

MAINE DEPARTMENT OF EDUCATION



**GRADE LEVEL EXPECTATIONS
FOR MATHEMATICS AND READING**

SAMPLE SET

Developed to Fulfill the Requirements of the No Child Left Behind Act

October 2004

Sample Examples Assessing Maine’s Grade Level Expectations (GLEs) for Mathematics as tested by the NCLB Annual Assessment

The items that follow illustrate the variety of items that will be used at each grade level (3, 5, 6 and 7) for the NCLB Annual Assessment for Mathematics. The items are organized by cluster, content standard, and grade level expectation. After the statement of each GLE will be any comments and then a sample item or items. The item type and the point value of the item are in italics at the top of the item. The actual items are bordered to separate them from the other text.

This collection of items is not exhaustive. Some items on future tests may not match the formats given in these examples. Test items may test parts of the individual grade level expectations not explicitly covered in these examples. Teachers and their students can be confident that items on the NCLB Annual Assessments will be closely aligned with the grade level expectations.

Over the years, released items will be available to supplement this set of examples. These sample items come from a variety of sources. Many are released items from other Measured Progress tests and others were developed as examples by Maine Department of Education staff.

The NCLB Annual Assessment for Mathematics in Grades 3, 5, 6, and 7 will use three types of questions to measure student achievement of the grade level expectations: multiple choice, short answer and constructed response. An item or items for every Mathematics GLE will be included on every test.

The majority of items will use the multiple choice format. It is suggested that students have experience with this item format prior to taking the NCLB Annual Assessments. Multiple choice items each count one (1) point. For each item, students will be required to select the one correct choice from a set of four choices.

Short answer items will count two (2) points. These items require that students create, rather than select the correct answer. Often, but not always, a strategy must be shown or an explanation provided for a student to earn full credit on the item. Other short answer items require answers to two-part questions. Short answer items are also used for equation solving and similar tasks where the “guess and test” strategy limited to four choices is not considered a valid option.

Constructed response items allow students to demonstrate deeper problem solving abilities. Solutions for these items require multiple steps. Often, but not always, the items are divided into different parts (a, b, c, etc.). Constructed response items require that students show a solution strategy or explain their work in addition to arriving at a solution.

Mathematics Grade 3

Cluster 1 – Numbers and Operations

A. Numbers and Number Sense

M1A1.3 Compare whole numbers using $<$, $>$, and $=$ and order numbers up to 1000 and classify numbers as odd and even for numbers up to 1000.

Clarification: Understanding and application of place value conventions and concepts are included.

Sample Item: Short Answer (2 points)

Here are 3 cards.

3	1	5
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Put the cards in order to make the number with the largest value.

What number did you make?

____ _

Explain how you made the largest number.

B. Computation

M1B1.3 Solve single and multi-step, real-life problems using addition and subtraction with whole numbers with no number greater than 1000.

Sample Item: Constructed Response (4 points)

Sally baked 72 cookies. Ms. Smith's class has 22 students and Mr. Lu's class has 19 students.

- a) If Sally gives cookies to Mr. Lu, Mrs. Smith and all their students, how many cookies will she have left?
- b) Does Sally have enough cookies to give two cookies to all students? Explain your answer.

M1B3.3 Develop proficiency with the facts and algorithms of addition and subtraction on whole numbers using mental math and a variety of materials, strategies, and technologies with no number greater than 1000

Sample Items:

Multiple Choice (1 point)

When 225 and 357 are added the sum is

- a) 132
- b) 572
- c) 582
- d) 672

Multiple Choice (1 point)

Subtract $352 - 245$.
What is the result?

- a) 93
- b) 107
- c) 113
- d) 117

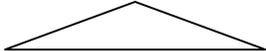
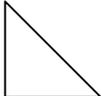
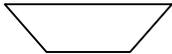
Cluster 2 – Shape and Size

E. Geometry

M2E1.3 Use properties/ attributes limited to number of sides, number of angles, to identify, describe, and distinguish between triangles and rectangles and lengths of sides to identify squares as special rectangles.

Sample Item Multiple Choice (1 point):

Which item is not a triangle?

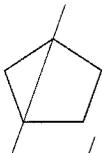
a) 	b) 
c) 	d) 

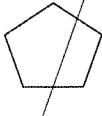
Mathematics Grade 3

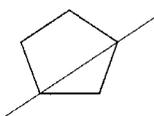
M2E2.3 Identify a line of symmetry for a given shape or answer questions about figures based on lines of symmetry, e.g. “which of the following shapes have one or more lines of symmetry?”

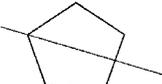
Sample Item: Multiple Choice (1 point)

18. In which figure below is a line of symmetry shown?

○ A. 

○ B. 

○ C. 

○ D. 

M2F2.3 Select appropriate tools and units to measure length, time, and temperature.

Sample Item: Multiple Choice (1 point)

Joan measures the amount of ribbon needed to wrap a package. What units should Joan use?

a) inches
b) miles
c) degrees
d) minutes

Cluster 3 – Mathematical Decision Making

C. Data Analysis and Statistics

M3C2.3 Read and interpret displays of data: line plots, tables, tally charts, and bar graphs, identifying least frequent, most frequent (mode*), reading, using and comparing values.

*not responsible for this vocabulary

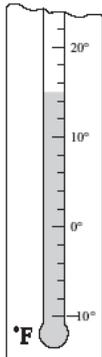
Sample Item: Multiple Choice (1 point)

F. Measurement

M2F1.3 Solve and justify solutions to real-life problems involving the measurement of time, length, and temperature including using a ruler to measure length to the nearest inch and whole centimeter.

Sample Item: Multiple Choice (1 point)

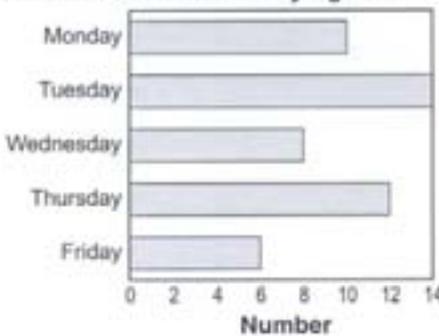
30. What temperature is shown on this thermometer?



A. 16°F
B. 15°F
C. 14°F
D. 13°F

Use the graph below to answer question 29.

Number of Students Buying Lunch



Day	Number of Students
Monday	10
Tuesday	14
Wednesday	8
Thursday	12
Friday	6

29. Mr. Jones kept track of how many students bought their lunch for one school week. How many more students bought their lunch on Tuesday than on Friday?

