MARK TWAIN MEDIA PUBLISHING COMPANY
CD-404221

COMMON CORE MATH WORKOUTS

grade 7

Skills, Practice, and Problem-Solving Applications

Common Core ALIGNED State Standards

CORRELATED carsondellosa.com

- Geometry
- Ratio and Proportional Relationships
- The Number System
- Expressions and Equations
- Statistics and Probability

Table of Contents
With Common Core State Standard Correlations

The corresponding Common Core State Standard for Mathematics is listed at the beginning of each exercise below.

Table of Contents
With Common Core State Standard Correlations (cont.)

Introduction to the Teacher

The time has come to raise the rigor in our children's mathematical education. The Common Core State Standards were developed to help guide educators and parents on how to do this by outlining what students are expected to learn throughout each grade level. The bar has been set high, but our students are up to the challenge.

This worktext is designed to help teachers and parents meet the challenges set forth by the Common Core State Standards. It is filled with skills practice and problem-solving practice exercises that correspond to each standard for mathematics. With a little time each day, your students will become better problem solvers and will acquire the skills they need to meet the mathematical expectations for their grade level.

Each page contains two "workouts." The first workout is a skills practice exercise, and the second is geared toward applying that skill to solve a problem. These workouts make great warm-up or assessment exercises. They can be used to set the stage and teach the content covered by the standards. They can also be used to assess what students have learned after the content has been taught.

We hope that this book will help you help your students build their Common Core Math strength and become great problem solvers!

Karise Mace and Keegen Gennuso

Name: _____ Date: _____

GEOMETRY – Scale Drawings

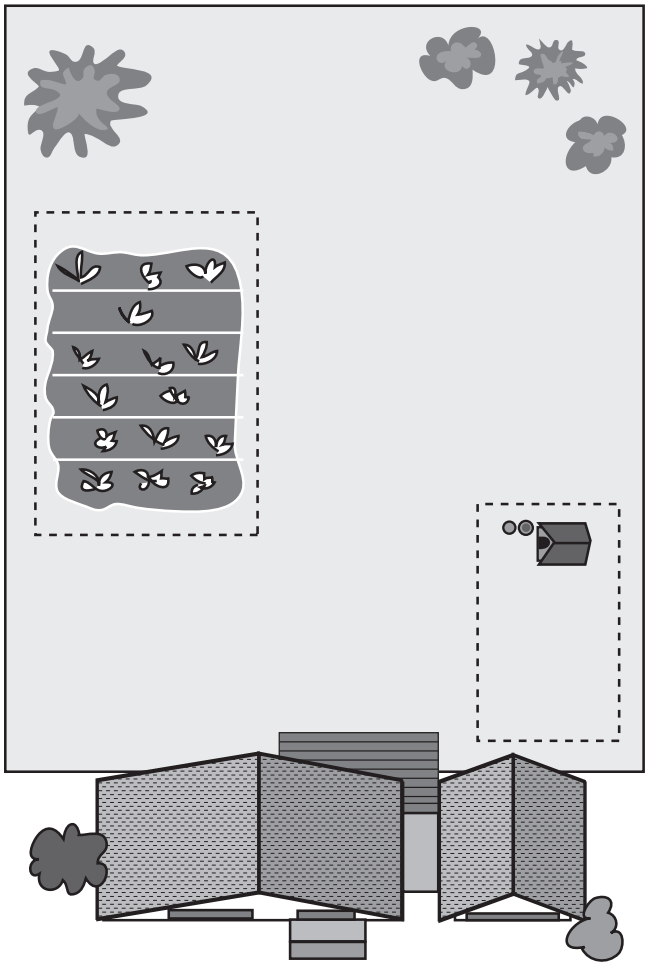
CCSS Math Content 7.G.A.1: Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.

SHARPEN YOUR SKILLS:

A scale drawing of Shen's backyard is shown. Each centimeter in the drawing represents 8 feet. What is the actual area of Shen's backyard? Show your work.

_____

$10\frac{1}{2}$ cm



$8\frac{3}{4}$ cm

APPLY YOUR SKILLS:

On your own paper, create a new scale drawing of Shen's backyard where $\frac{1}{2}$ inch represents 7 feet. What should the length and width of the scale drawing of the backyard be? Show your work.

