Core Knowledge® Makes Math CSAP a Cinch

Grade Level or Special Area: 3rd- 6th Grade
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Length of Unit: Ten lessons, 30-60 minutes each

I. ABSTRACT

Math programs are designed to teach the same math concepts tested on CSAP. However, CSAP often asks students to solve problems in different and unique ways. This unit is designed to provide your students with opportunities to use CSAP style problem solving with math activities linked to Science, History, Geography, and Literature from the Core Knowledge® Sequence. The lessons are designed to be pulled when you are teaching the relevant Core Knowledge® topic. Appendix A has a quick look at which Core Knowledge® topics have a related math activity.

II. OVERVIEW

A. Concept Objectives
   1. Students will demonstrate understanding of mathematical concepts.
   2. Students will understand how to display mathematical information in a variety of ways.
   3. Students will understand how to communicate the reasoning used when solving mathematical problems.

B. Content from the *Core Knowledge Sequence*
   1. Mathematics: Grade 3
      a. Numbers and Number Sense (p. 78)
         i. Recognize place value up to hundred thousands
         ii. Review: even and odd numbers
         iii. Create and interpret bar graphs and line graphs
      b. Fractions and Decimals (p. 78)
         i. Recognize fractions to 1/10.
      c. Money
         i. Add and subtract amounts of money.
      d. Computation (p. 79)
         i. Addition
            a) Mentally estimate a sum.
         ii. Multiplication
            a) Master basic multiplication facts to 10 x 10
         iii. Division
            a) Know basic division facts to 100÷10
      e. Geometry (p. 80)
         i. Identify a line of symmetry, create symmetrical figures.
         ii. Polygons: recognize vertex (plural: vertices); identify polygons: pentagon, hexagon, and octagon.
         iii. Compute area in square centimeters and inches.
   2. Mathematics: Grade 4
      a. Numbers and Number Sense (p. 101)
         i. Recognize place value up to hundred-millions
         ii. Know the meaning of multiple, factor, prime number, and composite number
         iii. Create and interpret bar graphs and line graphs

b. Fractions and Decimals (p. 101)
    i. Fractions
        a) Recognize fractions to 1/12
    ii. Decimals
        a) Add and subtract with decimals to two places.
c. Computation(p. 102)
    i. Multiplication
        a) Review and reinforce basic multiplication facts to 10 x 10
    ii. Division
        a) Review and reinforce basic division facts to 100÷10
d. Geometry (p. 103)
    i. Identify polygons
    ii. Know the formula for area of a rectangle

3. Mathematics: Grade 5
    a. Numbers and Number Sense (p. 123)
        i. Identify numbers under 100 as prime or composite
    b. Ratio and Percent (p. 123)
        i. Percent
            a) Express equivalences between fractions, decimals, percents, and know common equivalences.
    c. Fractions and Decimals (p. 124)
        i. Decimals
            a) Read decimals to the nearest ten-thousandth
            b) Estimate sums and differences by rounding
    d. Computation (p. 124)
        i. Solving Problems and Equations
            a) Solve problems with more than one operation
    e. Geometry (p. 125)
        i. Review the formula for area of a rectangle
        ii. Identify polygons
    f. Probability and Statistics (p. 125)
        i. Plot points on a coordinate plane, using ordered pairs of positive and negative whole numbers.
        ii. Collect and organize data in graphic form (bar, line, and circle)
4. Mathematics: Grade 6
    a. Numbers and Number Sense (p. 148)
        i. Determine whether a number is prime or composite
    b. Ratio, Percent, and Proportion (p. 148)
        i. Percent
            a) Convert between fractions, decimals, and percents.
    c. Computation (p. 149)
        i. Solving Problems and Equations
            a) Solve problems with multiple steps.
            b) Solve problems with more than one operation.
    d. Geometry (pp. 149-150)
        i. Find the area and perimeter of rectangles.
    e. Probability and Statistics (pp. 150-151)
        i. Solve problems requiring interpretation and application of graphically displayed data

ii. Plot points on a coordinate plane, using ordered pairs of positive and negative whole numbers.

C. Skill Objectives
1. Students will divide a shape into fractional pieces and label each piece.
2. Students will compare fractions, decimals, and percents.
3. Students will identify the correct place value of a given digit.
4. Students will solve problems with clues about a mystery number.
5. Students will continue a pattern started in a chart by discovering the pattern utilized in the chart.
6. Students will demonstrate computational accuracy.
7. Students will construct graphs to display data.
8. Students will explain information displayed on a graph.
9. Students will label all parts of a graph.
10. Students will identify all the possible combinations of a given set of items.
11. Students will identify a line of symmetry for regular polygons and other familiar objects.
12. Students will create a figure with at least one line of symmetry
13. Students will create asymmetrical figures.
14. Students will identify, compare, and analyze the attributes of two-dimensional shapes and develop vocabulary to describe the attributes (for example, acute, obtuse, right angle, parallel lines, perpendicular lines, intersecting lines, and line segments).
15. Students will identify the x- and y-axis on a coordinate plane.
16. Students will create geometric designs with a specified perimeter and/or area.
17. Students will round numbers to the nearest dollar amount.
18. Students will estimate the total of several items.
19. Students will add dollar amounts to find the actual total of several items.
20. Students will compare actual price and an estimate.

III. BACKGROUND KNOWLEDGE

A. For Teachers
1. *Everything You Need to Know About Math Homework*, by Anne Zeman
2. *What Your ___Grader Needs to Know*, by E.D. Hirsch

B. For Students
1. Math from the Core Knowledge® Sequence Grades K-2

IV. RESOURCES

None needed for this unit

V. LESSONS

Lesson One: Fractions, Percentages, and Decimals

A. *Daily Objectives*
1. Concept Objectives
a. Students will demonstrate understanding of mathematical concepts.
b. Students will understand how to display mathematical information in a variety of ways.
c. Students will understand how to communicate the reasoning used when solving mathematical problems.
2. Lesson Content
a. Grade 3: Recognize fractions to 1/10. (p. 78)
b. Grade 4: Recognize fractions to 1/12. (p. 101)

c. Grade 5: Express equivalences between fractions, decimals, percents, and know common equivalences. (p. 123)
d. Grade 6: Convert between fractions, decimals, and percents. (p. 148)

3. Skill Objectives
a. Students will divide a shape into fractional pieces and label each piece.
b. Students will compare fractions, decimals, and percents.

B. *Materials*
1. Select the Appendix B that is for your grade level and make copies for each student
2. Appendix C: Fraction Answer Key (one copy for the teacher)

C. *Key Vocabulary*
1. Equal parts - when an object is divided so that all sections are equal
2. Fraction - a number that represents a part of a whole or a set
3. Decimal - fractions with denominators of 10 or multiples of 10
4. Percent - fractions written as a portion of 100

D. *Procedures/Activities*
1. Start the class by drawing circles on the board, some divided evenly, some not.
2. Ask the class to describe what has happened with the circles. (3^{rd} and 4^{th} graders can use the terminology of "equal parts" and 5^{th} and 6^{th} graders should be using fractions and decimals to describe the circles.)
3. Talk about the concept that an object needs to be divided evenly to use fractions with common denominators.
4. Go over all vocabulary words.
5. For 5^{th} and 6^{th} only, make a chart showing fraction/decimal/percentage links. For example: ¼=25%=0.25, ½=50%=0.5, etc.
6. Turn to Appendix B for your grade level and read through the problem as a class.
7. Give students time to work on the problem on their own.
8. Go over the problem with the students and make sure you talk through the process and model writing the explanation on the board for the students who need some extra help.

E. *Assessment/Evaluation*
1. Assess their work on Appendix B.

Lesson Two: Mystery Numbers

A. *Daily Objectives*
1. Concept Objectives
a. Students will demonstrate understanding of mathematical concepts.
b. Students will understand how to display mathematical information in a variety of ways.
c. Students will understand how to communicate the reasoning used when solving mathematical problems.

2. Lesson Content
a. Grade 3: Recognize place value up to hundred thousands (p. 78)
b. Grade 3: Review: even and odd numbers (p. 78)
c. Grade 4: Recognize place value up to hundred millions (p. 101)
d. Grade 4: Know the meaning of multiple, factor, prime number, and composite number (p. 101)
e. Grade 5: Read decimals to the nearest ten-thousandth (p. 124)
f. Grade 5: Identify numbers under 100 as prime or composite (p. 123)
g. Grade 6: Determine whether a number is prime or composite (p. 148)

3. Skill Objectives
    a. Students will identify the correct place value of a given digit.
    b. Students will solve problems with clues about a mystery number.

B. *Materials*
1. Select the Appendix D that coincides with your grade level - one copy per student
2. Appendix E: Digit Cards - one copy for each student
3. Appendix F: Mystery Numbers Answer Key - one copy for the teacher

C. *Key Vocabulary*
1. Place Value - the value of the digit in a number
2. Prime Numbers - counting numbers that can only be divided evenly by 2 numbers: 1 and themselves

D. *Procedures/Activities*
1. Have students cut out their digit cards.
2. Write 4,567 on the board.
3. Ask the students which numeral is in the tens' place.
4. Review vocabulary terms.
5. Continue with a variety of numbers. Be sure to include some decimal numbers for 5^{th} and 6^{th} graders.
6. Have the students spread their digit cards across the top of their desks.
7. Say the following number: 7,205. Have students use their digit cards to make the number. Check for accuracy.
8. Repeat step 6 with a variety of numbers.
9. Explain to the students that you will be finding a mystery number now. Let them know they can use their digit cards if necessary.
10. Give the following clues, stopping between each clue.
    a. It is one digit.
    b. It is a prime number.
    c. It is an even number.
11. Make sure all students have selected "2" as the correct number.
12. Give the following clues for the second mystery number, pausing between each clue.
    a. It is a three digit number.
    b. All of the digits are different.
    c. None of the digits are prime numbers.
    d. The numeral in the tens place is a multiple of 3.
    e. The numeral in the ones place is a multiple of 3, and is 3 less than the numeral in the tens place.
    f. The final digit is a multiple of 2 and 4.
13. Check to make sure that all students have 896.
14. Pass out the appendix for your grade.
15. Give the students time to work on the sheet on their own.
16. When students have had enough time, go over the answers together.

E. *Assessment/Evaluation*
1. Informal observations of how well the students manipulate the digit cards.
2. Evaluate the individual work of the students.

Lesson Three: Completing Data Tables

A. *Daily Objectives*
1. Concept Objectives
    a. Students will demonstrate understanding of mathematical concepts.

b. Students will understand how to display mathematical information in a variety of ways.
c. Students will understand how to communicate the reasoning used when solving mathematical problems.

2. Lesson Content
   a. Grade 3: Master basic multiplication facts to 10 x 10 (p. 79)
   b. Grade 3: Know basic division facts to 100÷10 (p. 79)
   c. Grade 4: Review and reinforce basic multiplication facts to 10 x 10 (p. 102)
   d. Grade 4: Review and reinforce basic division facts to 100÷10 (p. 102)
   e. Grade 5: Solve problems with more than one operation (p. 124)
   f. Grade 6: Solve problems with more than one operation (p. 149)
3. Skill Objectives
   a. Students will continue a pattern started in a chart by discovering the pattern utilized in the chart.
   b. Students will demonstrate computational accuracy.