○ A. 4
○ B. 6
* ○ C. 8
○ D. 10

Mathematics Grade 3

D. Probability

M3D1.3 Recognize and describe the likelihood of the occurrence of an event using “likely”, “not likely” or “equally likely.”

Clarification: “More likely”, “greatest chance”, “least chance” and similar phrases may also be used.

Sample Item: Multiple Choice (1 point)

17. A gum ball machine has 7 red gum balls, 4 white gum balls, 9 orange gum balls, and 5 blue gum balls. If Jack puts in a nickel and turns the handle for one gum ball, which color does he have the LEAST chance of getting?

- A. red
- B. white
- C. orange
- D. blue

Cluster 4 – Patterns

G. Patterns, Relations, and Functions

M4G1.3 Determine the next term or missing terms in patterns with numbers or shapes.

Sample Items:
Multiple Choice (1 point)

Use the pattern below to answer question 10.



10. Which figure comes next in this pattern?

- A.
- B.
- C.
- D.

(Short Answer 2 points)

Look at the Pattern

3, 5, 10, 12, 17, 19, 24, ...

Write the next three terms ____, ____, ____

M4G2.3 Translate real-life situations into addition and subtraction sentences.

Sample Item: Multiple Choice (1 point)

27. Which story problem CANNOT be solved with the number sentence shown below?

$$12 - 7 = 5$$

- A. Joe is 7 years old. His brother is 12. How much older is his brother?
- B. Sue had 12 stickers. She used 7 in a picture. How many stickers are left?
- C. Jim has \$7.00. He wants to buy a book for \$12.00. How much more money does he need?
- * D. Bob has 12 baseball cards. Mark has 7 cards. How many cards do they have in all?

H. Algebra Concepts

M4H2.3 Solve for a missing number or find the replacement for a symbol in addition and subtraction sentences using whole numbers.

Sample Item: Multiple Choice (1 point)

What number can go in the blank to make a true sentence?

$$26 + \underline{\quad} = 70$$

- a) 96
- b) 56
- c) 54
- d) 44

Mathematics Grade 5

Cluster 1 – Numbers and Operations

A. Numbers and Number Sense

M1A1.5 Compare, order, use, and represent simple fractions (halves, fourths, fifths, and tenths with all numerators) and decimals to hundredths.

Sample item: Multiple choice (1 point)

Which of the following shows decimal values arranged in order from **least to greatest**?

- A. 0.2, 0.02, 2.0
- B. 2.0, 0.2, 0.02
- C. 0.2, 0.02, 2.0
- D. 0.02, 0.2, 2.0

M1A3.5 Use divisibility rules for 2, 5 and 10.

Sample item: Short answer (2 points)

Explain how you can tell if a number is a multiple of 2. Give an example of a number that is divisible by 2.

Sample item: Multiple choice (1 point)

Which of the following numbers is divisible by 2, 5 and 10?

- A. 15
- B. 18
- C. 20
- D. 35

B. Computation

M1B1.5 Compute and model all four operations on whole numbers (1-digit divisor, 3-digit dividend) and addition and subtraction with simple fractions with common denominators and decimals to hundredths and do straight computation with these numbers and operations.

Illustration:

Students will be expected to perform calculations such as $277 \div 8$, 16×52 , $3/5 + 4/5$, $0.7 + 3.88$, $905 - 88$, $14.1 - 0.8$, etc.

Sample item: Multiple choice (1 point)

$604 - 378 =$

- A. 226
- B. 234
- C. 334
- D. 374

M1B2.5 Create, solve, and justify the solution for multi-step, real-life problems involving all four operations on whole numbers (1-digit divisor, 3-digit dividend) and addition and subtraction with simple fractions with common denominators and decimals to hundredths.

Sample item: Constructed response (4 points)

Part A: Molly, Jon and Alex each bring some marbles to school. Molly brings 17 marbles, Jon brings 11 more marbles than Molly and Alex brings 3 times as many marbles as Molly. What is the total number of marbles the students brought to school?

Part B: They decide to share all of the marbles equally. How many marbles will each child get? Show your work.

Sample item: Multiple choice (1 point)

Abby and Tom each ate $3/8$ of the blueberry pie their mother made for them. How much pie remains?

- A. $1/8$
- B. $2/8$
- C. $3/8$
- D. $6/8$

Mathematics Grade 5

Cluster 2 – Shape and Size

E. Geometry

M2E1.5 Use properties/ attributes limited to number of sides, number of angles, and length of sides, and lines of symmetry, to classify polygons.

Sample Items: Multiple choice (1 point each)

Which figure is a quadrilateral?

A. 

B. 

C. 

D. 

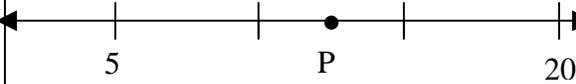
Which quadrilateral **always** has four lines of symmetry?

A. square
 B. rectangle
 C. parallelogram
 D. trapezoid

M2E3.5. Plot non-negative values as points on a number line.

Sample item: Multiple choice (1 point)

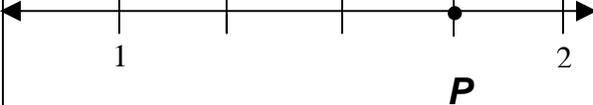
Using the number line below, what is the best estimate for the value of point P?



A. $6\frac{1}{2}$
 B. 10
 C. $12\frac{1}{2}$
 D. 15

Sample item: Multiple choice (1 point)

Using the number line below, what is the best estimate for the value of point P?



A. $1\frac{1}{4}$
 B. $1\frac{1}{2}$
 C. $1\frac{3}{4}$
 D. $2\frac{1}{4}$

F. Measurement

M2F2.5 Use ruler to measure length to the nearest quarter inch and centimeter.

Sample item: Short answer (2 points)

Use your ruler to measure the line below. Measure the line in inches and then again in centimeters. Make sure to label each measurement.

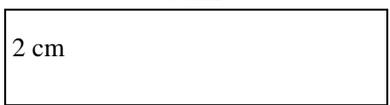


**The line above is approximately $2\frac{3}{4}$ inches and 7 cm long. Students would receive credit for measurements that are within $\frac{1}{4}$ inch and 1 centimeter and labeled correctly.*

M2F3.5 Find area and perimeter of rectangles with whole numbers (includes formula use) with correct units.

Sample item: Short answer (2 points)

Find the area of the rectangle shown below? Make sure to show your work and label your answer.