_____

Name: _____ Date: _____

RATIOS AND PROPORTIONAL RELATIONSHIPS – Constant of Proportionality

CCSS Math Content 7.RP.A.2b: Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

SHARPEN YOUR SKILLS:

1. Identify the constant of proportionality for the quantities given in the table. Explain how you determined your answer.

x	2	3	6	10	14
y	16	24	48	80	112

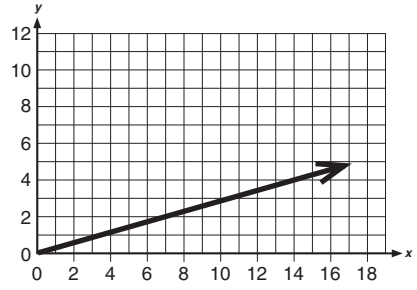
_____

_____

_____

_____

2. Identify the constant of proportionality for the quantities given in the graph. Explain how you determined your answer.



_____

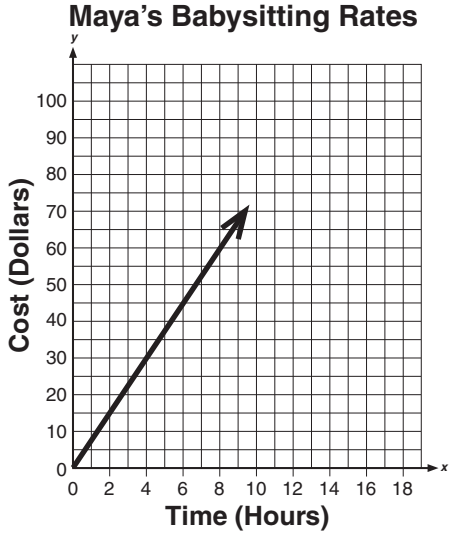
_____

_____

_____

_____

APPLY YOUR SKILLS:



Use the graph to determine the amount Maya charges to babysit for one hour. Explain how you determined your answer.

_____

_____

_____

_____

_____

Name: _____ Date: _____

RATIOS AND PROPORTIONAL RELATIONSHIPS – Constant of Proportionality

CCSS Math Content 7.RP.A.2b: Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

SHARPEN YOUR SKILLS:

Identify the constant of proportionality in the given equation.

1. $y = 2x$ _____

2. $y = \frac{5}{3}x$ _____

3. A 5-pound bag of apples costs $4.80. What is the price for one pound of apples? Show your work.

_____

4. A crayon factory can make about 35 million crayons in 7 days. How many crayons can the factory make in one day? Show your work.

_____

APPLY YOUR SKILLS:

A $2\frac{1}{2}$-pound bag of white grapes costs $4.70. A $3\frac{1}{4}$-pound bag of red grapes costs $5.98. Which bag of grapes is a better deal? Explain how you determined your answer.

_____

_____

_____

_____

Name: _____ Date: _____

RATIOS AND PROPORTIONAL RELATIONSHIPS – Proportional Relationships

CCSS Math Content 7.RP.A.2c: Represent proportional relationships by equations.

SHARPEN YOUR SKILLS:

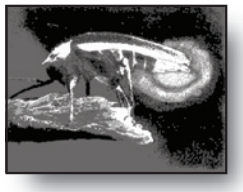
Jody is observing fireflies. He catches one and places it in a jar. Then he counts the number of times it flashes in one minute and two minutes. Once he has recorded his observations, Jody releases the firefly, catches another, and counts the number of times it flashes in one and two minutes. He continues this process until he has observed 6 different fireflies. The tables show the relationship between time and the number of flashes for each of Jody's fireflies.

Table 1

Firefly	A	B	C	D	E	F
Time (minutes)	1	1	1	1	1	1
Number of flashes	15	13	18	19	12	14

Table 2

Firefly	A	B	C	D	E	F
Time (minutes)	2	2	2	2	2	2
Number of flashes	28	26	32	30	25	29



1. Write an equation that represents the relationship between time, *t*, and the number of flashes, *f*, for each of the fireflies. Use the data from Table 1.