B. *Materials*
1. Appendix G: Select the Appendix G that coincides with your grade level - one copy per student
2. Appendix H: Table Completion Answer Key - one copy for the teacher

C. *Key Vocabulary*
1. Inverse Operation - two mathematical operations that are opposite: i.e. multiplication and division
2. Order of Operations - the order in which you solve the pieces of an equation: parentheses, exponents, multiplication and division, addition and subtraction

D. *Procedures/Activities*
1. Review basic computation to start the class by using flashcards to play a game.
2. For grades 5 and 6: review the order of operations.
3. Go over the vocabulary words.
4. Draw the following table on the board:

	3	15		

5. Discuss with the class how to get from 3 to 15.
6. Multiply 15 by 3 to get to 45. Ask the class to multiply 45 by 5 to get the final number.
7. Ask a student to create a table using multiplication.
8. Draw the following table on the board:

	21	14	35	42	
	3	2			8

9. Discuss with the class the relationship between the number on the top and the number under it.
10. As students come up with the fact that the top number divided by 7 gives you the bottom number, have them complete the chart.
11. If students struggle with the final column, talk them through the process of using the inverse operation of division, which is multiplication to find the missing number.
12. With fifth and sixth graders only: Review the order of operations.
13. For fifth and sixth grade only, draw the following chart on the board:

	2	7	5	4	

	8	23			20

14. Explain that this chart has a 2 step rule. If no students are able to come up with the rule, let them know that the rule is y X 3 + 2. Have students complete the chart.
15. If students are struggling with the 2 step problem, do a few more examples.
16. Pass out Appendix G to each student. Have them complete it together or on their own.

E. *Assessment/Evaluation*
1. Informal observations of how well the students are able to complete the table.
2. Formal evaluation of Appendix G.

Lesson Four: Creating and Interpreting Graphs

A. *Daily Objectives*
1. Concept Objectives
   a. Students will demonstrate understanding of mathematical concepts.
   b. Students will understand how to display mathematical information in a variety of ways.
   c. Students will understand how to communicate the reasoning used when solving mathematical problems.
2. Lesson Content
   a. Grade 3: Create and interpret bar graphs and line graphs (p. 78)
   b. Grade 4: Create and interpret bar graphs and line graphs (p. 101)
   c. Grade 5: Collect and organize data in graphic form (bar, line, and circle) (p. 125)
   d. Grade 6: Solve problems requiring interpretation and application of graphically displayed data (p. 150)
3. Skill Objectives
   a. Students will construct graphs to display data.
   b. Students will explain information displayed on a graph.
   c. Students will label all parts of a graph.

B. *Materials*
1. Select the Appendix I for your grade level - one copy per student
2. Appendix J: Graph Answer Key - one copy for the teacher
3. Appendix J2: Graph Answer Key Continued - one copy for the teacher

C. *Key Vocabulary*
1. Graph - a drawing or diagram used to show information
2. X-axis - the horizontal line on a graph
3. Y-axis - the vertical line on a graph
4. Mean - the average of a series of numbers
5. Median - the middle number in a line of numbers ordered from smallest to largest
6. Mode - the most frequently occurring number
7. Range - the difference between the highest and lowest number

D. *Procedures/Activities*
1. Have the class suggest four games played by students at recess.
2. Survey the class and tally the results on the board.
3. Make a quick graph to display the results on the board.
4. Label the x-axis with the games and write “Types of Games."
5. Label the y-axis by 2’s and write “Number of Students.”
6. Come up with a title for the graph.
7. Go over vocabulary.
8. Calculate the mean, median, and mode together.

9. Pass out Appendix I to all students.

E. *Assessment/Evaluation*

1. Evaluate Appendix I for each student.

Lesson Five: Combining Items

A. *Daily Objectives*

1. Concept Objective
   a. Students will demonstrate understanding of mathematical concepts.
   b. Students will understand how to display mathematical information in a variety of ways.
   c. Students will understand how to communicate the reasoning used when solving mathematical problems.
2. Lesson Content
   NA
3. Skill Objectives
   a. Students will identify all the possible combinations of a given set of items.

B. *Materials*

1. Select the Appendix K for your grade level - one copy per student
2. Appendix L: Combining Items Answer Key - one copy for the teacher

C. *Key Vocabulary*

None

D. *Procedures/Activities*

1. Draw two ice cream cones on the board. Label one chocolate and one vanilla. Draw three scoops of ice cream and label them chocolate, strawberry, and vanilla.
2. Ask the students to determine how many combinations are possible.
3. If students seem to struggle, suggest that they draw each possible combination.
4. Model on the board to check for understanding: Draw the chocolate cone with chocolate ice cream, the chocolate cone with vanilla ice cream, chocolate cone with strawberry ice cream, then draw the vanilla cone with each ice cream.
5. See if they came up with six choices.
6. Ask if any other students had a different strategy.
7. Ask if anyone noticed that you can multiply the number of cones by the number of ice cream choices to get the answer.
8. Now ask how many choices there are if you are allowed two scoops of ice cream.
9. Give them time to work.
10. Check for their answer. (They should get 8 for the answer).
11. Give them time to complete Appendix K.
12. Go over the answers with the class.

E. *Assessment/Evaluation*

1. Informal observations of how well the students succeed with the task.

Lesson Six: Identifying and Creating Lines of Symmetry

A. *Daily Objectives*

1. Concept Objectives
   a. Students will demonstrate understanding of mathematical concepts.
   b. Students will understand how to display mathematical information in a variety of ways.
   c. Students will understand how to communicate the reasoning used when solving mathematical problems.

2. Lesson Content
    a. Grade 3: Identify a line of symmetry, create symmetrical figures. (p. 80)
3. Skill Objectives
    a. Students will identify a line of symmetry for regular polygons and other familiar objects.
    b. Students will create a figure with at least one line of symmetry
    c. Students will create asymmetrical figures.

B. *Materials*
1. Select the Appendix M that coincides with your grade - one copy per student
2. Appendix N: Symmetry Answer Key - one copy for the teacher

C. *Key Vocabulary*
1. Symmetry - when both sides of an object match exactly
2. Asymmetrical - when two halves of an object are not the same

D. *Procedures/Activities*
1. Go over vocabulary words.
2. Draw an isosceles triangle on the board.
3. Have a student come up and draw a line of symmetry.
4. Repeat with a few other shapes. When you draw a square, make sure all 4 lines of symmetry are drawn. For the circle, discuss that there are a limitless number of lines of symmetry.
5. Draw a random shape on the board. Ask students to identify a line of symmetry. Be sure to draw a figure with no lines of symmetry.
6. Draw shapes from nature or your classroom. Discuss which shapes have lines of symmetry.
7. Pass out Appendix M to your students.
8. Give them time to work on the paper on their own.
9. Go over the answers together.

E. *Assessment/Evaluation*
1. Informal observations of how well the students demonstrate understanding of symmetry.
2. Have students create a collage of symmetrical items and asymmetrical items to demonstrate competence with symmetry.

Lesson Seven: Mystery Shapes

A. *Daily Objectives*
1. Concept Objectives
    a. Students will demonstrate understanding of mathematical concepts.
    b. Students will understand how to display mathematical information in a variety of ways.
    c. Students will understand how to communicate the reasoning used when solving mathematical problems.
2. Lesson Content
    a. Grade 3: Polygons: recognize vertex (plural: vertices); identify polygons: pentagon, hexagon, and octagon. (p. 80)
    b. Grade 4: Identify polygons (p. 102)
    c. Grade 5: Identify polygons (p. 125)
3. Skill Objectives
    a. Students will identify compare, and analyze the attributes of two-dimensional shapes and develop vocabulary to describe the attributes (for example, acute, obtuse, right angle, parallel lines, perpendicular lines, intersecting lines, and line segments).

B. *Materials*
   1. Appendix O: Mystery Shapes - one copy per student
   2. Appendix P: Mystery Shapes Answer Key - one copy for the teacher
   3. Appendix Q: Shape Cards - one copy

C. *Key Vocabulary*
   1. Parallel - lines that are always the same distance apart
   2. Perpendicular - intersecting lines that form a right angle

D. *Procedures/Activities*
   1. Draw a circle on the board.
   2. Ask a student to describe the shape.
   3. Go over the vocabulary words.
   4. Repeat with a few other shapes. Encourage the students to use the vocabulary parallel and perpendicular.
   5. Show a student one of the shape cards.
   6. Have that student give clues describing the shape.
   7. Have students draw the shape they think is being described on a scrap paper.
   8. Have one student draw the shape on the board.
   9. Continue with a few other shape cards.
   10. Pass out Appendix O to your students.
   11. Give them time to work on the paper on their own.
   12. Go over the answers together.

E. *Assessment/Evaluation*
   1. Informal observations of how well the students demonstrate understanding of the attributes of shapes.
   2. Evaluate their work on Appendix O.

Lesson Eight: Grid Work

A. *Daily Objectives*
   1. Concept Objectives
      a. Students will demonstrate understanding of mathematical concepts.
      b. Students will understand how to display mathematical information in a variety of ways.
      c. Students will understand how to communicate the reasoning used when solving mathematical problems.
   2. Lesson Content
      a. Grade 5: Plot points on a coordinate plane, using ordered pairs of positive and negative whole numbers. (p. 125)
      b. Grade 6: Plot points on a coordinate plane, using ordered pairs of positive and negative whole numbers. (p. 151)
   3. Skill Objectives
      a. Students will identify the x- and y-axis on a coordinate plane.

B. *Materials*
   1. Appendix R: Grid Work - one copy per student
   2. Appendix S: Grid Work Answer Key - one copy for the teacher
   3. Overhead of graph paper

C. *Key Vocabulary*
   1. Coordinate Plane - a graph with an x- and y-axis
   2. X-axis - the horizontal line on a graph
   3. Y-axis - the vertical line on a graph
   4. Midline - the place where the x- and y-axis meet, 0

D. *Procedures/Activities*
   1. Explain to the class that a coordinate plane is a type of graph with an x- and y-axis. Both positive and negative numbers can be graphed on a coordinate plane.
   2. Positive numbers start at 0 and increase to the right and upwards. Negative numbers start at 0 and increase to the left and downward.
   3. Draw a horizontal line in the middle of the graph paper.
   4. Ask if any students know what we call the horizontal line on a coordinate plane is called (x-axis).
   5. Draw a vertical line down the middle of the graph paper.
   6. Ask if any student knows what we call the vertical line on a coordinate plane (y-axis)
   7. Explain the place where the two lines meet is called the midline.
   8. Ask if any students know how to number the x- and y- axis.
   9. Have a student number the x-axis. Have a different student number the y-axis.
   10. Explain that the location on the x-axis is always written first, followed by a comma, then the location on the y-axis is written.
   11. Have students come to the board and demonstrate how to graph an ordered pair of numbers on a coordinate plane.
   12. Draw 3-6 points on the plane.
   13. Have students write the ordered pair for each point.
   14. Pass out Appendix R.
   15. Allow students to complete Appendix R.
   16. Go over answers together.

E. *Assessment/Evaluation*
   1. Informal observations of how well the students demonstrate the ability to work with numbers on a coordinate plane.
   2. Formal assessment of Appendix R.

