Sixth Grade Math Common Core At-a-Glance

Sixth Grade Overview

Ratios and Proportional Relationships

· Understand ratio concepts and use ratio reasoning to solve problems.

The Number System

· Apply and extend previous understandings of multiplication and division to divide fractions by fractions.

· Compute fluently with multi-digit numbers and find common factors and multiples.

· Apply and extend previous understandings of numbers to the system of rational numbers.

Expressions and Equations

· Apply and extend previous understandings of arithmetic to algebraic expressions.

· Reason about and solve one-variable equations and inequalities.

· Represent and analyze quantitative relationships between dependent and independent variables.

Geometry

· Solve real-world and mathematical problems involving area, surface area, and volume.

Statistics and Probability

· Develop understanding of statistical variability.

· Summarize and describe distributions.

Four Critical Areas

In Grade 6, instructional time should focus on four critical areas:

- connecting ratio and rate to whole number multiplication and division and using concepts of ratio and rate to solve problems;
- completing understanding of division of fractions and extending the notion of number to the system of rational numbers, which includes negative numbers;
- writing, interpreting, and using expressions and equations; and
- developing understanding of statistical thinking.

Common Core Practice Standards

Overarching habits of mind of a productive mathematical thinker

1. Make sense of problems and persevere in solving them
6. Attend to precision

Reasoning and explaining

2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others

Modeling and using tools

4. Model with mathematics
5. Use appropriate tools strategically

Seeing structure and generalizing

7. Look for and make use of structure
8. Look for and express regularity in repeated reasoning

Common Core State Standards Initiative. (2010). Common Core State Standards for Mathematics. *Washington, DC: National Governors Association Center for Best Practices and the*

The Common Core Standards for Mathematical Practice

The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. These practices rest on important processes and proficiencies with longstanding importance in mathematics education.

1. Make sense of problems and persevere in solving them.

2. Reason abstractly and quantitatively.

3. Construct viable arguments and critique the reasoning of others.

4. Model with mathematics.

5. Use appropriate tools strategically.

6. Attend to precision.

7. Look for and make use of structure.

8. Look for and express regularity in repeated reasoning.

Connecting the Standards for Mathematical Practice to the Standards for Mathematical Content

"The Standards for Mathematical Content are a balanced combination of procedure and understanding. Expectations that begin with the word "understand" are often especially good opportunities to connect the practices to the content. Students who lack understanding of a topic may rely on procedures too heavily. Without a flexible base from which to work, they may be less likely to consider analogous problems, represent problems coherently, justify conclusions, apply the mathematics to practical situations, use technology mindfully to work with the mathematics, explain the mathematics accurately to other students, step back for an overview, or deviate from a known procedure to find a shortcut. In short, a lack of understanding effectively prevents a student from engaging in the mathematical practices" (CCSS, 2010).

- Common Core State Standards Initiative, 2010: Mathematics>Introduction>Standards for Mathematical Practice @ Corestandards.org

Grade 6

General Instructions

Purpose

This map was created by 6th grade teachers as a scope and sequence to guide and support math curriculum planning and instruction for the year. Please adjust as necessary to meet students' needs.

Topics

Topics identified as review are covered in a previous grade. After assessing your students re-teach as necessary.
Topics identified as core must be covered.
Topics identified as enrichment can be used as needed.

Cumulative Review

It is critical to provide an ongoing review of previously taught concepts and skills. EnVision's Daily Spiral Review works great!

Assessment

Topic assessments will be digitally available on SuccessNet CFA accounts. Topic assessment will also be available in PDF form on the District web Math page and Math teacher wiki page.
Pre-Assessments can be a topic assessment, CFA, or of your own design.

Common Core Lessons (CC)

These lessons are part of the common core but not currently presented in enVision math. They are available digitally on SuccessNet Teacher and CFA accounts.

Common Formative Assessment (CFA)

CFA's are an informational assessment for you as a teacher. CFA's are one form of assessment, and the data should be used to help guide and inform your instruction.
For example: Which problem(s) did all students get correct? Which problem(s) did a lot of students miss? What concepts need to be re-taught?
There is a period of time (from a few days to 2 weeks) between the end of instruction and the deadline for completion of CFA's. These assessments may be taken any time before the date specified.

CFA #1 by October 31 covers Topics 1, 2, 3, 4, & 5
CFA #2 by January 24 covers Topics 6, 7, 8, 9, & 10
CFA #3 by March 21 covers Topics 12, 13, 14, 15
CFA #4 by May 23 covers Topics 17, 18, & 19

Canyons School District elementary math maps are created by CSD elementary teachers
and published by the CSD Office of Evidence-Based Learning.