_____

_____

2. Write an equation that represents the relationship between time, *t*, and the number of flashes, *f*, for each of the fireflies. Use the data from Table 2.

_____

_____

APPLY YOUR SKILLS:

A recipe for granola calls for 2 cups of raisins and 3 cups of sunflower seeds. Mr. Stahler asks his students to write an equation that represents the relationship between raisins and sunflower seeds. Two students' equations are shown below. Do these equations represent the same relationship? Explain how you determined your answer.

Student 1: $s = \frac{3}{2}r$ **Student 2:** $r = \frac{2}{3}s$

_____

_____

_____

_____

Name: _____ Date: _____

EXPRESSIONS AND EQUATIONS – Manipulating Linear Expressions

CCSS Math Content 7.EE.A.1: Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

SHARPEN YOUR SKILLS:

1. Factor the expression $\frac{5}{24}x + \frac{10}{36}$ completely. _____

2. Expand the expression $\frac{4}{9}\left(\frac{2}{5}b - \frac{3}{8}\right)$. _____

3. Factor the expression $\frac{6}{45} - \frac{8}{63}y$ completely. _____

4. Expand the expression $-\frac{2}{3}\left(\frac{8}{9} - \frac{2}{5}a\right)$. _____

APPLY YOUR SKILLS:

Is there more than one way to factor the expression $\frac{24}{32}a + \frac{48}{56}$? Support your answer with mathematics.

_____

_____

_____

_____

_____

Answer Keys

GEOMETRY

Scale Drawings (pg. 1)

SHARPEN YOUR SKILLS:

Length of Shen's Backyard:

$8 \text{ ft/cm} \times 10\frac{1}{2} \text{ cm} = \frac{8 \text{ ft}}{1 \text{ cm}} \times \frac{21 \text{ cm}}{2} = \frac{168 \text{ ft}}{2} = 84 \text{ ft}$

Width of Shen's Backyard:

$8 \text{ ft/cm} \times 8\frac{3}{4} \text{ cm} = \frac{8 \text{ ft}}{1 \text{ cm}} \times \frac{35 \text{ cm}}{4} = \frac{280 \text{ ft}}{4} = 70 \text{ ft}$

Actual Area of Shen's Backyard:

$A = l \times w$ $\quad 84 \text{ ft} \times 70 \text{ ft} = 5{,}880 \text{ ft}^2$

The actual area of Shen's backyard is 5,880 square feet.

APPLY YOUR SKILLS:

Length of Scale Drawing of Shen's Backyard:

$\frac{\frac{1}{2} \text{ in.}}{7 \text{ ft}} \times \frac{84 \text{ ft}}{1} = \frac{42 \text{ in.}}{7} = 6 \text{ in.}$

Width of Scale Drawing of Shen's Backyard:

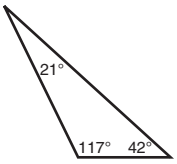
$\frac{\frac{1}{2} \text{ in.}}{7 \text{ ft}} \times \frac{70 \text{ ft}}{1} = \frac{35 \text{ in.}}{7} = 5 \text{ in.}$

The scale drawing should be 6 inches by 5 inches.

Drawing and Constructing Geometric Shapes (pg. 2)

SHARPEN YOUR SKILLS:

The triangles that students draw will vary because they may choose different side lengths. However, all of the triangles should have one angle that measures 21°, one that measures 42°, and one that measures 117°.

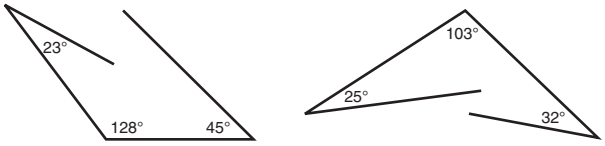


APPLY YOUR SKILLS:

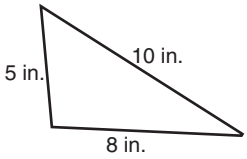
1. This statement is *never* true. If given three angles whose sum is 180°, you can draw many different triangles, as the size of the angle has no affect on the length of the sides. For example, the triangles below have angles with the same measures, but their sides are different lengths.

2. This statement is *always* true. If given three angles whose sum is 180°, you can draw many different triangles, as the size of the angle has no affect on the length of the sides. For example, the triangles below have angles with the same measures, but their sides are different lengths.