Lesson Nine: Perimeter and Area

A. *Daily Objectives*
   1. Concept Objectives
      a. Students will demonstrate understanding of mathematical concepts.
      b. Students will understand how to display mathematical information in a variety of ways.
      c. Students will understand how to communicate the reasoning used when solving mathematical problems.
   2. Lesson Content
      a. Grade 3: Compute area in square centimeters and inches. (p. 80)
      b. Grade 4: Know the formula for area of a rectangle. (p. 103)
      c. Grade 5: Review the formula for area of a rectangle (p. 125)
      d. Grade 6: Find the area and perimeter of rectangles. (p. 151)
   3. Skill Objectives
      a. Students will create geometric designs with a specified perimeter and/or area.

B. *Materials*
   1. Select the Appendix T that coincides with your grade - one copy per student
   2. Appendix U: Perimeter and Area Answer Key - one copy for the teacher

C. *Key Vocabulary*
   1. Perimeter - the distance around a shape or object
   2. Area - the amount of space an object contains

D. *Procedures/Activities*
   1. Draw a square, a rectangle, and a parallelogram on the board.
   2. Ask the students to explain how to find area and perimeter of the shapes.
   3. Draw a shape similar to the following on the board.
   4. Ask the student to come up with strategies to determine area and perimeter of the shape.
   5. If they are unable to come up with a strategy, explain that you can divide the shape into a square and a rectangle and add the area of the two together.
   6. Pass out Appendix T to your students.
   7. Give them time to work on the paper on their own.
   8. Go over the answers together.

E. *Assessment/Evaluation*
   1. Informal observations of how well the students demonstrate understanding of area and perimeter.
   2. Have students create other designs using geometric figures.

Lesson Ten: Estimating Money Amounts

A. *Daily Objectives*
   1. Concept Objectives
      a. Students will demonstrate understanding of mathematical concepts.
      b. Students will understand how to display mathematical information in a variety of ways.
      c. Students will understand how to communicate the reasoning used when solving mathematical problems.
   2. Lesson Content
      a. Grade 3: Add and subtract amounts of money. (p. 79)
      b. Grade 3: Mentally estimate a sum. (p. 79)
      c. Grade 4: Add and subtract with decimals to two places. (p. 101)
      d. Grade 5: Estimate sums and differences by rounding (p. 124)
      e. Grade 6: Solve problems with multiple steps. (p. 149)
   3. Skill Objectives
      a. Students will round numbers to the nearest dollar amount.
      b. Students will estimate the total of several items.
      c. Students will add dollar amounts to find the actual total of several items.
      d. Students will compare actual price and an estimate.

B. *Materials*
   1. Select the Appendix V that coincides with your grade - one copy per student
   2. Appendix W: Estimation Answer Key - one copy for the teacher

C. *Key Vocabulary*
   1. Estimation - make an approximate calculation
   2. Rounding - express a number to the nearest given place

D. *Procedures/Activities*
   1. Draw eight items on the board.
   2. Put a price under each item.
   3. Create a game show atmosphere describing a prize package of two of the items. Ask students to estimate the total of the two items.
   4. If needed, review rounding prices to the nearest dollar.
   5. Repeat with a few combinations of items.
   6. Give a combination of items and have students come up with an estimate.
   7. Ask students to add the prices for the actual total.
   8. Compare the estimate and the actual total.

9. Explain to your class the need to put the larger number on the top when subtracting to find the difference between the estimate and the actual price.
10. Go over a few examples.
11. Pass out Appendix V.
12. Give them time to work on the paper on their own.
13. Go over the answers together.

E. *Assessment/Evaluation*
1. Informal observations of how well the students demonstrate understanding of estimation.
2. Evaluate Appendix V.

VI. CULMINATING ACTIVITY

A. Have a math competition with facts and concepts.
B. Do a math treasure hunt in a newspaper.
C. Have students create a bulletin board for a math concept.

VII. HANDOUTS/WORKSHEETS

A. Appendix A: Overview of the Core Knowledge® Topics by Grade Level
B. Appendix B3: Fractions with Mole and Rat
C. Appendix B4: Fractions with the Knights of the Round Table
D. Appendix B5: Secret Gardens and Fractions
E. Appendix B6: Greek Fractions
F. Appendix C: Fraction Answer Key
G. Appendix D3: Mystery Numbers in Wonderland
H. Appendix D4: Icabod Crane's Mystery Numbers
I. Appendix D5: Mystery Numbers from the Trickster
J. Appendix D6: Julius Caesar's Mystery Numbers
K. Appendix E: Digit Cards
L. Appendix F: Mystery Numbers Answer Key
M. Appendix G3: Viking Ship Building
N. Appendix G4: Silk Road Trading
O. Appendix G5: Exploration Preparation
P. Appendix G6: Factory Work
Q. Appendix H: Table Completion Answer Key
R. Appendix I3: Graphing Animals
S. Appendix I4: Weather Graph
T. Appendix I5: Plant Graph
U. Appendix I6: Ocean Graph
V. Appendix J: Graph Answer Key
W. Appendix J2: Graph Answer Key Continued
X. Appendix K3: Colonial Fashion Combinations
Y. Appendix K4: Middle Ages Fashion Combinations
Z. Appendix K5: Renaissance Fashion Combinations
AA. Appendix K6: Roman Fashion Combinations
BB. Appendix L: Combining Items Answer Key
CC. Appendix M3: Astronomical Symmetry
DD. Appendix M4: Meteorological Symmetry
EE. Appendix M5: Botanical Symmetry
FF. Appendix M6: Biological Symmetry
GG. Appendix N: Symmetry Answer Key
HH. Appendix O: Mystery Shapes

II. Appendix P: Mystery Shapes Answer Key
JJ. Appendix Q: Shape Cards
KK. Appendix R: Grid Work
LL. Appendix S: Grid Work Answer Key
MM. Appendix T3: Perimeter and Area on a Roman Road
NN. Appendix T4: Perimeter and Area in an Ivory Carving
OO. Appendix T5: Perimeter and Area in a Stained Glass Window
PP. Appendix T6: Perimeter and Area of an Immigration Memorial
QQ. Appendix U: Perimeter and Area Answer Key
RR. Appendix V3: Light Supplies
SS. Appendix V4: Electricity Supplies
TT. Appendix V5: Chemistry Supplies
UU. Appendix V6: Heat Supplies
VV. Appendix W: Estimation Answer Key

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Appendix A

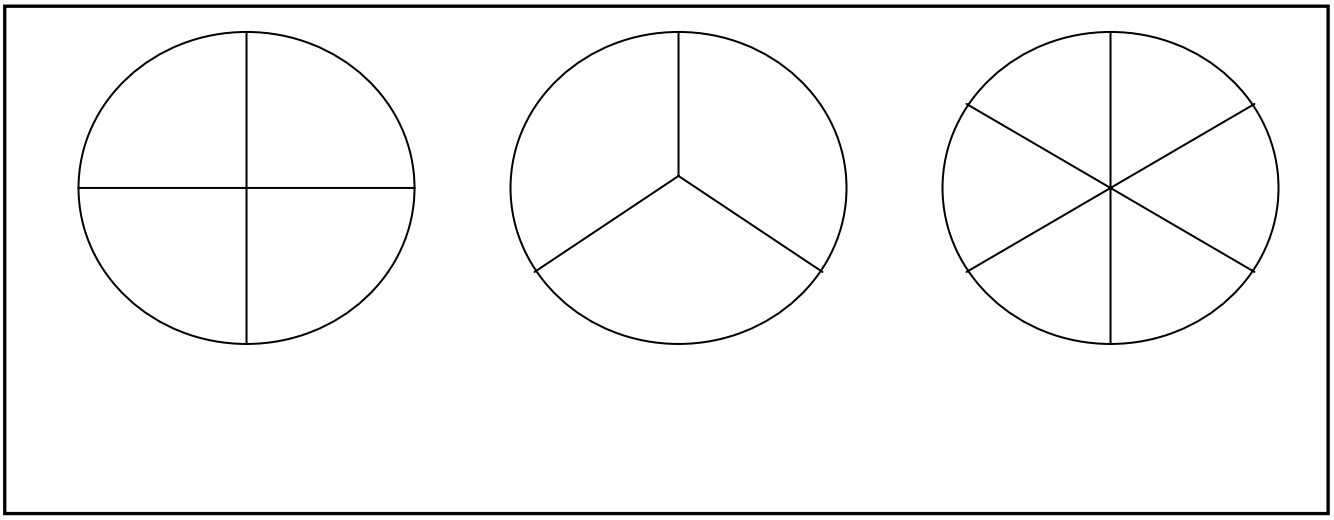
Overview of the Core Knowledge® Topics Covered by Grade

3rd Grade Topics — Lesson #	4th Grade Topics — Lesson #
Wind in the Willows - One	King Arthur - One
Alice in Wonderland - Two	The Legend of Sleepy Hollow - Two
Vikings - Three	China Dynasties - Three
Animal Classification - Four	Weather - Four
Colonies - Five	Middle Ages - Five
Astronomy - Six	Meteorology - Six
Ancient Rome - Nine	African Kingdoms - Nine
Light and Optics -Ten	Electricity - Ten
5th Grade Topics — Lesson #	**6th Grade Topics — Lesson #**
Secret Garden - One	Greek Myths - One
Trickster Stories - Two	Julius Caesar - Two
Exploration - Three	Industrialization - Three
Plants - Four	Oceans - Four
Renaissance - Five	Ancient Rome - Five
Plants - Six	Human Body - Six
England in the Golden Age - Nine	Immigration - Nine
Chemistry - Ten	Physical Change: Energy Transfer - Ten

Appendix B3

Fractions with Mole and Rat

Mole and Rat are having Mr. Toad and Badger over for a meal. Which pizza is divided to show equal parts for everyone?

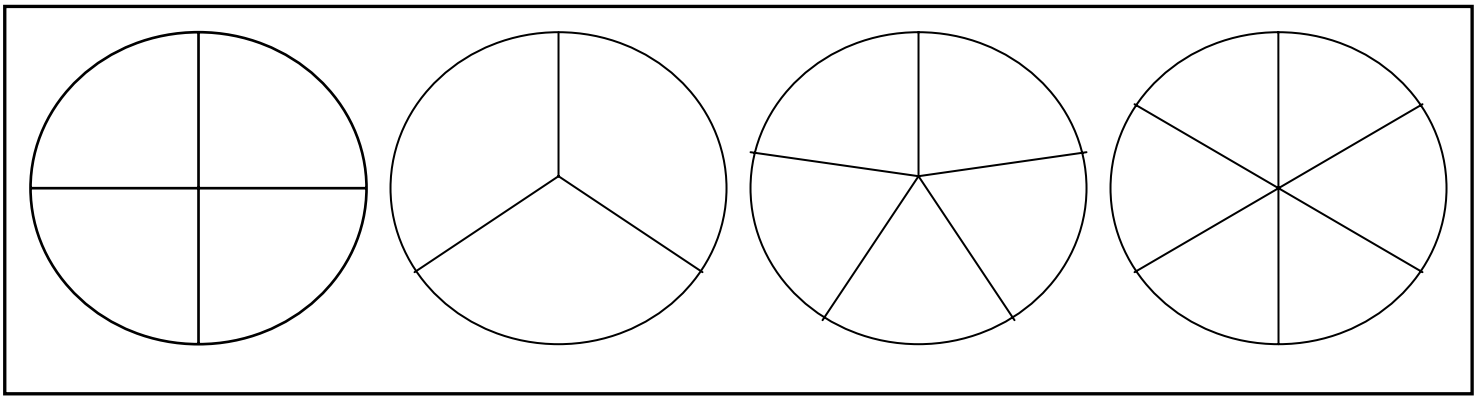


If they invite two more friends over for pizza, how should they divide it so that everyone gets an equal part? Explain your answer.