Mathematics Grade 5

Cluster 3 – Mathematical Decision Making

C. Data Analysis and Statistics

M3C1.5 Organize data to find mode, median and range of a set of values.

Sample item: Constructed response (4 points)

Seven students owned the following number of pets:

Abby	1
Bob	3
Carl	0
Donna	1
Emily	8
Fred	4
Greg	2

Find the mode, median and range of this collection. Explain how you found your answers. Label each answer clearly.

Sample item: Multiple choice (1 point)

Joe bought four bags of candy. One bag had 5 pieces of candy, one bag had 9 pieces of candy and the other two bags each had 11 pieces of candy. What was the MEDIAN number of candies in the bags?

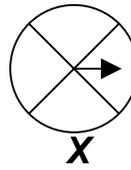
- A. 6
- B. 10
- C. 11
- D. 36

D. Probability

M3D1.5 Find the probabilities of simple events and represent them as fractions ($1/2$, $1/3$, $2/3$, $1/4$, $2/4$, $3/4$ eligible).

Sample item: Multiple choice (1 point)

Using the spinner below, what is the probability that the arrow will land in the space with an X on any given spin?



- A. $1/4$
- B. $1/3$
- C. $1/2$
- D. $3/4$

Sample item: Short answer (2 points)

Five black marbles and ten white marbles are put into a paper bag. John will reach into the bag and pick out one marble without looking. What is the probability that John will pick a black marble on the first try? Explain your answer.

Mathematics Grade 5

Cluster 4 – Patterns

G. Patterns, Relations, and Functions

M4G1.5 Translate real-life situations into addition, subtraction, multiplication, or division sentences.

Sample item: Short answer (2 points)

Mr. Johnston wants to give 7 apples to each of his students and 5 apples to the principal. Mr. Johnston has 19 students in his class. Write a number sentence that Mr. Johnston could use to find out how many apples he will need to bring to school.

M4G3.5 Solve problems involving linear patterns in tables, graphs, words or rules using whole numbers.

Sample item: Short answer (2 points)

In the table below, fill in the missing values and tell how you knew what numbers to fill in.

Column A	Column B
1	7
2	14
3	21
4	
	63

Sample item: Multiple choice (1 point)

Look at the following number pattern.

316, 305, 294, 283, ____

What number should come next?

- A. 172
- B. 272
- C. 282
- D. 327

H. Algebra Concepts

M4H6.5 Solve one-step equations using addition, subtraction, or multiplication with a variable. Values are limited to whole numbers.

Sample items: Multiple choice (1 point each)

If $5 \times N = 35$, what is the value of N?

- A. 7
- B. 31
- C. 40
- D. 175

If $78 + N = 94$, then $N =$

- A. 14
- B. 16
- C. 82
- D. 172

$N - 14 = 36$. $N =$

- A. 2
- B. 22
- C. 28
- D. 50

Mathematics Grade 6

Cluster 1 – Numbers and Operations

A. Numbers and Number Sense

M1A1.6 Compare, order, use and represent fractions, (halves, thirds, fourths, fifths, sixths, eighths and tenths with all numerators); and compare, order, use and represent decimals to thousandths and convert between decimals and percentages.

Sample item: Multiple choice (1 point)

Which decimal numeral below has the same value as 75%?

- A. 0.0075
- B. 0.075
- C. 0.75
- D. 75.0

Sample item: Constructed response (4 points)

Out of the 20 students in the class, $\frac{1}{2}$ have brown hair, $\frac{2}{5}$ have blond hair and the rest have red hair. How many students in the class have brown, blond and red hair? What fractional part of the class has red hair? Show your work and label your answers.

M1A3.6 Recognize and apply concepts of prime and composite numbers and use divisibility rules for 2, 3, 4, 5, 6, 9 and 10; and recognize and find factors and multiples of natural numbers.

Sample item: Short answer (2 points)

List the prime numbers between 8 and 16.

Sample item: multiple choice (1 point)

Which set of numbers below is the list of all whole number factors of 12?

- A. 1,12
- B. 2,3,4,6
- C. 1,2,3,4,6,12
- D. 1,2,3,4,5,6,7,8,9,10,11,12

B. Computation

M1B1.6 Compute and model all four operations with whole numbers, common fractions and decimals to thousandths, and do straight computation with these numbers and operations. Division limited to 2-digit whole number divisors and 3-digit dividends.

Illustration:

Students will be expected to perform calculations such as $\frac{7}{8} + \frac{3}{4} + \frac{1}{2}$, $4.2 - 0.77$, $\frac{5}{6} \times 15$, $805 \div 75$, 12×0.3 , etc.

Sample item: multiple choice (1 point)

$\frac{7}{8} + \frac{3}{4} = ?$

- A. $\frac{10}{12}$
- B. $\frac{21}{32}$
- C. $1\frac{5}{8}$
- D. $2\frac{3}{4}$

M1B2.6 Create, solve, and justify the solution for multi-step, real-life problems with whole numbers, common fractions and decimals to thousandths, with division limited to 2-digit whole number divisors and 3-digit dividends.

Sample item: Constructed response (4 points)

Jenna donated \$ 9.10 to the disaster fund. Barry donated half as much as Jenna. Carla donated \$ 4.00 less than Jenna. Mr. Jones donated 1.5 times as much as Jenna. How much was donated altogether? Show your work.

Mathematics Grade 6

Cluster 2 – Shape and Size

E. Geometry

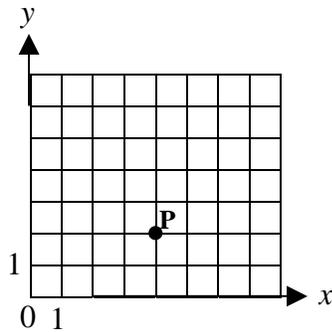
M2E1.6 Use properties/ attributes limited to number of sides, number of angles, and length of sides, lines of symmetry, parallel sides, perpendicular sides, and angles relative to 90° to classify polygons; and to compare and classify rectangular prisms, including cubes; and triangular prisms.

Sample item: Constructed response (4 points)

- In the space provided,
- draw a polygon that is not a quadrilateral,
 - explain why it is a polygon,
 - explain why it is not a quadrilateral

M2E3.6 Use ordered pairs as coordinates of points in the first quadrant of a coordinate plane.

Sample item: Multiple choice (1 point)



What are the coordinates of point P on the graph above?

