

A Correlation of
Connected Mathematics Project 3
(CMP3) ©2018



CMPTM 3

to the
Alabama Course of Study
Mathematics 2019

Grade 6

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Alabama Course of Study Mathematics 2019 Grade 6	Connected Mathematics Project 3 Grade 6 Investigations
Student Mathematical Practices	
1. Make sense of problems and persevere in solving them.	<p>The Standards for Mathematical Practice can be met throughout the CMP3 program. For specific examples, please see:</p> <p>Comparing Bits and Pieces: Inv. 1, Inv. 2, Inv. 4</p> <p>Variables and Patterns: Inv. 1, Inv. 2</p> <p>Decimal Ops: Inv. 2, Inv. 4</p> <p>Data About Us: Inv. 3, Inv. 4</p> <p>Covering and Surrounding: Inv. 3</p> <p>Let's Be Rational: Inv. 1, Inv. 2, Inv. 4</p>
2. Reason abstractly and quantitatively.	<p>The Standards for Mathematical Practice can be met throughout the CMP3 program. For specific examples, please see:</p> <p>Comparing Bits and Pieces: Inv. 4</p> <p>Variables and Patterns: Inv. 4</p> <p>Decimal Ops: Inv. 4</p> <p>Data About Us: Inv. 3, Inv. 4</p> <p>Covering and Surrounding: Inv. 4</p> <p>Prime Time: Inv. 1, Inv. 4</p> <p>Let's Be Rational: Inv. 1, Inv. 3, Inv. 4</p>

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<p>3. Construct viable arguments and critique the reasoning of others.</p>	<p>The Standards for Mathematical Practice can be met throughout the CMP3 program. For specific examples, please see: Comparing Bits and Pieces: Inv. 1, Inv. 3 Variables and Patterns: Inv. 1, Inv. 4 Decimal Ops: Inv. 1, Inv. 2 Data About Us: Inv. 2 Covering and Surrounding: Inv. 2, Inv. 4 Prime Time: Inv. 4 Let's Be Rational: Inv. 2</p>
<p>4. Model with mathematics.</p>	<p>The Standards for Mathematical Practice can be met throughout the CMP3 program. For specific examples, please see: Comparing Bits and Pieces: Inv. 4 Variables and Patterns: Inv. 1 Decimal Ops: Inv. 4 Data About Us: Inv. 1, Inv. 4 Covering and Surrounding: Inv. 1 Prime Time: Inv. 1, Inv. 4 Let's Be Rational: Inv. 2</p>

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<p>5. Use appropriate tools strategically.</p>	<p>The Standards for Mathematical Practice can be met throughout the CMP3 program. For specific examples, please see: Comparing Bits and Pieces: Inv. 2 Variables and Patterns: Inv. 3 Decimal Ops: Inv. 1 Data About Us: Inv. 4 Covering and Surrounding: Inv. 3 Prime Time: Inv. 1 Let's Be Rational: Inv. 1</p>
<p>6. Attend to precision.</p>	<p>The Standards for Mathematical Practice can be met throughout the CMP3 program. For specific examples, please see: Comparing Bits and Pieces: Inv. 1 Variables and Patterns: Inv. 4 Decimal Ops: Inv. 1, Inv. 3 Data About Us: Inv. 4 Covering and Surrounding: Inv. 4 Prime Time: Inv. 2 Let's Be Rational: Inv. 1</p>

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7. Look for and make use of structure.	The Standards for Mathematical Practice can be met throughout the CMP3 program. For specific examples, please see: Comparing Bits and Pieces: Inv. 2 Variables and Patterns: Inv. 2 Decimal Ops: Inv. 3 Inv. 4 Data About Us: Inv. 1, Inv. 3 Covering and Surrounding: Inv. 1 Prime Time: Inv. 4 Let's Be Rational: Inv. 2
8. Look for and express regularity in repeated reasoning.	The Standards for Mathematical Practice can be met throughout the CMP3 program. For specific examples, please see: Variables and Patterns: Inv. 2 Decimal Ops: Inv. 1 Data About Us: Inv. 2 Covering and Surrounding: Inv. 2 Prime Time: Inv. 3 Let's Be Rational: Inv. 3, Inv. 4
Proportional Reasoning	
Develop an understanding of ratio concepts and use reasoning about ratios to solve problems.	
1. Use appropriate notations [a/b , a to b , $a:b$] to represent a proportional relationship between quantities and use ratio language to describe the relationship between quantities.	Comparing Bits and Pieces: Inv. 1, ACE, MR Decimal Ops: Inv. 1, ACE, MR
2. Use unit rates to represent and describe ratio relationships.	Comparing Bits and Pieces: Inv. 2, ACE, MR Decimal Ops: Inv. 1, ACE, MR

