producers (plants that contain chlorophyll) use the energy from sunlight to make sugars from carbon dioxide and water through a process called photosynthesis. This food can be used immediately, stored for later use, or used by other organisms.

## Changes in Ecosystems Over Time

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

▮ Identify ways in which ecosystems have changed throughout geologic time in response to physical conditions, interactions among organisms, and the actions of humans. Describe how changes may be catastrophes such as volcanic eruptions or ice storms.

▮ Recognize that biological evolution accounts for the diversity of species developed through gradual processes over many generations.

# Strand 3: Physical Sciences (Physics and Chemistry)

## Properties of Matter

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

▮ Differentiate between weight and mass, recognizing that weight is the amount of gravitational pull on an object.

▮ Differentiate between volume and mass.

▮ Recognize that the measurement of volume and mass requires understanding of the sensitivity of measurement tools (e.g., rulers, graduated cylinders, balances) and knowledge and appropriate use of significant digits.

▮ Explain and give examples of how mass is conserved in a closed system.

## Elements, Compounds, and Mixtures

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

▌ Recognize that there are more than 100 elements that combine in a multitude of ways to produce compounds that make up all of the living and nonliving things that we encounter.

▌ Differentiate between an atom (the smallest unit of an element that maintains the characteristics of that element) and a molecule (the smallest unit of a compound that maintains the characteristics of that compound).

▌ Give basic examples of elements and compounds.

▌ Differentiate between mixtures and pure substances.

▌ Recognize that a substance (element or compound) has a melting point and a boiling point, both of which are independent of the amount of the sample.

▌ Differentiate between physical changes and chemical changes.

## Motion of Objects

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

▌ Explain and give examples of how the motion of an object can be described by its position, direction of motion, and speed.

▌ Graph and interpret distance vs. time graphs for constant speed.

## Forms of Energy

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

▌ Differentiate between potential and kinetic energy. Identify situations where kinetic energy is transformed into potential energy and vice versa.

## Heat Energy

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

▌ Recognize that heat is a form of energy and that temperature change results from adding or taking away heat from a system.

▌ Explain the effect of heat on particle motion through a description of what happens to particles during a change in phase.

- Give examples of how heat moves in predictable ways, moving from warmer objects to cooler ones until they reach equilibrium.

# Strand 4: Technology/Engineering Learning Standards

## Engineering Design

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

- Identify and explain the steps of the engineering design process (e.g., identify the need or problem, research the problem, develop possible solutions, select the best possible solution(s), construct a prototype, test and evaluate, communicate the solution(s), and redesign).

- Demonstrate methods of representing solutions to a design problem (e.g., sketches, orthographic projections, multiview drawings).

- Describe and explain the purpose of a given prototype.

- Identify appropriate materials, tools, and machines needed to construct a prototype of a given engineering design.

- Explain how such design features as size, shape, weight, function and cost limitations (e.g., ergonomics) would affect the construction of a given prototype.

- Identify the five elements of a universal systems model: goal, inputs, processes, outputs, and feedback.

## Materials, Tools, and Machines

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

- Given a design task, identify appropriate materials (e.g., wood, paper, plastic, aggregates, ceramics, metals, solvents, adhesives) based on specific properties and characteristics (e.g., weight, strength, hardness and flexibility).

- Identify and explain appropriate measuring tools, hand tools, and power tools used to hold, lift, carry, fasten, and separate, and explain their safe and proper use.

- Identify and explain the safe and proper use of measuring tools, hand tools, and machines (e.g., band saw, drill press, sanders, hammer, screwdriver, pliers, tape measure, screws, nails, and other mechanical fasteners) needed to construct a prototype of an engineering design.

## Communication Technologies

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

- Identify and explain the components of a communication system (e.g., source, encoder, transmitter, receiver, decoder, storage, retrieval, and destination).

- Identify and explain the appropriate tools, machines, and electronic devices (e.g., drawing tools, computer-aided design, and cameras) used to produce and/or reproduce design solutions (e.g., engineering drawings, prototypes, and reports).

- Identify and compare communication technologies and systems (e.g., audio, visual, printed, and mass communication).

- Identify and explain how symbols and icons (e.g., international symbols and graphics) are used to communicate a message.

## Manufacturing Technologies

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

- Describe and explain the manufacturing systems of custom and mass production.

- Explain and give examples of the impacts of interchangeable parts, components of mass produced products, and the use of automation (e.g., robotics).

- Describe a manufacturing organization, e.g. corporate structure, research and development, production, marketing, quality control, distribution.

- Explain basic processes in manufacturing systems (e.g. cutting, shaping, assembling, joining, finishing, quality control, and safety).

## Construction Technologies

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

- Describe and explain parts of a structure (e.g., foundation, flooring, decking, wall, roofing systems).

- Identify and describe three major types of bridges (e.g., arch, beam, and suspension) and their appropriate uses (e.g., site, span, resources and load).

- Explain how the forces of tension, compression, torsion, bending, and shear affect the performance of bridges.

- Describe and explain the effects of loads and structural shapes on bridges.

## Transportation Technologies

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

❚ Identify and compare examples of transportation systems and devices that operate on each of the following: land, air, water, and space.

❚ Given a transportation problem, explain a possible solution using the universal systems model.

❚ Identify and describe three subsystems of a transportation vehicle or device (e.g., structural, propulsion, guidance, suspension, control, and support).

❚ Identify and explain lift, drag, friction, thrust, and gravity in a vehicle or device (e.g., cars, boats, airplanes, rockets).

## Bio-Related Technologies

*Students engage in problem solving, evaluating evidence, searching for connections, and the process of inquiry, in order to*

❚ Explain examples of adaptive or assistive devices, (e.g. prosthetic devices, wheel chairs, eyeglasses, grab bars, hearing aids, lifts, braces).

❚ Describe and explain adaptive and assistive bio-engineered products (e.g., food, bio-fuels, irradiation, integrated pest management).

# MCAS Spring 2001 Common Test Items
## Science and Technology/Engineering, Grade 8

## Test Sessions

MCAS grade 8 Science and Technology/Engineering Student Test Booklets included 3 separate test sessions. Each session included multiple-choice and open-response questions.

## Reference Materials and Tools

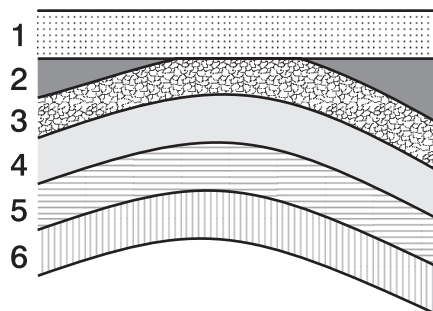No reference tools or materials were allowed during any Science and Technology/Engineering test session.

## Cross-Reference Information

The shaded bar underneath each item indicates the item's MCAS reporting category and the MCAS subcategory that contains the *Framework* learning standard(s) assessed by the item. The parentheses indicate the page(s) in this document where the learning standard(s) may be found.

## Session 1, Multiple-Choice Questions

*Use the picture below to answer question 1.*



**1** The picture represents layers of rock in Earth's crust. Which layer is probably the oldest?

A. layer 1

B. layer 2

C. layer 4

✔ D. layer 6

*Reporting Category/*Subcategory for Item 1: ***Earth and Space Science/*Earth's History (p. 376)**

**2** Which **best** describes transportation technology?

✔ A. a system that is used to move people and products

B. an enterprise that changes raw materials into goods

C. the building and finishing of structures

D. the conversion of mechanical energy into heat energy

*Reporting Category/*Subcategory for Item 2: ***Technology/Engineering /*Transportation Technologies (p. 383)**

*Use the diagram below to answer question 3.*
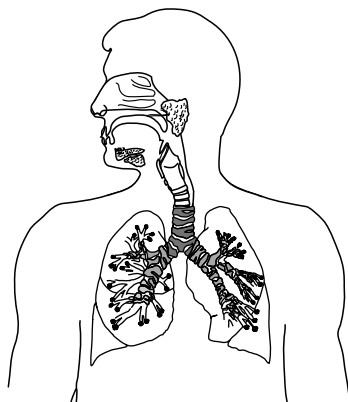


**3** All of the internal structures shown in the diagram together make up what level of organization?

    A.  a cell

    B.  an organ

    C.  a tissue

✔    D.  an organ system

*Reporting Category/*Subcategory for Item 3: ***Life Science (Biology)/* Systems in Living Things (p. 378)**

**4** Suppose 20 g of liquid hydrogen peroxide is heated so it completely breaks down into liquid water and oxygen gas. Which **best** describes the total mass of the water and oxygen that was produced?

    A.  more than 20 g because of the addition of heat

    B.  more than 20 g because there are now two substances

    C.  less than 20 g because oxygen gas is very light

✔    D.  20 g because no matter is added or removed

*Reporting Category/*Subcategory for Item 4: ***Physical Sciences (Physics and Chemistry)/*Properties of Matter (p. 379)**

**5** Which is a major function of the vacuoles found in cells?

✔ A. to store water and food for cells

B. to release energy for cells

C. to control what enters and leaves cells

D. to provide protection for cells

*Reporting Category/*Subcategory for Item 5: ***Life Science (Biology)/*Structure and Function of Cells (p. 377)**

**6** Which organisms benefit in the relationship between bees and flowering plants?

A. only the bees

B. only the flowering plants

✔ C. both the bees and the flowering plants

D. neither the bees nor the flowering plants

*Reporting Category/*Subcategory for Item 6: ***Life Science (Biology)/*Living Things and Their Environment (p. 378)**

**7** When igneous rock is changed into metamorphic rock, which form of energy is this process?

✔ A. heat

B. chemical

C. magnetic

D. light

*Reporting Category/*Subcategory for Item 7: ***Earth and Space Science/*Heat Transfer in the Earth's System (p. 376)**

*Use the graph below to answer question 8.*

**Distance-Time Graph for an
Object Moving at Constant Speed**
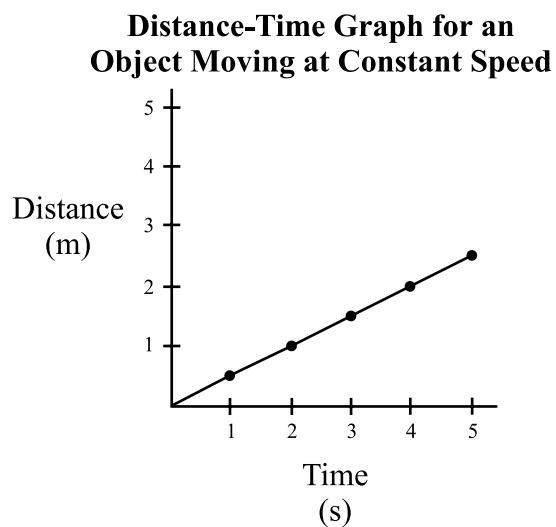


8   An object was traveling at a constant speed. The graph shows the distance the object traveled from its starting point in 5 seconds. What was the object's speed?

✔   A.  0.5 m/s

   B.  1 m/s

   C.  1.5 m/s

   D.  2 m/s

*Reporting Category*/Subcategory for Item 8: ***Physical Sciences (Physics and Chemistry)/*Motion of Objects (p. 380)**

*Use the information below to answer question 9.*

Manufacturing uses many steps to change natural resources into products. Some of these steps change natural resources into industrial materials. These steps are called primary processes.

**9** All of the following are primary processes **except**

   A. melting iron ore.

   B. producing lumber.

✔   C. molding plastic.

   D. crushing rock into gravel.

*Reporting Category/*Subcategory for Item 9: ***Technology/Engineering/*Manufacturing Techonologies (p. 382)**

## Session 1, Open-Response Question

*Use the Universal System Model below to answer question 10.*

**Feedback**

Idea (goal) ⟶ Input ⟶ Process ⟶ Output

**Universal System Model**
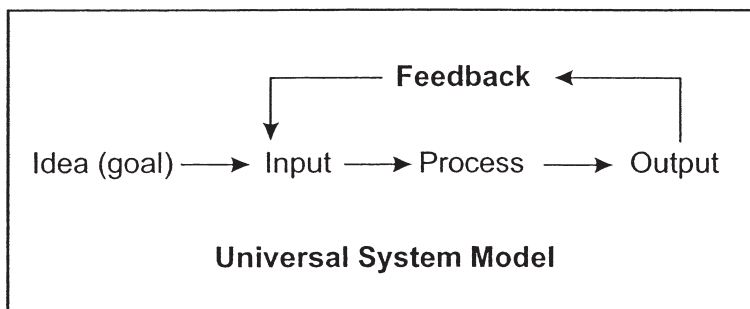
**10** Using the parts of the Universal System Model, describe how a bicycle operates. Be sure to identify each of the parts of the system. You may use a diagram to help explain your answer.

*Reporting Category/*Subcategory for Item 10: ***Technology/Engineering /* Engineering Design (p. 381)**

## Session 2, Multiple-Choice Questions

**11** From smallest to largest, the levels of organization in living things are

    A. tissues, cells, organs, organ systems.

    B. tissues, cells, organ systems, organs.

✔    C. cells, tissues, organs, organ systems.

    D. cells, tissues, organ systems, organs.

*Reporting Category/*Subcategory for Item 11: ***Life Science (Biology)/* Systems in Living Things (p. 378)**

**12** Which diagram best illustrates the orientation of Earth's axis as Earth orbits the Sun?
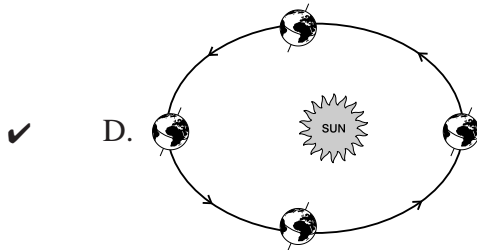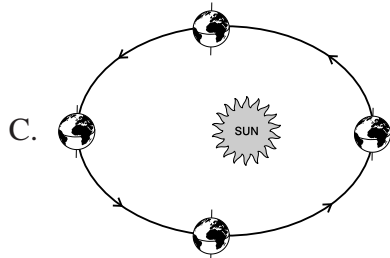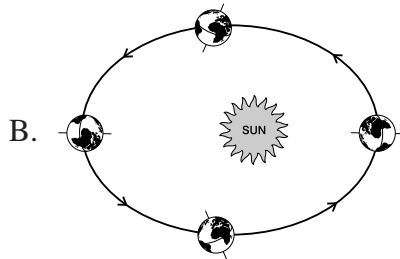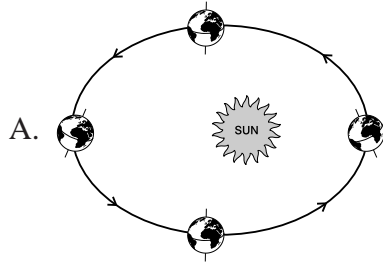
A.

B.

C.

✔ D.

**13** Scientists claim that the continents of South America and Africa were once a single landmass. All of the following observations support this claim **except**

    A. the mountains on these continents have similar rocks of the same age.

    B. these continents appear to fit together like the pieces of a puzzle.

✔    C. similar fish live in the ocean off the coasts of these continents.

    D. the same kinds of fossils have been found on these continents.

*Reporting Category/*Subcategory for Item 13: ***Earth and Space Science/*** **Earth's History (p. 376)**

*Use the figure to the right to answer question 14.*

**14** A metal block is hanging from a spring and is not moving. Gravity pulls on the block with a force of 10 newtons. How much force does the spring exert on the block?

    A. 0 newtons

    B. greater than 0 newtons, but less than 10 newtons

✔    C. 10 newtons

    D. more than 10 newtons
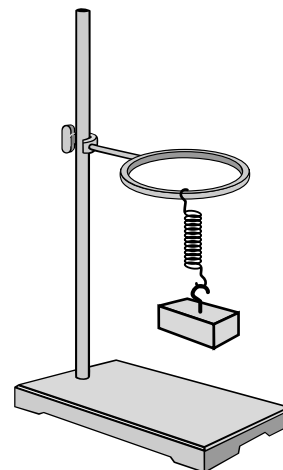
*Reporting Category/*Subcategory for Item 14: ***Physical Sciences (Physics and Chemistry)/*** **Properties of Matter (p. 379)**

**15** Rocks found on Earth are classified as sedimentary, metamorphic, or igneous based on

    A. where the rocks were found.

✔    B. how the rocks were formed.