6th Grade Year at a Glance

	1st Trimester	1st Trimester	2nd Trimester	2nd Trimester	3rd Trimester	3rd Trimester
Unit Theme	**I Won't Grow Up**	**Folklore: A Blast from the Past**	**Figure It Out**	**Embracing Heritage**	**Courageous Characters**	**Winging It**
Standards	6.EE.1 6.EE.2 6.EE.3 6.EE.5 6.EE.6 6.NS.2 6.NS.3 Practice Standards	6.EE.3 6.EE.4 6.EE.5 6.EE.6 6.EE.7 6.NS.4 6.NS.6 Practice Standards	6.NS.1 6.NS.3 6.NS.4 6.NS.5 6.NS.6 6.NS.7 6.NS.8 6.G.3 Practice Standards	6.RP.1 6.RP.2 6.RP.3 Practice Standards	6.EE.2 6.EE.5 6.EE.7 6.EE.8 6.EE.9 6.G.1 6.G.2 6.G.4 Practice Standards	6.SP.1 6.SP.2 6.SP.3 6.SP.4 6.SP.5 6.NS.3 Practice Standards
Topics	1,23 Data & Graphs	4,5,6 Data & Graphs	7, 8, 9, 10 Data & Graphs	12, 13, 14, 16 Data & Graphs	15, 17, 18 Data & Graphs	19
Thematic Question	Where and how do grown-ups use data, decimals, and expressions?	How does data reflect change over time?	How do we use patterns and operations to figure out problems?	How are ratios, proportions, and percents used to understand our culture?	What are the characteristics of shapes and graphs?	How do we use data and graphs to draw conclusions?
Science Connections	How do the relative positions of the earth, moon and sun change position over the course of the day/night/month/year? How have these changes been used to determine time?	How have different cultures interpreted the earth revolving around the sun in their folklore? How and why have models changed regarding earth revolving around the sun?	How do we learn about aspects of our solar system?	How have different cultures understood, related to, and used objects in the night sky?	How are characteristics of microorganisms both helpful and harmful?	How is energy transformed from one form to another? How do we use the principles of energy to power flight?

CANYONS School District

6th Grade Year At A Glance

Social Studies Connections	5 Themes of Geography Cradle of Civilization	Ancient Civilization	Middle Ages Renaissance	Revolution	20th Century at War	20th Century and Modern Day Life
English Language Arts Connections	How can we learn from characters and the authors who wrote about them?	How is folklore simultaneously revealing and limiting?	How are strategies for solving math problems similar to and different from strategies for solving mysteries?	How can we learn to appreciate our similarities and differences through literature?	How are acts of courage revealed in literature and informational texts?	How do literature and information text reveal why people dream of flying?

MATH Year-at-a-Glance 2013-2014

6th Grade

MATH CONCEPTS	TOPICS from EnVision	CFA ASSESSMENT DATES
Numeration	**Topic 1** (5 days)	
Variables, Expressions and Properties Operations with Decimals	**Topic 2** (11 days) **Topic 3** (13 days)	
Solving Equations Number and Fraction Concepts	**Topic 4** (7days) **Topic 5** (4 days)	CFA # 1 Topics 1-5 Completed by October 31
Decimals, Fractions, and Mixed Numbers Adding and Subtracting Fractions Multiplying Fractions and Mixed Numbers	**Topic 6** (3 days) **Topic 7** (3 days) **Topic 8** (3 days)	
Dividing Fractions and Mixed Numbers Integers	**Topic 9** (9 days) **Topic 10** (8 days)	CFA # 2 Topics 6-10 Completed by January 24

MATH CONCEPTS	TOPICS from EnVision	CFA ASSESSMENT DATES
Ratios, Rates, and Proportions Solving Proportions	**Topic 12** (10 days) **Topic 13** (8 days)	
Understanding Percent Equations and Graphs	**Topic 14** (8 days) **Topic 15** (5 days)	CFA #3 Topics 12-15 Completed by March 21
Perimeter and Area Volume and Surface Area	**Topic 17** (5 days) **Topic 18** (8 days)	
Data and Graphs	**Topic 19** (15 days)	
	CRT Review	CFA #4 Topic 17-19 Completed by May 23

Utah Core State Standards can be located at:
http://schools.utah.gov/CURR/mathelem/Core-Curriculum/SixthGrade12.aspx

TOPIC 1: NUMERATION

CLASS SETUP, STUDENT SKILL SCREENING**

SUGGESTED TEACHING TIME: 5 DAYS

REVIEW, CORE, EXTEND, ASSESS	COMMON CORE STANDARD	ENVISION LESSON	VOCABULARY & NOTES
PRE-ASSESS		Diagnostic Test Topic 1 Test	Trillion Exponential form Base Exponent/Power Decimal Expanded form
REVIEW: NOT IN 6th Grade CORE		Topic 1-1:Place Value; 1-2: Comparing and Ordering Whole Number; 1-4: Decimal Place Value; 1-5: Multiplying and Dividing by 10, 100, and 1,000; 1-6: Comparing and Ordering Decimals	
CORE	6.EE.1 Apply and extend previous understandings of arithmetic to algebraic expressions. 1.Write and evaluate numerical expressions involving whole-number exponents.	Topic 1-3: Exponents and Place Value, pg. 10	

NOT IN 6th Grade CORE		Topic 1-7: Problem Solving: Make an Organized List	
ASSESS		Topic 1 Assessment	Topic Assessment available on district math website (PDF) and school CFA account (digital).

**Strongly suggested that the data and graphs concepts from Topic 19 are taught and reinforced throughout the year rather than waiting until the end.