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3. Use ratio and rate reasoning to solve mathematical and real-world problems (including but not limited to percent, measurement conversion, and equivalent ratios) using a variety of models, including tables of equivalent ratios, tape diagrams, double number lines, and equations.	Comparing Bits and Pieces: Inv. 2, ACE, MR Variables and Patterns: Inv. 1, ACE, MR, Inv. 3, ACE, MR, Inv. 4, ACE, MR
Number Systems and Operations	
Use prior knowledge of multiplication and division to divide fractions.	
4. Interpret and compute quotients of fractions using visual models and equations to represent problems. Use quotients of fractions to analyze and solve problems.	Let's Be Rational: Inv. 3, ACE, MR, Inv. 4, ACE, MR Decimal Ops: Inv. 3, ACE, MR
Compute multi-digit numbers fluently and determine common factors and multiples.	
5. Fluently divide multi-digit whole numbers using a standard algorithm to solve real-world and mathematical problems.	Decimal OPS: Inv. 3, ACE, MR
6. Add, subtract, multiply, and divide decimals using a standard algorithm.	Decimal OPS: Inv. 2, ACE, MR, Inv. 3, ACE, MR, Inv. 4, ACE, MR
7. Use the distributive property to express the sum of two whole numbers with a common factor as a multiple of a sum of two whole numbers with no common factor.	Prime Time: Inv. 4, ACE, MR
8. Find the greatest common factor (GCF) and least common multiple (LCM) of two or more whole numbers.	Prime Time: Inv. 2, ACE, MR, Inv. 3, ACE, MR Let's Be Rational: Inv. 1, ACE, MR
a. Use factors and multiples to determine prime factorization.	Prime Time: Inv. 3, ACE, MR
Apply knowledge of the number system to represent and use rational numbers in a variety of forms.	
9. Use signed numbers to describe quantities that have opposite directions or values and to represent quantities in real-world contexts.	Comparing Bits and Pieces: Inv. 3, ACE, MR
10. Locate integers and other rational numbers on a horizontal or vertical line diagram.	Comparing Bits and Pieces: Inv. 3, ACE, MR

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a. Define <i>opposites</i> as numbers located on opposite sides of 0 and the same distance from 0 on a number line.	Comparing Bits and Pieces: Inv. 3, ACE, MR
b. Use rational numbers in real-world and mathematical situations, explaining the meaning of 0 in each situation.	Comparing Bits and Pieces: Inv. 3, ACE, MR
11. Find the position of pairs of integers and other rational numbers on the coordinate plane.	Variables and Patterns: Inv. 1, ACE, MR, Inv. 2, ACE, MR
a. Identify quadrant locations of ordered pairs on the coordinate plane based on the signs of the x and y coordinates.	Variables and Patterns: Inv. 2, ACE
b. Identify (a,b) and $(a,-b)$ as reflections across the x -axis.	Variables and Patterns: Inv. 2, ACE
c. Identify (a,b) and $(-a,b)$ as reflections across the y -axis.	Variables and Patterns: Inv. 2, ACE
d. Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane, including finding distances between points with the same first or second coordinate.	Covering and Surrounding: Inv. 1, ACE, MR, Inv. 3, ACE, MR Variables and Patterns: Inv. 1, ACE, MR, Inv. 2, ACE, MR
12. Explain the meaning of absolute value and determine the absolute value of rational numbers in real-world contexts.	Comparing Bits and Pieces: Inv. 3, ACE, MR
13. Compare and order rational numbers and absolute value of rational numbers with and without a number line in order to solve real-world and mathematical problems.	Comparing Bits and Pieces: Inv. 3, ACE, MR
Algebra and Functions	
Apply knowledge of arithmetic to read, write, and evaluate algebraic expressions.	
14. Write, evaluate, and compare expressions involving whole number exponents.	Prime Time: Inv. 3, ACE, MR, Inv. 4, ACE, MR Variables and Patterns: Inv. 3, ACE, MR