    C. the composition of the rocks.

    D. the color and shape of the rocks.

*Reporting Category/*Subcategory for Item 15: ***Earth and Space Science/*** **Earth's History (p. 376)**

*Use the diagram below to answer question 16.*

## A Cell
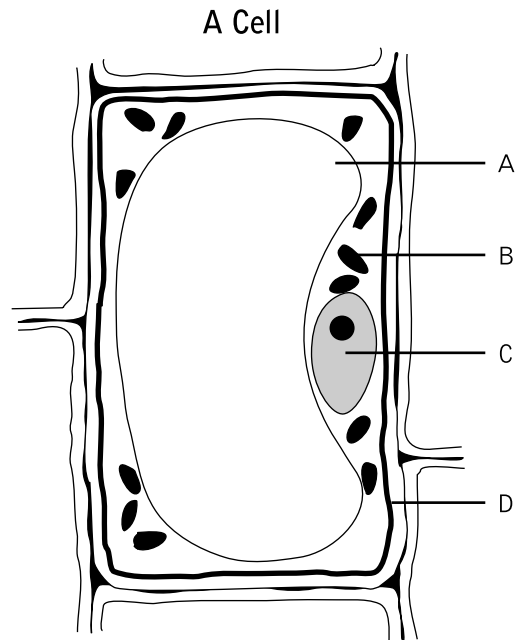


16  Everything that enters this cell passes through which structure?

A.  structure A

B.  structure B

C.  structure C

✔   D.  structure D

*Reporting Category/*Subcategory for Item 16: ***Life Science (Biology)/* Structure and Function of Cells (p. 377)**

*Use the topographic map below to answer question 17.*
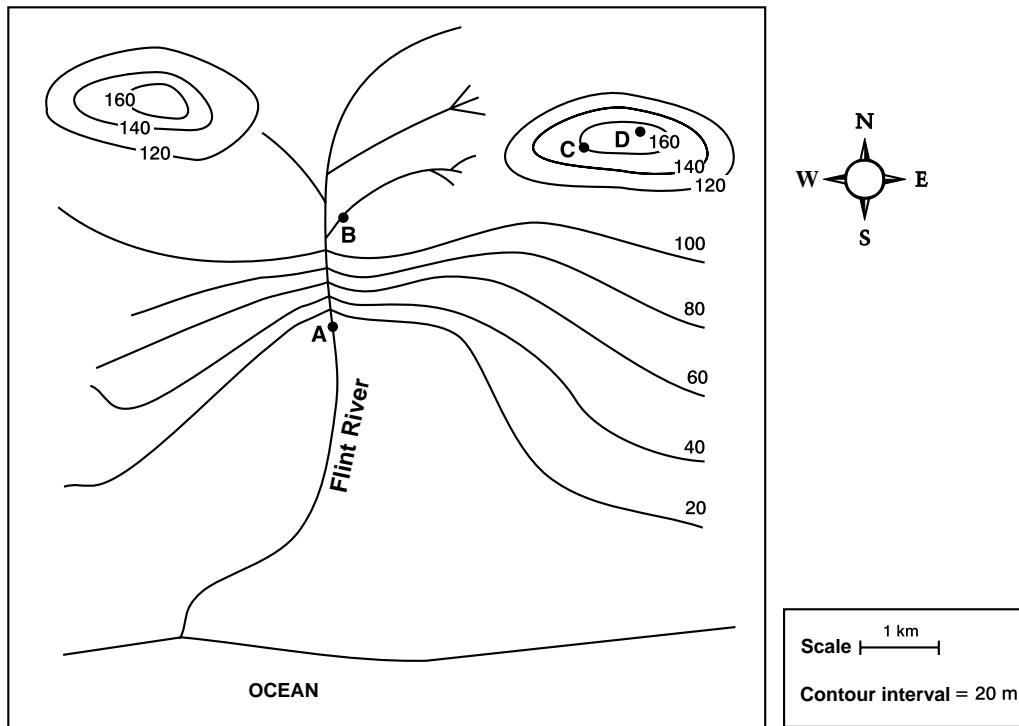


**17** Throughout the area shown in the map, a thunderstorm dropped about three inches of rain in less than two hours. Which point on the map would be in the greatest danger of flooding?

✔ A. point A

B. point B

C. point C

D. point D

*Reporting Category/*Subcategory for Item 17: ***Earth and Space Science/*Mapping the Earth (p. 376)**

*Use the food web below to answer question 18.*
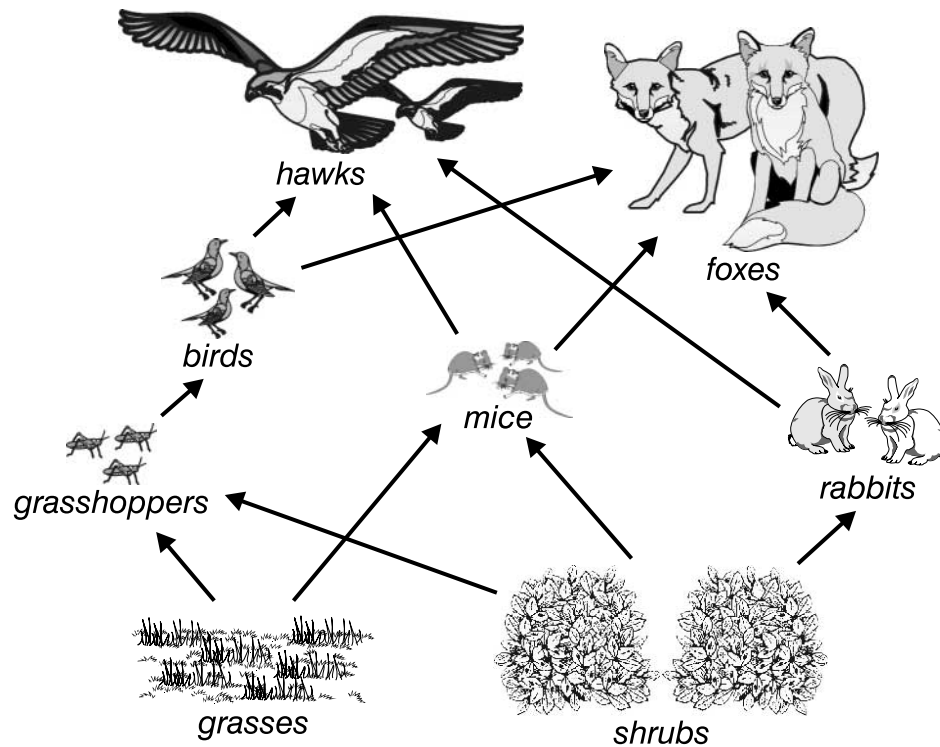


**18** Which list contains **all** the consumers in the food web?

    A.  grasses, shrubs

    B.  grasses, shrubs, grasshoppers, mice, rabbits

    C.  hawks, foxes

✔    D.  grasshoppers, mice, rabbits, birds, hawks, foxes

*Reporting Category/*Subcategory for Item 18: ***Life Science (Biology)/*** **Energy and Living Things (p. 379)**

*Use the information below to answer question 19.*

> In solid fuel rockets, a fuel mixture is burned and once the mixture starts burning it cannot be stopped.
> In liquid fuel rockets, there is a tank of fuel and a tank of oxygen. The burning of the fuel can be stopped by preventing the flow of fuel and oxygen into the combustion chamber.

**19** Based on this information, which system is more highly developed in liquid fuel rockets than in solid fuel rockets?

   A.  propulsion

   B.  suspension

✔   C.  control

   D.  structure

*Reporting Category/*Subcategory for Item 19: ***Technology/Engineering/Transportation Technologies*** **(p. 383)**

## Session 3, Open-Response Question

*Use the information and table below to answer question 20.*

After Ted added a small amount of calcium chloride (a salt) to a beaker containing water, the beaker felt warmer. Ted thought that if more calcium chloride were added, then the beaker would become even warmer. He conducted an experiment using the three setups shown in the table. Ted used the same kind of beaker, spoon, and thermometer in each setup.
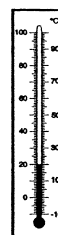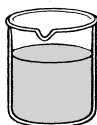
| Setup | Water in Beaker (mL) | Calcium Chloride Added (Spoonfuls) | Change in Temperature (°C) |
|-------|----------------------|------------------------------------|----------------------------|
| A     | 150                  | 0                                  | 0.0                        |
| B     | 150                  | 1                                  | 7.5                        |
| C     | 150                  | 2                                  | 13.5                       |

**20** a. Identify and explain **two** things Ted did correctly in designing or conducting his experiment.

b. Identify and explain **two** things Ted could have done that would have improved his experiment.

*Reporting Category/Subcategory for Item 20: **Physical Sciences (Physics and Chemistry)/Properties of Matter (p. 379)***

# XIV. History and Social Science, Grade 5

# History and Social Science, Grade 5

The spring 2001 MCAS History and Social Science test was based on the learning standards and core knowledge topics of the Massachusetts *History and Social Science Curriculum Framework* (1997). Each test question assessed students' knowledge, concepts, and reasoning related to a specific learning standard; most questions also assessed knowledge, concepts, and reasoning related to a particular core knowledge topic.

# Curriculum Framework *Learning Standards*

The *Framework* identifies four major study strands:

❚ History

❚ Geography

❚ Economics

❚ Civics and Government

The learning standards for each study strand are listed below and are directly quoted from the *Framework;* applicable *Framework* page numbers are shown in parentheses.

## History (*Framework,* pp. 64–65, 74–75, 78–93)

1. **Chronology and Cause.** Students will understand the chronological order of historical events and recognize the complexity of historical cause and effect, including the inter-action of forces from different spheres of human activity, the importance of ideas, and of individual choices, actions, and character.

2. **Historical Understanding.** Students will understand the meaning, implications, and import of historical events, while recognizing the contingency and unpredictability of history—how events could have taken other directions—by studying past ideas as they were thought, and past events as they were lived, by people of the time.

**3. Research, Evidence, and Point of View.** Students will acquire the ability to frame questions that can be answered by historical study and research; to collect, evaluate, and employ information from primary and secondary sources, and to apply it in oral and written presentations. They will understand the many kinds and uses of evidence; and by comparing competing historical narratives, they will differentiate historical fact from historical interpretation and from fiction.

**4. Society, Diversity, Commonality, and the Individual.** As a vast nation, the overwhelming majority of whose population derives from waves of immigration from many lands, the United States has a citizenry that exhibits a broad diversity in terms of race, ethnic traditions, and religious beliefs. The history of the United States exhibits perhaps the most important endeavor to establish a civilization founded on the principles that all people are created equal, that it is the purpose of government to secure the inalienable rights of all individuals, and that government derives "its just powers from the consent of the governed." It is also true, however, that federal, state, and local governments, as well as the people themselves, have often fallen short in practice of actualizing these high ideals, the most egregious violation being the acceptance of slavery in some states until the Civil War. Students should be expected to learn of the complex interplay that has existed from the beginning of our country between American ideals and American practice in the pursuit of realizing the goals of the Declaration of Independence for all people. While attending to the distinct contributions that immigrants from various lands and of various creeds, along with Native Americans, have made to our nationhood, students [will understand] above all the importance of our common citizenship and the imperative to treat all individuals with the respect for their dignity called for by the Declaration of Independence.

**5. Interdisciplinary Learning: Religion, Ethics, Philosophy, and Literature in History.** Students will describe and explain fundamental tenets of major world religions; basic ideals of ethics, including justice, consideration for others, and respect for human rights; differing conceptions of human nature; and influences over time of religion, ethics, and ideas of human nature in the arts, political and economic theories and ideologies, societal norms, education of the public, and the conduct of individual lives.

**6. Interdisciplinary Learning: Natural Science, Mathematics, and Technology in History.** Students will describe and explain major advances, discoveries, and inventions over time in natural science, mathematics, and technology; explain some of their effects and influences in the past and present on human life, thought, and health, including use of natural resources, production and distribution and consumption of goods, exploration, warfare, and communication.

# Geography (*Framework,* pp. 66–67, 75, 94–101)

**7. Physical Spaces of the Earth.** Students will describe earth's natural features and their physical and biological characteristics; they will be able to visualize and map oceans and continents; mountain chains and rivers; forest, plain, and desert; resources both above and below ground; and conditions of climate and seasons.

**8. Places and Regions of the World.** Students will identify and explain the location and features of places and systems organized over time, including boundaries of nations and regions; cities and towns; capitals and commercial centers; roads, rails, and canals; dams, harbors, and fortifications; and routes of trade and invasion.

**9. The Effects of Geography.** Students will learn how physical environments have influenced particular cultures, economies, and political systems, and how geographic factors have affected population distribution, human migration, and other prehistoric and historical developments, such as agriculture, manufacturing, trade, and transportation.

**10. Human Alteration of Environments.** Students will describe the ways in which human activity has changed the world, such as removing natural barriers; transplanting some animal and plant species, and eliminating others; increasing or decreasing the fertility of land; and the mining of resources. They explain how science, technology, and institutions of many kinds have affected human capacity to alter environments.

# Economics (*Framework,* pp. 68–71, 75–76, 102–117)

**11. Fundamental Economic Concepts.** Students will understand fundamental economic concepts, including choice, ownership, exchange, cooperation, competition, purposive effect, entrepreneurship, incentive, and money.

**12. Economic Reasoning.** Students will demonstrate understanding of supply and demand, price, labor markets, the costs of capital, factors affecting production, distribution, and consumption, relations among such factors, the nature of goods and services, incentives, financial markets, cost-benefit (including marginal cost-benefit) analysis, fairness, and the value of trade.

**13. American and Massachusetts Economic History.** Students will describe the development of the American economy, including Massachusetts and New England, from colonial times to the present.

**14. Today's Economy.** Students will describe the distinctive aspects of the contemporary economy of the United States and the world.

**15. Theories of Economy.** Students will describe and compare the major theories of economy, and will identify the individuals and historical circumstances in which these theories were developed.

## Civics and Government *(Framework,* pp. 72–73, 76–77, 118–130)

**16. Authority, Responsibility, and Power.** Students will explain forms of authority in government and other institutions; explain purposes of authority and distinguish authority from mere power, as in "a government of laws, but not of men"; and describe responsible and irresponsible exercise of both authority and power.

**17. The Founding Documents.** Students will learn in progressively greater detail the content and history of the Founding Documents of the United States—the Declaration of Independence, United States Constitution, and selected *Federalist* papers (as required by the Massachusetts Education Reform Act of 1993). They will assess the reasoning, purposes, and effectiveness of the documents; and, similarly, elements of the Constitution of the Commonwealth of Massachusetts.

**18. Principles and Practices of American Government.** Students will describe how the United States government functions at the local, state, national, and international levels, with attention to the Constitution of the Commonwealth of Massachusetts, its Declaration of the Rights of the Inhabitants, and the basic elements of its Frame of Government; analyze the background and evolution of constitutional and democratic government in the United States to the present day; and explain the place of institutions of government in securing the rights of citizens.

**19. Citizenship.** Students will learn the rights and duties of citizens and the principle of equal rights for all; consider the nature of civic virtue in a school, a community, a nation; and identify major obstacles and threats to civil rights.

**20. Forms of Government.** Students will study, compare, contrast, and analyze diverse forms of government; the ways of life and opportunities they permit, promote, and prohibit; and their effects on human rights. They will evaluate forms of government in terms of justice, ordered liberty, efficiency, public safety, educational opportunity, and economic and social mobility.

# Curriculum Framework *Core Knowledge Topics*

The *History and Social Science Curriculum Framework* groups core knowledge topics into two categories: **The United States** and **The World,** and recommends a scope and sequence of instruction. In accordance with the *Framework*'s recommendations, MCAS tests grade 5 students on core knowledge topics from both categories, as listed below; however, no single annual MCAS administration will test **all** core knowledge topics from the grade 5 list.

Core knowledge topics are primarily assessed through questions linked with *History* strand learning standards. Each MCAS test item based on a *History* strand learning standard also assesses a core knowledge topic. Questions based on *Geography, Economics,* or *Civics and Government* strand learning standards are not necessarily linked to a core knowledge topic; those that assess only a learning standard are considered "stand alone" items.

Questions within any single test session covered up to two core knowledge topic eras; these questions were not necessarily presented in chronological order. However, the sequence of questions from session to session generally progressed in chronological order by era.

The grade 5 History and Social Science core knowledge topics listed below are directly quoted from pages 13, 14, and 16 of the *Framework;* each topic is further subdivided on those *Framework* pages. Pages 24-50 of the *Framework* additionally list commonly taught subtopics for grade 5 students.

## Grade 5 Core Knowledge Topics:
## The United States

1.  Early America and the Americans (Beginnings to 1650)
2.  Settlements, Colonies, and Emerging American Identity (1600 to 1763)
3.  The American Revolution: Creating a New Nation (1750 to 1815)
4.  Expansion, Reform, and Economic Growth (1800 to 1861)
5.  The Civil War and Reconstruction (1850 to 1877)

## The World

1.  Human Beginnings and Early Civilizations (Prehistory to 1000 B.C.)
2.  Classical Civilizations of the Ancient World (1000 B.C. to c. 500 A.D.)
3.  Growth of Agricultural and Commercial Civilizations (500 to 1500 A.D.)[8]

# *MCAS Reporting Categories*

In *Test Item Analysis Reports* and on the *Subject Area Subscore* pages of the MCAS *School* and *District Reports,* grade 5 History and Social Science test results are reported under the following five MCAS reporting categories:

▮ *U.S. History*          ▮ *Economics*

▮ *World History*          ▮ *Civics and Government*

▮ *Geography*

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[8] Grade 8 students are tested only on the first three subdivisions listed in the *Framework* under this core knowledge topic.

# *MCAS Spring 2001 Common Test Items*
# *History and Social Science, Grade 5*

## Test Sessions

MCAS grade 5 History and Social Science Student Test Booklets included 3 separate test sessions. Each session included multiple-choice and open-response questions.

## Reference Materials and Tools

No reference materials or tools were allowed during any History and Social Science test session.