- (1, 1)
- (4, 2)
- (2, 4)
- (6, 6)

F. Measurement

M2F2.6 Solve problems using elapsed time, thermometers, and scales.

Sample item: Multiple choice (1 point)

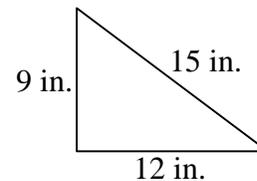
Sarah started her math homework at 7:45 pm. If her homework takes her 100 minutes to finish, what time will she be finished?

- 7:55 pm
- 8:45 pm
- 8:55 pm
- 9:25 pm

M2F3.6 Compute the area and perimeter of triangles and rectangles with whole numbers (formula use), and find the volume of rectangular solids using pictures of blocks or gridded diagram with correct units.

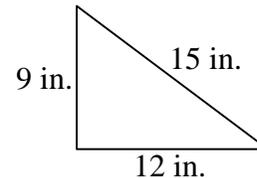
Sample items: Multiple choice (1 point each)

What is the perimeter of the triangle shown below?



- 12 inches
- 21 inches
- 36 inches
- 84 square inches

What is the area of the triangle shown below?



- 36 inches
- 36 square inches
- 54 square inches
- 108 square inches

Mathematics Grade 6

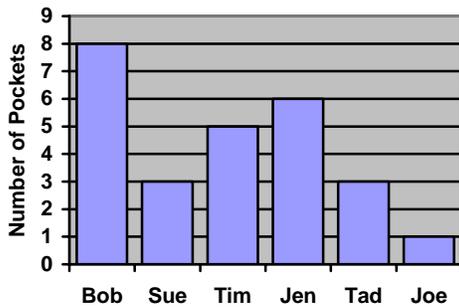
Cluster 3 – Mathematical Decision Making

C. Data Analysis and Statistics

M3C1.6 Organize data to find modes, medians, means and ranges for sets of data and displays: Data displays include frequency distributions, tables, line plots, or bar graphs (e.g., given a bar graph, determine the mode, median, range and mean).

Sample item: Constructed response (4 points)

The graph below shows the number of pockets on the clothes of six different students. Using the information from the graph, find the mean, median, mode and range of the data set.



Sample item: Multiple choice (1 point)

The graph above shows the number of pockets on the clothes of six different students. What is the median number of pockets from this group of students?

- A. 3
- B. 4
- C. $4\frac{1}{2}$
- D. 6

D. Probability

M3D1.6 Find the probabilities of simple events (sample space number and number of desired outcomes given) and represent them as fractions (simplest form not needed).

Sample item: Multiple choice (1 point)

When a fair number cube with faces numbered 1-6 is rolled, what is the probability that an odd number will be on the top?

- A. 0
- B. $\frac{1}{6}$
- C. $\frac{1}{2}$
- D. 3

M3D4.6 Find the number of arrangements of 3 factors with no more than 4 choices per factor (e.g., tree diagram, organized list, pictures).

Sample item: multiple choice (1 point)

Joe has two different hats, four different shirts and three different pairs of pants. How many different outfits consisting of 1 hat, 1 shirt and 1 pair of pants can Joe make?

- A. 6
- B. 9
- C. 12
- D. 24

Mathematics Grade 6

Cluster 4-Patterns

G. Patterns, Relations, and Functions

M4G1.6 Translate real-life situations into addition, subtraction, multiplication, and division sentences with whole numbers (mix of operations included).

Sample item: Multiple choice (1 point)

When Susan baby-sits, she earns \$6 an hour. When she washes cars, she earns \$9 for each car she washes. Last weekend she baby-sat for 7 hours and washed 2 cars. From these earnings, she deposited \$15 in her savings account. Which number sentence below shows how much of her weekend money (M) Sarah had remaining after her bank deposit?

- A. $(6 + 9) \times (7 + 2) + 15 = M$
- B. $6 + 9 + 7 + 2 - 15 = M$
- C. $(6 \times 7) + (9 \times 2) - 15 = M$
- D. $(6 \times 9) + (7 \times 2) - 15 = M$

M4G3.6 Solve problems involving linear patterns in the form of tables, graphs, words, rules and equations using whole numbers, decimals to hundredths and simple fractions.

Sample item: Multiple choice (1 point)

What value comes next in the number pattern shown below?

0, $1\frac{1}{2}$, 3, $4\frac{1}{2}$, 6, _

- A. $6\frac{1}{2}$
- B. 7
- C. $7\frac{1}{2}$
- D. 8

H. Algebra Concepts

M4H6.6 Solve one-step equations using whole numbers with all four operations.

Sample items: Multiple choice (1 point each)

What is the value of N in the following equation?

$$27 + N = 51$$

- A. 24
- B. 27
- C. 54
- D. 78

What is the value of N in the following equation?

$$N \div 16 = 4$$

- A. 2
- B. 4
- C. 20
- D. 64

What is the value of N in the following equation?

$$18 = N - 36$$

- A. 2
- B. 18
- C. 54
- D. 648

Mathematics Grade 7

Cluster 1 – Numbers and Operations

A. Numbers and Number Sense

M1A1.7 Compare, order, use, and represent fractions, decimals, and percents and convert among different numeral forms (limited to terminating decimals for decimal to fraction conversion) and apply concepts of integers, absolute value and positive exponents.

Sample Item: Multiple Choice (1 point)

12. It was estimated that in the year 2000 the population of China would have reached 1.3×10^9 people. What is another way to write this number?

- A. 1.3 million
- B. 130 million
- C. 1.3 billion
- D. 130 billion

M1A3.7 Apply concepts of ratios in practical or other mathematical situations.

Sample Item: Multiple Choice (1 point)

28. Maps use scales to represent distance. Ken and Sarah are looking at a map of their city. According to the scale on the map, 5 centimeters equals 125 km. According to Ken and Sarah's measurement, the distance between their houses is about 1 cm. Using this scale, about how far apart are their houses?

- * A. 25 km
- B. 50 km
- C. 125 km
- D. 625 km

B. Computation

M1B1.7 Compute and model all four operations with whole numbers, fractions (including mixed numerals), decimals, and percents applying order of operations and do straight computation with these numbers and operations.

Sample Item: Multiple Choice (1 point)

8. What is the value of the expression below?

$$3 \times 4 + 8 \div 2$$

- A. 10
- B. 12
- C. 16
- D. 18

M1B2.7 Create, solve, and justify the solution for multi-step, real-life problems with whole numbers, fractions (including mixed numerals), decimals, and percents.