TOPIC 2: VARIABLES, EXPRESSIONS, AND PROPERTIES

SUGGESTED TEACHING TIME: 11 DAYS

REVIEW, CORE, EXTEND, ASSESS	COMMON CORE STANDARD	ENVISION LESSON	VOCABULARY & NOTES
PRE-ASSESS		Topic 2 Test	Variable Coefficient Algebraic expression Commutative property of addition Commutative property of multiplication
CORE	6.EE.2, 6.EE.2A, 6.EE.2B, 6.EE.6 2.Write, read, and evaluate expressions in which letters stand for numbers. a. Write expressions that record operations with numbers and with	Topic 2-1: Using Variables to Write Expressions	

	letters standing for numbers. For example, express the calculation "Subtract y from 5" as 5 – y. Common Core State b. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. For example, describe the expression 2 (8 + 7) as a product of two factors; view (8 + 7) as both a single entity and a sum of two terms. 6. Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.		Associative property of addition Associative property of multiplication Identity property of addition Identity property of multiplication Order of operations Distributive property Evaluate Substitution Input/output table
CORE	6.EE.3 3. Apply the properties of operations to generate equivalent expressions. For example, apply the distributive property to the expression 3 (2 + x) to produce the equivalent expression 6 + 3x; apply the distributive property to the expression 24x + 18y to produce the equivalent expression 6(4x + 3y); apply properties of operations to y + y + y to produce the equivalent expression 3y.	Topic 2-2: Properties of Operations	
CORE	6.EE.3	Topic 2-3: Order of Operations	
CORE	6.EE.3	Topic 2-4:The Distributive Property	
CORE	6.EE.2, 6.EE.2.b, 6.EE.2.c, 6.EE.3, 6.EE.6 c. Evaluate expressions at specific values of their variables. Include	Topic 2-6: Evaluating Expressions	

	expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). For example, use the formulas $V = s^3$ and $A = 6s^2$ to find the volume and surface area of a cube with sides of length s = 1/2.		
CORE	6.EE.2.a	Topic 2-7: Using Expressions to Describe Patterns	
CORE	6.EE2.a	Topic 2-8: Problem Solving: Make a Table	
ASSESS		Topic 2 Test	Topic Assessment available on district math website (PDF) and school CFA account (digital).

TOPIC 3: OPERATIONS WITH DECIMALS

SUGGESTED TEACHING TIME: 13 DAYS

REVIEW, CORE, EXTEND, ASSESS	COMMON CORE STANDARD	ENVISION LESSON	VOCABULARY AND NOTES
PRE-ASSESS		Topic 3 Test	Estimate Compatible numbers

CORE	Prepares for 6.NS.3 3. Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.	Topic 3-1: Estimating Sums and Differences	Inequality
CORE	6.NS.3	Topic 3-2: Adding and Subtracting	
CORE	Prepares for 6.NS.3	Topic 3-3: Estimating Products and Quotients	
CORE	6.NS.3	Topic 3-4: Multiplying Decimals	
CORE	6.NS.2 2. Fluently divide multi-digit numbers using the standard algorithm.	CC 3-5a: Dividing Whole Numbers	
CORE	6.NS.2; 6.NS.3	Topic 3-5: Dividing Whole Numbers	
CORE	6.NS.3	Topic 3-6:Dividing a Whole Number by a Decimal	
CORE	6.NS.3	Topic 3-7: Dividing Decimals	
CORE	6.NS.2; 6.NS.3; 6.EE.2.c	Topic 3-8: Evaluating Expressions	
CORE	6.EE.5, 6.EE.6 5. Understand solving an equation or inequality as a process of	CC 3-9a Solutions for Equations and Inequalities	

	answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.		
NOT IN 6th Grade CORE – DO NOT TEACH		Topic 3-9: Scientific Notation	
CORE	6.NS.3	Topic 3-10: Problem solving: Multiple Step Problems	
ASSESS		Topic 3 Assessment	

TOPIC 4: SOLVING EQUATIONS

SUGGESTED TEACHING TIME: 7 DAYS

REVIEW, CORE, EXTEND, ASSESS	COMMON CORE STANDARD	ENVISION LESSON	VOCABULARY & NOTES
PRE-ASSESS		Topic 4 Test	Equation Addition property of equality Subtraction
CORE	6.EE.3, 6.EE.4 4. entify when two expressions are equivalent (i.e., when the two	Topic 4-1: Properties of Equality	

	expressions name the same number regardless of which value is substituted into them). For example, the expressions y + y + y and 3y are equivalent because they name the same number regardless of which number y stands for.		property of equality Multiplication property of equality Division property of equality Inverse relationship
CORE	6.EE.5, 6.EE.6, 6.EE.7 7. Solve real-world and mathematical problems by writing and solving equations of the form x + p = q and px = q for cases in which p, q and x are all nonnegative rational numbers.	Topic 4-2: Solving Addition and Subtraction Equations	
CORE	6.EE.7	Topic: 4-3: Problem Solving: Draw a Picture and Write an Equations	
CORE	6.EE.5; 6.EE.7	Topic 4-4: Solving Multiplication and Division Equations	
CORE	6.EE.6; 6.EE.7	Topic 4-5: Problem Solving: Draw a Picture/Write an Equation	
ASSESS		Topic 4 Assessment	

TOPIC 5: NUMBER AND FRACTION CONCEPTS

SUGGESTED TEACHING TIME: 5-8 days (This topic is mostly review.)

REVIEW, CORE, EXTEND, ASSESS	COMMON CORE STANDARD	ENVISION LESSON	VOCABULARY & NOTES
PRE-ASSESS		Topic 5 Test	Multiple Divisible Prime number Composite number Prime factorization Greatest common factor Fractions Numerator Denominator Equivalent fractions Simplest form Conjecture
REVIEW: NOT IN 6th Grade CORE		Topic 5-1: Factors, Multiples and Divisibility	
CORE	Prepares for 6.NS.4 7. Solve real-world and mathematical problems by writing and solving equations of the form x + p = q and px = q for cases in which p, q and x are all nonnegative rational numbers.	Topic 5-2: Prime Factorization	
REVIEW: NOT IN 6th Grade CORE	6.NS.4,	Topic 5-3: Greatest Common Factor, Topic 5-4: Understanding Fractions, Topic 5-5: Equivalent Fractions, Topic 5-5: Equivalent Fractions, Topic 5-6: Fractions in Simplest Form, Topic 5-7: Problem Solving: Make and Test Conjectures	
ASSESS		Topic 5 Assessment	CFA #1: Deadline Oct. 31 (Topics 1-5)

TOPIC 6: DECIMALS, FRACTIONS, AND MIXED NUMBERS

SUGGESTED TEACHING TIME: 3-5 DAYS (This topic is mostly review.)