## Cross-Reference Information

The shaded bar underneath each item indicates the item's MCAS reporting category, the *Framework* learning standard it assesses, and the core knowledge topic assessed by the item, if any. Items that do not assess a core knowledge topic ("stand alone" items) indicate "N/A" ("Not Applicable") in the appropriate line of their shaded bars. The page numbers given in parentheses indicate where in this document to locate the referenced learning standard and, if applicable, core knowledge topic.

## Session 1, Multiple-Choice Questions

**1** Mesopotamia, in the Greek language, means "the land between two rivers." Between which two rivers was Mesopotamia located?

A. Nile and Ganges

✔ B. Tigris and Euphrates

C. Nile and Euphrates

D. Ganges and Huang He (Yellow)

*Reporting Category/*Learning Standard for Item 1: ***World History/*Historical Understanding (p. 401)**
Core Knowledge Topic: **Human Beginnings and Early Civilizations (Prehistory to 1000 B.C.) (p. 405)**

**2** Mesopotamia is known as the "cradle of western civilization" because

A. people there carved wooden cradles.

✔ B. the first settlements began there.

C. the first language was spoken there.

D. people there created a democracy.

*Reporting Category/*Learning Standard for Item 2: ***World History/*Historical Understanding (p. 401)**
Core Knowledge Topic: **Human Beginnings and Early Civilizations (Prehistory to 1000 B.C.) (p. 405)**

# History and Social Science, Grade 5

*Use the picture below to answer question 3.*



3    This is an example of ***hieroglyphic*** writing. Which civilization invented it?

✔    A. Egyptian

     B. Indian

     C. Chinese

     D. Mesopotamian

*Reporting Category/*Learning Standard for Item 3: ***World History/*Historical Understanding (p. 401)**
Core Knowledge Topic: **Human Beginnings and Early Civilizations (Prehistory to 1000 B.C.) (p. 405)**

4    The pyramids, mummies, and tomb paintings show that the ancient Egyptians

     A. elected their pharaohs.

     B. had very few religious beliefs.

     C. knew little about mathematics.

✔    D. believed in life after death.

*Reporting Category/*Learning Standard for Item 4: ***World History/*Historical Understanding (p. 401)**
Core Knowledge Topic: **Human Beginnings and Early Civilizations (Prehistory to 1000 B.C.) (p. 405)**

# History and Social Science, Grade 5

**5** The Chinese invented all of the following EXCEPT

    A. paper.

    B. gunpowder.

    C. porcelain.

✔    D. steel.

*Reporting Category/*Learning Standard for Item 5: ***World History/***Historical Understanding (p. 401)
Core Knowledge Topic: **Human Beginnings and Early Civilizations (Prehistory to 1000 B.C.) (p. 405)**

**6** In which ancient civilization was the ruler called a ***pharaoh***?

    A. Mesopotamia

    B. India

    C. China

✔    D. Egypt

*Reporting Category/*Learning Standard for Item 6: ***World History/***Historical Understanding (p. 401)
Core Knowledge Topic: **Human Beginnings and Early Civilizations (Prehistory to 1000 B.C.) (p. 405)**

**7** On which continent did the teachings of Hinduism, Buddhism, and Confucianism begin?

    A. South America

✔    B. Asia

    C. Africa

    D. Europe

*Reporting Category/*Learning Standard for Item 7: ***World History/***Historical Understanding (p. 401)
Core Knowledge Topic: **Human Beginnings and Early Civilizations (Prehistory to 1000 B.C.) (p. 405)**

**8** Which two rivers were important to the development of the ancient civilization of China?

    A.  Indus and Ganges

✔    B.  Huang He (Yellow) and Yangtze

    C.  Nile and Niger

    D.  Rhine and Rhone

*Reporting Category/*Learning Standard for Item 8: ***Geography/Physical Spaces of Earth*** **(p. 403)**
Core Knowledge Topic: **N/A**

**9** *Cuneiform* and *hieroglyphs* are both early forms of

✔    A.  writing.

    B.  dress.

    C.  poetry.

    D.  arithmetic.

*Reporting Category/*Learning Standard for Item 9: ***World History/*Historical Understanding (p. 401)**
Core Knowledge Topic: **Human Beginnings and Early Civilizations (Prehistory to 1000 B.C.) (p. 405)**

**10** In 1492, Columbus set out on his voyage to find a

✔    A.  shorter route to the Indies.

    B.  quick passage around Africa.

    C.  new route to North and South America.

    D.  safer passage to China.

*Reporting Category/*Learning Standard for Item 10: ***U.S. History/*Historical Understanding (p. 401)**
Core Knowledge Topic: **Early America and Americans (Beginnings to 1650) (p. 405)**

**11** The Spanish "conquistadors," Cortes and Pizarro, defeated the

    A. Sioux.

✔    B. Aztecs and Incas.

    C. Cherokees and Seminoles.

    D. Inuits.

*Reporting Category/*Learning Standard for Item 11: ***U.S. History/*Historical Understanding (p. 401)**
Core Knowledge Topic: **Early America and the Americans (Beginnings to 1650) (p. 405)**

*Use the map below to answer question 12.*



**12** Which number on the map locates the Pacific Ocean?

✔    A. 1

    B. 2

    C. 3

    D. 4

*Reporting Category/*Learning Standard for Item 12: ***Geography/Physical Spaces of Earth* (p. 403)**
Core Knowledge Topic: **N/A**

## Session 1, Open-Response Questions

**13** There were many differences among groups of Native Americans during colonial times. The following is a list of groups of Native Americans.

- Eastern Woodlands

- Plains

- Southwest

- Northwest Coast

- Arctic

a. Choose TWO different groups and write their names.

b. Describe TWO important differences between the groups you selected.

*Reporting Category/*Learning Standard for Item 13: ***U.S. History/*Society, Diversity, Commonality, and the Individual (p. 402)**
Core Knowledge Topic: **Early America and Americans (Beginnings to 1650) (p. 405)**

**14** The map below shows where the ancient civilizations of China, Egypt, India, and Mesopotamia developed.
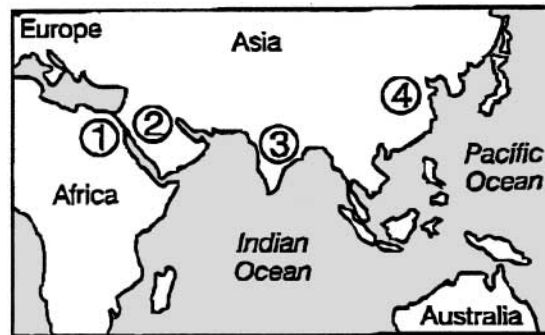


Choose ONE civilization to answer parts a and b.

a. Write the name of the civilization you have chosen. Write the number from the map that shows where that civilization was located.

b. Describe TWO important things for which this civilization is known.

*Reporting Category/*Learning Standard for Item 14: ***World History/*Historical Understanding (p. 401)**
Core Knowledge Topic: **Human Beginnings and Early Civilizations (Prehistory to 1000 B.C.) (p. 405)**

## Session 2, Multiple-Choice Questions

*Use the map below to answer question 15.*

**European Claims in North America**
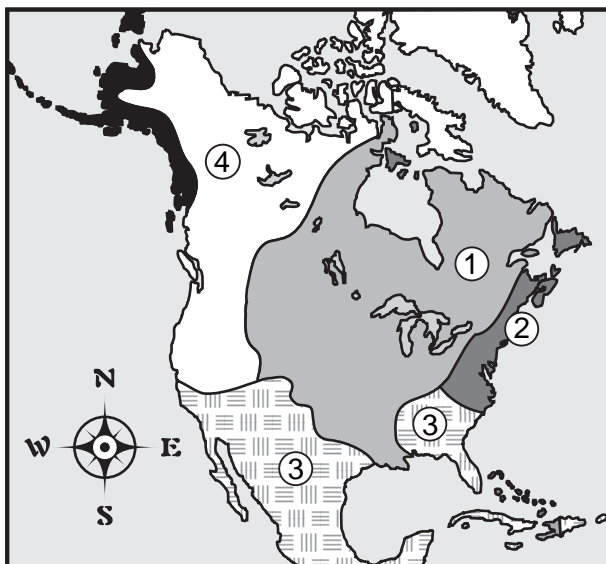


**15** The area labeled 2 on the map was colonized by

    A. France.

✔    B. England.

    C. Spain.

    D. Portugal.

*Reporting Category/*Learning Standard for Item 15: ***U.S. History/*Research, Evidence, and Point of View (p. 402)**
Core Knowledge Topic: **Early America and the Americans (Beginnings to 1650) (p. 405)**

**16** The MAIN reason the Pilgrims left England was to

   A. explore the "New World."

   B. increase their wealth.

   C. find new trade routes to Asia.

✔   D. practice their religion freely.

> *Reporting Category/*Learning Standard for Item 16: ***U.S. History/*Chronology and Cause (p. 401)**
>         Core Knowledge Topic: **Early America and the Americans (Beginnings to 1650) (p. 405)**

**17** The Mayflower Compact is BEST described as a

   A. declaration of independence from England.

   B. request to form a new colony in North America.

   C. statement of freedoms for the people of Massachusetts.

✔   D. set of rules to govern the Pilgrims.

> *Reporting Category/*Learning Standard for Item 17: ***U.S. History/*Historical Understanding (p. 401)**
>         Core Knowledge Topic: **Early America and the Americans (Beginnings to 1650) (p. 405)**

**18** When the Pilgrims arrived in Plymouth, which crop was MOST important to the Native Americans living there?

   A. wheat

✔   B. corn

   C. potatoes

   D. oats

> *Reporting Category/*Learning Standard for Item 18: ***U.S. History/*Historical Understanding (p. 401)**
>         Core Knowledge Topic: **Early America and the Americans (Beginnings to 1650) (p. 405)**

*Use the illustration below to answer question 19.*
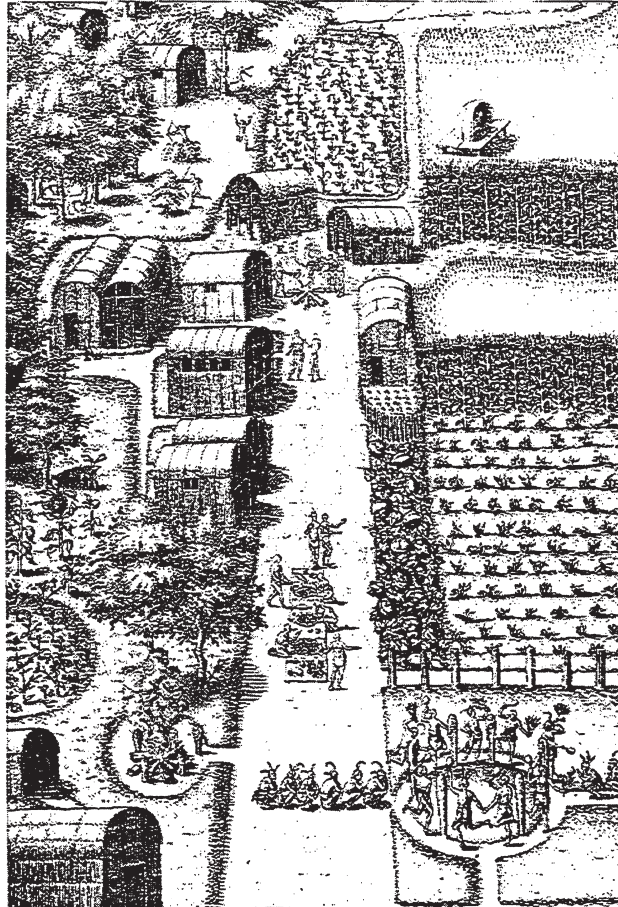


**19** The village above is

✔    A. an Eastern Woodlands Indian settlement.

     B. an English colonial town.

     C. a Plains Indian campground.

     D. an English fort in Canada.

*Reporting Category/*Learning Standard for Item 19: ***U.S. History/*Research, Evidence, and Point of View (p. 402)**
Core Knowledge Topic: **Settlements, Colonies, and Emerging American Identity (1600 to 1763) (p. 405)**

**20** The country located just south of the United States is

   A.  Canada.

✔   B.  Mexico.

   C.  Spain.

   D.  England.

*Reporting Category/*Learning Standard for Item 20: ***Geography/Places and Regions of the World* (p. 403)**
Core Knowledge Topic: **N/A**

**21** Puritans settled in which colony?

   A.  Georgia

   B.  Virginia

✔   C.  Massachusetts Bay

   D.  North Carolina

*Reporting Category/*Learning Standard for Item 21: ***U.S. History/*Historical Understanding (p. 401)**
Core Knowledge Topic: **Early America and Americans (Beginnings to 1650) (p. 405)**

**22** In colonial times, a young man who worked with a carpenter, blacksmith, or painter to learn the job was called

✔   A.  an apprentice.

   B.  a slave.

   C.  an indentured servant.

   D.  a partner.

*Reporting Category/*Learning Standard for Item 22: ***U.S. History/*Historical Understanding (p. 401)**
Core Knowledge Topic: **Settlements, Colonies, and Emerging American Identity (1600 to 1763) (p. 405)**

**23** In the 1600s, students in Massachusetts schools usually studied

    A. business and trade.

    B. agriculture.

    C. painting and sculpture.

✔    D. the Bible.

*Reporting Category/*Learning Standard for Item 23: ***U.S. History/*Historical Understanding (p. 401)**
Core Knowledge Topic: **Settlements, Colonies, and Emerging American Identity (1600 to 1763) (p. 405)**

**24** All of the following were products from colonial New England EXCEPT

    A. lumber.

    B. fish.

✔    C. rice.

    D. corn.

*Reporting Category/*Learning Standard for Item 24: ***Economics/American and Massachusetts Economic History*** (p. 403)
Core Knowledge Topic: **N/A**

**25** Which economic role are you acting in when you go to the store to buy a candy bar?

    A. producer

    B. worker

    C. leader

✔    D. consumer

*Reporting Category/*Learning Standard for Item 25: ***Economics/Economic Reasoning*** (p. 403)
Core Knowledge Topic: **N/A**

## Session 2, Open-Response Questions

**26** A new grocery store is opening in a neighborhood. The store owner wants people to shop at the store.

a. Identify TWO things the store owner could do to get people to shop at the store.

b. Explain why these things would be important to get people to shop at the store.

*Reporting Category/*Learning Standard for Item 26: ***Economics/Economic Reasoning*** **(p. 403)**
Core Knowledge Topic: **N/A**

**27** You have many responsibilities in your school and community.

a. List TWO responsibilities that you have in your school or community.

b. Explain why EACH of these responsibilities is important to your school or community.

*Reporting Category/*Learning Standard for Item 27: ***Civics and Government/ Authority, Responsibility and Power*** **(p. 404)**
Core Knowledge Topic: **N/A**

## Session 3, Multiple-Choice Questions

28  Florida is what type of landform?

   A. a strait

   B. an isthmus

✔  C. a peninsula

   D. an island

*Reporting Category/*Learning Standard for Item 28: ***Geography/Physical Spaces of the Earth*** **(p. 403)**
Core Knowledge Topic: **N/A**

29  Why was the creation of the House of Burgesses (1619) an important step in the development of American government?

   A. The House of Burgesses improved relations with the Native Americans.

   B. The House of Burgesses had to follow the wishes of the King of England.

✔  C. The House of Burgesses was the first representative body in the colonies.

   D. The House of Burgesses increased the profits for the Virginia Company.

*Reporting Category/*Learning Standard for Item 29: ***U.S. History/*Historical Understanding (p. 401)**
Core Knowledge Topic: **Settlements, Colonies, and Emerging American Identity (1600 to 1763) (p. 405)**

30  Which group of people in the South had the **most** power in colonial governments?

   A. owners of small farms

✔  B. plantation owners

   C. owners of small businesses

   D. fishermen

*Reporting Category/*Learning Standard for Item 30: ***U.S. History/*Historical Understanding (p. 401)**
Core Knowledge Topic: **Settlements, Colonies, and Emerging American Identity (1600 to 1763) (p. 405)**

**31** The "Middle Passage" refers to which of the following?

✔    A. the slave trade

     B. the voyage of the Mayflower

     C. the spice trade

     D. the explorations of Magellan

*Reporting Category/*Learning Standard for Item 31: ***U.S. History/*Historical Understanding (p. 401)**
Core Knowledge Topic: **Settlements, Colonies, and Emerging American Identity (1600 to 1763) (p. 405)**

*Use the map below to answer question 32.*



**32** The British passed a law known as the Proclamation of 1763. What was the purpose of this law?

    A.  to raise money by selling western lands

    B.  to open western lands for settlement

✔    C.  to stop settlers from moving west

    D.  to force the French to move west

*Reporting Category/*Learning Standard for Item 32: *U.S. History/*Historical Understanding (p. 401)
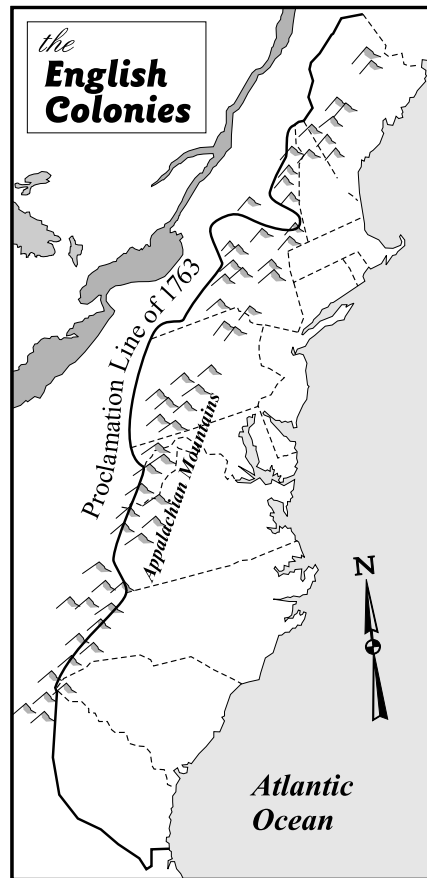Core Knowledge Topic: **Settlements, Colonies, and Emerging American Identity (1600 to 1763) (p. 405)**

**33** In 1775, the British marched on Lexington and Concord to

    A.  gather food needed by the British soldiers in Boston.

    B.  conduct a training exercise to prepare for battle.

    C.  force the Native Americans away from Boston.

✔    D.  capture weapons and powder stored by the patriots.