Sample Item: Multiple Choice (1 point)

28. Ali's Deli is advertising sliced ham for \$3.99 per pound. Glenda asked for $\frac{3}{4}$ of a pound. The deli worker sliced the ham and gave her 0.77 pound. How much **more** will Glenda have to pay for the additional weight of ham?

- A. \$0.02
- B. \$0.08
- C. \$0.18
- D. \$0.20

Cluster 2 – Shape and Size

E. Geometry

M2E1.7 Use properties/ attributes limited to number of vertices, number of edges, number of faces, shapes of faces, and types of angles to identify and distinguish among 3 dimensional shapes.

Sample Item: Multiple Choice (1 point)

19. Which of the following patterns could be folded to form a square-based pyramid?

- A.
- B.
- C.
- D.

Mathematics Grade 7

M2E3.7 Use a coordinate system to define and locate position.

Sample Item: Multiple Choice (1 point)

15. What are the coordinates of point P in the graph above?

A. (-4,3)
 B. (4,-3)
 C. (3,-4)
 D. (-3,-4)

F. Measurement

M2F1.7 Perform conversions between pairs within the following groups: inches, feet, yards, and miles; millimeters, centimeters, meters, and kilometers; cups, pints, quarts, and gallons; milliliters and liters; ounces, pounds and tons; grams and kilograms; seconds, minutes, hours, days, weeks, months, and years.

Sample Items:

Multiple Choice (1 point)

2. Tracy's hiking club saw an advertisement for an event that includes an 8-kilometer hike. How many meters long is the hike?

A. 0.008 meter
 B. 0.8 meter
 C. 800 meters
 D. 8000 meters

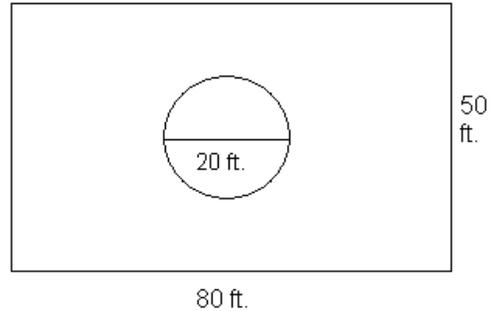
Short answer (2 points)

If there are 4 cups in a quart and 4 quarts in a gallon, what fraction of a gallon is 6 cups? Explain your method of finding the solution.

M2F3.7 Given formulas from which to choose, find areas and perimeters of 2-D shapes (includes circles), and volumes of rectangular solids with rational numbers with correct units.

Sample Item: Constructed response (4 points)

A rectangular lot has a circular flowerbed in it as shown. The dimensions of the lot are 50 feet by 80 feet. The diameter of the flower garden is 20 feet.



- a) How many feet of fencing would be needed to go all around the lot?
- b) How many 25 foot rolls of edging will be needed to go around the flowerbed? Explain your reasoning.
- c) Except for the flower bed the lot is covered with grass. What is the area in square feet of the grassy part?

Cluster 3 – Mathematical Decision Making

C. Data Analysis and Statistics

M3C1.7 Organize data and analyze patterns and trends in data using modes, medians, means and ranges for sets of data (emphasis on comparing sets begins). Data displays include lists, tables, frequency distributions, line plots, bar graphs or stem and leaf plots.

Sample Item: Multiple Choice (1 point)

18. The record of raffle ticket sales for Mr. Rosen's class is shown in the stem-and-leaf plot below.

Tickets Sold	
2	2 3 3 8 9 9
3	1 3 4 7 9
4	5 6 6 8 8

Key: 2|2 = 22

What is the median number of tickets sold?

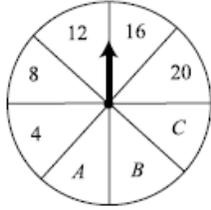
- A. 26
 * B. 33.5
 C. 35.6
 D. 48

Mathematics Grade 7

D. Probability

M3D1.7 Find the probability of simple events and express the probability as a fraction or a percentage (percentages limited to multiples of 10% and 25%).

Sample Item: Multiple Choice (1 point)



11. a. What is the probability of spinning a letter?
b. What is the probability of spinning a multiple of 8?

M3D4.7 Apply the idea of permutation in a problem situation with 6 elements or fewer (e.g., how many ways can the four letters in the word “math” be arranged?).

Sample Item: Multiple Choice (1 point)

12. Four snowboarders are waiting to use the half-pipe. How many different ways can they line up to determine who goes first, second, third, and fourth?

A. 4
B. 8
C. 12
D. 24

Cluster 4 – Patterns

G. Patterns, Relations, and Functions

M4G1.7 Translate real-life linear situations into equations (limited to one step).

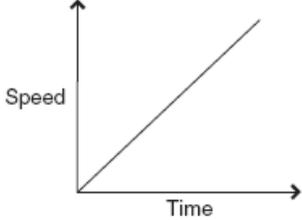
Sample Item: Multiple Choice (1 point)

Sam makes \$7.50 per hour. Which equation describes her earnings, e after n hours?

- A. $7.50 = en$
B. $7.50n = e$
C. $e = n + 7.50$
D. $n = e + 7.50$

M4G3.7 Solve problems involving linear patterns in the form of tables, graphs, words, rules or equations using rational numbers (including signed values).

Sample Item: Multiple Choice (1 point)



13. This is a graph of Martin's progress as he skied down a portion of the ski trail. Which statement is true?

A. Martin skied at a steady speed on this portion of the trail.
B. The longer Martin skied, the faster he went.
C. The longer Martin skied, the slower he went.
D. There is not enough information to make a conclusion.

H. Algebra Concepts

M4H6.7 Solve two-step equations using integers and positive rational numbers.

Sample Item: Short answer (2 points)

Solve for a .

$$2a - 5 = -11$$

NCLB Annual Assessment for Reading Grade Level Samples

The items presented in this sample packet represent the types of items which will appear on the NCLB Annual Assessment and are in released item format. For each grade level, there is a short reading passage, five selected response (multiple choice) items, and one constructed response (student written response). Selected response (SR) items are worth one point and constructed response (CR) items are worth four points.

Each selected response stem is preceded by the title of the corresponding text followed by the answer key. The next line identifies the Grade Level Expectation (GLE) code for each item. The complete text for the GLE code is included at the bottom of the page.