REVIEW, CORE, EXTEND, ASSESS	COMMON CORE STANDARD	ENVISION LESSON	VOCABULARY & NOTES
PRE-ASSESS		Topic 6	Proper fraction Improper fraction Mixed number Terminating decimal Repeating decimal
REVIEW: NOT IN 6th Grade CORE		Topics 6-1: Fractions and Division 6-2: Fractions and Decimals 6-3: Improper Fractions and Mixed Numbers 6-4: Decimal Forms of Fractions and Mixed Numbers	
CORE	6.NS.6.c c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.	Topic 6-5: Problem Solving: Draw a Picture	
ASSESS		Topic 6 Assessment	

TOPIC 7: DECIMALS, FRACTIONS, AND MIXED NUMBERS

SUGGESTED TEACHING TIME: 5 DAYS

REVIEW, CORE, EXTEND, ASSESS	COMMON CORE STANDARD	ENVISION LESSON	VOCABULARY & NOTES
PRE-ASSESS		Topic 7	Like denominators Common multiples Least common multiples (LCM) Unlike denominators Least common denominator (LCD
REVIEW: NOT IN 6th Grade CORE		Topic 7-1: Adding and Subtracting: Like Denominators	
CORE	6.NS.4	7-2: Least Common Multiples	
REVIEW: NOT IN 6th Grade CORE		7-3: Adding and Subtracting: Unlike Denominators; 7-4: Estimating Sums and Differences of Mixed Numbers; 7-5: Adding Mixed Numbers; 7-6: Subtracting Mixed Numbers; 7-7: Make a Table	
ASSESS		Topic 7 Test	

TOPIC 8: DECIMALS, FRACTIONS, AND MIXED NUMBERS

SUGGESTED TEACHING TIME: 2-5 DAYS (This topic is mostly review.)

REVIEW, CORE, EXTEND, ASSESS	COMMON CORE STANDARD	ENVISION LESSON	VOCABULARY & NOTES
PRE-ASSESS		Topic 8 Test	
REVIEW: NOT IN 6th Grade CORE		Topic 8-1: Multiplying a Fraction and a Whole Number; 8-2:Estimating Products; 8-3: Multiplying Fractions; 8-4: Multiplying Mixed Numbers	
CORE	6.NS.3	Topic 8-5 Problem Solving: Multiple-step problems	
ASSESS		Topic 8 Assessment	

TOPIC 9: DIVIDING FRACTIONS AND MIXED NUMBERS

SUGGESTED TEACHING TIME: 9 DAYS

REVIEW, CORE, EXTEND, ASSESS	COMMON CORE STANDARD	ENVISION LESSON	VOCABULARY & NOTES
PRE-ASSESS		Topic 9 Test	Reciprocals
CORE	6.NS.1 1. Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. For example, create a story context for (2/3) ÷ (3/4) and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that (2/3) ÷ (3/4) = 8/9 because 3/4 of 8/9 is 2/3. (In general, (a/b) ÷ (c/d) = ad/bc.) How much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 3/4-cup servings are in 2/3 of a cup of yogurt? How wide is a rectangular strip of land with length 3/4 mi and area 1/2 square mi?	Topic 9-1: Understanding Division of Fractions	
REVIEW: NOT IN 6th Grade CORE		Topic 9-2: Dividing a Whole Number by a Fraction	

CORE	6.NS.1	Topic 9-3: Dividing Fractions	
CORE	6.NS.1	Topic 9-4: Estimating Quotients	
CORE	6.NS.1	Topic 9-5: Dividing Mixed Numbers	
CORE	6.NS.7	Topic 9-6: Solving Equations	
ASSESS		Topic 9 Assessment	

TOPIC 10: INTEGERS

SUGGESTED TEACHING TIME: 9 DAYS

REVIEW, CORE, EXTEND, ASSESS	COMMON CORE STANDARD	ENVISION LESSON	VOCABULARY & NOTES
PRE-ASSESS		Topic 10 Test	This topic includes operations with integers that are NOT part of the common core standards. Do NOT teach lessons 10-4, 10-5, 10-6, 10-7, 10-8, and problems in 10-10 using negative

			integers. Additional resources are available to teach integers without operations.
CORE	6.NS.5, 6.NS.6, 6.NS.6.a, 6.NS.6.c, 6.NS.7, 6.NS.7.c 5. Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. 6. Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., –(–3) = 3, and that 0 is its own opposite. 7. Understand ordering and absolute value of rational numbers. c. Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. For example, for an account balance of –30 dollars, write |–30| = 30 to describe the size of the debt in dollars.	Topic 10-1: Understanding Integers	Opposites Integers Absolute value Rational number Coordinate plane x- and y-axes quadrants ordered pair origin