*Reporting Category/*Learning Standard for Item 33: ***U.S. History/*Historical Understanding (p. 401)**
Core Knowledge Topic: **The American Revolution: Creating a New Nation (1750 to 1815) (p. 405)**

*Study the picture below to answer question 34.*
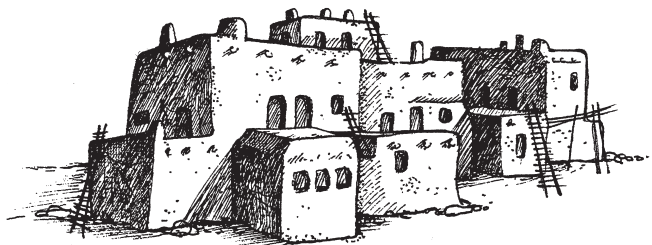


**34** The home shown in the picture was made mostly of

    A.  thatch.

    B.  metal.

✔    C.  adobe.

    D.  wood.

*Reporting Category/*Learning Standard for Item 34: ***Geography/The Effects of Geography* (p. 403)**
Core Knowledge Topic: **N/A**

**35** The American colonists who supported King George III during the Revolution were called

    A. Minutemen.

    B. Federalists.

    C. Patriots.

✔    D. Loyalists.

*Reporting Category/*Learning Standard for Item 35: ***U.S. History/**Historical Understanding (p. 401)*
*Core Knowledge Topic: **The American Revolution: Creating a New Nation (1750 to 1815) (p. 405)***

**36** Which statement BEST describes the Constitution of the United States?

✔    A. The Constitution is a plan for the government of the United States.

    B. The Constitution is a statement of independence from Great Britain.

    C. The Constitution is an outline of local government.

    D. The Constitution is a grant to allow exploration and settlement.

*Reporting Category/*Learning Standard for Item 36: ***Civics and Government/The** Founding Documents (p. 404)*
*Core Knowledge Topic: **N/A***

**37** For which of the following is Dr. Martin Luther King, Jr., BEST known?

    A. protection for the elderly

    B. protection of the environment

✔    C. equal rights for all Americans

    D. raising minimum wage

*Reporting Category/*Learning Standard for Item 37: ***Civics and Government/**Principles and Practices of*
*American Government (p. 404)*
*Core Knowledge Topic: **N/A***

*Use the map below to answer question 38.*
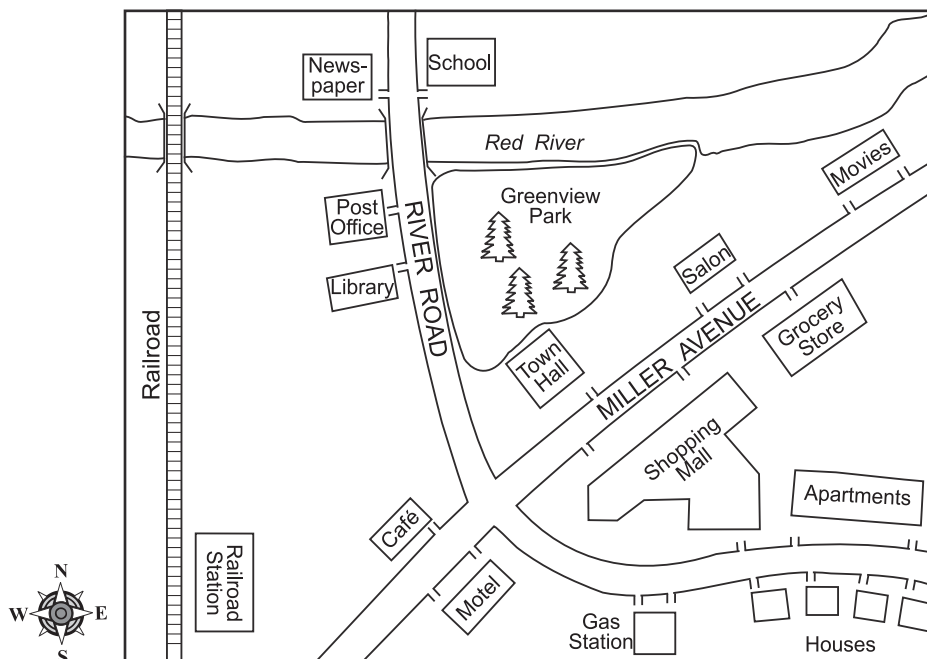


**38** Which direction would you travel to go from the apartments to the school?

A. southeast

✔ B. northwest

C. southwest

D. northeast

**Session 3, Open-Response Question**

**39** In 1775 and 1776, people living in the American colonies were arguing about whether or not the colonies should be independent from Great Britain.

a. Describe TWO reasons why some colonists were in favor of independence.

b. Describe TWO reasons why some colonists were against independence.

*Reporting Category/*Learning Standard for Item 39: ***U.S. History/*Historical Understanding (p. 401)**
Core Knowledge Topic: **The American Revolution: Creating a New Nation (1750 to 1815) (p. 405)**

# XV. History and Social Science, Grade 8

# History and Social Science, Grade 8

The spring 2001 MCAS History and Social Science test was based on the learning standards and core knowledge topics of the Massachusetts *History and Social Science Curriculum Framework* (1997). Each test question assessed students' knowledge, concepts, and reasoning related to a specific learning standard; most questions also assessed knowledge, concepts, and reasoning related to a particular core knowledge topic.

## Curriculum Framework *Learning Standards*

The *Framework* identifies four major study strands:

❚ History

❚ Geography

❚ Economics

❚ Civics and Government

The learning standards for each study strand are listed below and are directly quoted from the *Framework;* applicable *Framework* page numbers are shown in parentheses.

### History (*Framework,* pp. 64–65, 74–75, 78–93)

**1. Chronology and Cause.** Students will understand the chronological order of historical events and recognize the complexity of historical cause and effect, including the interaction of forces from different spheres of human activity, the importance of ideas, and of individual choices, actions, and character.

**2. Historical Understanding.** Students will understand the meaning, implications, and import of historical events, while recognizing the contingency and unpredictability of history—how events could have taken other directions—by studying past ideas as they were thought, and past events as they were lived, by people of the time.

**3. Research, Evidence, and Point of View.** Students will acquire the ability to frame questions that can be answered by historical study and research; to collect, evaluate, and employ information from primary and secondary sources, and to apply it in oral and written presentations. They will understand the many kinds and uses of evidence; and by comparing competing historical narratives, they will differentiate historical fact from historical interpretation and from fiction.

**4. Society, Diversity, Commonality, and the Individual.** As a vast nation, the overwhelming majority of whose population derives from waves of immigration from many lands, the United States has a citizenry that exhibits a broad diversity in terms of race, ethnic traditions, and religious beliefs. The history of the United States exhibits perhaps the most important endeavor to establish a civilization founded on the principles that all people are created equal, that it is the purpose of government to secure the inalienable rights of all individuals, and that government derives "its just powers from the consent of the governed." It is also true, however, that federal, state, and local governments, as well as the people themselves, have often fallen short in practice of actualizing these high ideals, the most egregious violation being the acceptance of slavery in some states until the Civil War. Students should be expected to learn of the complex interplay that has existed from the beginning of our country between American ideals and American practice in the pursuit of realizing the goals of the Declaration of Independence for all people. While attending to the distinct contributions that immigrants from various lands and of various creeds, along with Native Americans, have made to our nationhood, students [will understand] above all the importance of our common citizenship and the imperative to treat all individuals with the respect for their dignity called for by the Declaration of Independence.

**5. Interdisciplinary Learning: Religion, Ethics, Philosophy, and Literature in History.** Students will describe and explain fundamental tenets of major world religions; basic ideals of ethics, including justice, consideration for others, and respect for human rights; differing conceptions of human nature; and influences over time of religion, ethics, and ideas of human nature in the arts, political and economic theories and ideologies, societal norms, education of the public, and the conduct of individual lives.

**6. Interdisciplinary Learning: Natural Science, Mathematics, and Technology in History.** Students will describe and explain major advances, discoveries, and inventions over time in natural science, mathematics, and technology; explain some of their effects and influences in the past and present on human life, thought, and health, including use of natural resources, production and distribution and consumption of goods, exploration, warfare, and communication.

# Geography (*Framework,* pp. 66–67, 75, 94–101)

7. **Physical Spaces of the Earth.** Students will describe earth's natural features and their physical and biological characteristics; they will be able to visualize and map oceans and continents; mountain chains and rivers; forest, plain, and desert; resources both above and below ground; and conditions of climate and seasons.

8. **Places and Regions of the World.** Students will identify and explain the location and features of places and systems organized over time, including boundaries of nations and regions; cities and towns; capitals and commercial centers; roads, rails, and canals; dams, harbors, and fortifications; and routes of trade and invasion.

9. **The Effects of Geography.** Students will learn how physical environments have influenced particular cultures, economies, and political systems, and how geographic factors have affected population distribution, human migration, and other prehistoric and historical developments, such as agriculture, manufacturing, trade, and transportation.

10. **Human Alteration of Environments.** Students will describe the ways in which human activity has changed the world, such as removing natural barriers; transplanting some animal and plant species, and eliminating others; increasing or decreasing the fertility of land; and the mining of resources. They explain how science, technology, and institutions of many kinds have affected human capacity to alter environments.

# Economics (*Framework,* pp. 68–71, 75–76, 102–117)

11. **Fundamental Economic Concepts.** Students will understand fundamental economic concepts, including choice, ownership, exchange, cooperation, competition, purposive effect, entrepreneurship, incentive, and money.

12. **Economic Reasoning.** Students will demonstrate understanding of supply and demand, price, labor markets, the costs of capital, factors affecting production, distribution, and consumption, relations among such factors, the nature of goods and services, incentives, financial markets, cost-benefit (including marginal cost-benefit) analysis, fairness, and the value of trade.

13. **American and Massachusetts Economic History.** Students will describe the development of the American economy, including Massachusetts and New England, from colonial times to the present.

14. **Today's Economy.** Students will describe the distinctive aspects of the contemporary economy of the United States and the world.

15. **Theories of Economy.** Students will describe and compare the major theories of economy, and will identify the individuals and historical circumstances in which these theories were developed.

## Civics and Government *(Framework,* pp. 72–73, 76–77, 118–130)

**16. Authority, Responsibility, and Power.** Students will explain forms of authority in government and other institutions; explain purposes of authority and distinguish authority from mere power, as in "a government of laws, but not of men"; and describe responsible and irresponsible exercise of both authority and power.

**17. The Founding Documents.** Students will learn in progressively greater detail the content and history of the Founding Documents of the United States—the Declaration of Independence, United States Constitution, and selected *Federalist* papers (as required by the Massachusetts Education Reform Act of 1993). They will assess the reasoning, purposes, and effectiveness of the documents; and, similarly, elements of the Constitution of the Commonwealth of Massachusetts.

**18. Principles and Practices of American Government.** Students will describe how the United States government functions at the local, state, national, and international levels, with attention to the Constitution of the Commonwealth of Massachusetts, its Declaration of the Rights of the Inhabitants, and the basic elements of its Frame of Government; analyze the background and evolution of constitutional and democratic government in the United States to the present day; and explain the place of institutions of government in securing the rights of citizens.

**19. Citizenship.** Students will learn the rights and duties of citizens and the principle of equal rights for all; consider the nature of civic virtue in a school, a community, a nation; and identify major obstacles and threats to civil rights.

**20. Forms of Government.** Students will study, compare, contrast, and analyze diverse forms of government; the ways of life and opportunities they permit, promote, and prohibit; and their effects on human rights. They will evaluate forms of government in terms of justice, ordered liberty, efficiency, public safety, educational opportunity, and economic and social mobility.

# Curriculum Framework *Core Knowledge Topics*

The *History and Social Science Curriculum Framework* groups core knowledge topics into two categories: **The United States** and **The World,** and recommends a scope and sequence of instruction. In accordance with the *Framework*'s recommendations, MCAS tests grade 8 students on core knowledge topics from both categories, as listed below; however, no single annual MCAS administration will test **all** core knowledge topics from the grade 8 list.

Core knowledge topics are primarily assessed through questions linked with *History* strand learning standards. Each MCAS test item based on a *History* strand learning standard also assesses a core knowledge topic. Questions based on *Geography, Economics,* or *Civics and Government* strand learning standards are not necessarily linked to a core knowledge topic; those that assess only a learning standard are considered "stand alone" items.

Questions within any single test session covered up to two core knowledge topic eras; these questions were not necessarily presented in chronological order. However, the sequence of questions from session to session generally progressed in chronological order by era.

The grade 8 History and Social Science core knowledge topics listed below are directly quoted from pages 13, 14, and 16 of the *Framework;* each topic is further subdivided on those *Framework* pages. Pages 24-50 of the *Framework* additionally list commonly taught subtopics for grade 8 students.

## Grade 8 Core Knowledge Topics:
## The United States

1. Early America and the Americans (Beginnings to 1650)

2. Settlements, Colonies, and Emerging American Identity (1600 to 1763)

3. The American Revolution: Creating a New Nation (1750 to 1815)

4. Expansion, Reform, and Economic Growth (1800 to 1861)

5. The Civil War and Reconstruction (1850 to 1877)

## The World

1. Human Beginnings and Early Civilizations (Prehistory to 1000 B.C.)

2. Classical Civilizations of the Ancient World (1000 B.C. to c. 500 A.D.)

3. Growth of Agricultural and Commercial Civilizations (500 to 1500 A.D.)[9]

# *MCAS Reporting Categories*

In *Test Item Analysis Reports* and on the *Subject Area Subscore* pages of the MCAS *School* and *District Reports,* grade 8 History and Social Science test results are reported under the following five MCAS reporting categories:

| | |
|---|---|
| ▌ *U.S. History* | ▌ *Economics* |
| ▌ *World History* | ▌ *Civics and Government* |
| ▌ *Geography* | |

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[9] Grade 8 students are tested only on the first three subdivisions listed in the *Framework* under this core knowledge topic.

# MCAS Spring 2001 Common Test Items
## History and Social Science, Grade 8

## Test Sessions

MCAS grade 8 History and Social Science Student Test Booklets included 3 separate test sessions. Each session included multiple-choice and open-response questions.

## Reference Materials and Tools

No reference materials or tools were allowed during any History and Social Science test session.

## Cross-Reference Information

The shaded bar underneath each item indicates the item's MCAS reporting category, the *Framework* learning standard it assesses, and the core knowledge topic assessed by the item, if any. Items that do not assess a core knowledge topic ("stand alone" items) indicate "N/A" ("Not Applicable") in the appropriate line of their shaded bars. The page numbers given in parentheses indicate where in this document to locate the referenced learning standard and, if applicable, core knowledge topic.

## Session 1, Multiple-Choice Questions

**1** The early Greek economy was based on a barter system. Which development caused this system to change?

✔ A. the use of coins

B. trade between cities

C. the appearance of slavery

D. laws governing commerce

*Reporting Category/*Learning Standard for Item 1: ***World History/**Historical Understanding (p. 429)*
Core Knowledge Topic: **Classical Civilizations of the Ancient World (1000 B.C. to 500 A.D.) (p. 433)**

*Study the picture below to answer question 2.*



**2** Structures like the one shown in the picture were built in ancient times to

A. honor gods.

B. protect cities.

✔ C. carry water.

D. honor emperors.

*Reporting Category/*Learning Standard for Item 2: ***World History/**Interdisciplinary Learning: Natural Science,*
**Mathematics, and Technology in History (p. 430)**
Core Knowledge Topic: **Classical Civilizations of the Ancient World (1000 B.C. to 500 A.D.) (p. 433)**

*Read and think about the information in the box below to answer question 3.*

---

- Government made up of two kings, a council of elders, citizens, and five ephors

- State-owned slaves

- System of strict control over people's lives

- Beginning of military training for boys at age eight

---

**3** The information above **best** describes life in ancient

    A. Rome.

✔    B. Sparta.