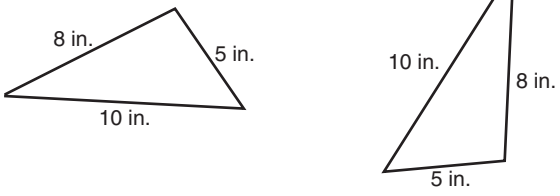
3. This statement is *always* true. If the sum of the measures of the three angles is less than or greater than 180°, then no triangle can be drawn using those three angles. For example, the figures below show that if the sum of the angles is greater than 180° or less than 180°, no triangle is formed.



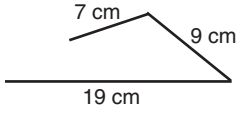
4. This statement is *always* true. If the sum of the lengths of any two sides is greater than the length of the third side, then one unique triangle can be drawn. For example, in the triangle below, the sum of any two sides is greater than the length of the third side.



5. This statement is *never* true. If the sum of the lengths of any two sides is greater than the length of the third side, then one unique triangle can be drawn. For example, the triangles below have the same side lengths. Although they have different orientations, they are congruent.



6. This statement is *always* true. If the sum of the lengths of any two sides is less than the length of the third side, then no triangle can be drawn. For example, the sum of 7 centimeters and 9 centimeters is 16 centimeters, which is less than 19 centimeters. The figure below shows that a triangle cannot be formed with these side lengths.



Cross-Sections of Solids (pg. 3)

SHARPEN YOUR SKILLS:

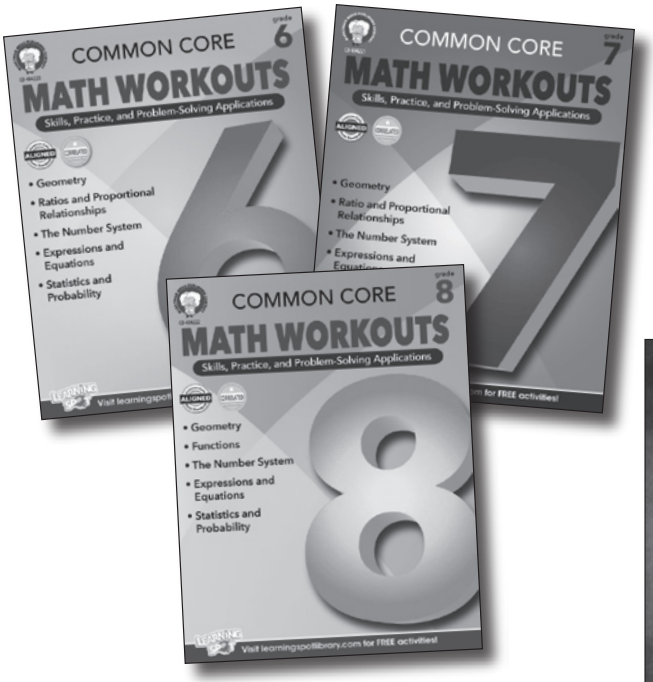
Figure	Rect. Prism	Rect. Pyramid	Cylinder	Tri. Pyramid
Plane perpendicular to shaded base(s)				