CORE	6.NS.6.a, 6.NS.6.b, 6.N.S.7.c, 6.N.S. 7.d b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. d. Distinguish comparisons of absolute value from statements about order. For example, recognize that an account balance less than –30 dollars represents a debt greater than 30 dollars	CC 10-2a: Absolute Value	
CORE	6.NS.7, 6.NS.7.a, 6.NS.7.b	Topic 10-2: Comparing and Ordering Integers	
CORE	6.NS.6, 6.NS.6.c, 6.NS.7, 6.NS.7.a, 6.NS.7.b a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. For example, interpret –3 > –7 as a statement that –3 is located to the right of –7 on a number line oriented from left to right. b. Write, interpret, and explain statements of order for rational numbers in real-world contexts. For example, write –3 °C > –7 °C to express the fact that –3 °C is warmer than –7 °C.	Topic 10-3: Rational Numbers on a Number Line	
NOT IN 6th Grade CORE – DO NOT TEACH		Topic 10-4: Adding Integers, Topic 10-5: Subtracting Integers; Topic 10-6: Multiplying Integers, Topic 10-7: Dividing Integers, 10-8: Solving Equations with Integers	
CORE	6.NS.6, 6.NS.6.b, 6.NS.6.c, 6.NS.8 8. Solve real-world and mathematical problems by graphing	Topic 10-9: Graphing Points on a Coordinate Plan	

	points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.		
CORE	6.G.3; 6.NS.8 3. Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.	CC 10-10a: PS: Use Reasoning	
CORE	6.NS.8	Topic 10-10: Problem Solving: Work Backward	Use the actual problem solving problems; avoid problem #9 in student book.
ASSESS		Topic 10 Assessment	CFA #2 Deadline

			January 24 (Topic 6-10)

TOPIC 12: RATIOS, RATES, AND PROPORTIONS

SUGGESTED TEACHING TIME: 10 DAYS

REVIEW, CORE, EXTEND, ASSESS	COMMON CORE STANDARD	ENVISION LESSON	VOCABULARY & NOTES
PRE-ASSESS		Topic 12 Test	Ratio Terms Proportion Rate Unit rate Formula
CORE	6.RP.1 Understand ratio concepts and use ratio reasoning to solve problems. 1. Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."	Topic 12-1: Understanding Ratios	
CORE	6.RP.3.a a. Make tables of equivalent ratios relating quantities with whole number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.	Topic 12-2: Equal Ratios and Proportions	
CORE	6.RP.2	Topic 12-3: Understanding Rates and	

	2. Understand the concept of a unit rate a/b associated with a ratio a:b with b ≠ 0, and use rate language in the context of a ratio relationship. For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is 3/4 cup of flour for each cup of sugar." "We paid $75 for 15 hamburgers, which is a rate of $5 per hamburger." (Expectations for unit rates in this grade are limited to non-complex fractions.)	Unit Rates
CORE	6.RP.3.b	Topic 12-4: Comparing Rates
CORE	6.RP.3.b b. Solve unit rate problems including those involving unit pricing and constant speed. For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?	Topic 12-5: Distance, Rate, and Time

CORE	6.RP.1, 6.RP.2, 6.RP.3 3. Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.	Topic 12-6: Problem Solving: Draw a Picture	
ASSESS		Topic 12 Assessment	

TOPIC 13: SOLVING PROPORTIONS

(One lesson from Topic 16)

SUGGESTED TEACHING TIME: 8 DAYS

REVIEW, CORE, EXTEND, ASSESS	COMMON CORE STANDARD	ENVISION LESSON	VOCABULARY & NOTES
PRE-ASSESS		Topic 13 Test	This topic includes lessons not in the 6th grade core. Teach

			only the 6th grade core lessons.
CORE	6.RP.3 6.RP.3.a	Topic 13-1: Using Ratio Tables	
CORE	6.RP.2; 6.RP.3.b b. Solve unit rate problems including those involving unit pricing and constant speed. For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?	Topic 13-2: Using Unit Rates	
CORE	6.RP.3	CC 13-3a: Applying Ratios	
CORE	6.RP.3.a	CC 13-3b: Ratios and Graphs	
NOT IN 6th Grade CORE – DO NOT TEACH	6.RP.3	Topic 13-3: Ways to Solve Proportion	
CORE	6.RP.3.b	Topic 13-4: Problem Solving: Writing to Explain	
NOT IN 6th Grade CORE – DO NOT		Topic 13-5: Similar Figures	

TEACH			
NOT IN 6th Grade CORE – DO NOT TEACH		Topic 13-6: Maps and Scale Drawings	
CORE	6.RP.3.d d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.	Topic 16-1: Converting Customary Measures	* Include ratio reasoning as you convert measurement units.
ASSESS		Topic 13 Assessment	

TOPIC 14: UNDERSTANDING PERCENT

REVIEW, CORE, EXTEND, ASSESS	COMMON CORE STANDARDS	ENVISION LESSON	VOCABULARY & NOTES
PRE-ASSESS		Topic 14 Test	percent
CORE	6.RP.3	Topic 14-1: Understanding Percent	

CORE	6.RP.3	Topic 14-2: Fractions, Decimals, and Percent	
CORE	Extends 6.RP.3	Topic 14-3:Percents Greater than 100 and Less than 1	
CORE	6.RP.3	Topic 14-4: Estimating Percent	
CORE	6.RP.3.c c. Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.	Topic 14-5: Finding the Percent of a Number	
CORE	6.RP.3.c	CC 14-6a: Applying Percents: Finding the Whole	
NOT IN 6th Grade CORE – DO NOT TEACH		Tips, Taxes, Discounts and Simple Interest	
ASSESS		Topic 14 Assessment	