The March 2005 pilot/field test will be a one hour test. The operational test ('05-'06) will be presented in three 40 minute sessions. Each session will include one long and two short passages. Short reading selections will not have a constructed response. One is provided here as an example of what a CR might look like in a long passage. To protect the passage and item bank for future use, this sample packet includes only one short passage and its items for each grade.

Fairness: Opportunity to Learn, Develop, and Demonstrate Knowledge and Skills

Students should have experience with both selected response and constructed response questions before the March administration dates. Because the test design presents a balance of both informational literary texts, students should have experience with both genres. Annual released items will be available to supplement this sample set.

Reading

Read this poem about a boy's tree fort. Then answer the questions that follow.

My Fort

My dad, you know, is quite a guy; he's really such a sport.
He worked at least a week or two and built the neatest fort.

It has a porch where you can sit and lots of windows, too.
It's in a tree in our back yard (it has the greatest view).

- 5 It has a ladder made of rope that's really fun to climb.
And if I had my way, you know, I'd play there all the time.

The days I get to use my fort are few and very rare.
It's really hard to use the thing... while Daddy's playing there.

— by Tom Shadley



Grade 3

My Fort- Key A

GLE code: R1B10.3

1. In the poem, what does the boy want to do?
 - a. play in the fort more often
 - b. build a fort
 - c. sit on the porch
 - d. play sports with his dad

My Fort- Key A

GLE code: R1B10.3

2. What are lines 3 and 4 MAINLY about?
 - a. what the fort looks like
 - b. what Dad has done
 - c. what Dad is like
 - d. why the fort was built

My Fort- Key C

GLE code: R1A1.3

3. Line 7 says, "The days I get to use my fort are few and very rare." In this line, rare means
 - a. not special
 - b. not exciting
 - c. not often
 - d. not fun

GLE Codes

R1A1.3 Demonstrate the meaning of unknown words through these strategies: by reading words in context and by using knowledge of word structures (prefixes, suffixes, base words, or multi-syllabic structures).

R1B10.3 Apply effective strategies for identifying and describing character, setting, and plot; analyzing and describing the physical and personality traits of main characters; identifying the author's basic message; and identifying the literary devices of dialogue and description to the reading and interpretation of fiction. [Text complexity appropriate for grade 3.]

Grade 3

My Fort – Key C
GLE code: R1B10.3

4. Which statement is true about Dad?
 - a. Dad is trying to play with his friends.
 - b. Dad is doing what his son asked him to do.
 - c. Dad is doing what he likes to do.
 - d. Dad is trying to help his son.

My Fort – Key D
GLE code: R1B10.3

5. What is the MAIN purpose of this poem?
 - a. to explain the facts
 - b. to give directions
 - c. to warn readers
 - d. to entertain readers

My Fort- Constructed Response
GLE code: R1B10.3

6. The speaker's dad built a fort for him. Explain what the speaker likes about the situation and what the speaker doesn't like about the situation. Use details from the poem to support your answer.

GLE Code

R1B10.3 Apply effective strategies for identifying and describing character, setting, and plot; analyzing and describing the physical and personality traits of main characters; identifying the author's basic message; and identifying the literary devices of dialogue and description to the reading and interpretation of fiction. [Text complexity appropriate for grade 3.]

Reading

They Don't Bark, You Know

Shush, shush, shush
Rails slide over frozen trail

Crunch crunch
 Crunch crunch
5 Boots break through icy crust

The quiet of mid winter
Broken only by the creak of a sled
Gentle padding of dog feet
Rhythmic roar
10 Of your own breath

White landscape
Stretches to meet the pale sky
Where the sun skips across the horizon
Like a stone on water

15 Sherbet colored clouds
Follow in the sun's wake
Lapping like waves
Against the distant mountains

Ice crystals form in nostrils
20 Cheeks sting in the frozen air

Hold your breath and listen
To the vastness
 Of the untamed frontier

—Keri Dearborn

It is true that while sled dogs are mushing, they are silent. Before they set out, they bark, yip, and sing. Those dogs that are not chosen howl when they are left behind. The dogs in the traces grin from ear to ear. As you head across the snow, all you hear is the padding of their feet. There is nothing like it. — K. D.

Grade 5

They Don't Bark, You Know- Key C

GLE code: R1B8.5

1. In the first line of "They Don't Bark, You Know", the words "Shush, shush, shush" are used to
 - a. encourage the reader to listen closely.
 - b. show that the dogs are silent when they run.
 - c. describe the noise that the sled makes.
 - d. tell how a musher starts the dogs in a race.

They Don't Bark, You Know- Key D

GLE code: R1A8.5

2. In line 8 of the poem, the word padding means
 - a. running noisily
 - b. using a cushion
 - c. adding extra material
 - d. walking softly

They Don't Bark, You Know- Key D

GLE code: R1A8.5

3. According to the poem, which sound seems the loudest when sled dogs are running?
 - a. the sled
 - b. the waves
 - c. the dogs' feet
 - d. the musher's breath

GLE Codes

R1A8.5 Read for a variety of purposes (e.g., to gain knowledge, to aid in making decisions, to receive instructions, to follow an argument, to enjoy). [Text complexity appropriate for grade 5].

R1B8.5 Apply effective strategies for analyzing and describing characters' interactions-citing thoughts, words, or actions to reveal characters' personalities; making basic inferences about problem, conflict, and solution; determining the author's basic message or theme; and identifying the literary devices of imagery, simple metaphors, and idioms to the reading and interpretation of fiction. [Text complexity appropriate for grade 5].

Grade 5

They Don't Bark, You Know – Key C

GLE code: R1B8.5

4. In lines 15 through 18 of the poem, the clouds are compared to
 - a. snow
 - b. the sun
 - c. water
 - d. the mountains

They Don't Bark, You Know- Key A

GLE code: R1B9.5

5. According to the paragraph after the poem, the poet based her work on
 - a. personal experience
 - b. a book she read
 - c. her favorite movie
 - d. an unusual event

They Don't Bark, You Know- Constructed Response

GLE code: R1B8.5

6. In the paragraph that follows the poem, the poet says, "There is nothing like it." What is she referring to (or talking about) and why does she say that? Use information from the poem and the paragraph to support your answer.

GLE Codes

R1B8.5 Apply effective strategies for analyzing and describing characters' interactions-citing thoughts, words, or actions to reveal characters' personalities; making basic inferences about problem, conflict, and solution; determining the author's basic message or theme; and identifying the literary devices of imagery, simple metaphors, and idioms to the reading and interpretation of fiction. [Text complexity appropriate for grade 5].