    C. Egypt.

    D. Athens.

*Reporting Category/*Learning Standard for Item 3: ***World History/*Research, Evidence, and Point of View (p. 430)**
Core Knowledge Topic: **Classical Civilizations of the Ancient World (1000 B.C. to 500 A.D.) (p. 433)**

**4** Europeans traded with China from ancient times to the Middle Ages because they valued China's

    A. pearls.

    B. pandas.

✔    C. silk.

    D. salt.

*Reporting Category/*Learning Standard for Item 4: ***World History/*Historical Understanding (p. 429)**
Core Knowledge Topic: **Classical Civilizations of the Ancient World (1000 B.C. to 500 A.D.) (p. 433)**

**5** The ancient civilizations of Egypt, Greece, and Rome were similar because their people

    A. shared a common language.

    B. were nomads and food-gatherers.

✔    C. believed in many gods.

    D. lived peacefully with other nations.

*Reporting Category/*Learning Standard for Item 5: ***World History/*Interdisciplinary Learning: Religion, Ethics, Philosophy, and Literature in History (p. 430)**
Core Knowledge Topic: **Classical Civilizations of the Ancient World (1000 B.C. to 500 A.D.) (p. 433)**

**6** Cuneiform, the earliest form of writing, was developed by the

✔    A. Sumerians.

    B. Egyptians.

    C. Greeks.

    D. Romans.

*Reporting Category/*Learning Standard for Item 6: ***World History/*Historical Understanding (p. 429)**
Core Knowledge Topic: **Classical Civilizations of the Ancient World (1000 B.C. to 500 A.D.) (p. 433)**

*Read the passage below to answer question 7.*

> It is through not understanding, not realizing four things, that I . . . had to wander so long through this round of rebirths. And what are these four things? They are the Noble Truth of Suffering, the Noble Truth of the Origin of Suffering, the Noble Truth of the Extinction of Suffering, the Noble Truth of the Path that leads to the Extinction of Suffering.

**7** This passage is from the teachings of

    A. Christianity.

    B. Taoism.

✔    C. Buddhism.

    D. Islam.

*Reporting Category/*Learning Standard for Item 7: **World History/**Interdisciplinary Learning: Religion, Ethics, Philosophy, and Literature in History (p. 430)
Core Knowledge Topic: **Classical Civilizations of the Ancient World (1000 B.C. to 500 A.D.) (p. 433)**

**8** Confucius believed that the ideal state should do all the following **except**

    A. educate its citizens to improve the quality of the state.

    B. respect its citizens to honor their importance.

✔    C. offer incentives and rewards to wealthy merchants.

    D. encourage honesty among government officials.

*Reporting Category/*Learning Standard for Item 8: **World History/**Interdisciplinary Learning: Religion, Ethics, Philosophy, and Literature in History (p. 430)
Core Knowledge Topic: **Classical Civilizations of the Ancient World (1000 B.C. to 500 A.D.) (p. 433)**

**9**  Competition between many sellers **usually** results in

A.  higher wages.

✔   B.  lower prices.

C.  more profits.

D.  less demand.

*Reporting Category/*Learning Standard for Item 9: ***Economics/Fundamental Economic Concepts*** (p. 431)
Core Knowledge Topic: **N/A**

**10**  Which of the following powered the textile mills that were vital to the early nineteenth-century New England economy?

A.  oxen

B.  mountain winds

✔   C.  river water

D.  electricity

*Reporting Category/*Learning Standard for Item 10: ***Geography/The Effects of Geography*** (p. 431)
Core Knowledge Topic: **Expansion, Reform, and Economic Growth (p. 433)**

**11**  Colonists who supported King George III during the American Revolution were called

A.  Whigs.

B.  patriots.

C.  Federalists.

✔   D.  loyalists.

*Reporting Category/*Learning Standard for Item 11: ***U.S. History/*Historical Understanding (p. 429)**
Core Knowledge Topic: **The American Revolution: Creating a New Nation(1750 to 1815) (p. 433)**

**12** The Constitution of the United States

    A.  established the independence of the American colonies.

    B.  recorded all laws passed by the Continental Congress.

    C.  provided governments for the individual states.

✔    D.  created the basic framework for a national government.

*Reporting Category/*Learning Standard for Item 12: ***Civics and Government/The Founding Documents*** **(p. 432)**
Core Knowledge Topic: **The American Revolution: Creating a New Nation(1750 to 1815) (p. 433)**

## Session 1, Open-Response Questions

*Please refer to the map below to answer question 13.*



Qin Shi Huangdi

Alexander the Great

Julius Caesar

**13** Study the list of names above.

    a. Select one person, write his name, the civilization in which he lived, and the number on the map that locates that civilization.

    b. Explain who the person was and describe one of his most important achievements.

*Reporting Category/*Learning Standard for Item 13: ***World History/*Historical Understanding (p. 429)**
Core Knowledge Topic: **Classical Civilizations of the Ancient World (1000 B.C. to 500 A.D.) (p. 433)**

**14**    Although the Declaration of Independence states that "all men are created equal," at the time those words were written all people living in the American colonies were **not** treated equally.

    a.   Identify and explain **three** examples of inequality in colonial American society.

    b.   Explain how **one** of those examples of inequality was addressed in the United States Constitution or through amendments to the Constitution.

*Reporting Category/*Learning Standard for Item 14: ***U.S. History/Society, Diversity, Commonality, and the Individual*** (p. 430)
Core Knowledge Topic: **The American Revolution: Creating a New Nation (1750 to 1815) (p. 433)**

## Session 2, Multiple-Choice Questions

**15** Which of the following can the president of the United States do to "check" the power of the legislative branch?

✔    A. veto bills passed by Congress

     B. sponsor new bills in the House and Senate

     C. decide the length of Congressional sessions

     D. appoint House and Senate committee members

> *Reporting Category/*Learning Standard for Item 15: ***Civics and Government/Principles and Practices of the American Government* (p. 432)**
> Core Knowledge Topic: **The American Revolution: Creating a New Nation (1750 to 1815) (p. 433)**

**16** After the War of 1812, the United States Congress passed tariff laws that were meant to

     A. encourage the import of goods from Europe.

     B. increase the price of American exports to Europe.

✔    C. protect American industries from foreign competition.

     D. lower the price of shipping goods overseas.

> *Reporting Category/*Learning Standard for Item 16: ***U.S. History/*Chronology and Cause (p. 429)**
> Core Knowledge Topic: **The American Revolution: Creating a New Nation (1750 to 1815) (p. 433)**

**17** In 1838, the Cherokee nation moved from its homeland east of the Mississippi River to land west of the Mississippi River. The **best** explanation for this move is that the Cherokees were

     A. defeated in a war.

     B. joining forces with western tribes.

     C. seeking better farmland and hunting grounds.

✔    D. forced to migrate by the United States government.

> *Reporting Category/*Learning Standard for Item 17: ***U.S. History/*Historical Understanding (p. 429)**
> Core Knowledge Topic: **Expansion, Reform, and Economic Growth (p. 433)**

*Read and think about the newspaper masthead below to answer question 18.*



THE LIBERATOR.

OUR COUNTRY IS THE WORLD—OUR COUNTRYMEN ARE ALL MANKIND.

BOSTON, MASS., FRIDAY, JUNE 14, 1850.
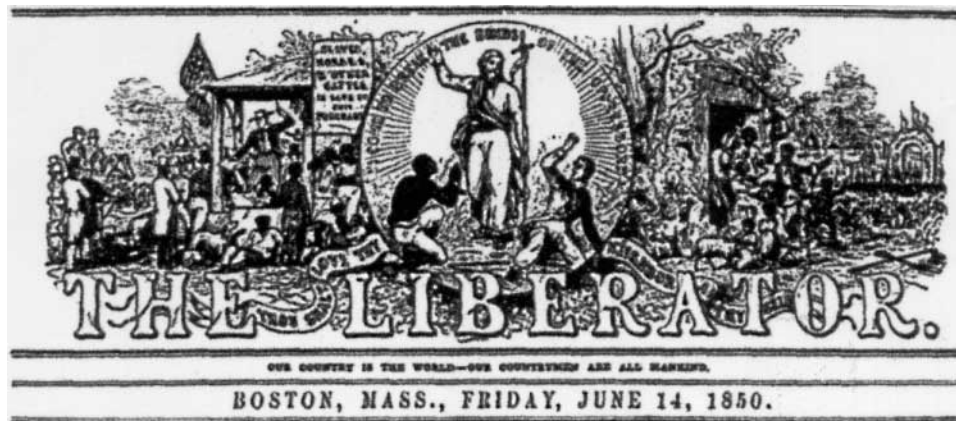
**18** William Lloyd Garrison published this newspaper to promote

A. Texas independence from Mexico.

✔  B. opposition to slavery.

C. equal rights for women.

D. fair treatment of immigrants.

*Reporting Category/*Learning Standard for Item 18: ***U.S. History/*Historical Understanding (p. 429)**
Core Knowledge Topic: **Expansion, Reform, and Economic Growth (p. 433)**

**19** Dorothea Dix is **best** known for her efforts to

A. end child labor in factories.

✔  B. improve conditions for the mentally ill.

C. reform the public education system.

D. abolish corruption in government.

*Reporting Category/*Learning Standard for Item 19: ***U.S. History/*Historical Understanding (p. 429)**
Core Knowledge Topic: **Expansion, Reform, and Economic Growth (p. 433)**

**20** The Know-Nothing Party, also called the American Party, was organized in the 1850s. What was its **main** political goal?

    A. ending slavery

    B. improving public education

    C. ending corruption in government

✔    D. limiting immigration

*Reporting Category/*Learning Standard for Item 20: ***U.S. History/*Historical Understanding (p. 429)**
Core Knowledge Topic: **Expansion, Reform, and Economic Growth (1800 to 1861) (p. 433)**

**21** Before the Civil War, many southern farmers found it necessary to look for new land on which to cultivate cotton. Which statement **best** describes why this occurred?

    A. Population grew rapidly in most southern states.

    B. The supply of cotton greatly exceeded the demand.

✔    C. Cotton growing eventually exhausted the soil.

    D. Expanding cities took over cotton-growing land.

*Reporting Category/*Learning Standard for Item 21: ***Geography/Human Alteration of Environments*** **(p. 431)**
Core Knowledge Topic: **Expansion, Reform, and Economic Growth (1800 to 1861) (p. 433)**

**22** Between 1800 and 1850, the South's dependence on slave labor

    A. increased because Southerners built many textile factories.

    B. decreased because of the invention of the cotton gin.

    C. decreased because Northerners built many textile factories.

✔    D. increased because of the invention of the cotton gin.

*Reporting Category/*Learning Standard for Item 22: ***U.S. History/*Interdisciplinary Learning: Natural Science, Mathematics, and Technology in History (p. 430)**
Core Knowledge Topic: **Expansion, Reform, and Economic Growth (1800 to 1861) (p. 433)**

**23** The term "Manifest Destiny" is **most closely** associated with

   A. immigration quotas.

   B. political compromise.

✔  C. westward expansion.

   D. popular sovereignty.
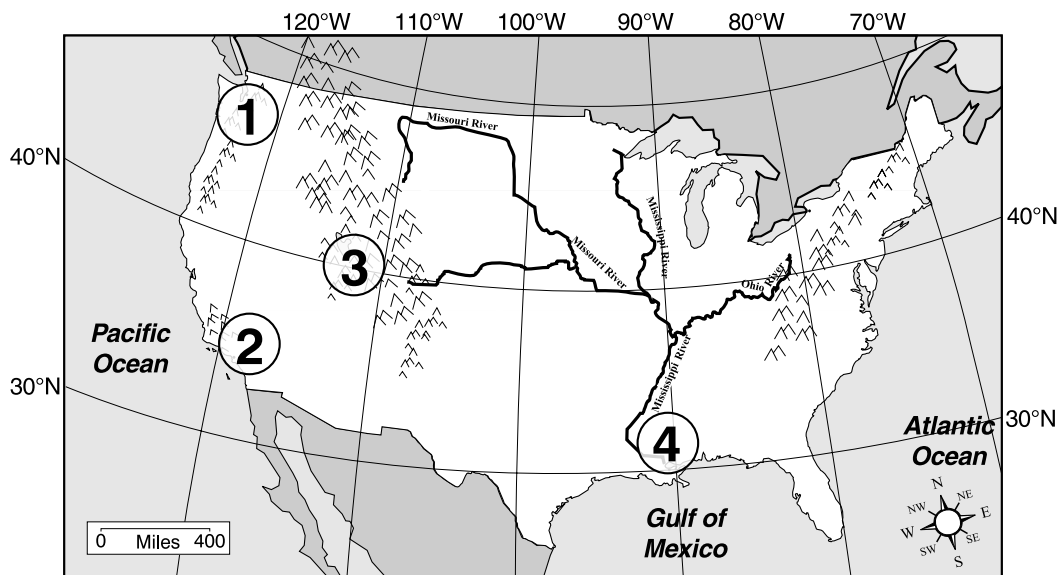
*Reporting Category/*Learning Standard for Item 23: ***U.S. History/*Historical Understanding (p. 429)**
Core Knowledge Topic: **Expansion, Reform, and Economic Growth (1800 to 1861) (p. 433)**

**24** The area between the Mississippi River and the Rocky Mountains includes what was once called

   A. New England.

   B. the Gadsden Purchase.

✔  C. the Louisiana Territory.

   D. Seward's Folly.

*Reporting Category/*Learning Standard for Item 24: ***Geography/Places and Regions of the World* (p. 431)**
Core Knowledge Topic: **Expansion, Reform, and Economic Growth (1800 to 1861) (p. 433)**

*Study the map below to answer question 25.*



**25** Which number on the map labels the area settled by Brigham Young and the Mormons?

A. 1

B. 2

✔ C. 3

D. 4

*Reporting Category/*Learning Standard for Item 25: ***U.S. History/*Historical Understanding (p. 429)**
Core Knowledge Topic: **Expansion, Reform, and Economic Growth (1800 to 1861) (p. 433)**

## Session 2, Open-Response Questions

**26** Modern historians have written about the many ways enslaved African-Americans in the South maintained their dignity and self-respect. Describe how **one** of the factors listed below supported their efforts to accomplish this.

- Underground Railroad

- religion

- African traditions

*Reporting Category/*Learning Standard for Item 26: ***U.S. History/*Historical Understanding (p. 429)**
Core Knowledge Topic: **Expansion, Reform, and Economic Growth (p. 433)**

**27** Suppose you have a product you wish to advertise. You can place your advertisement in a magazine, on television, or on the Internet. Discuss **one** advantage and **one** disadvantage of **each** of these ways to advertise your product in a magazine, on television, and on the Internet.

*Reporting Category/*Learning Standard for Item 27: ***Economics/Today's Economy* (p. 431)**
Core Knowledge Topic: **N/A**

## Session 3, Multiple-Choice Questions

*Study the poster below to answer question 28.*



**28** The poster above was published to protest the

✔    A. Fugitive Slave Law.

     B. Dred Scott decision.

     C. Free Soil Party.

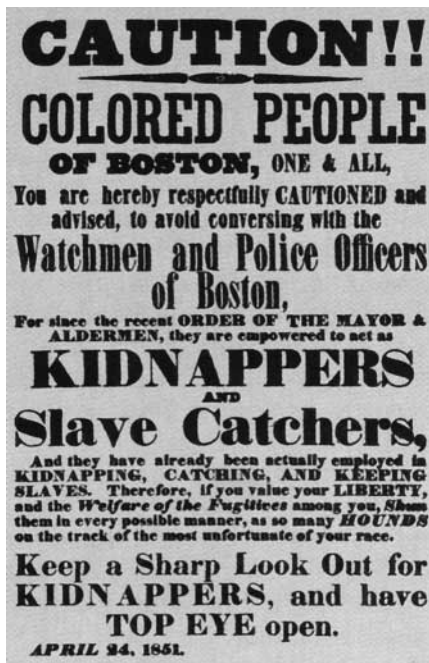     D. Missouri Compromise.

*Reporting Category/*Learning Standard for Item 28: ***U.S. History/**Historical Understanding (p. 429)
Core Knowledge Topic: **Expansion, Reform, and Economic Growth (1800 to 1861) (p. 433)**

# History and Social Science, Grade 8

**29** Which invention below did **not** contribute to pre-Civil War industrialization in the United States?

    A. the cotton gin

    B. railroads

    C. the spinning jenny

✔    D. electricity

> *Reporting Category/*Learning Standard for Item 29: ***U.S. History/*Interdisciplinary Learning: Natural Science, Mathematics, and Technology in History (p. 430)**
> Core Knowledge Topic: **Expansion, Reform, and Economic Growth (1800 to 1861) (p. 433)**

**30** At the **beginning** of the Civil War, Union advantages over the Confederacy included all of the following **except**

    A. a larger population.

✔    B. superior military leadership.

    C. a larger manufacturing base.

    D. superior railroads.

> *Reporting Category/*Learning Standard for Item 30: ***U.S. History/*Historical Understanding (p. 429)**
> Core Knowledge Topic: **Civil War and Reconstruction (1850 to 1877) (p. 433)**

**31** Before the Civil War, which person was associated with an armed revolt against slavery?

    A. Harriet Tubman

✔    B. Nat Turner

    C. Sojourner Truth

    D. Dred Scott

> *Reporting Category/*Learning Standard for Item 31: ***U.S. History/*Historical Understanding (p. 429)**
> Core Knowledge Topic: **Expansion, Reform, and Economic Growth (1800 to 1861) (p. 433)**

*Study the map below to answer question 32.*

### General Lee's Invasion of the North during the Civil War



**32** This map shows Lee's invasion of the North, which led to the Battle of

A. Bull Run.

B. Antietam.

C. Fredericksburg.

✔ D. Gettysburg.