SUGGESTED TEACHING TIME: 8 DAYS

TOPIC 15: EQUATIONS AND GRAPHS

SUGGESTED TEACHING TIME: 6 DAYS

REVIEW, CORE, EXTEND, ASSESS	COMMON CORE STANDARDS	ENVISION LESSON	VOCABULARY & NOTES
PRE-ASSESS		Topic 15 Test	This topic includes operations with integers that are NOT part of the common core standards. You do NOT need to teach operations using negative integers. T-table linear equation independent variable dependent
CORE	6.EE.7	Topic 15-1: Equations with More Than One Operation	
CORE	6.EE.9 Represent and analyze quantitative relationships between dependent and independent variables. 9. Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. For example, in a problem involving motion at constant speed, list and graph	Topic 15-2: Patterns and Equations	

	ordered pairs of distances and times, and write the equation d = 65t to represent the relationship between distance and time.		variable
CORE	6.EE.9	Topic 15-3: More Patterns and Equations	
NOT IN 6th Grade CORE – DO NOT TEACH		Topic 15-4: Graphing Equations	
NOT IN 6th Grade CORE – DO NOT TEACH		Topic 15-5: Graphing Equations with More Than One Operations	
CORE	6.EE.5; 6.EE.8 8. Write an inequality of the form x > c or x < c to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form x > c or x < c have infinitely many solutions; represent solutions of such inequalities on number line diagrams.	CC 15-6a: Understanding Inequalities	
NOT IN 6th Grade CORE – DO NOT		Topic 15-6: functions	

TEACH			
CORE	6.EE.5	Topic 15-7: Problem Solving: Act It Out and Use Reasoning	
ASSESS		Topic 15 Assessment	CFA #3 Deadline: March 21 (Topics 12-15)

TOPIC 17: PERIMETER AND AREA

SUGGESTED TEACHING TIME: 5 DAYS

REVIEW, CORE, EXTEND, ASSESS	COMMON CORE STANDARD	ENVISION LESSON	VOCABULARY & NOTES
PRE-ASSESS		Topic 17 Test	Perimeter Area
CORE	6.EE.2.c 6.EE.7	Topic 17-1: Perimeter	

CORE	6.EE.2.c, 6.EE.7, 6.G.1 1. Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.	Topic 17-2: Area of Rectangles and Irregular Figures	
CORE	6.EE.2.c, 6.EE.7, 6.G.1	Topic 17-3: Area of Parallelograms and Triangles	
NOT IN 6th Grade CORE – DO NOT TEACH		Topic 17-4: Circumference	
NOT IN 6th Grade CORE – DO NOT TEACH		Topic 17-5: Area of a Circle	
NOT IN 6th Grade CORE – DO NOT TEACH		Topic 17-6: Problem Solving: Use Objects	
ASSESS		Topic 17 Assessment	

TOPIC 18: VOLUME AND SURFACE AREA

SUGGESTED TEACHING TIME: 8 DAYS

REVIEW, CORE, EXTEND, ASSESS	COMMON CORE STANDARD	ENVISION LESSON	VOCABULARY & NOTES
PRE-ASSESS		Topic 18 Test	Polyhedron Face Edge Vertex Cylinder Sphere Cone Prism Pyramid Net
CORE	6.G.4 4. Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.	Topic 18-1: Solid Figures	
CORE	6.G.4	Topic 18-2: Surface Area	
REVIEW: NOT IN 6th Grade CORE		Topic 18-3: Volume of Rectangular Prisms	

CORE	6.G.2 2. Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = l w h and V = bh to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.	CC 18-4a: Volume of Rectangular Prisms with Fractional Edge Lengths	
NOT IN 6th Grade CORE – DO NOT TEACH		Topic 18:4: Volume of Triangular Prisms and Cylinders	
CORE	6.G.4	Topic 18:5: Problem Solving: Use Objects and Reasoning	
ASSESS		Topic 18 Assessment	