Appendix B4

Fractions with the Knights of the Round Table

If King Arthur had 5 other knights with him, which circle shows the table with each knight having an equal part?



If King Arthur had 6 other knights, how could he divide his table so that each knight had an equal part? Label each knight's part with a fraction and a decimal.

If King Arthur's table was square, how could they sit around it with each knight having equal space? Explain your answer.

Appendix B5

Secret Gardens and Fractions

Use a separate sheet of graph paper to create a garden for Mary Lennox showing 25% of the garden with roses, 50% of the garden with lilies, and 25% of the garden with pansies.

Explain what fraction of the garden contains each type of flower.

Use your graph paper to create another garden for Mary Lennox. Show 0.10 of the garden growing roses, 0.30 of the garden growing zinnias, 0.20 of the garden growing daffodils, 0.15 of the garden growing pansies, and 0.25 of the garden growing tulips.

Explain what percent of the garden contains each type of flower.

Appendix B6

Greek Fractions

All of the students in a 6th grade class were surveyed about their favorite Greek myth. Of the 24 students, 8 students chose Apollo and Daphne and 6 chose Narcissus and Echo. Four chose Orpheus and Eurydice and the remainder chose Pygmalion and Galatea.

What percentage of the students chose Apollo and Daphne and Orpheus and Eurydice? What fraction of students chose each answer? Explain how you got your answer.

According to the diagram below, what fraction of students chose each myth? Give the decimal equivalent for each fraction.

AD	AD	AD	AD	AD
OE	OE	OE	OE	OE
NE	NE	NE	NE	OE
NE	NE	NE	NE	NE
NE	PG	PG	PG	DP
DP	DP	DP	DP	DP

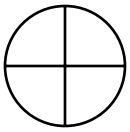
AD=Apollo and Daphne
OE= Orpheus and Eurydice
NE= Narcissus and Echo
PG= Pygmalion and Galatea
DP= Demeter and Persephone

Appendix C

Fraction Answers

Grade 3:

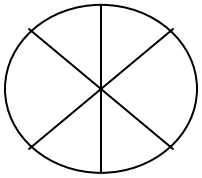
The following pizza is divided correctly:



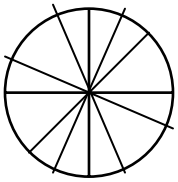
The pizza should be divided into 6 equal parts. Answers will vary, but may be similar to: There are six people, so the pizza needs to be divided into 6 equal pieces.

Grade 4:

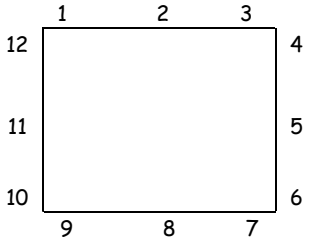
The following table is divided correctly:



The table should be divided and labeled: (1/12 or 8% each piece)



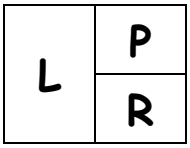
The table could be divided as follows:



Explanation: With 12 total knights and four sides of a table, each side of the table would have 3 knights.

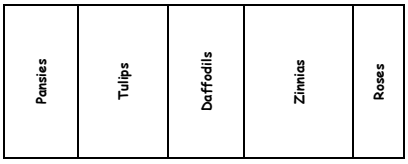
Grade 5:

Graph paper should look similar to this:



Explanation: $\frac{1}{2}$ of the garden grows lilies, $\frac{1}{4}$ of the garden grows roses, $\frac{1}{4}$ of the garden grows pansies.

The second graph should be similar to this:



Explanation: 10% of the garden contains roses, 30% of the garden contains zinnias, 20% of the garden contains daffodils, 15% of the garden grows pansies, and 25% of the garden grows tulips.

Grade 6:

33% or 1/3 of the students chose Apollo and Daphne, 25% or $\frac{1}{4}$ chose Narcissus and Echo, about 18% or 1/6 chose Orpheus and Eurydice, and the remaining six represent 25% or $\frac{1}{4}$ chose Pygmalion and Galatea. To get the percent I divided the number of students who chose the story by 24. For the fraction, I put the number of students over 24 and reduced the fraction to lowest terms.

AD=1/6 or about 16%, OE= 1/5 or 20%, NE= 1/3 or about 33%, PG= 1/10 or 10% and DP= 1/5 or about 20%.

Appendix D3

Mystery Numbers in Wonderland

The Cheshire Cat gave Alice the following digits: 4,5,2,9. Form the largest number possible using all four digits. Change them to make the smallest number possible.

Largest number possible:

Smallest number possible:

The White Rabbit told Alice to think about the following number: 5,831.

What digit is in the tens place?

What digit is in the thousands place?

What is the value of the 8?

Appendix D4

Ichabod Crane's Mystery Numbers

Ichabod Crane gave his students the following digits: 8,1,0,9. What is the largest number that can be made with the digits? What is the smallest number that can be made with the digits?

Largest number:

Smallest number:

Take the digits above and add a decimal point. Make a number that meets the following rules:

1. The digit in the tens place is divisible by 3.
2. The digit in the tenths place is odd.
3. The digit in the hundreds place is a multiple of 2.

Ichabod's class had the following clues for a mystery number:

1. All four digits are different odd numbers lower than 8.
2. The digit in the ones place has the highest value.
3. The digit in the hundreds place is one of the factors of 25.
4. The digit in the tenths place is one of the factors of 12.

Appendix D5

Mystery Numbers from the Trickster

The trickster wanted to fool some 5th graders so he gave the following clues for a mystery number.

1. All four digits are odd numbers less than 8.
2. The digit in the tens place is a prime number smaller than 5.
3. The digit in the hundredths place is a prime number greater than 5.
4. The digit in the ones place is not a prime number or a composite number.

What is the mystery number?

Try to fool the trickster by creating clues for the following number: 9,427.

Appendix D6

Julius Caesar's Mystery Numbers

Julius Caesar posed the following riddle: There is a number with the following clues:

- There are 4 digits
- None of the digits are prime
- The digit in the tens place is half the number in the tenths place
- The digit in the ones place is half way between the digits in the tens and tenths place.
- The digit in the hundredths place is the largest single digit number.

Write clues for the following number: 451.3

Create a mystery number and write clues to help a classmate guess the number.

Appendix E

Digit Cards

0	1	2
3	4	5
6	7	8
9	•	

Appendix F

Mystery Number Answer Key

Grade 3:

9,542 (largest)
2,459 (smallest)

3 is in the tens place, 5 is in the thousands place, 800 is the value of the 8.

Grade 4:

9,810 (largest)
1,089 (smallest)

890.1

517.3

Grade 5:

31.57

Accept all reasonable answers for the second question.

Grade 6:

46.89

Accept all reasonable answers for the next two questions.

Appendix G3

Viking Ship Building

When the Vikings were preparing to move to Iceland, they needed to build some ships. Complete the chart below to help the Viking shipbuilders plan how many ships to build.

Number of Ships	2	3	5	7	
Number of Passengers	24	36			96

If there are 50 Vikings, how many ships will they need to build? Show your work.

The Vikings also need to bring enough food for all the passengers. Fill in the chart below to help determine how much food the Vikings need to bring.

# of Passengers	10	20	30	40	50
Pounds of food needed	50	100			

In the space below, write out how many ships and how much food the Vikings would need for 45 people.

Appendix G4

Silk Road Trading

When traveling along the Silk Road, merchants needed to have enough goods to trade. Complete the chart below to show how much money a merchant could earn for each pound of spices he traded.

Pounds of Spices	5	8	10	11	
Money earned in coins	60	96			144

Complete the chart below to show how much money is needed to feed a family.

# of People in Family	3	4	7	8	
Money needed to feed family (in coins)		60	105		150

Using the two charts above, determine how many pounds of spices a merchant will need to sell to feed his family of 8.

Appendix G5

Exploration Preparation

Before leaving on a long journey, an explorer had to determine how much food was needed for his trip. Complete the chart below to show how much food was needed for each explorer.

Number of Days	2	3	5	7	
Ounces of Food Needed	18	27			72

If there are 14 people in the exploration party, how many pounds of food will be needed for a 7 day journey?

The explorers also needed to bring enough water. Complete the chart below to help determine how much water is needed. Hint: you will need to do a two step problem to find the pattern.

Ounces of water per day	14	30			86
Number of Explorers	1	3	5	7	10

In the space below, explain how much food and water is needed if a party of 5 explorers sets out on a 5 day journey.

Appendix G6

Factory Work

During the industrial revolution, many children worked in factories. Each child needed to produce a set number of goods during their work day. Complete the chart showing how much each child should produce in a day.

Number of Children	1	3	5	7	
Hours Worked in a Day	8	24			
Items Produced	80	240			640

One week, the factory had a breakdown. Each child was only able to produce half as many items that week. How many items did each child produce during the week? Explain how you got your answer in the space below.

A neighboring factory had adult workers. They were expected to produce more than the children. Complete the chart below to show their production level. Hint: You will need to use a 2 step problem to find the answer.

# of Workers	5	7	10	15	21
Items Produced	590	790			

Appendix H

Table Completion Answer Key

Grade 3:

2	3	5	7	8
24	36	60	84	96

50 ÷ 12 = 4 with a remainder of 2. The Vikings will need 5 ships.

10	20	30	40	50
50	100	150	200	250

45 ÷ 12 = 3 with a remainder of 9. 45 X 5 = 225. The Vikings will need 4 ships and at least 225 pounds of food.

Grade 4:

5	8	10	11	12
60	96	120	132	144

3	4	7	8	10
45	60	105	120	150

A man with a family of 8 will need 120 coins to feed his family. To earn 120 coins, he must sell 10 pounds of spices.

Grade 5:

2	3	5	7	8
18	27	45	63	72

Each person will need 63 ounces of food for the journey. With 14 people, 663 ounces or nearly 42 pounds of food are needed.

14	30	46	62	86
1	3	5	7	10

Each person will need 45 ounces of food and 46 ounces of water. For the whole journey, 225 ounces or almost 14 pounds of food are needed and 230 ounces of water.

Grade 6:

1	3	5	7	8
8	24	40	56	64
80	240	400	560	640

If a child worked 5 days and only produced half the goods, he would produce 560 items during that week.

5	7	10	15	21
190	790	1090	1590	2190

Appendix I3

Graphing Animals

While observing animals at the zoo, the 3rd graders saw 5 giraffes, 4 elephants, 6 lizards, 3 snakes, 4 eagles, 3 hawks, 6 vultures, and 5 frogs. Complete the bar graph below to show how many animals were seen. Be sure to label the x- and y-axis and give your graph a title.

16					
14					
12					
10					
8					
6					
4					
2					
	Mammals	Birds	Reptiles	Amphibians	Fish

In the box below, explain which category of animals was seen the most and which category was seen the least.