*Reporting Category/*Learning Standard for Item 32: ***U.S. History/*Chronology and Cause (p. 429)**
Core Knowledge Topic: **Civil War and Reconstruction (1850 to 1877) (p. 433)**

**33**  Abraham Lincoln's Emancipation Proclamation declared

    A.  United States' freedom from Great Britain.

    B.  an end to the Civil War.

✔    C.  freedom for slaves in rebellious southern states.
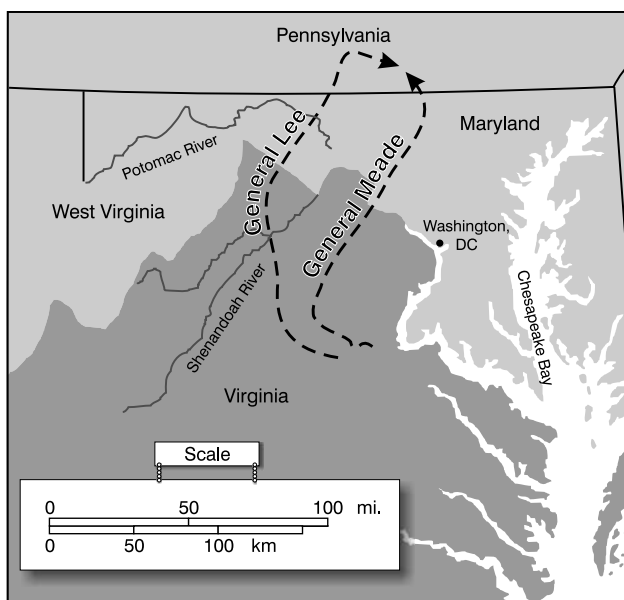
    D.  the beginning of Reconstruction.

*Reporting Category/*Learning Standard for Item 33: ***U.S. History/*Historical Understanding (p. 429)**
Core Knowledge Topic: **Civil War and Reconstruction (1850 to 1877) (p. 433)**

**34**  Which statement describes the status of **free** African Americans before the Civil War?

    A.  They were forbidden to live anywhere in the South.

    B.  They voted in all state and federal elections.

    C.  They found work easily in northern factories.

✔    D.  They were subject to many legal restrictions.

*Reporting Category/*Learning Standard for Item 34: ***U.S. History/*Society, Diversity, Commonality, and the Individual (p. 430)**
Core Knowledge Topic: **Expansion, Reform, and Economic Growth (1800 to 1861) (p. 433)**

**35**  In the United States, the freedoms of speech, religion, and press are guaranteed by the

    A.  Declaration of Independence.

✔    B.  Bill of Rights.

    C.  Gettysburg Address.

    D.  Mayflower Compact.

*Reporting Category/*Learning Standard for Item 35: ***Civics and Government/*Principles and Practices of the
American Government (p. 432)**
Core Knowledge Topic: **The American Revolution: Creating a New Nation (1750 to 1815) (p. 433)**

**36** All the following are legal requirements to vote in state and national elections **except** proof of

   A.  age.

   B.  citizenship.

   C.  residency.

✔   D.  literacy.

*Reporting Category/*Learning Standard for Item 36: ***Civics and Government/Citizenship*** **(p. 432)**
        Core Knowledge Topic: **N/A**

**37** Workers who sew dresses in a factory are an example of which resource?

   A.  capital

   B.  natural

   C.  managerial

✔   D.  human

*Reporting Category/*Learning Standard for Item 37: ***Economics/Fundamental Economic Concepts*** **(p. 431)**
        Core Knowledge Topic: **N/A**

*Read the statement below to answer question 38.*

> We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable rights, that among these are Life, Liberty, and the pursuit of Happiness.

**38** This statement is taken from the

    A. Constitution of the United States.

✔    B. Declaration of Independence.

    C. Gettysburg Address.

    D. Bill of Rights.

*Reporting Category/*Learning Standard for Item 38: ***Civics and Government/The Founding Documents*** (p. 432)
Core Knowledge Topic: **The American Revolution: Creating a New Nation (1750 to 1815) (p. 433)**

## Session 3, Open-Response Question

**39** List and explain **three** reasons why Massachusetts and its surrounding states were especially well-suited for industrial growth in the **nineteenth century**.

*Reporting Category/*Learning Standard for Item 39: ***Geography/The Effects of Geography*** **(p. 431)**
Core Knowledge Topic: **Expansion, Reform, and Economic Growth (1800 to 1861) (p. 433)**

# XVI. History and Social Science, Grade 10

# History and Social Science, Grade 10

The spring 2001 MCAS History and Social Science test was based on the learning standards and core knowledge topics of the Massachusetts *History and Social Science Curriculum Framework* (1997). Each test question assessed students' knowledge, concepts, and reasoning related to a specific learning standard; most questions also assessed knowledge, concepts, and reasoning related to a particular core knowledge topic.

# Curriculum Framework *Learning Standards*

The *Framework* identifies four major study strands:

❚ History

❚ Geography

❚ Economics

❚ Civics and Government

The learning standards for each study strand are listed below and are directly quoted from the *Framework;* applicable *Framework* page numbers are shown in parentheses.

## History (*Framework,* pp. 64–65, 74–75, 78–93)

**1. Chronology and Cause.** Students will understand the chronological order of historical events and recognize the complexity of historical cause and effect, including the interaction of forces from different spheres of human activity, the importance of ideas, and of individual choices, actions, and character.

**2. Historical Understanding.** Students will understand the meaning, implications, and import of historical events, while recognizing the contingency and unpredictability of history—how events could have taken other directions—by studying past ideas as they were thought, and past events as they were lived, by people of the time.

3. **Research, Evidence, and Point of View.** Students will acquire the ability to frame questions that can be answered by historical study and research; to collect, evaluate, and employ information from primary and secondary sources, and to apply it in oral and written presentations. They will understand the many kinds and uses of evidence; and by comparing competing historical narratives, they will differentiate historical fact from historical interpretation and from fiction.

4. **Society, Diversity, Commonality, and the Individual.** As a vast nation, the overwhelming majority of whose population derives from waves of immigration from many lands, the United States has a citizenry that exhibits a broad diversity in terms of race, ethnic traditions, and religious beliefs. The history of the United States exhibits perhaps the most important endeavor to establish a civilization founded on the principles that all people are created equal, that it is the purpose of government to secure the inalienable rights of all individuals, and that government derives "its just powers from the consent of the governed." It is also true, however, that federal, state, and local governments, as well as the people themselves, have often fallen short in practice of actualizing these high ideals, the most egregious violation being the acceptance of slavery in some states until the Civil War. Students should be expected to learn of the complex interplay that has existed from the beginning of our country between American ideals and American practice in the pursuit of realizing the goals of the Declaration of Independence for all people. While attending to the distinct contributions that immigrants from various lands and of various creeds, along with Native Americans, have made to our nationhood, students [will understand] above all the importance of our common citizenship and the imperative to treat all individuals with the respect for their dignity called for by the Declaration of Independence.

5. **Interdisciplinary Learning: Religion, Ethics, Philosophy, and Literature in History.** Students will describe and explain fundamental tenets of major world religions; basic ideals of ethics, including justice, consideration for others, and respect for human rights; differing conceptions of human nature; and influences over time of religion, ethics, and ideas of human nature in the arts, political and economic theories and ideologies, societal norms, education of the public, and the conduct of individual lives.

6. **Interdisciplinary Learning: Natural Science, Mathematics, and Technology in History.** Students will describe and explain major advances, discoveries, and inventions over time in natural science, mathematics, and technology; explain some of their effects and influences in the past and present on human life, thought, and health, including use of natural resources, production and distribution and consumption of goods, exploration, warfare, and communication.

# Geography (*Framework,* pp. 66–67, 75, 94–101)

**7. Physical Spaces of the Earth.** Students will describe earth's natural features and their physical and biological characteristics; they will be able to visualize and map oceans and continents; mountain chains and rivers; forest, plain, and desert; resources both above and below ground; and conditions of climate and seasons.

**8. Places and Regions of the World.** Students will identify and explain the location and features of places and systems organized over time, including boundaries of nations and regions; cities and towns; capitals and commercial centers; roads, rails, and canals; dams, harbors, and fortifications; and routes of trade and invasion.

**9. The Effects of Geography.** Students will learn how physical environments have influenced particular cultures, economies, and political systems, and how geographic factors have affected population distribution, human migration, and other prehistoric and historical developments, such as agriculture, manufacturing, trade, and transportation.

**10. Human Alteration of Environments.** Students will describe the ways in which human activity has changed the world, such as removing natural barriers; transplanting some animal and plant species, and eliminating others; increasing or decreasing the fertility of land; and the mining of resources. They explain how science, technology, and institutions of many kinds have affected human capacity to alter environments.

# Economics (*Framework,* pp. 68–71, 75–76, 102–117)

**11. Fundamental Economic Concepts.** Students will understand fundamental economic concepts, including choice, ownership, exchange, cooperation, competition, purposive effect, entrepreneurship, incentive, and money.

**12. Economic Reasoning.** Students will demonstrate understanding of supply and demand, price, labor markets, the costs of capital, factors affecting production, distribution, and consumption, relations among such factors, the nature of goods and services, incentives, financial markets, cost-benefit (including marginal cost-benefit) analysis, fairness, and the value of trade.

**13. American and Massachusetts Economic History.** Students will describe the development of the American economy, including Massachusetts and New England, from colonial times to the present.

**14. Today's Economy.** Students will describe the distinctive aspects of the contemporary economy of the United States and the world.

**15. Theories of Economy.** Students will describe and compare the major theories of economy, and will identify the individuals and historical circumstances in which these theories were developed.

## Civics and Government *(Framework,* pp. 72–73, 76–77, 118–130)

16. **Authority, Responsibility, and Power.** Students will explain forms of authority in government and other institutions; explain purposes of authority and distinguish authority from mere power, as in "a government of laws, but not of men"; and describe responsible and irresponsible exercise of both authority and power.

17. **The Founding Documents.** Students will learn in progressively greater detail the content and history of the Founding Documents of the United States—the Declaration of Independence, United States Constitution, and selected *Federalist* papers (as required by the Massachusetts Education Reform Act of 1993). They will assess the reasoning, purposes, and effectiveness of the documents; and, similarly, elements of the Constitution of the Commonwealth of Massachusetts.

18. **Principles and Practices of American Government.** Students will describe how the United States government functions at the local, state, national, and international levels, with attention to the Constitution of the Commonwealth of Massachusetts, its Declaration of the Rights of the Inhabitants, and the basic elements of its Frame of Government; analyze the background and evolution of constitutional and democratic government in the United States to the present day; and explain the place of institutions of government in securing the rights of citizens.

19. **Citizenship.** Students will learn the rights and duties of citizens and the principle of equal rights for all; consider the nature of civic virtue in a school, a community, and a nation; and identify major obstacles and threats to civil rights.

20. **Forms of Government.** Students will study, compare, contrast, and analyze diverse forms of government; the ways of life and opportunities they permit, promote, and prohibit; and their effects on human rights. They will evaluate forms of government in terms of justice, ordered liberty, efficiency, public safety, educational opportunity, and economic and social mobility.

# Curriculum Framework *Core Knowledge Topics*

The *History and Social Science Curriculum Framework* groups core knowledge topics into two categories: **The United States** and **The World**, and recommends a scope and sequence of instruction. In accordance with the *Framework*'s recommendations, MCAS tests grade 10 students beginning with the third topic of the core knowledge grouping, The World, as listed below; however, no single annual MCAS administration will test **all** core knowledge topics from the grade 10 list.[10]

Core knowledge topics are primarily assessed through questions linked with *History* strand learning standards. Each MCAS test item based on a *History* strand learning standard also assesses a core knowledge topic. Questions based on *Geography, Economics,* or *Civics and Government* strand learning standards are not necessarily linked to a core knowledge topic; those that assess only a learning standard are considered "stand alone" items.

---

[10] Any test items about the United States involve the United States as it relates to the "world stage."

Questions within any single test session covered up to two core knowledge topic eras; these questions were not necessarily presented in chronological order. However, the sequence of questions from session to session generally progressed in chronological order by era.

The grade 10 History and Social Science core knowledge topics listed below are directly quoted from pages 16 and 17 of the *Framework*; each topic is further subdivided on those *Framework* pages. Pages 24-50 of the *Framework* additionally list commonly taught subtopics for grade 10 students.

## Grade 10 Core Knowledge Topics:
## The World

3. Growth of Agricultural and Commercial Civilizations (500 to 1500 A.D.)

4. Emergence of a Global Age (1450 to 1750)

5. The Age of Revolutionary Change (1700 to 1914)

6. The World in the Era of Great Wars (1900 to 1945)

7. The World from 1945 to the Present[11]

# *MCAS Reporting Categories*

In *Test Item Analysis Reports* and on the *Subject Area Subscore* pages of the MCAS *School* and *District Reports,* grade 10 History and Social Science test results are reported under the following four MCAS reporting categories:

▮ *World History*　　　　　　▮ *Economics*

▮ *Geography*　　　　　　　▮ *Civics and Government*

---

[11]Certain subtopics in this era will be assessed through matrix-sampled test items only. Matrix-sampled test items are the questions that differ between the 12 forms of the test for each grade level; they comprise approximately 20% of the total questions on each test form.

# MCAS Spring 2001 Common Test Items
# History and Social Science, Grade 10

## Test Sessions

MCAS grade 10 History and Social Science Student Test Booklets included 2 separate test sessions. Each session included multiple-choice and open-response questions.

## Reference Materials and Tools

No reference materials or tools were allowed during any History and Social Science test session.

## Cross-Reference Information

The shaded bar underneath each item indicates the item's MCAS reporting category, the *Framework* learning standard it assesses, and the core knowledge topic assessed by the item, if any. Items that do not assess a core knowledge topic ("stand alone" items) indicate "N/A" ("Not Applicable") in the appropriate line of their shaded bars. The page numbers given in parentheses indicate where in this document to locate the referenced learning standard and, if applicable, core knowledge topic.

## Session 1, Multiple-Choice Questions

**1** Workers **first** formed labor unions to

   A. share ownership with management.

   B. gain control of the means of production.

✔   C. improve working conditions and wages.

   D. ensure higher productivity.

*Reporting Category/*Learning Standard for Item 1: ***Economics/Fundamental Economic Concepts*** **(p. 461)**
Core Knowledge Topic: **N/A**

*Use the picture below to answer question 2.*

**2** The picture shows the church of Hagia Sophia built by Emperor Justinian. This church is an architectural achievement of the

✔   A. Byzantine Empire.

   B. British Empire.

   C. Mongol Empire.

   D. Mughal Empire.

*Reporting Category/*Learning Standard for Item 2: ***World History/****Interdisciplinary Learning: Natural Science, Mathematics, and Technology* **(p. 460)**
Core Knowledge Topic: **Growth of Agriculture and Commercial Civilizations (500 to 1500 A.D.) (p. 463)**

*Use the map below to answer question 3.*
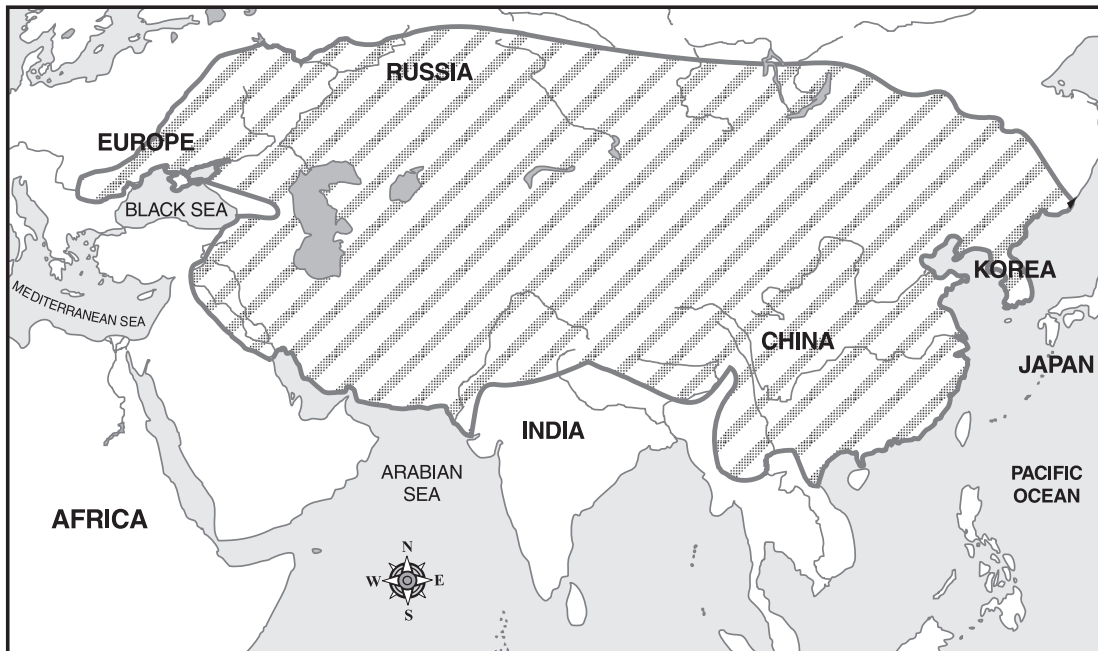


**3** One empire reached its greatest extent, indicated by the shaded portion of the map, in 1294. Who ruled this empire?