TOPIC 19: DATA AND GRAPHS

SUGGESTED TEACHING TIME: 15 DAYS

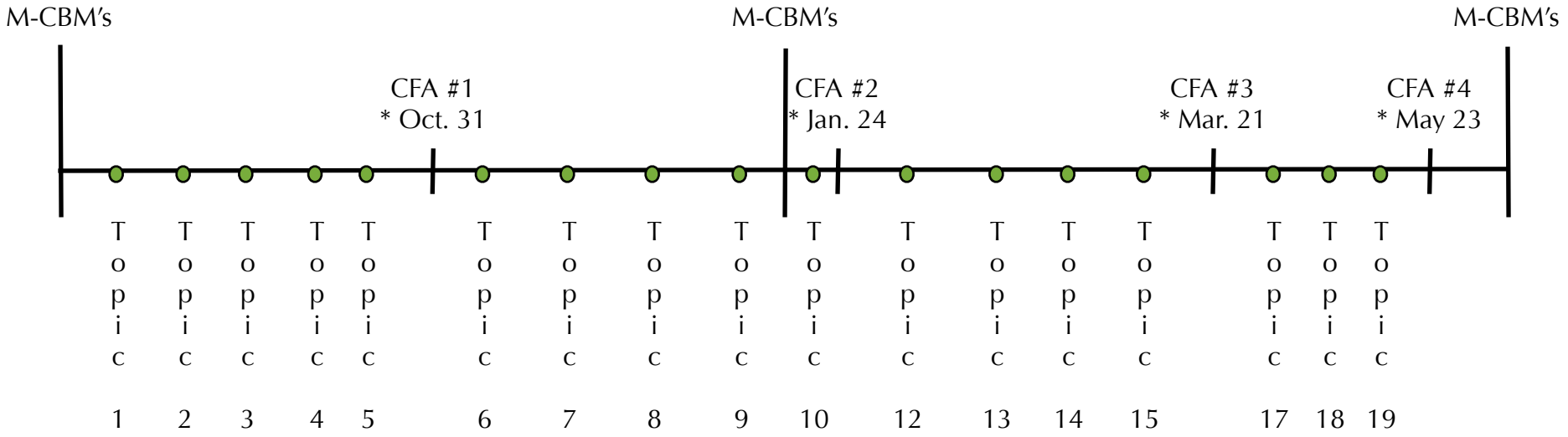
REVIEW, CORE, EXTEND,	COMMON CORE STANDARD	ENVISION LESSON	VOCABULARY & NOTES

ASSESS			
PRE-ASSESS		Topic 19 Test	Statistical question Data distribution Outlier Mean Average Median Mode Range Frequency table Histogram Box plot Quartiles Absolute deviation Mean absolute deviation
NOT IN 6th Grade CORE		Topic 19-1: Reading and Making Graphs; 19-2: Circle Graphs; 19-3: Comparing Graphs; 19-4: Problem Solving: Make a Graph	
CORE	6.SP.1, 6.SP.5.b Develop understanding of statistical variability. 1. Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages. b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.	CC 19-5a: Statistical Questions	
CORE	6.SP.2 2. Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.	CC 19-5b: Looking at Data Sets	
CORE	6.SP.3 6.SP.5.c 3. Recognize that a measure of center for a numerical	CC 19-5c: Mean	

	data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number. c. Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.	
CORE	6.SP.5.c	CC 19-5d: Median, Mode, and Range
CORE	6.SP.4 4. Display numerical data in plots on a number line, including dot plots, histograms, and box plots.	CC 19-8a: Box Plots
CORE	6.SP.3, 6.SP.5.c	CC 19-8b: Measures of Variability
CORE	6.SP.4, 6.SP.5.a 5. Summarize numerical data sets in relation to their context, such as by: a. Reporting the number of observations.	Topic 19-6: Frequency Tables and Histograms
NOT IN 6th Grade CORE		Topic 19-7: Stem and Leaf Plots

CORE	6.SP.5.d d. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.	Topic 19-8: Appropriate Use of Statistical Measures	
CORE	6.SP.5.a, 6.SP.5.b 6.SP.5.c, 6.SP.5.d	CC 19-9a: Data Distributions	
NOT IN 6th Grade CORE – DO NOT TEACH		Topic 19-9: Samples and Surveys	
CORE	6.SP.5.d	Topic 19-10: Using Statistics to Draw Conclusions	
CORE	6.NS.3	Topic 19-11: Problem Solving: Try, Check and Revise	
ASSESS		Topic 19 Assessment	CFA # 4 Deadline: MAY 23 (Topic 17-19)

6th grade
CSD Math Assessment
Continuum
2013-2014



= optional assessment

* Please submit quarterly CFA scores to your school principal by this date.

6th Grade CCSS Vocabulary Word List

Revised 5/25/11

absolute value
acute triangle
addend
Additive Identity Property of 0
additive inverses
algebraic expression
algorithm
altitude
area
Associative Property of Addition
Associative Property of Multiplication
attribute
axis (pl. axes)
base of a polygon
box plot
cluster
coefficient
common denominator
common factor
common multiple
Commutative Property of Addition
Commutative Property of Multiplication
compose
constant
constant speed
coordinate pair
coordinate plane
coordinate system
coordinates
cube
customary system
data
decompose
denominator
dependent variable
difference
distribution

6th Grade CCSS Vocabulary Word List

Revised 5/25/11

Distributive Property
dividend
divisor
dot plot
double number line diagram
equation
equilateral triangle
equivalent
equivalent ratio
evaluate
exponent
expression
factor
first quartile
formula
fraction
gap
graph
greater than
greatest common factor
height
histogram
improper fraction
independent variable
inequality
infinite
integers
interquartile range
isosceles triangle
least common multiple
less than
line plot
lower extreme
magnitude
maximum
mean
mean absolute deviation

6th Grade CCSS Vocabulary Word List

Revised 5/25/11

measure of center
measure of variation
median
metric system
minimum
minuend
mixed number
multiple
Multiplicative Identity Property of 1
multiplicative inverses
negative numbers
net
number line
numerator
numerical expression
obtuse triangle
opposite
Order of Operations
ordered pair
origin
outlier
percent
plot
polygon
positive numbers
prism
product
proportion
pyramid
quadrants
quadrilateral
quantity
quotient
range
rate
ratio
rational number

6th Grade CCSS Vocabulary Word List

Revised 5/25/11

reciprocals
rectangle
right rectangular prism
right triangle
scalene triangle
signed number
solid figure
spread
square-based pyramid
statistical variability
statistics
substitution
subtrahend
sum
surface area
table
tape diagram
term
third quartile
three-dimensional
triangular prism
triangular pyramid
unit cube
unit rate
upper extreme
value
variable
vertex (vertices)
volume
whole numbers
x-axis
x-coordinate
y-axis
y-coordinate

The Core and MORE Instruction Checklist

The CCSS Standard:
The Envision Lesson:

EXPLICIT INSTRUCTION
I do it, We do it, Y'all do it, You do it

ENGAGEMENT
All Students Saying, Writing, Doing

PROACTIVE PLANNING

The following questions should be considered for each part of the lesson:

- What are the predictable failures for this lesson? (conceptually and behaviorally)
- How will you prevent these failures?
- What will you do to maintain consistency?
- How will you know if it is working?