On the graph above, add seven fish.

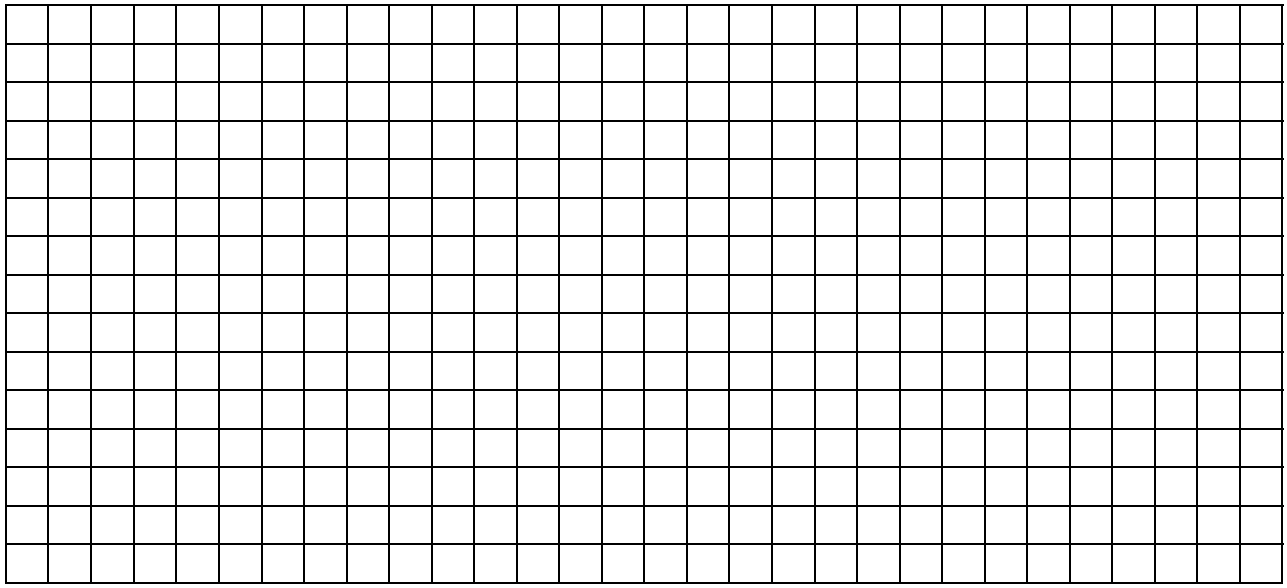
Calculate the mean, median, and mode of all the animals seen.

Mean	Median	Mode

Appendix I4

Weather Graphs

Students in 4th grade tracked the weather in February. On the 1st it was 20°. From the 1st to the 10th, the temperature increase 3 degrees each day. From the 11th to the 18th, it decreased 2 degrees each day. The 19th to the 22nd did not increase or decrease. The temperature decreased 2 degrees each day through the end of the month. Make a line graph showing the information. Be sure to label the x- and y-axis and give your graph a title.



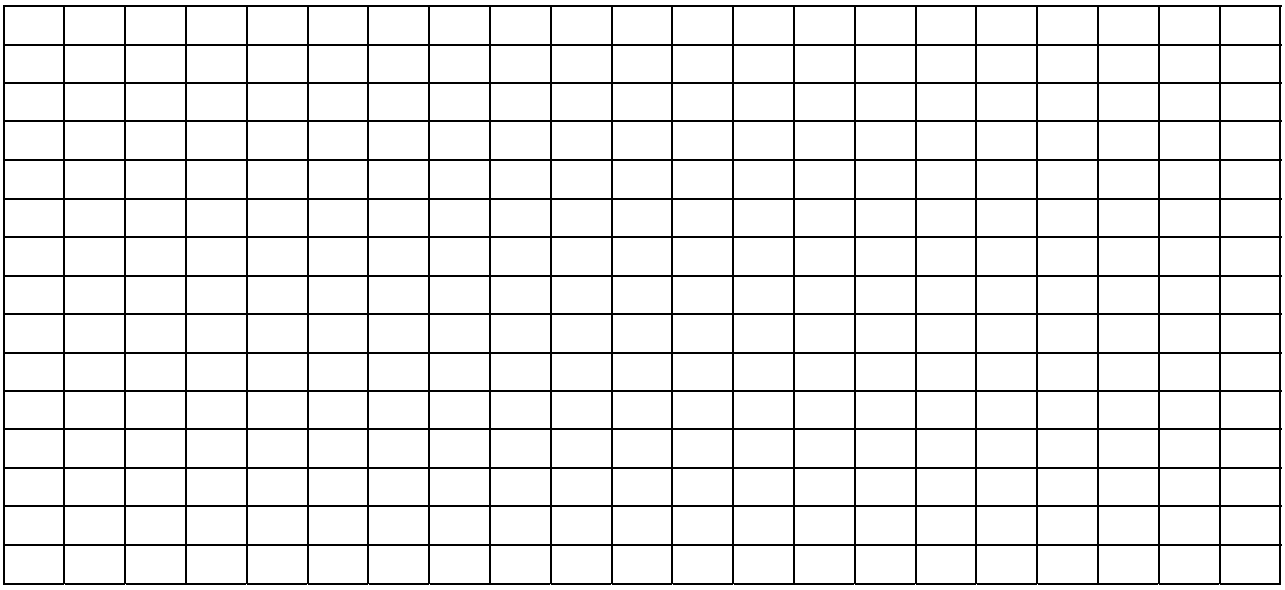
Calculate the range and the mode of all the temperatures.

Range		Mode

Appendix I5

Plant Graphs

While the 5th graders grew plants, they observed the growth of two different plants. Plant A grew 1 inch each day and Plant B grew 2 inches each day. Graph the growth of the two plants over a 10 day period. Use 2 different colors to graph each plant. Be sure to label the x- and y-axis and give your graph a title.



Plant C grew a total of 25", Plant D grew 44", Plant E grew 25", Plant F grew 6", and Plant G grew 31". Calculate the mean, median, and mode of plants A-G.

Mean	Median	Mode

Appendix I6

Ocean Graphs

Oceanographers observed the following animals during their dive: 22 octopi, 41 sharks, 37 seahorses, 33 stingrays, 22 whales, 31 manatees, and 41 eels. Graph the animals on the graph below. Be sure to label the x- and y-axis and give your graph a title.

On the graph above, add 3 stingrays, 4 manatees, and 4 seahorses.

Calculate the mean, median, and mode of all the animals seen.

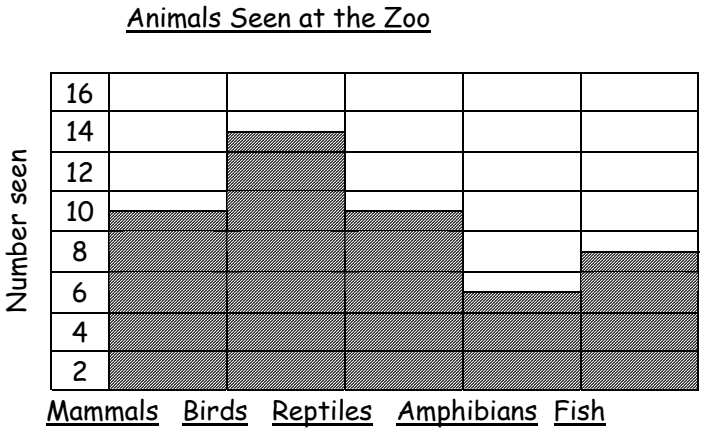
Mean	Median	Mode

Appendix J

Graph Answer Key

Some answers may vary.

Grade 3:



More birds were seen than any other animal because they saw 13 birds. No fish were seen, so fish were the least seen class of animal.

Mean- 8.6 Median- 9 Mode- 9

Grade 4:

Range: 28° Mode: 31°

Appendix J2

Graph Answer Key Continued

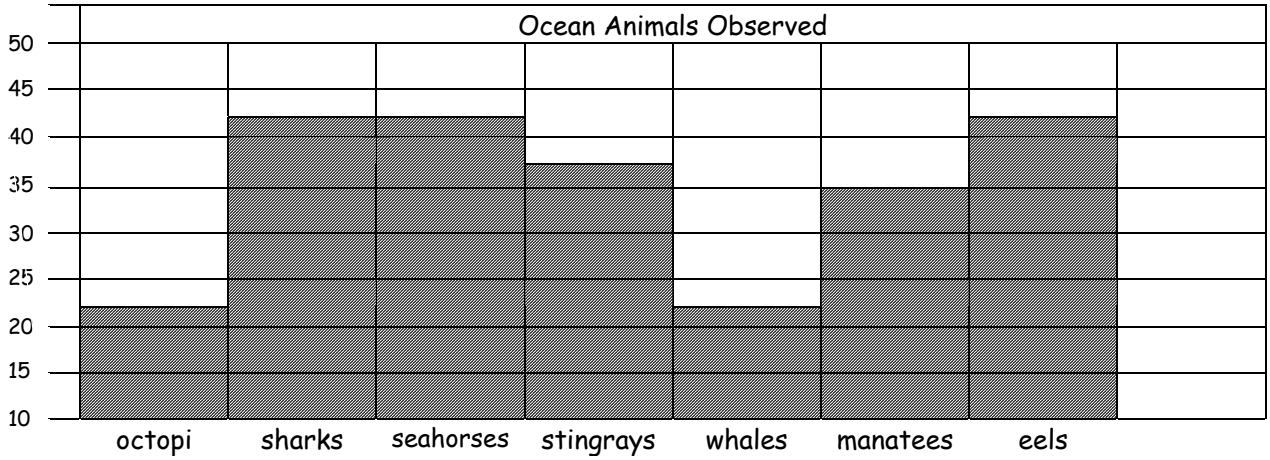
Answers may vary.

Grade 5:

Days of growth

Mean: 23 Median: 25 Mode: 25

Grade 6:



Mean: 34 Median: 36 Mode: 41

Appendix K3

Colonial Fashion Combinations

Look at the clothing choices below. How many different combinations of shirts and pants can a Colonial boy wear?

How many combinations are possible with 2 more pants added?

Appendix K4

Middle Ages Fashion Combinations

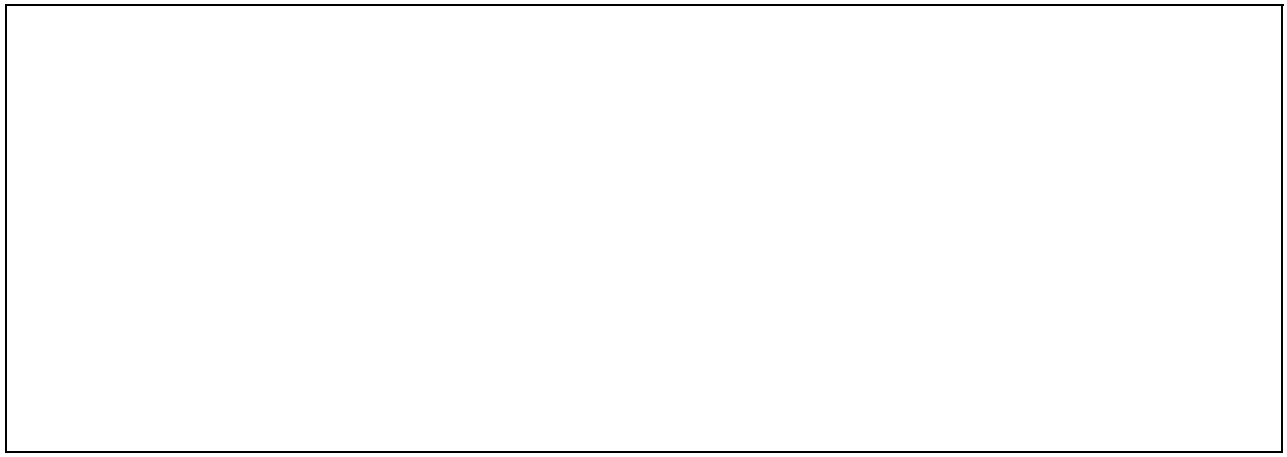
Look at the clothing choices below. How many different combinations of skirts and shirts can a princess wear?