R1B9.5 Apply effective strategies for synthesizing information within and across text (s); making inferences about text, including the author's message or purpose (e.g., to inform, to entertain, to explain, or to persuade); and supporting opinions/judgments and assertions about the text that are relevant to the reading and use of narrative nonfiction texts. [Text length and complexity appropriate for grade 5.]

Reading

This article describes the invention of the Slinky, a toy that has been popular for more than 50 years. Read the article and then answer the questions that follow.

The Slinky Story

by Sharman Reed Price

Many toys that kids enjoy today weren't always toys—or at least they didn't start out that way. Some toys, like Play-Doh, originally had other uses. Because it was just sticky enough to remove smudges and dirt from wallpaper without damaging it, white Play-Doh was invented as a cleaning product. Silly Putty was discovered during World War II when scientists were trying desperately to find a much-needed substitute for rubber to use for tires and boots. Like those, the Slinky didn't start out as a toy—but it has become a favorite of kids all over the world.

2 The Slinky story began in 1945, after World War II. During the war, the United States Navy developed new instruments to help guide and navigate ships. These instruments were sensitive to movement. They did not work well in tossing, rocking ships traveling through rough seas. After the war, the Navy hired Richard James, a young engineer, to invent a stabilizing device to use with the instruments. A stabilizing device would cushion instruments during sudden movements and help them to work properly.

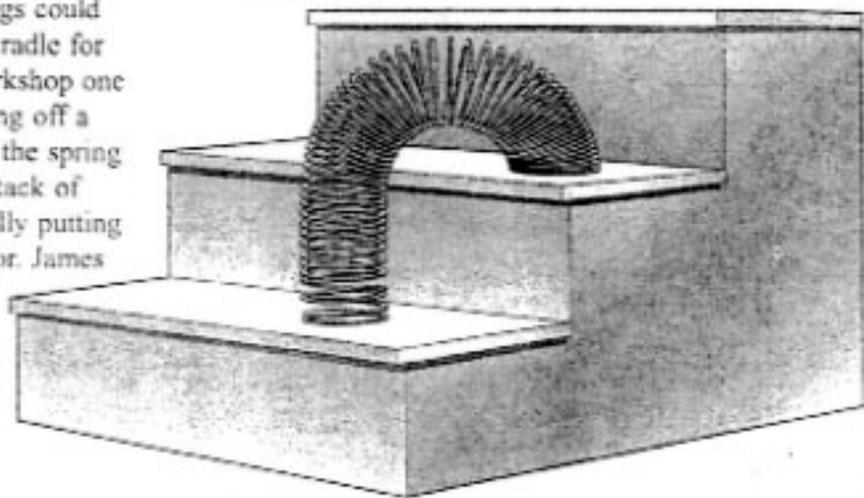
The engineer thought that springs would do the trick: they were light and flexible and a common product—it seemed that springs could be combined in some way to create a cradle for delicate machinery. In his crowded workshop one day, James accidentally knocked a spring off a shelf. Instead of clattering to the floor, the spring "walked" down—from the shelf, to a stack of books, to the desktop, to a chair... finally putting itself back together in a coil on the floor. James was fascinated. He made the spring "walk" again and again.

After work, Richard James brought a spring home to show the trick to his wife, Betty. Together, they tested the

spring in different places around their house. The results were always the same; the spring walked from place to place, using no power, batteries, or other devices. They found out that the spring was especially good at walking down stairs. Betty was the one who imagined this common, comical little spring for what it would eventually become—a toy. She came up with the perfect name: "Slinky."

Richard and Betty James had to borrow money in order to make 400 of the original Slinkys. Their big break came when they persuaded the manager of Gimbel's, a large department store in Philadelphia, to let them demonstrate the toy. People watched, amused and amazed, as the spring did its tricks. Within 90 minutes, all 400 Slinkys had been sold—and people wanted more!

The rest, as the saying goes, is history. Richard and Betty James started their own company to produce Slinkys; within a few years, they were millionaires. Their manufacturing plant in Pennsylvania has been in operation for more than 50 years. So far, it has produced over 250 million Slinkys, enjoyed by kids and adults alike. The little spring with the funny name has walked the world over!



Reading

Some Slinky Facts

- It takes about 80 feet of wire to make a standard-sized Slinky.
- The cost of a Slinky today (about \$2) is only twice the cost of an original Slinky.
- Slinkys have gone into space: NASA has used them in zero-gravity physics experiments in the space shuttle.
- Many science teachers use Slinkys in their classrooms to demonstrate the behavior of light waves and sound waves.
- The Slinky is still manufactured in Hollidaysburg, Pennsylvania, with the original equipment Richard James invented.

Grade 6

The Slinky Story- Key A

GLE code: R1D5.6

1. The MAIN idea of the article is that
 - a. inventions can occur by accident.
 - b. Slinkys can be used in many ways.
 - c. engineers are the best inventors.
 - d. Slinkys are inexpensive toys.

The Slinky Story- Key C

GLE code: R1A8.6

2. Paragraph 2 describes the purpose of a "stabilizing device." The word stabilizing means
 - a. tossing roughly.
 - b. traveling slowly.
 - c. making steady.
 - d. getting ready.

The Slinky Story- Key B

GLE code: R1A8.6

3. The article says, "The little spring with the funny name has walked the world over!" What is the meaning of this sentence?
 - a. Slinky's are now made in foreign countries.
 - b. Slinky's have become very popular toys.
 - c. Slinky's have traveled in space shuttle missions.
 - d. Slinky's have been made out of enough wire to circle Earth.

GLE Codes

R1A8.6 Read for a variety of purposes (e.g., to gain knowledge, to aid in making decisions, to receive instructions, to follow an argument, to enjoy). [Text complexity appropriate for grade 6.]

R1D5.6 Make inferences about text, including the author's purpose and/or message, by forming and supporting opinions/judgments and assertions about the text that are relevant. [Text complexity appropriate for grade 6.]

Grade 6

The Slinky Story- Key D

GLE code: R1D4.6

4. The author organized this article MAINLY by
 - a. showing a problem and its answer.
 - b. comparing two things.
 - c. presenting arguments to convince the reader.
 - d. telling about events in the order they happened.

The Slinky Story-Key D

GLE code: R1D5.6

5. From reading "Some Slinky Facts," the reader can conclude that Slinkys are
 - a. no longer manufactured.
 - b. made in different sizes.
 - c. still sold at Gimbel's store.
 - d. used in the study of science.