About the Authors

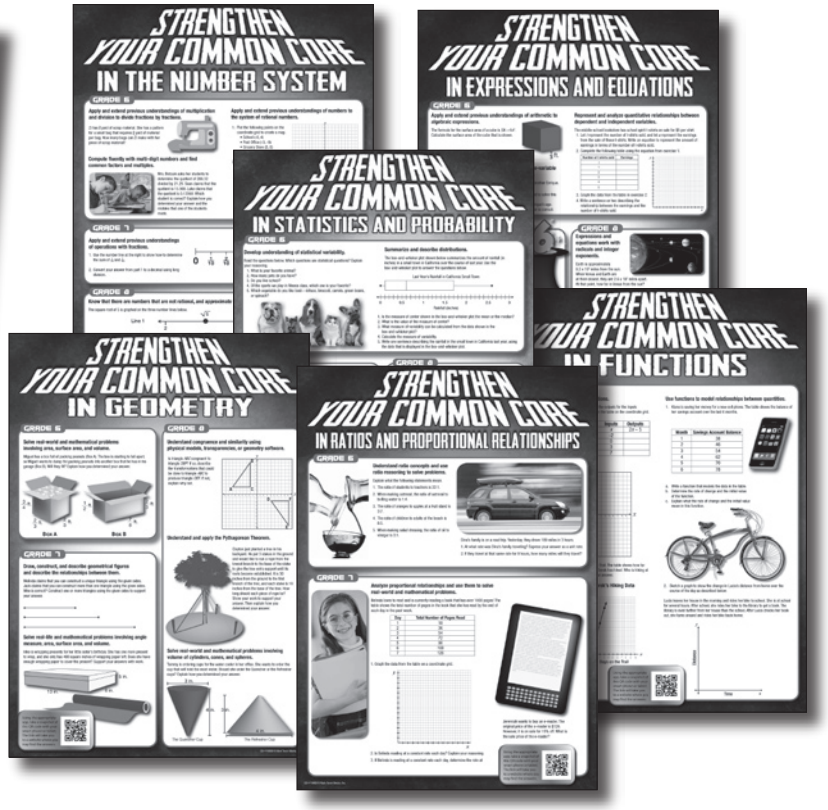
Karise Mace is the founder and president of Mathematical Expressions, a company dedicated to providing support to mathematics educational companies in the areas of writing, editing, curriculum development, project management, and textbook alignment. Mace has a Bachelor's Degree in mathematics from Greenville College in Greenville, Illinois, and a Master's Degree in secondary mathematics education from the University of Kentucky in Lexington, Kentucky. She is a certified high school mathematics educator in Pennsylvania. She has five years teaching experience and over 10 years experience in mathematics text and software publishing.

Keegen Gennuso has worked as a contracted editor for Mathematical Expressions for the past seven years. She has extensive tutoring experience in many levels of math and science, and she previously worked in the mathematics text and software publishing industry for seven years. Gennuso has a Bachelor's Degree in chemistry from Penn State University.

To see these products and more, visit your nearest teacher bookstore or go online at **www.carsondellosa.com** and click on the Mark Twain Media logo or Shop by Brand.



Common Core Math Workouts
CD-404220 Grade 6
CD-404221 Grade 7
CD-404222 Grade 8



CD-410093 Strengthen Your Common Core in Mathematics Bulletin Board Set

This product has been correlated to Common Core State, National, and Canadian Provincial standards.
Visit **www.carsondellosa.com** to search and view its correlations to your standards, or call 800-321-0943.

Look for these Mark Twain Media books for grades 4–8+ at your local teacher bookstore or online at www.carsondellosa.com.

SCIENCE

CD-404025 **Science Tutor: Chemistry**
CD-404034 **Science Tutor: Life Science**
CD-404045 **Science Tutor: Physical Science**
CD-404046 **Science Tutor: Earth & Space Science**
CD-404092 **Jumpstarters for Life Science**
CD-404093 **Jumpstarters for Meteorology**
CD-404094 **Strengthening Physical Science Skills**
CD-404097 **Introducing Physical Science Gr. 4–6**
CD-404098 **Forensic Investigations**
CD-404102 **Daily Skill Builders: Physical Science**
CD-404103 **Daily Skill Builders: General Science**
CD-404104 **Developing Science Writing Skills**
CD-404105 **Understanding the Human Body**
CD-404107 **Jumpstarters for Properties of Matter**
CD-404108 **Jumpstarters for Science Vocabulary**
CD-404109 **Science Vocabulary Building: Gr. 3–5**
CD-404110 **Science Vocabulary Building: Gr. 5–8**
CD-404114 **Confusing Science Terms**
CD-404117 **Alternative Energy Experiments**
CD-404118 **Scientific Method Investigation**
CD-404119 **Chemistry**
CD-404120 **Simple Machines**
CD-404121 **Light and Sound**
CD-404122 **Electricity and Magnetism**
CD-404123 **Geology**
CD-404124 **Meteorology**
CD-404125 **Astronomy**
CD-404134 **Jumpstarters for Energy Technology**
CD-404141 **Using STEM to Investigate Issues in Alternative Energy**
CD-404142 **Using STEM to Investigate Issues in Food Production**
CD-404143 **Using STEM to Investigate Issues in Managing Waste**
CD-404151 **Scientific Theories, Laws, & Principles**
CD-404163 **100+ Science Experiments for School and Home**
CD-404164 **Ooey Gooey Science**
CD-404165 **Science Games and Puzzles**
CD-404185 **Elements and the Periodic Table**