VOCABULARY WORDS

❒ cumulative review	❒ higher-order thinking, ask why	❒ have students visualize, draw, model	❒ real-world contexts
❒ math vocabulary	❒ milk the data	❒ incorporate measurement	❒ number sense

ANTICIPATORY SET (5 MINUTES)

Choose from the many options:

- ❑ *Review What You Know*
- ❑ *Interactive Math Stories*
- ❑ Math Journaling
- ❑ *Spiral Review*
- ❑ *Problem of the Day*

- ❑ Choral Responses
- ❑ Partner Responses
- ❑ Written Responses
- ❑ Random call on students (No hand raising)

BUILDING A FOUNDATION (5-10 MINUTES)

The Language of Math: Vocabulary instruction

1- How will you explicitly teach new vocabulary?

- ❑ Choral Responses
- ❑ Partner Responses
- ❑ Written Responses

2- How will you provide multiple opportunities for vocabulary to be used in context?	❑ Random call on students (No hand raising)
WHOLE GROUP INSTRUCTION: Concrete	(10-15 MINUTES)
Develop the Concept: Interactive Learning (Hands-on) 1- What materials/manipulatives will you need? 2- Will each student have enough materials to model the problems? -If they do not, will you have them pair up or adjust the problems? 3- Where will students record their work during this phase of the lesson? 4- How will you check for understanding during this phase of the lesson? 5- Will you use the *Extend?* 6- Will you use the *Link to Investigations*?	❑ Choral Responses ❑ Partner Responses ❑ Written Responses ❑ Paper ❑ Math Journal ❑ Individual Whiteboards ❑ Student page from the topic pouch ❑ Random call on students (No hand raising)
SCAFFOLDED INSTRUCTION: Representational	(15-20 MINUTES)
Develop the Concept: Visual The *Visual Learning* Bridge, at the top of each lesson, is critical to connecting the Concrete to the Representational and then to the Abstract. Look for *Prevent Misconceptions*. Choose one option: ❑ *Visual Learning Animation* (on-line or CD) ❑ Overhead Transparency ❑ *Visual Learning* Bridge in Student textbook ❑ Document camera 1- Check for understanding during the *Guided Practice*. 2- Where will students record their work? 3- If most students are struggling during this phase of the lesson, what will you do? ❑ Reteach explicitly with various problems from the *Guided* or *Independent Practice* or the *Reteaching* sets at the back of the *Topic Guide*. ❑ Use lessons from *Meeting Individual Needs*. ❑ Use the *Differentiated Instruction: Intervention* lesson.	❑ Choral Responses ❑ Partner Responses ❑ Written Responses ❑ Random call on students (No hand raising)

4- Will some of the problems from the *Problem Solving* be included in your *Guided Practice* or *Independent Practice*?

INDEPENDENT PRACTICE: ABSTRACT (15-20 MINUTES)

Independent Practice and *Problem Solving*

1- Which problems will you assign?
2- Where will students record their work?
3- Will you collect, grade and record the independent practice?
4- How will you check for understanding?
5- If students do not finish the problems assigned for independent practice, will these problems be homework?

- ❑ Choral Responses
- ❑ Partner Responses
- ❑ Written Responses
- ❑ Random call on students (No hand raising)

FORMATIVE ASSESSMENT (5-10 MINUTES)

Concept Understanding

- ❑ PLC/Grade-Level common formative assessment
- ❑ *Quick Check* (in *Teacher Resource Masters)*
- ❑ *Writing to Explain*
- ❑ *Mind Game Quiz Show*
- ❑ Student buzzers or AverPens

Formative Assessment Tools

- ❑ *Topic tests* (online or in text)
- ❑ *Item Analysis for Diagnosis and Intervention*
- ❑ *Free-Response Test*
- ❑ *Performance Assessment*
- ❑ CBM-Math
- ❑ PLC/Grade-Level common formative assessment
- ❑ Other assessment tool

End of each Quarter:

- ❑ *District Common Formative Assessment* (CFA)

CENTER ACTIVITIES (15 - 45 MINUTES)

*This part of the lesson is beneficial for providing engaging activities while the teacher works with small groups of students who need supplemental instruction.

Choose from the many options:

- ❑ *Differentiated Instruction*
- ❑ *Math Project*
- ❑ *Meeting Individual Needs*
- ❑ Teacher-led interventions
- ❑ *Leveled Homework*
- ❑ Online games from *Envision Digital Premium*

1- Will you do these activities and if so, when?
2- When will you give directions on how to play?
3- What materials will be needed for the activities?
4- Will you work with the Intervention group?
5- How will you determine which activities will be assigned to each group of students?

HOMEWORK

Choose from the many options:

- ❑ Finish *Independent Practice* and/or *Problem Solving* assignment
- ❑ *Spiral Review*
- ❑ *Quick Check*
- ❑ *Leveled Homework*
- ❑ Online games from *Envision Digital Premium*
- ❑ Online tutorials from *Envision Digital Premium*

1- Will you collect and grade homework?
2- Will you discuss homework? Is so, when?