   A.  Muslims

✔   B.  Mongols

   C.  Manchus

   D.  Magyars

*Reporting Category/*Learning Standard for Item 3: ***Geography/Places and Regions of the World*** **(p. 461)**
Core Knowledge Topic: **Growth of Agriculture and Commercial Civilizations (500 to 1500 A.D.) (p. 463)**

**4** Which colony did Portugal establish in the New World?

    A.  Columbia

    B.  Haiti

✔    C.  Brazil

    D.  Mexico

*Reporting Category/*Learning Standard for Item 4: ***Geography/Places and Regions of the World*** (p. 461)
Core Knowledge Topic: **Emergence of a Global Age (1450 to 1750) (p. 463)**

**5** Which basic principle of the English system of government was established by the Magna Carta?

    A.  The right to property cannot be violated.

    B.  All citizens are entitled to vote.

✔    C.  The actions of the monarch are subject to law.

    D.  Parliament consists of two houses.

*Reporting Category/*Learning Standard for Item 5: ***Civics and Government/Authority, Responsibility, and Power*** (p. 462)
Core Knowledge Topic: **Growth of Agricultural and Commercial Civilizations (500 to 1500 A.D.) (p. 463)**

**6**

This item was not included in determining 2001 MCAS scores for students, schools, and districts.

# History and Social Science, Grade 10

*Read and think about the statements below to answer question 7.*

> • Man is born with natural rights.
>
> • People, not God, give governments the right to rule.
>
> • People can take power away from governments when those governments do not protect the rights of people.

**7** These statements are all **most** closely associated with the ideas and writings of

  A. Adam Smith.

  B. Charles Darwin.

  C. Niccolò Machiavelli.

✔  D. John Locke.

*Reporting Category/*Learning Standard for Item 7: ***Civics and Government/Principles and Practices of American Government* (p. 462)**
Core Knowledge Topic: **The Age of Revolutionary Change (1700 to 1914) (p. 463)**

**8** In 1429, which military commander led a French army that defeated the English at Orléans?

✔  A. Joan of Arc

  B. Catherine the Great

  C. Napoleon Bonaparte

  D. Charlemagne

*Reporting Category/*Learning Standard for Item 8: ***World History/*Historical Understanding (p. 459)**
Core Knowledge Topic: **Growth of Agriculture and Commercial Civilizations (500 to 1500 A.D.) (p. 463)**

**9**    The framers of the United States Constitution drew extensively on the ideas

     A.   contained in the Universal Declaration of Human Rights.

✔      B.   developed by Enlightenment philosophers

     C.   contained in the Napoleonic Code.

     D.   developed by European imperialists.

*Reporting Category/*Learning Standard for Item 9: ***Civics and Government/Principles and Practices of American Government* (p. 462)**
Core Knowledge Topic: **The Age of Revolutionary Change (1700 to 1914) (p. 463)**

## Session 1, Open-Response Questions

**10** During the Middle Ages, the Roman Catholic Church had great influence and control over people's daily lives in much of Europe. By 1600, however, the influence of the Roman Catholic Church was on the decline.

Explain **two** factors that contributed to the decline of the Church's influence by 1600. Factors may include people, ideas, and/or historical developments. Be sure to support your explanation with historical evidence.

*Reporting Category/*Learning Standard for Item 10: ***World History/*Interdisciplinary Learning: Religion, Philosophy, and Literature in History (p. 460)**
Core Knowledge Topic: **Growth of Agriculture and Commercial Civilizations (500 to 1500 A.D.) (p. 463)**

**11** From the sixteenth to the eighteenth century, "absolute monarchy" was the form of government in some countries. Listed below are individuals who ruled countries during these centuries. Read and think about the list below to answer the question that follows.

> • Louis XIV
>
> • Peter the Great
>
> • Suleiman the Magnificent
>
> • Frederick the Great
>
> • Catherine the Great

Select **one** of the rulers listed. Explain **two** of the ruler's policies or practices that show he or she was an absolute monarch. Be sure to support your explanation with historical evidence.

*Reporting Category/*Learning Standard for Item 11: ***Civics and Government/Forms of Government** (p. 462)*
Core Knowledge Topic: **Emergence of a Global Age (1450 to 1750) (p. 463)**

## Session 1, Multiple-Choice Questions

**12** In fourteenth-century Mali, the king and most of his court were

   A. Hindus.

   B. Christians.

   C. Jews.

✔ D. Muslims.

*Reporting Category/*Learning Standard for Item 12: ***World History/*Historical Understanding (p. 459)**
Core Knowledge Topic: **Growth of Agriculture and Commercial Civilizations (500 to 1500 A.D.) (p. 463)**

**13** Isaac Newton is known for

✔ A. his theory of universal gravitation.

   B. inventing the steam engine.

   C. perfecting the printing press.

   D. his theory of evolution.

*Reporting Category/*Learning Standard for Item 13: ***World History/*Interdisciplinary Learning: Natural Science,**
   **Mathematics, and Technology in History (p. 460)**
Core Knowledge Topic: **The Age of Revolutionary Change (1700 to 1914) (p. 463)**

**14** Before 1800, which civilization **most** heavily influenced Japan?

✔ A. Chinese

   B. Russian

   C. Greek

   D. Arabian

*Reporting Category/*Learning Standard for Item 14: ***World History/*Historical Understanding (p. 459)**
Core Knowledge Topic: **Growth of Agriculture and Commercial Civilizations (500 to 1500 A.D.) (p. 463)**

**15** Which statement about the Aztecs, Incas, and Mayans is true?

✔ A. All built major cities.

B. All rose to power at the same time.

C. All were located in Central America.

D. All were conquered by Cortés.

*Reporting Category/*Learning Standard for Item 15: ***World History/*Historical Understanding (p. 459)**
Core Knowledge Topic: **Growth of Agriculture and Commercial Civilizations (500 to 1500 A.D.) (p. 463)**

*Use the map below to answer question 16.*
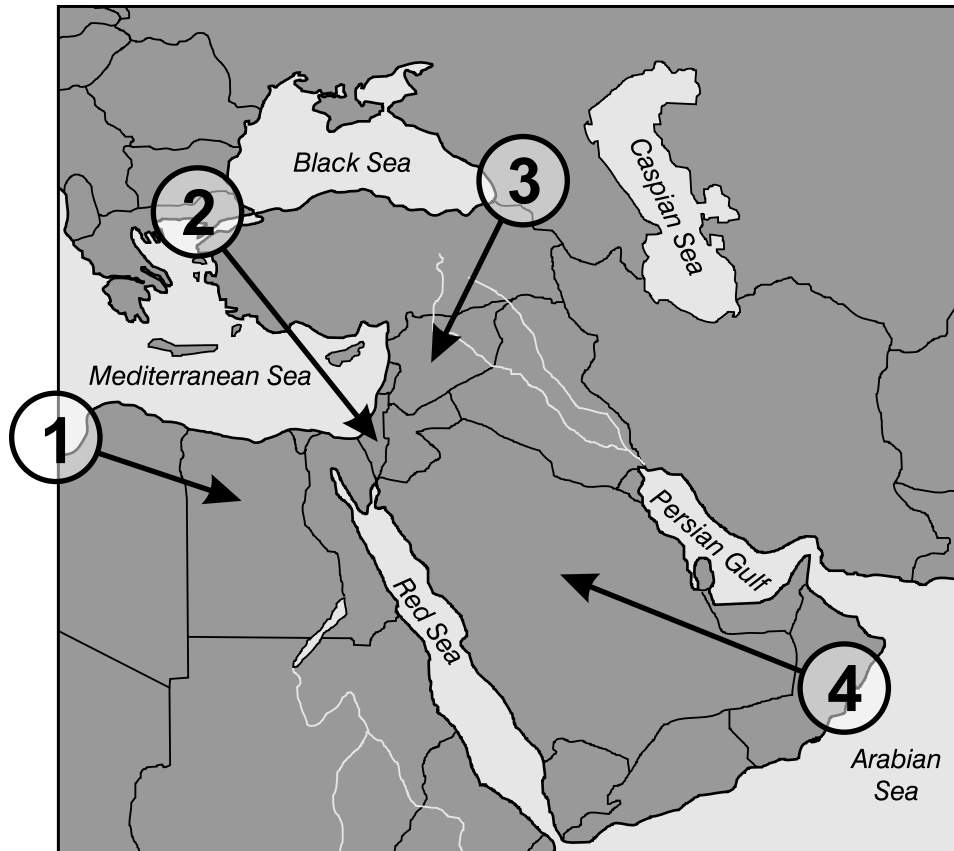


16  Which numbered arrow on the map locates the modern state of Israel?

    A.  1

✔   B.  2

    C.  3

    D.  4

*Reporting Category/*Learning Standard for Item 16: ***Geography/Places and Regions of the World*** (p. 461)
Core Knowledge Topic: **The World from 1945 to the Present (p. 463)**

**17** Which of the following helped Spain conquer the Aztec and Inca civilizations?

    A.  a series of earthquakes that killed Aztec and Inca warriors

    B.  Brazilian troops hired by Spain to fight with its soldiers

✔    C.  horses and guns brought from Europe

    D.  military forces sent by Portugal to assist Spain

> *Reporting Category/*Learning Standard for Item 17: ***World History/*Chronology and Cause (p. 459)**
> Core Knowledge Topic: **Growth of Agriculture and Commercial Civilizations (500 to 1500 A.D.) (p. 463)**

*Read and think about the events listed below to answer question 18.*

> •   Michelangelo paints the ceiling of the Sistine Chapel
>
> •   Gutenberg invents movable type
>
> •   Machiavelli writes *The Prince*
>
> •   Shakespeare writes *Hamlet*

**18** All the events in the list are **most** closely associated with the

    A.  Reformation.

    B.  Scientific Revolution.

    C.  Roman Empire.

✔    D.  Renaissance.

> *Reporting Category/*Learning Standard for Item 18: ***World History/*Historical Understanding (p. 459)**
> Core Knowledge Topic: **Emergence of a Global Age (1450 to 1750) (p. 463)**

**19** Which phrase **best** describes a significant cause of the French Revolution?

✔    A. a division in French society between the nobles and peasants

     B. England's repeated victories over France

     C. a division in French society between the monarchy and clergy

     D. Spain's repeated victories over France

*Reporting Category/*Learning Standard for Item 19: ***World History/*Historical Understanding (p. 459)**
Core Knowledge Topic: **The Age of Revolutionary Change (1700 to 1914) (p. 463)**

*Study this political cartoon by Daniel Fitzpatrick to answer question 20.*



**NEXT!**

**20** This political cartoon refers to events that occurred in which war?

     A. World War I

✔    B. World War II

     C. Korean

     D. Vietnam

*Reporting Category/*Learning Standard for Item 20: ***World History/*Chronology and Cause (p. 459)**
Core Knowledge Topic: **The World in the Era of the Great Wars (1900 to 1945) (p. 463)**

## Session 1, Open-Response Question

**21** In the twentieth century, many colonies in Asia and Africa gained their political independence. A variety of factors contributed to the change from colonial status to independence.

    a. Write the name of **one** present-day country in Asia or Africa that was a colony in the twentieth century.

    b. Explain **two** challenges its people faced as a result of its achieving independence. Be sure to support your explanation with historical evidence.

*Reporting Category/*Learning Standard for Item 21: ***World History/*Historical Understanding (p. 459)**
Core Knowledge Topic: **The World from 1945 to the Present (p. 463)**

## Session 2, Multiple-Choice Questions

**22** Which of the following groups often challenged the validity of scientific research conducted by Nicolaus Copernicus, Johannes Kepler, and Galileo Galilei?

✔ A. clergy

B. humanists

C. philosophers

D. merchants

*Reporting Category/*Learning Standard for Item 22: ***World History/*Interdisciplinary Learning: Natural Science, Mathematics, and Technology in History (p. 460)**
Core Knowledge Topic: **The Age of Revolutionary Change (1700 to 1914) (p. 463)**

**23** Peter the Great is known for his attempts to

A. conquer China.

B. free the serfs.

✔ C. westernize Russia.

D. organize the Holy Alliance.

*Reporting Category/*Learning Standard for Item 23: ***World History/*Historical Understanding (p. 459)**
Core Knowledge Topic: **Emergence of a Global Age (1450 to 1750) (p. 463)**

**24** The Chinese attempted to remove foreign influence from their country during the

✔ A. Boxer Rebellion.

B. Easter Rebellion.

C. Crimean War.

D. Boer War.

*Reporting Category/*Learning Standard for Item 24: ***World History/*Historical Understanding (p. 459)**
Core Knowledge Topic: **The Age of Revolutionary Change (1700 to 1914) (p. 463)**

**25** Which was **not** a cause of World War I?

    A. rise of nationalism in many European nations

✔    B. effect of the Great Depression on many European nations

    C. signing of a series of military alliances among European nations

    D. growing arms race among many European nations

*Reporting Category/*Learning Standard for Item 25: ***World History/*Chronology and Cause (p. 459)**
Core Knowledge Topic: **The World in the Era of the Great Wars (1900 to 1945) (p. 463)**

**26** One **main** reason for the failure of the League of Nations was

    A. its domination by the United States and Great Britain.

    B. the admission of Germany as a member.

✔    C. its lack of authority to enforce its decisions.

    D. the admission of the Soviet Union as a member.

*Reporting Category/*Learning Standard for Item 26: ***World History/*Chronology and Cause (p. 459)**
Core Knowledge Topic: **The World in the Era of the Great Wars (1900 to 1945) (p. 463)**

**27** Christian, Muslim, and Jewish people **all** consider which city to be holy?

    A. Bethlehem

✔    B. Jerusalem

    C. Cairo

    D. Mecca

*Reporting Category/*Learning Standard for Item 27: ***Geography/The Effects of Geography* (p. 461)**
Core Knowledge Topic: **The World from 1945 to the Present (p. 463)**

**28** The Japanese government's Act of Seclusion of 1636 forbade any Japanese to leave the country and stated, "All Japanese residing abroad shall be put to death when they return home."

The main reason for this Act was

    A. a desire by many Japanese to leave the country.

    B. an increasing concern that Japanese would prefer life outside Japan.

    C. a desire to ensure a stable population.

✔    D. an increasing fear that outside contact would destroy Japanese culture.

*Reporting Category/*Learning Standard for Item 28: ***World History/*Historical Understanding (p. 459)**
Core Knowledge Topic: **Emergence of a Global Age (1450 to 1750) (p. 463)**

**29** The Great Depression was one factor that helped lead to

✔    A. Hitler's rise to power in Germany.

    B. Lenin's communist takeover in Russia.

    C. the Treaty of Versailles.

    D. the creation of the League of Nations.

*Reporting Category/*Learning Standard for Item 29: ***World History/*Chronology and Cause (p. 459)**
Core Knowledge Topic: **The World in the Era of the Great Wars (1900 to 1945) (p. 463)**

**30** In 1935, one provision of the Nuremberg Laws in Germany revoked the right of

    A. labor unions to strike.

    B. communists to hold office.

✔    C. Jews to be citizens.

    D. women to own property.

*Reporting Category/*Learning Standard for Item 30: ***World History/*Historical Understanding (p. 459)**
Core Knowledge Topic: **The World in the Era of Great Wars (1900 to 1945) (p. 463)**

## Session 2, Open-Response Questions

**31** Historically, many European nations desired to trade with China and Japan. For centuries, however, China and Japan resisted trading with most of these European nations.

a. Select China **or** Japan and write the country's name.

b. Explain why the nation you selected initially opposed trade with most European nations.

c. Explain **one** reason why this opposition to trade changed over time.

Be sure to support your explanations in parts b and c with historical evidence.

*Reporting Category/*Learning Standard for Item 31: ***World History/*Historical Understanding (p. 459)**
Core Knowledge Topic: **Emergence of a Global Age (1450 to 1750) (p. 463)**

**32** The Great Depression of the 1920s and 1930s was one of the most severe in world history. Listed below are several causes of the Great Depression.

> - World War I debts
> - overproduction of goods
> - raising of tariffs and protectionism
> - government policy

a. Define the economic term "depression."

b. Select **two** of the causes listed above. Explain how each cause you selected helped lead to the Great Depression. Be sure to support your explanation with historical evidence.

*Reporting Category/*Learning Standard for Item 32: ***Economics/Economic Reasoning*** **(p. 461)**
Core Knowledge Topic: **The World in the Era of the Great Wars (1900 to 1945) (p. 463)**

## Session 2, Multiple-Choice Questions

*Read and think about the quotation below to answer question 33.*

> You have a row of dominoes set up, you knock over the first one, and what will happen to the last one is the certainty that it will go over very quickly.
>
> President Dwight Eisenhower

**33** President Eisenhower's words refer to

    A. the destruction of the environment caused by rapid urban growth.

    B. sharply falling stock prices at the beginning of the Great Depression.

✔    C. the spread of communism after World War II.