SOCIAL STUDIES

CD-1828 **Civil War: The War Between the States**
CD-1829 **Greek and Roman Mythology**
CD-1835 **World War II**
CD-1873 **Seven Wonders of the World and More**
CD-1899 **Holocaust**
CD-1309 **Elections**
CD-1318 **Basic Economics**
CD-1326 **Personal Finance**
CD-1336 **U.S. History Maps**
CD-1385 **Amazing Facts in U.S. History**
CD-1550 **We the People: Government in America**
CD-1572 **Understanding Investment/Stock Market**
CD-1584 **Amazing Facts in World History**
CD-404026 **Jumpstarters for U.S. History**
CD-404031 **Jumpstarters for the U.S. Constitution**
CD-404036 **U.S. History: People Who Helped Make the Republic Great: 1620–Present**
CD-404037 **U.S. History: Inventors, Scientists, Artists, & Authors**
CD-404039 **U.S. History: People and Events: 1607–1865**
CD-404040 **U.S. History: People and Events: 1865–Present**
CD-404080 **Jumpstarters for World History**
CD-404096 **Economic Literacy**
CD-404099 **Jumpstarters for U.S. Government**
CD-404100 **Understanding the U.S. Constitution**
CD-404129 **Jumpstarters for African-American History**
CD-404136 **U.S. Presidents: Past & Present**
CD-404137 **Exploration, Revolution, and Constitution**
CD-404138 **Westward Expansion and Migration**
CD-404139 **Slavery, Civil War, and Reconstruction**
CD-404140 **Industrialization Through the Great Depression**
CD-404150 **World Governments**
CD-404157 **Medieval Times**
CD-404158 **Renaissance**
CD-404159 **World Civilizations and Cultures**
CD-404160 **Egypt and the Middle East**
CD-404161 **Greek and Roman Civilizations**
CD-404162 **Mayan, Incan, and Aztec Civilizations**
CD-404168 **Economics and You**

GEOGRAPHY

CD-404060 **Jumpstarters for Geography**
CD-404095 **Daily Skill Builders: World Geography**
CD-404133 **World Geography Puzzles**
CD-404169 **Map Reading Skills**
CD-404170 **Exploring Africa**
CD-404171 **Exploring Antarctica**
CD-404172 **Exploring Asia**
CD-404173 **Exploring Australia**
CD-404174 **Exploring Europe**
CD-404175 **Exploring North America**
CD-404176 **Exploring South America**

LANGUAGE ARTS

CD-404008 **Diagraming Sentences**
CD-404011 **Jumpstarters for Grammar**
CD-404027 **Jumpstarters for Writing**
CD-404035 **Lessons in Writing**
CD-404051 **Writing a Persuasive Essay**
CD-404054 **Jumpstarters for Vocabulary Building**
CD-404055 **Adventures in Writing**
CD-404061–CD-404063 **Daily Skill Builders: Grammar: Grades 3–6**
CD-404064 **Daily Skill Builders: Spelling & Phonics: Grades 3–4**
CD-404067–CD-404069 **Daily Skill Builders: Vocabulary: Grades 3–6**
CD-404070–CD-404072 **Daily Skill Builders: Reading: Grades 3–6**
CD-404073 **Jumpstarters for Figurative Language**
CD-404078 **Jumpstarters for Capitalization & Punctuation**
CD-404081 **Jumpstarters for Root Words, Prefixes, & Suffixes**
CD-404111 **Using Graphic Organizers: Gr. 4–5**
CD-404112 **Using Graphic Organizers: Gr. 5–6**
CD-404113 **Using Graphic Organizers: Gr. 6–8**
CD-404130 **Jumpstarters for Analogies**
CD-404131 **Writing: Fundamentals for the Middle-School Classroom**
CD-404156 **Grammar and Composition**
CD-404148 **Jumpstarters for Abbreviations**
CD-404149 **Jumpstarters for Synonyms and Antonyms**
CD-404166 **Nonfiction Reading Comprehension: Grades 5–6**
CD-404167 **Nonfiction Reading Comprehension: Grades 7–8**
CD-404177 **Reading: Literature Learning Stations**
CD-404178 **Reading: Informational Text Learning Stations**
CD-404179 **Language Learning Stations**
CD-404180 **Writing Learning Stations**
CD-404181 **Understanding Informational Text Features**
CD-404182 **Comprehending Functional Text**
* CD-404210 **Literacy in Science and Technology: Learning Station Activities to Meet CCSS**
* CD-404211 **Literacy in History and Social Studies: Learning Station Activities to Meet CCSS**
* CD-404212 **Using Primary Sources to Meet Common Core State Standards**
* CD-404214 **Project-Based Learning Tasks for Common Core State Standards**
* CD-404215 **Common Core: Elements of Literature**
* CD-404216 **Common Core: Conducting Research Projects**
* CD-404217 **Common Core: Complex Issues in Text**
* CD-404218 **Common Core: Types of Text**
* CD-404219 **Common Core: Grammar Usage**