The Slinky Story- Constructed Response

GLE code: R1A7.6

6. Explain how an accident in a workshop changed James' and Betty's life. Use information from the article to support your answer.

GLE Codes

R1A7.6 Summarize whole texts by selecting and paraphrasing important and representative texts/passage, including the sequence of major events when appropriate for the genre. [Text complexity appropriate for grade 6.]

R1D4.6 Identify the informational text structure of compare and contrast. [Text complexity appropriate for grade 6.]

R1D5.6 Make inferences about text, including the author's purpose and/or message, by forming and supporting opinions/judgments and assertions about the text that are relevant. [Text complexity appropriate for grade 6.]

Most inventions develop in unexpected ways. Read this article about the evolution of the modern pencil, and then answer the questions that follow.



Beyond the Pencil

Andrea Jachman



Shortly after the first pencil was put to paper, the first mistake was made. But it would be a long time before erasers as we know them were invented, and even longer before an easy way to sharpen that pencil came about.

The Pencil

The history of the pencil dates back to 1564, when an uprooted tree in England revealed a hard, black substance, which we know today as graphite. From this, the first primitive pencils were made.

Pencil technology made a great leap forward in 1795, when French chemist Nicolas Conte patented a process that used a mixture of clay and graphite. The mixture was fired in a kiln before it was put into a wooden case. This process allowed pencils to be made to any hardness or softness, which was important to artists and designers. It was also the prototype for the pencils we use today.

Whoops!

But what to do about those pesky mistakes? For nearly 200 years after the first pencils were used, people used little rolled-up balls of bread to rub out their errors. Bread had its limits, though, some of which you can probably imagine for yourself. First, bread rots. Second, bread wears out quickly. Third, bread erasers left smears and smudges behind. Fourth, you can't eat bread once you've got graphite all over it!

Clearly, something had to be done. Charles Marie de la Condamine, a French scientist and explorer, was the first to bring a substance called "India rubber" back to Europe from his travels. The name is misleading, though, because India rubber came from South America, where people

used it to make balls and as an adhesive for attaching decorative items to their bodies.

English inventor and scientist Joseph Priestly is credited with figuring out that this substance could be used to erase pencil marks on sheets of paper. This occurred around 1770. But, like food, rubber rotted. In 1839, Charles Goodyear discovered a way to cure rubber and make it a lasting and useable material. This process was called vulcanization. In 1844, Goodyear patented his process. With this improvement, erasers came into everyday use.

Still, problems existed. You could never find an eraser right when you needed it! A Philadelphia inventor by the name of Hyman Lipman came up with the idea of putting an eraser where it belonged—on the end of a pencil. In 1858 he was issued a patent for this idea, though it was later revoked because his "invention" was really just a combination of two existing ideas.

Where's the Point?

The average pencil can write 45,000 words or draw a line 35 miles long—but not without pausing for a good sharpening every now and then. For years and years, people had to use knives to whittle away the wood on their pencil and make a fine, sharp point. By the time you got the pencil ready, you might have forgotten what you wanted to write!

There is some dispute over who should get credit for the invention of the pencil sharpener. Bernard Lassimone of France applied for a patent on an invention to sharpen pencils in 1828. In 1847, Therry des Estwaux invented the manual pencil sharpener that was the predecessor of those we use today.

Grade 7

Reading

The undisputed holder of the U.S. patent for the pencil sharpener was John Lee Love, an African American inventor from Massachusetts. The "Love Sharpener" was the very simple, portable pencil sharpener that many artists use today. With this sharpener, the pencil is put into the opening of the sharpener and rotated by hand,

and the shavings stay inside. Love's sharpener was patented on November 23, 1897.

Granted, the pencil is not as complex as the word processor, but behind that familiar yellow paint and pink top lies a great deal of history, brain power, and inventiveness. Pretty sharp!

Grade 7

Beyond the Pencil- Key B

GLE code: R1A7.7

1. Which idea **best** summarizes the information in this article?
 - a. A single invention can change the world.
 - b. New discoveries can improve an invention.
 - c. Scientists work on the same projects for a long time.
 - d. Inventors and scientists compete with one another.

Beyond the Pencil- Key B

GLE code: R1D5.7

2. What is the **main** purpose of the first paragraph?
 - a. It details important ideas in the article.
 - b. It introduces the topic of the article.
 - c. It gives a brief history of the pencil.
 - d. It explains how the eraser was invented.

Beyond the Pencil- Key C

GLE code: R1A8.7

3. India rubber was similar to bread in its use as an eraser because it
 - a. tore into pieces.
 - b. wore out easily.
 - c. became rotten.
 - d. left smears on paper.

GLE Codes

R1A7.7 Summarize whole text by selecting and paraphrasing important and representative texts/passages, including the sequence of major events when appropriate for the genre. [Text complexity appropriate for grade 7.]

R1A8.7 Read for a variety of purposes (e.g., to gain knowledge, to aid in making decisions, to receive instructions, to follow an argument, to enjoy). [Text complexity appropriate for grade 7.]

R1D5.7 Make inferences about text, including the author's purpose and/or message, by forming and supporting, warranted* opinions/judgments and assertions about the text that are relevant. [Text complexity appropriate for grade 7.]

*defensible, viable

Grade 7

Beyond the Pencil- Key D

GLE code: R1A8.7

4. In the early days of making pencils, what was the **main** reason to fire a clay and graphite mixture?
 - a. It allowed the pencil marks to be erasable.
 - b. It was easier to place the mixture into a wooden case.
 - c. It made pencils less expensive and easier to use.
 - d. It allowed pencils to be made for different purposes.

Beyond the Pencil – Key B

GLE code: R1D4.7

5. The information in this article is **mostly** organized
 - a. in order of importance.
 - b. in chronological order.
 - c. by cause and effect.
 - d. by comparison and contrast.

Beyond the Pencil- Constructed Response

GLE code: R1D5.7

6. Several new discoveries are described in the article. Choose one of the new discoveries and explain the benefits of the discovery. Use information from the article to support your answer.

R1A8.7 Read for a variety of purposes (e.g., to gain knowledge, to aid in making decisions, to receive instructions, to follow an argument, to enjoy). [Text complexity appropriate for grade 7.]

R1D4.7 Identify the informational text structures of problem/solution and cause/effect. [Text complexity appropriate for grade 7.]

R1D5.7 Make inferences about text, including the author's purpose and/or message, by forming and supporting, warranted* opinions/judgments and assertions about the text that are relevant. [Text complexity appropriate for grade 7.]

*defensible, viable