    D. rising tensions between nations in the Middle East.

*Reporting Category/*Learning Standard for Item 33: ***World History/*Research, Evidence, and Point of View (p. 460)**
Core Knowledge Topic: **The World from 1945 to the Present (p. 463)**

*Read and think about the list below to answer question 34.*

- direct governmental control over industry and trade

- national wealth based upon the possession of gold and silver

- establishment and exploitation of colonies

**34** With which economic term is the list above **most** closely associated?

A. monetarism

B. socialism

✔ C. mercantilism

D. communism

*Reporting Category/*Learning Standard for Item 34: ***Economics/Theories of Economy*** **(p. 461)**
Core Knowledge Topic: **Emergence of a Global Age (1450 to 1750) (p. 463)**

**35** Two rivers located in China are the

A. Rhine and the Danube.

B. Mekong and the Zambesi.

✔ C. Yangtze and the Yellow.

D. Ganges and the Tigris.

*Reporting Category/*Learning Standard for Item 35: ***Geography/Physical Spaces of Earth*** **(p. 461)**
Core Knowledge Topic: **N/A**

**36** Historians who refer to the twentieth century as "the Age of the Dictators" would use all of these men as evidence **except**

✔     A. Franklin Roosevelt.

      B. Adolf Hitler.

      C. Joseph Stalin.

      D. Benito Mussolini.

*Reporting Category/*Learning Standard for Item 36: ***World History/*Research, Evidence, and Point of View (p. 460)**
Core Knowledge Topic: **The World in the Era of Great Wars (1900 to 1945) (p. 463)**

**37** Mohandas Gandhi led India toward self-government by

      A. taking military action against Britain.

✔     B. following a policy of non-violent resistance.

      C. insisting Hindus and Muslims have separate nations.

      D. appealing to the United Nations for international support.

*Reporting Category/*Learning Standard for Item 37: ***World History/*Historical Understanding (p. 459)**
Core Knowledge Topic: **The World from 1945 to the Present (p. 463)**

**38** The Nuremberg Trials, held after World War II, involved the prosecution of

✔     A. Nazi leaders for war crimes.

      B. Joseph Stalin for crimes against Russian citizens.

      C. Japanese leaders for war crimes.

      D. Benito Mussolini for crimes against Italian citizens.

*Reporting Category/*Learning Standard for Item 38: ***World History/*Historical Understanding (p. 459)**
Core Knowledge Topic: **The World in the Era of Great Wars (1900 to 1945) (p. 463)**

**39** After World War II, a major United Nations plan for the future of Palestine involved

A. placing Palestine under joint British and French control.

✔ B. dividing Palestine into a Jewish and an Arab state.

C. granting Palestine its independence under Arab rule.

D. placing Palestine under permanent United Nations rule.

*Reporting Category/*Learning Standard for Item 39: ***Geography/The Effects of Geography*** (p. 461)
Core Knowledge Topic: **The World from 1945 to the Present (p. 463)**

*The passage below describes a wartime battlefield. Read and think about the passage to answer question 40.*

> To say where the trenches began and where they ended is difficult . . . They were vast stretches of mud, of fields once cultivated, but now scarred with pits, trenches, rusty barbed wires, and filled with thousands of dead soldiers.

**40** With which war is the passage **most** closely associated?

✔ A. World War I

B. World War II

C. Korean War

D. Vietnam War

*Reporting Category/*Learning Standard for Item 40: ***World History/*Research, Evidence, and Point of View (p. 460)**
Core Knowledge Topic: **The World in the Era of Great Wars (1900 to 1945) (p. 463)**

**41** Which of the following occurred at Tiananmen Square in 1989?

✔  A. Student-led, pro-democracy demonstrations were suppressed by the government.

   B. The Soviet Union displayed its new military technology.

   C. Riots broke out that led to the overthrow of the communist government.

   D. New trade agreements between eastern and western nations were announced.

*Reporting Category/*Learning Standard for Item 41: ***World History/*Historical Understanding (p. 459)**
Core Knowledge Topic: **The World from 1945 to the Present (p. 463)**

## Session 2, Open-Response Question

42   Listed below are the names of individuals who through their work challenged established beliefs or theories. Read and think about the list of names to answer the questions that follow.

> - Ferdinand Magellan
> - Nicolas Copernicus
> - Charles Darwin
> - Emmeline Pankhurst
> - Nelson Mandela

Select **one** of the people listed above.

a. Write the person's name and identify the field of work with which he or she was or is most closely associated.

b. Describe the established beliefs or theories the person's work challenged.

c. Describe the impact of the person's work on the established beliefs or theories you described.

*Reporting Category/*Learning Standard for Item 42: ***World History/*Chronology and Cause (p. 459)**
Core Knowledge Topic: **The Age of Revolutionary Change (1700 to 1914) (p. 463)**

# Appendix A

## Mathematics Tool Kit and Reference Sheets

The Mathematics Tool Kit and Reference Sheets appear reduced in this publication and do not appear in the same proportion as in the test administration.

# 2000–2001 Massachusetts Comprehensive Assessment System
## Grade 4 Mathematics Tool Kit
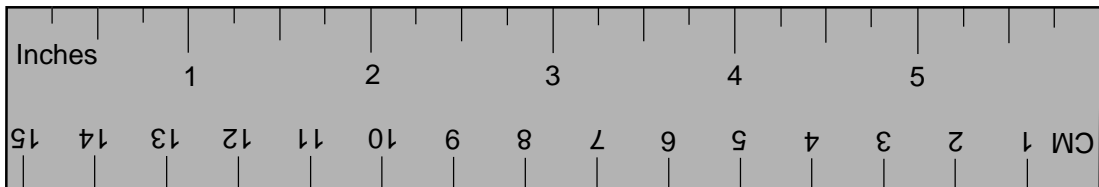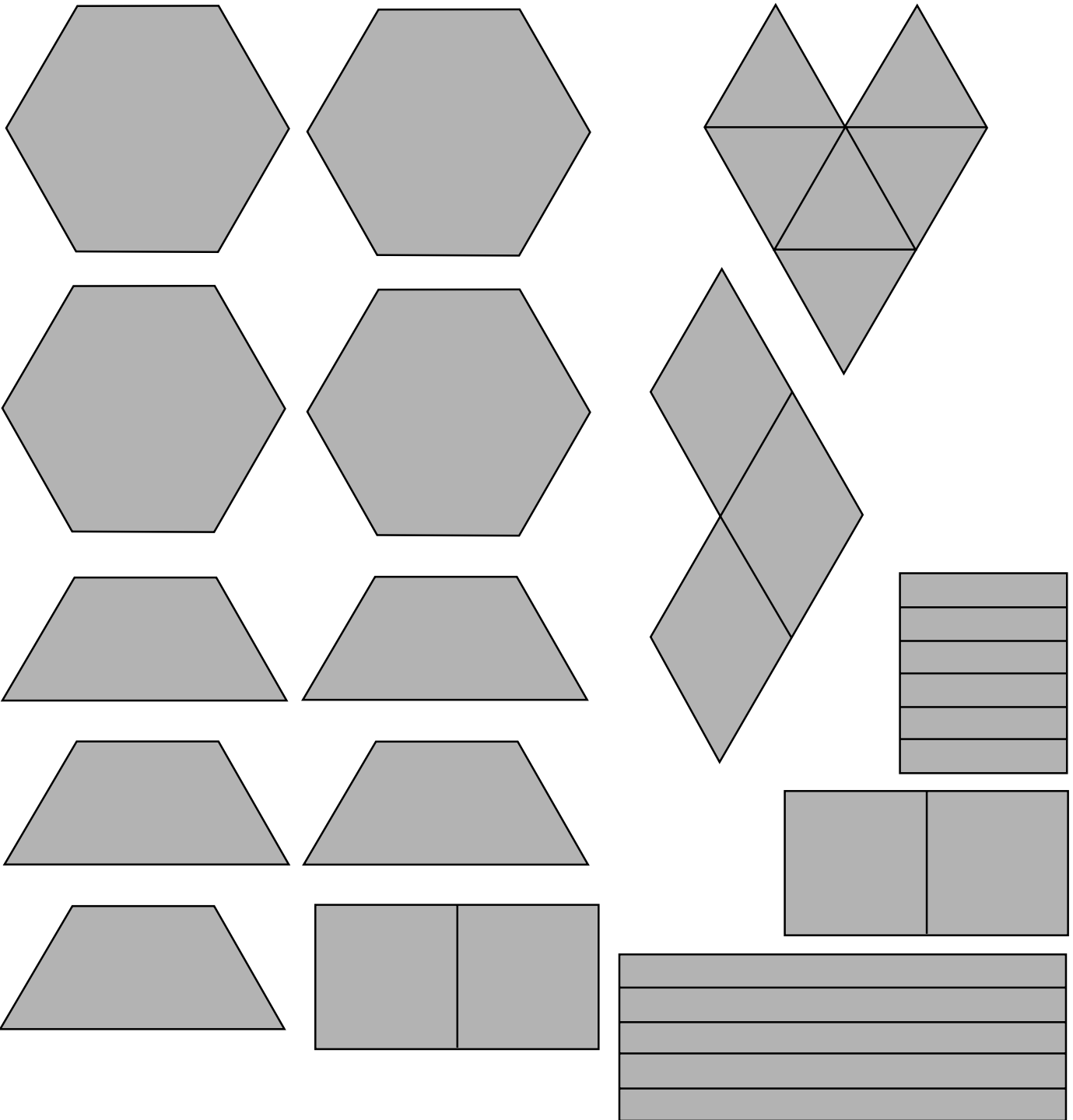
THE MASSACHUSETTS COMPREHENSIVE ASSESSMENT SYSTEM:
*Release of Spring 2001 Test Items*

# 2000-2001 Massachusetts Comprehensive Assessment System
# Grade 6 Mathematics Reference Sheet

Use the information below, ruler, and protractor as needed to answer questions in this test.

## AREA FORMULAS

square:  $A = s \cdot s$

**OR**

$A = lw$

rectangle:  $A = bh$

OR

$A = lw$

parallelogram:  $A = bh$

triangle:  $A = \dfrac{1}{2} bh$

## PERIMETER FORMULAS

square:  $P = 4s$

rectangle:  $P = 2b + 2h$

OR

$P = 2l + 2w$

triangle:  $P = a + b + c$

OR

Perimeter = distance around

## VOLUME FORMULAS

rectangular prism:  $V = lwh$

## CIRCLE FORMULAS

$C = 2\pi r$

OR

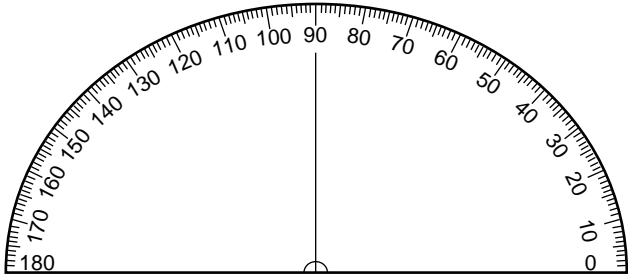$C = \pi d$

$A = \pi r^2$

## CONVERSIONS

3 feet = 1 yard

5280 feet = 1 mile

60 seconds  = 1 minute

60 minutes = 1 hour

# 2000-2001 Massachusetts Comprehensive Assessment System
## Grade 6 Mathematics Reference Sheet, Page 2
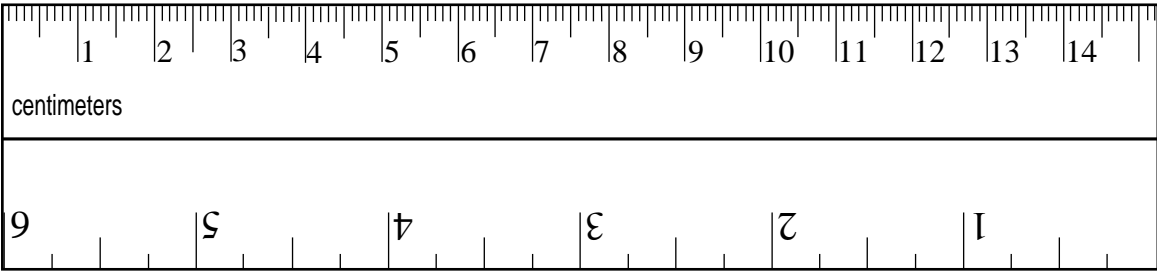
# 2000-2001 Massachusetts Comprehensive Assessment System
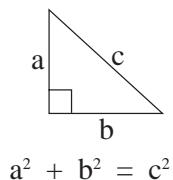## Grade 8 Mathematics Reference Sheet

Use the information and ruler below as needed to answer questions in this test.

---

## PERIMETER FORMULAS

square: $P = 4s$

rectangle: $P = 2b + 2h$

triangle: $P = a + b + c$

## CIRCLE FORMULAS

circle: $C = 2\pi r$

OR

$C = \pi d$

$A = \pi r^2$

## CONVERSIONS

1 mile $=$ 5280 feet

1 square mile $=$ 640 acres

$a^2 + b^2 = c^2$

## AREA FORMULAS

square: $A = s^2$

rectangle: $A = bh$

triangle: $A = \frac{1}{2}bh$

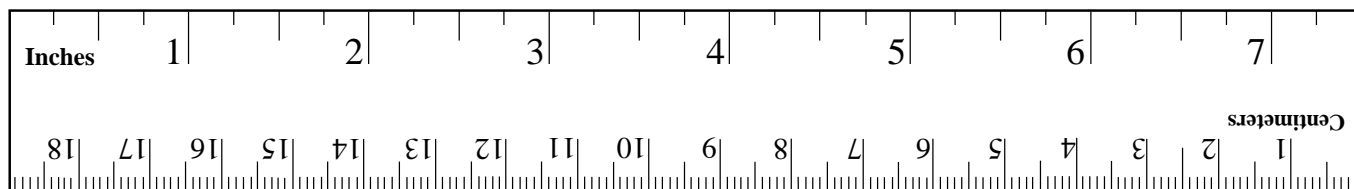circle: $A = \pi r^2$

trapezoid: $A = \frac{1}{2}h(b_1 + b_2)$

## VOLUME FORMULAS

rectangular prism: $V = Bh$
$(B = $ area of base$)$

cone: $V = \frac{\pi}{3}r^2 h$

cylinder: $V = \pi r^2 h$

cube: $V = e^3$
$(e = $ length of an edge$)$

**Inches** 1 2 3 4 5 6 7

**Centimeters** 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

# 2000-2001 Massachusetts Comprehensive Assessment System
# Grade 10 Mathematics Reference Sheet

## AREA FORMULAS

triangle ........$A = \dfrac{1}{2}bh$

rectangle.......$A = bh$

square..........$A = s^2$

trapezoid ......$A = \dfrac{1}{2}h(b_1 + b_2)$

## CIRCLE FORMULAS

$C = 2\pi r$
$A = \pi r^2$

## VOLUME FORMULAS

cube…………….………... $V = s^3$

regular prism………………. $V = lwh = Bh$
(B = area of the base)

sphere……………………… $V = \dfrac{4}{3}\pi r^3$

right circular cylinder …….. $V = \pi r^2 h$

right circular cone…………. $V = \dfrac{1}{3}\pi r^2 h$

right square pyramid………. $V = \dfrac{1}{3}s^2 h$
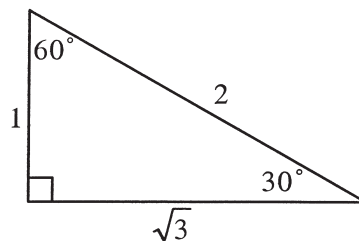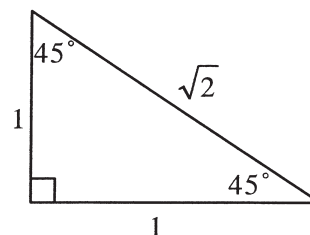
## LATERAL SURFACE AREA FORMULAS

cube……………………….… $LA = 4s^2$
regular prism……………….. $LA = 2(hw) + 2(lh)$
right circular cylinder ……… $LA = 2\pi rh$
right circular cone………….. $LA = \pi r \ell$
right square pyramid……….. $LA = 2s \ell$
( $\ell$ = slant height)

## TOTAL SURFACE AREA FORMULAS

cube………………………... $SA = 6s^2$
regular prism………………. $SA = 2(lw) + 2(hw) + 2(lh)$
sphere…………………….... $SA = 4\pi r^2$
right circular cylinder……... $SA = 2\pi r^2 + 2\pi rh$
right circular cone…………. $SA = \pi r^2 + \pi r \ell$
right square pyramid………. $SA = s^2 + 2s \ell$
( $\ell$ = slant height)

# Appendix B

# Corrections Made to MCAS Test Items

# *Corrections Made to MCAS Test Items*

1. A correction was made to the purpose setting statement for the selection, "Dolley Madison Saves the National Pride" (grade 8 English Language Arts test). The name "John" was corrected to "James" in this publication.

2. Item 13 of the grade 8 History and Social Science test included the word "Rendering" in the map. In the test administrator manual, students were directed to ignore this word. The map in this document has been corrected.