How many combinations are possible with 1 more shirt and 1 more skirt added?

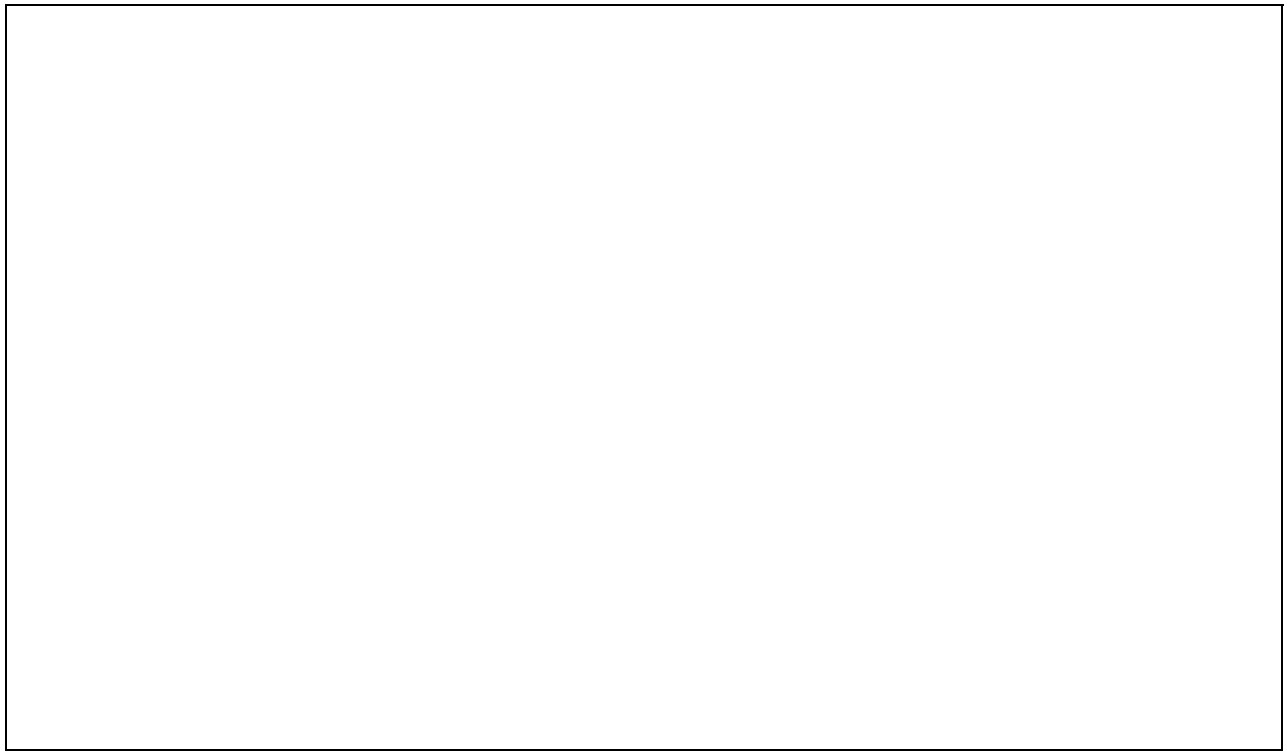
Appendix K5

Renaissance Fashion Combinations

Look at the clothing choices below. How many different outfits can a boy wear?



How many combinations are possible with 3 vests added?



Appendix K6

Roman Fashion Combinations

Look at the clothing choices below. How many different combinations of a tunic and a stola can a girl wear?

How many combinations are possible with 2 sashes added?

Appendix L

Combining Items Answer Key

Grade 3:

6 combinations.

With the extra pants added there are 12 combinations.

Grade 4:

12 combinations.

With the extra shirt and skirt added, there are 20 combinations.

Grade 5:

6 combinations.

With the vests added, there are 18 combinations possible.

Grade 6:

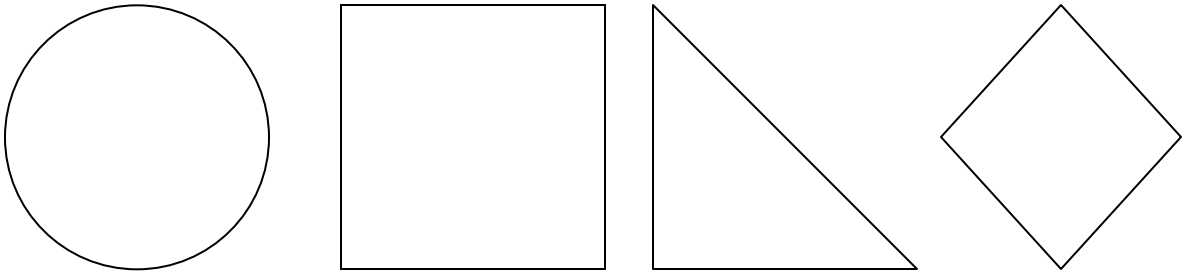
12 combinations.

With the sashes added, there are 24 possible combinations.

Appendix M3

Astronomical Symmetry

Draw a line of symmetry through the shapes that have a line of symmetry.



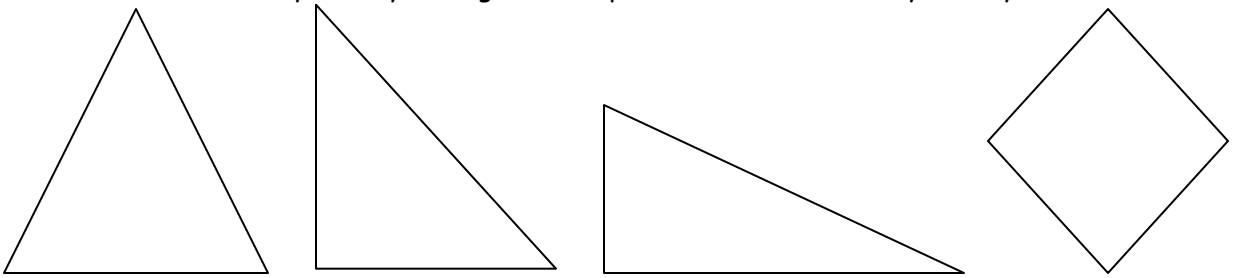
Draw an asteroid that contains a line of symmetry.

Draw a comet that does not contain a line of symmetry.

Appendix M4

Meteorological Symmetry

Draw a line of symmetry through the shapes that have a line of symmetry.



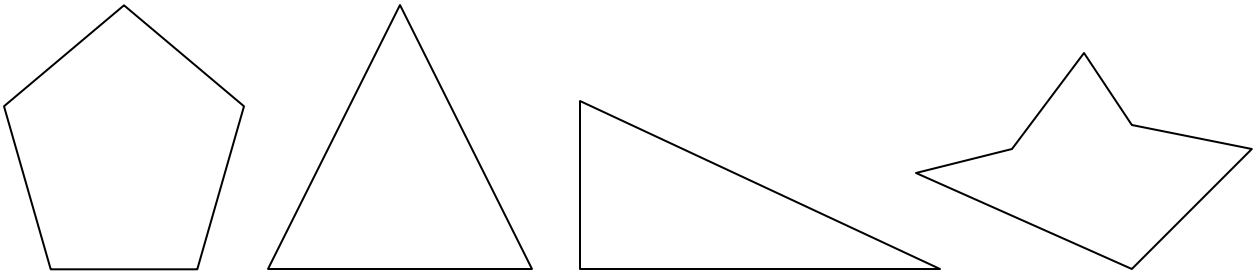
Draw a cloud that contains a line of symmetry.

Draw a cloud that does not contain a line of symmetry.

Appendix M5

Botanical Symmetry

Draw a line of symmetry through the shapes that have a line of symmetry.



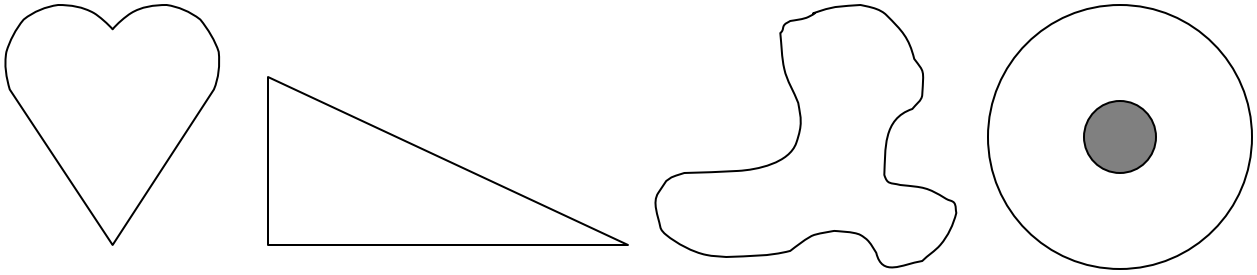
Draw a plant that contains a line of symmetry.

Draw a flower that does not contain a line of symmetry.

Appendix M6

Biological Symmetry

Draw a line of symmetry through the shapes that have a line of symmetry.



Draw a white blood cell that contains a line of symmetry.

Draw a fungi that does not contain a line of symmetry.

Appendix N

Symmetry Answer Key

Grade 3:

Accept any reasonable drawing for the asteroid and comet.

Grade 4:

Accept all reasonable cloud drawings.

Grade 5:

Accept all reasonable plant and flower drawings.

Grade 6:

Accept all reasonable cell and fungi drawings.

Appendix O

Mystery Shapes

Find the mystery shape using the following clues:

1. There are four sides.
2. Two of the sides are parallel.
3. Two of the sides are not parallel.
4. One parallel line segment is shorter than the other.
5. The two lines that are not parallel are equal in length.

Draw the shape in the box below:

Draw a shape with at least two parallel lines, and two perpendicular lines.

Think of a shape and write clues to describe it.