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15. Write, read, and evaluate expressions in which letters represent numbers in real-world contexts.	<p>Let's be Rational: Inv. 4, ACE, MR</p> <p>Covering and Surrounding: Inv. 1, ACE, MR, Inv. 2, ACE, MR, Inv. 3, ACE, MR, Inv. 4, ACE, MR</p> <p>Decimal Ops: Inv. 2, ACE, MR</p> <p>Variables and Patterns: Inv. 3, ACE, MR, Inv. 4, ACE, MR</p>
a. Interpret a variable as an unknown value for any number in a specified set, depending on the context.	<p>Variables and Patterns: Inv. 3, ACE, MR, Inv. 4, ACE, MR</p>
b. Write expressions to represent verbal statements and real-world scenarios.	<p>Let's be Rational: Inv. 4, ACE, MR</p> <p>Covering and Surrounding: Inv. 1, ACE, MR, Inv. 2, ACE, MR, Inv. 3, ACE, MR, Inv. 4, ACE, MR</p> <p>Decimal Ops: Inv. 2, ACE, MR</p> <p>Variables and Patterns: Inv. 3, ACE, MR, Inv. 4, ACE, MR</p>
c. Identify parts of an expression using mathematical terms such as <i>sum</i> , <i>term</i> , <i>product</i> , <i>factor</i> , <i>quotient</i> , and <i>coefficient</i> .	<p>Prime Time: Inv. 3, ACE, MR, Inv. 4, ACE, MR</p> <p>Let's be Rational: Inv. 3, ACE, MR, Inv. 4, ACE, MR</p> <p>Variables and Patterns: Inv. 4, ACE, MR</p>
d. Evaluate expressions (which may include absolute value and whole number exponents) with respect to order of operations.	<p>Let's be Rational: Inv. 4, ACE, MR</p> <p>Covering and Surrounding: Inv. 1, ACE, MR, Inv. 2, ACE, MR, Inv. 3, ACE, MR, Inv. 4, ACE, MR</p> <p>Variables and Patterns: Inv. 3, ACE, MR, Inv. 4, ACE, MR</p>
16. Generate equivalent algebraic expressions using the properties of operations, including inverse, identity, commutative, associative, and distributive.	<p>Let's be Rational: Inv. 2, ACE, MR</p> <p>Covering and Surrounding: Inv. 1, ACE, MR, Inv. 2, ACE, MR</p> <p>Decimal Ops: Inv. 4, ACE, MR</p> <p>Variables and Patterns: Inv. 3, ACE, MR, Inv. 4, ACE, MR</p>

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17. Determine whether two expressions are equivalent and justify the reasoning.	Covering and Surrounding: Inv. 4, ACE, MR Variables and Patterns: Inv. 4, ACE, MR
Use equations and inequalities to represent and solve real-world or mathematical problems.	
18. Determine whether a value is a solution to an equation or inequality by using substitution to conclude whether a given value makes the equation or inequality true.	Decimal Ops: Inv. 2, ACE, MR Variables and Patterns: Inv. 4, ACE, MR
19. Write and solve an equation in the form of $x+p=q$ or $px=q$ for cases in which p , q , and x are all non-negative rational numbers to solve real-world and mathematical problems.	Variables and Patterns: Inv.4, ACE, MR
a. Interpret the solution of an equation in the context of the problem.	Variables and Patterns: Inv.4, ACE, MR
20. Write and solve inequalities in the form of $x>c$, $x<c$, $x\geq c$, $x\leq c$ to represent a constraint or condition in a real-world or mathematical problem.	Variables and Patterns: Inv.4, ACE, MR
a. Interpret the solution of an inequality in the context of the problem.	Variables and Patterns: Inv.4, ACE, MR
b. Represent the solutions of inequalities on a number line and explain that the solution set may contain infinitely many solutions.	Variables and Patterns: Inv. 4, ACE, MR
Identify and analyze relationships between independent and dependent variables.	
21. Identify, represent, and analyze two quantities that change in relationship to one another in real-world or mathematical situations.	Covering and Surrounding: Inv. 1, ACE, MR, Inv. 2, ACE, MR, Inv. 3, ACE, MR, Inv. 4, ACE, MR Variables and Patterns: Inv. 3, ACE, MR, Inv. 4, ACE, MR
a. Use tables, graphs, and equations to represent the relationship between independent and dependent variables.	Covering and Surrounding: Inv. 1, ACE, MR, Inv. 2, ACE, MR, Inv. 3, ACE, MR, Inv. 4, ACE, MR Variables and Patterns: Inv. 1, ACE, MR, Inv. 2, ACE, MR, Inv. 3, ACE, MR, Inv. 4, ACE, MR