STUDY SKILLS

CD-1859 **Improving Study & Test-Taking Skills**
CD-1321 **Library Skills**
CD-1597 **Note Taking: Lessons to Improve Research Skills & Test Scores**
CD-1625–CD-1630 **Preparing Students for Standardized Testing: Grades 3–8**

MATH

CD-404020 **Helping Students Understand Algebra**
CD-404021 **Helping Sts. Understand Pre-Algebra**
CD-404022 **Jumpstarters for Algebra**
CD-404023 **Jumpstarters for Math**
CD-404028 **Helping Students Understand Algebra II**
CD-404029 **Helping Students Understand Geometry**
CD-404030 **Jumpstarters for Pre-Algebra**
CD-404041 **Pre-Algebra Practice**
CD-404042 **Algebra Practice**
CD-404043 **Algebra II Practice**
CD-404044 **Geometry Practice**
CD-404057 **Jumpstarters for Fractions & Decimals**
CD-404058 **Jumpstarters for Geometry**
CD-404059 **Jumpstarters for Math Word Problems**
CD-404074 **Math Logic**
CD-404083 **Daily Skill Builders: Algebra**
CD-404084 **Daily Skill Builders: Division**
CD-404085 **Daily Skill Builders: Fractions & Decimals**
CD-404086 **Daily Skill Builders: Pre-Algebra**
CD-404087 **Daily Skill Builders: Word Problems**
CD-404088 **Exploring Fractions**
CD-404089 **Math Reference for Middle Grades**
CD-404101 **Pre-Algebra**
CD-404132 **Math Skills Mind Benders**
CD-404144 **Math Tutor: Algebra Skills**
CD-404145 **Math Tutor: Pre-Algebra Skills**
CD-404146 **Math Tutor: Fractions & Decimals**
CD-404147 **Math Tutor: Multiplication & Division**
CD-404152 **Math Games: Grades 5–6**
CD-404153 **Math Games: Grades 7–8**
CD-404154 **Basic Geometry**
CD-404155 **Math Projects**
CD-404183 **Adding and Subtracting Fractions**
CD-404184 **Multiplying and Dividing Fractions**
* CD-404213 **All About Decimals: Math for CCSS**
* CD-404220 **Common Core Math Workouts: Grade 6**
* CD-404221 **Common Core Math Workouts: Grade 7**
* CD-404222 **Common Core Math Workouts: Grade 8**

FINE ARTS

CD-1893 **Theater Through the Ages**
CD-1596 **Musical Instruments of the World**
CD-1632 **Everyday Art for the Classroom**
CD-404135 **American Popular Music**

HEALTH & WELL-BEING

CD-404079 **Jumpstarters for the Human Body**
CD-404090 **Healthy Eating and Exercise**
CD-404106 **Jumpstarters for Nutrition & Exercise**
CD-404115 **Life Skills**
CD-404186 **Health, Wellness, and Physical Fitness**

*Denotes New Release