Appendix P

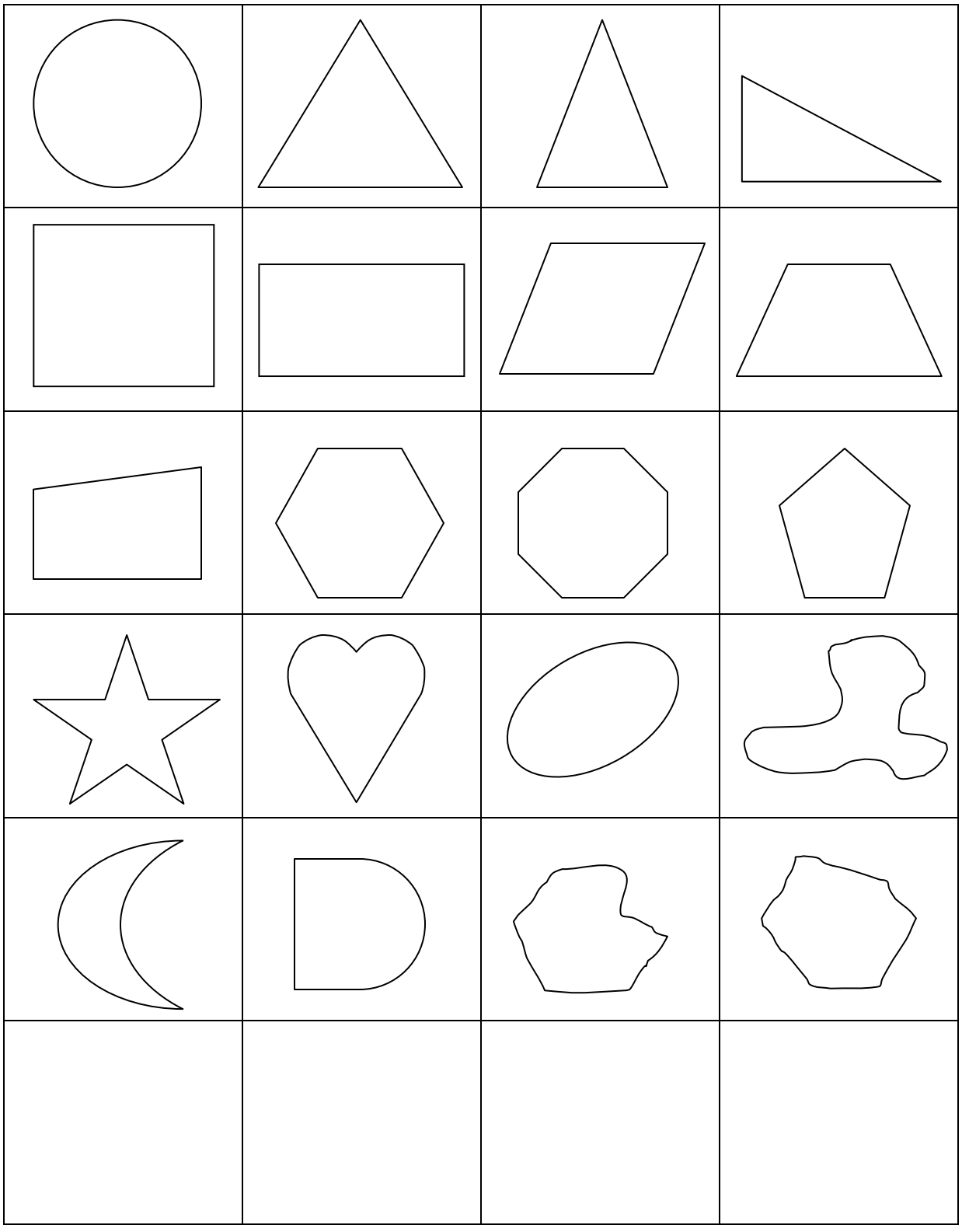
Mystery Shapes Answer Key

The shape should be similar to the shape below:

Accept any reasonable answer for the next questions.

Appendix Q

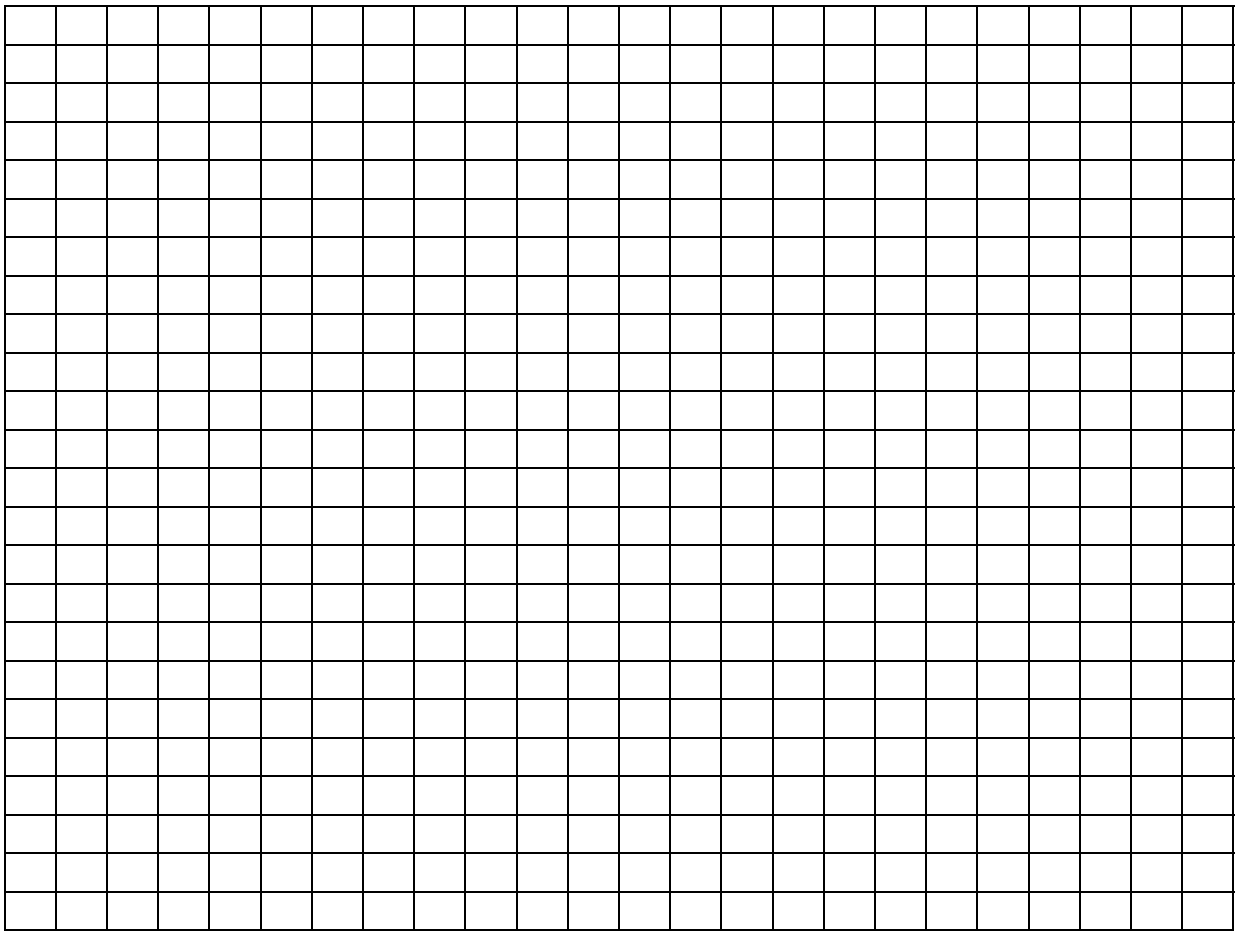
Shape Cards



Appendix R

Grid Work

Use the grid to answer the following questions.

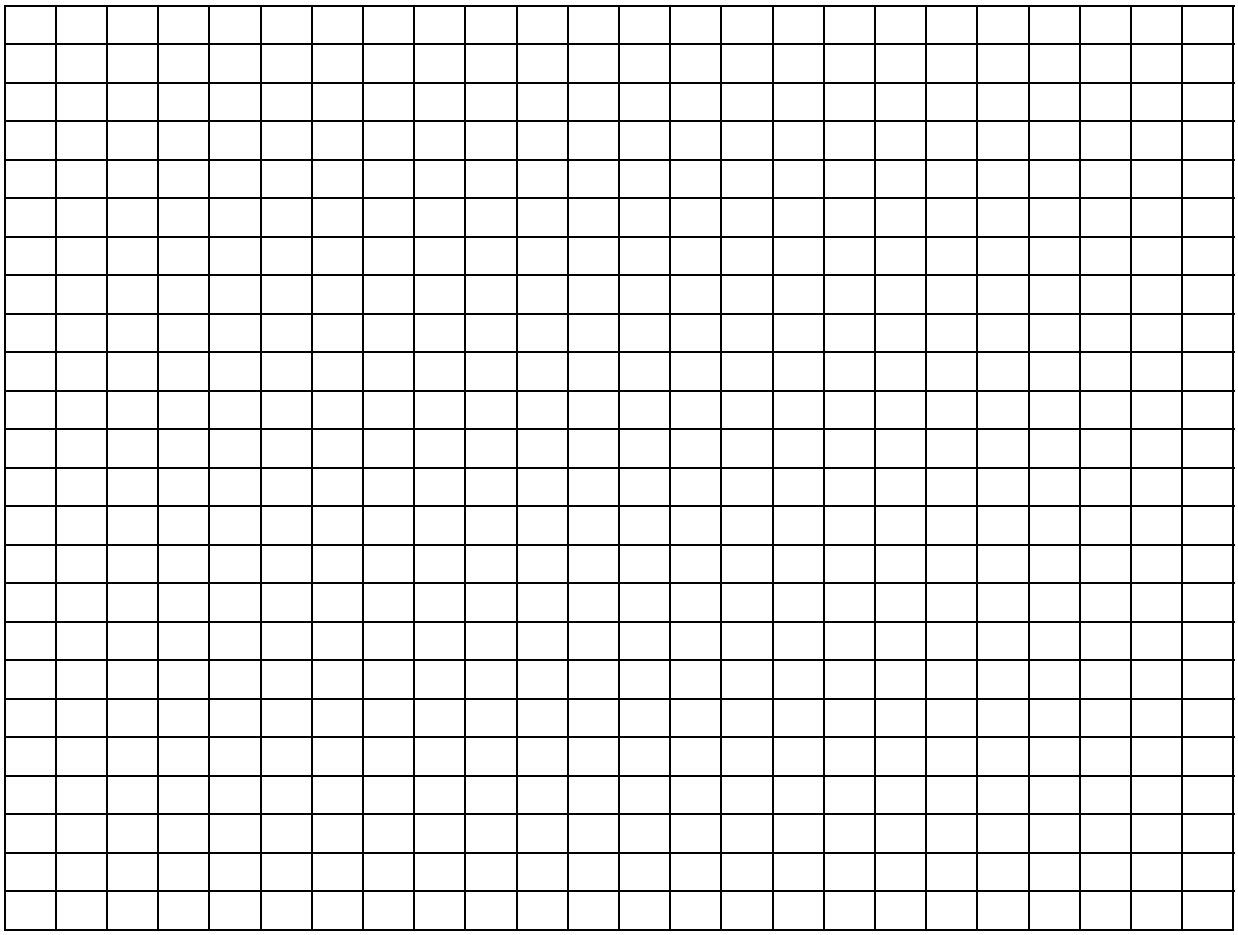


1. What letter is found at (1, 4)?
2. What letter is found at (-4, 6)?
3. What coordinates would you use to find letter L?
4. What coordinates would you use to find letter M?
5. Put the letter Q at (-3, 7).
6. Put the letter S at (4, -3)

Appendix S

Grid Work Answer Key

1. R
2. T
3. (-2,6)
4. (3,-4)



Appendix T3

Perimeter and Area on a Roman Road

Look at the road below. What is the perimeter of the entire section?