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Data Analysis, Statistics, and Probability	
Use real-world and mathematical problems to analyze data and demonstrate an understanding of statistical variability and measures of center.	
22. Write examples and non-examples of statistical questions, explaining that a statistical question anticipates variability in the data related to the question.	Data About Us: Inv. 1, ACE, MR, Inv. 2, ACE, MR, Inv. 3, ACE, MR, Inv. 4, ACE, MR
23. Calculate, interpret, and compare measures of center (mean, median, mode) and variability (range and interquartile range) in real-world data sets.	Data About Us: Inv. 2, ACE, MR, Inv. 3
a. Determine which measure of center best represents a real-world data set.	Data About Us: Inv. 2, ACE, MR
b. Interpret the measures of center and variability in the context of a problem.	Data About Us: Inv. 2, ACE, MR, Inv. 3, ACE, MR
24. Represent numerical data graphically, using dot plots, line plots, histograms, stem and leaf plots, and box plots.	Data About Us: Inv 1, Inv 2, Inv 3, Inv. 4, ACE, MR
a. Analyze the graphical representation of data by describing the center, spread, shape (including approximately symmetric or skewed), and unusual features (including gaps, peaks, clusters, and extreme values).	Data About Us: Inv. 4, ACE, MR
b. Use graphical representations of real-world data to describe the context from which they were collected.	Data About Us: Inv. 4, ACE, MR
Geometry and Measurement	
Graph polygons in the coordinate plane to solve real-world and mathematical problems.	
25. Graph polygons in the coordinate plane given coordinates of the vertices to solve real-world and mathematical problems.	Covering and Surrounding: Inv. 3, ACE, MR
a. Determine missing vertices of a rectangle with the same x-coordinate or the same y-coordinate when graphed in the coordinate plane.	Covering and Surrounding: Inv. 3, ACE, MR

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b. Use coordinates to find the length of a side between points having the same x-coordinate or the same y-coordinate.	Covering and Surrounding: Inv. 3, ACE, MR
c. Calculate perimeter and area of a polygon graphed in the coordinate plane (limit to polygons in which consecutive vertices have the same x-coordinate or the same y-coordinate).	Covering and Surrounding: Inv. 2, ACE, MR, Inv. 3, ACE, MR
Solve real-world and mathematical problems to determine area, surface area, and volume. <i>Note: Students must select and use the appropriate unit for the attribute being measured when determining length, area, angle, time, or volume.</i>	
26. Calculate the area of triangles, special quadrilaterals, and other polygons by composing and decomposing them into known shapes.	Covering and Surrounding: Inv. 2, ACE, MR, Inv. 3, ACE, MR
a. Apply the techniques of composing and decomposing polygons to find area in the context of solving real-world and mathematical problems.	Covering and Surrounding: Inv. 4, ACE, MR
27. Determine the surface area of three-dimensional figures by representing them with nets composed of rectangles and triangles to solve real-world and mathematical problems.	Covering and Surrounding: Inv. 4, ACE, MR
28. Apply previous understanding of volume of right rectangular prisms to those with fractional edge lengths to solve real-world and mathematical problems.	Covering and Surrounding: Inv. 4, ACE, MR
a. Use models (cubes or drawings) and the volume formulas ($V = lwh$ and $V = Bh$) to find and compare volumes of right rectangular prisms.	Covering and Surrounding: Inv. 4, ACE, MR

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