Perimeter: _____

What is the area of the gravel and sand area only? Explain how you got your answer?

Design your own road with a perimeter of 36 inches. Explain how you got your answer.

Appendix T4

Perimeter and Area in Ivory Carvings

Look at the ivory carving below. Determine the area and perimeter. Explain how you got your answer.

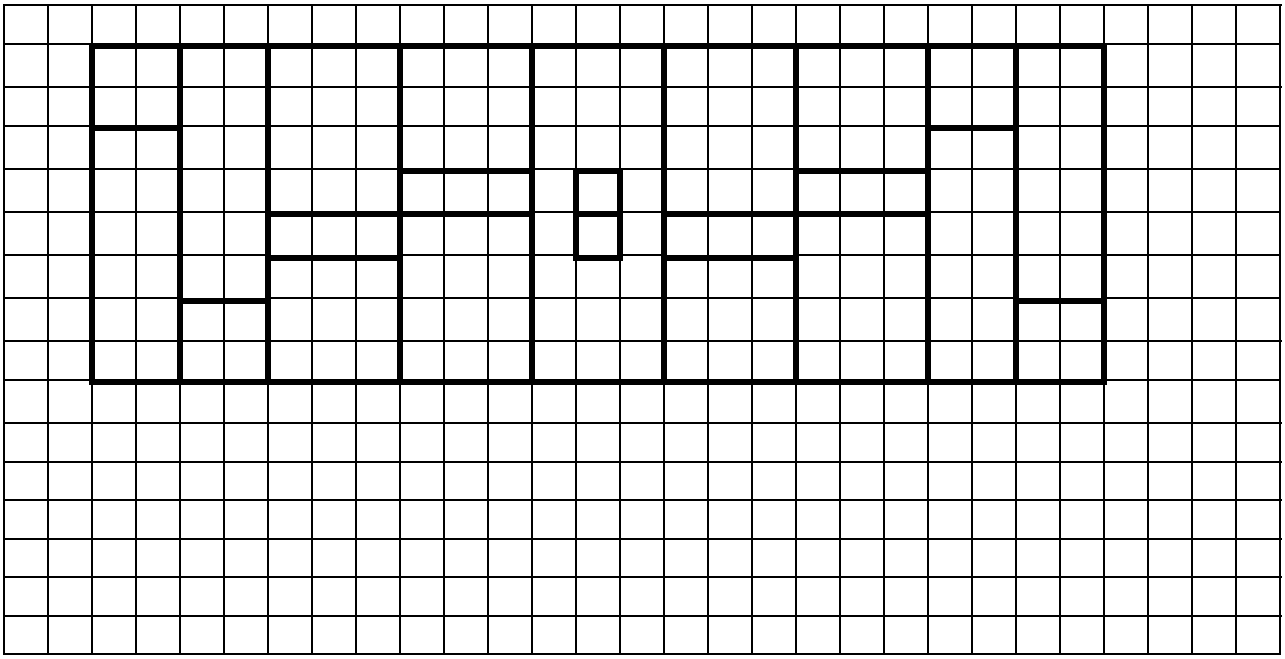
Design your own ivory carving using only shapes with a perimeter of 12 cm.

Draw a design for an ivory carving that contains 1 set of parallel lines, 1 line perpendicular to the parallel lines, and a final line that is not perpendicular to any lines.

Appendix T5

Perimeter and Area in Stained Glass Windows

Look at the grid below.



Use the following guideline to color the stained glass window.

Blue- any shape with a perimeter between 4 and 8
Red- any shape with a perimeter between 9 and 12
Yellow- any shape with a perimeter between 13 and 15
Green- any shape with a perimeter above 16

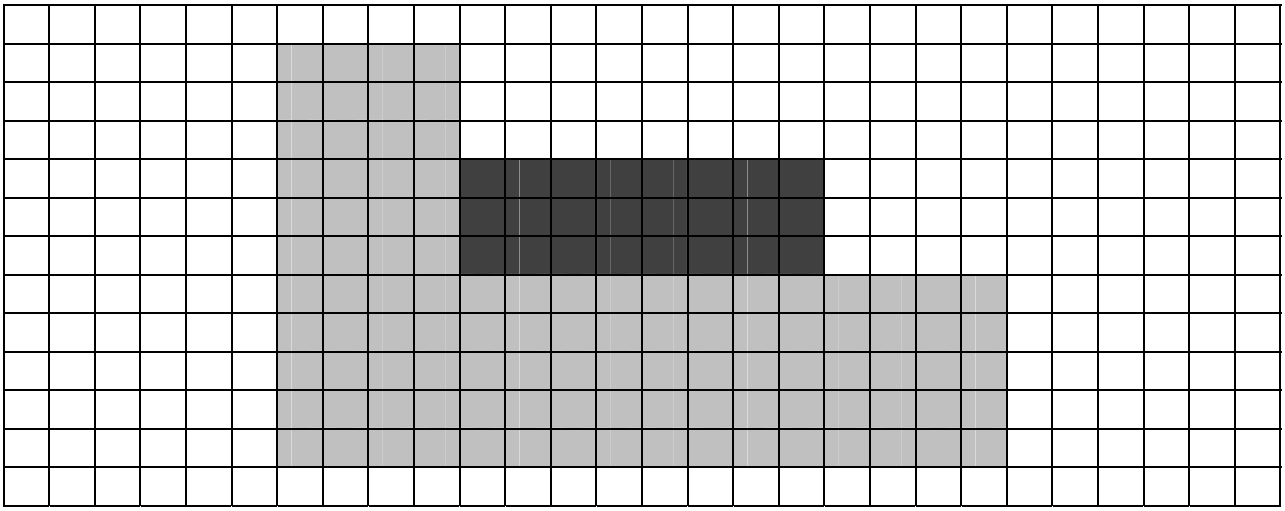
In the box below explain how you find perimeter.

On the back of your paper, design a stained glass window with shapes that contain no perpendicular lines.

Appendix T6

Perimeter and Area of an Immigration Memorial

A memorial was designed to recognize the importance of the many immigrants who settled America.



The gray squares represent the bricks surrounding the memorial. The bricks represent the many different countries that have sent immigrants to America. How many bricks are needed to complete the area around the memorial? Be sure to show how you got your answer.

What is the area and perimeter of the area that needs to be added? Show your work.

Appendix U

Perimeter and Area Answer Key

Grade 3:

48 inches.

45 inches.

Accept any drawing with a perimeter of 36 inches.

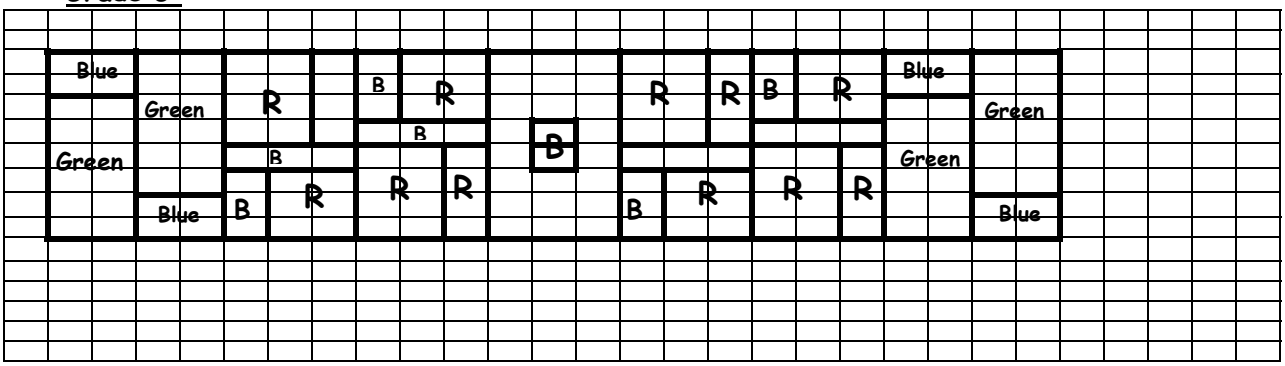
Grade 4:

The perimeter is 28 inches and the area is 42 inches.

Accept any reasonable answer/drawing.

The shapes should look similar to the following shape:

Grade 5:



To find perimeter, you need to measure the distance around a shape.

Accept any reasonable answer for the final drawing.

Grade 6:

48 more bricks are needed. There are 8 rows of 3 missing above the memorial and 4 rows of 6 next to the memorial. If you multiply 8 X 3 and 4 X 6, and then add them, you get 48 bricks.

The area is 48 and the perimeter is 36.

Appendix V3

Light Supplies

Use the prices in the chart for the following questions:

Light Bulbs	$2.22		Cellophane	$1.78
Lenses	$4.56		Mirrors	$3.99
Magnifying Glass	$8.22		Flashlights	$9.51

Estimate how much money you will need to buy 3 flashlights, 2 pieces of cellophane, and 1 lens.

Estimate how much money you will need to buy 3 light bulbs, 1 magnifying glass, and 8 mirrors. Compare the estimate and the actual price.

Appendix V4

Electricity Supplies

Use the prices in the chart for the following questions:

Light Bulbs	$3.98		Alligator clips	$2.31
Wires	$1.22/yard		Batteries	$5.26
Large nails	$3.88		Potato	$0.82

Estimate how much money you will need to buy 3 light bulbs, 2 yards of wire, and 4 batteries.

Estimate how much money you will need to make a potato battery: 2 light bulbs, 4 alligator clips, 6 feet of wire, 1 nail and a potato. Compare the estimate and the actual total.

Appendix V5

Chemistry Supplies

Use the prices in the chart for the following questions:

Beakers	$8.45		Tongs	$3.22
Chemicals	$5.87/item		Beaker Holder	$4.99
Litmus paper	$1.91		Bunsen Burner	$12.84

Estimate how much money you will need to buy 5 beakers, 3 chemicals, and a Bunsen burner.

Estimate how much money you will need to buy 3 beakers, 3 beaker holders, 10 sheets of litmus paper, and 2 tongs. Compare the estimate and the actual price.

Appendix V6

Heat Supplies

Use the prices in the chart for the following questions:

Bunsen Burner	$15.83		Pans	$17.24
Chemicals	$3.28/item		Beakers	$8.99
Beaker Holders	$8.22		Flashlights	$9.51

Estimate how much money you will need to buy 3 beakers, 9 chemicals, 2 flashlights, and a Bunsen Burner.

Estimate how much money you will need to buy 2 Bunsen Burners, 2 pans, 8 chemicals, and 4 flashlights. Compare the estimate and the actual price.

Appendix W

Estimation Answer Key

Grade 3:

About $39.00.

The estimate is $46. The actual price is $46.80. The difference is $0.80.

Grade 4:

About $34.00.

The estimate is $23.00, the actual price is $23.50. The difference is $0.50.

Grade 5:

About $71.00.

The estimate is $66.00, the actual price is $65.86. The difference is $0.14.

Grade 6:

About $90.00.

The estimate is $130, the actual price is $130.42. The difference is $0.42.