Introduction

In Grade 6, instructional time should focus on four critical areas: (1) connecting ratio and rate to whole number multiplication and division and using concepts of ratio and rate to solve problems; (2) completing understanding of division of fractions and extending the notion of number to the system of rational numbers, which includes negative numbers; (3) writing, interpreting, and using expressions and equations; and (4) developing understanding of statistical thinking.			

Setting the Stage

	ASSIGNMENT (CALL TO ACTION)	RESOURCE/ URL
Welcome to the Grade 6 Mathematics Pennsylvania Learns iTunes U course. We are setting the stage for this course by providing you with background information about Pennsylvania Mathematics Core Standards and the Standards for Mathematical Practice.		
Pennsylvania Core Standards: The State Board approved the final Chapter 4 regulations on September 12, 2013. The Independent Regulatory Review Commission (IRRC) approved the final regulation on November 21, 2013. With publication of Chapter 4 in the Pennsylvania Bulletin, the new regulations took effect on March 1, 2014. As part of the new regulations, Pennsylvania's Core Standards offer a set of rigorous, high-quality academic expectations in Mathematics that all students should master by the end of each grade level. The PA Core Standards are robust and relevant to the real world and reflect the knowledge and skills our young people need to succeed in life after high school, in both post-secondary education and a globally competitive workforce.	**REVIEW** the "Teacher Resources" and "Student Resources" section of the PA Core Implementation section of the SAS Portal.	http://www.pdesas.org/Standard/PACore

Standards for Mathematical Practice and Content

TOPIC	MESSAGE	ASSIGNMENT (CALL TO ACTION)	CONTENT DIRECTIONS	RESOURCE/ URL
About the Standards for Mathematical Practice and Content	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. The first of these are the NCTM process standards of problem solving, reasoning and proof, communication, representation, and connections. The second are the strands of mathematical proficiency specified in the National Research Council’s report *Adding It Up*: This report explores how students in pre-K through 8th grade learn mathematics and highlights the importance of the inclusion of the following in teaching and learning: adaptive reasoning, strategic competence, conceptual understanding (comprehension of mathematical concepts, operations and relations), procedural fluency (skill in carrying out procedures flexibly, accurately, efficiently and appropriately), and productive disposition (habitual inclination to see mathematics as sensible, useful, and worthwhile, coupled with a belief in diligence and one’s own efficacy).			
Standards for Mathematical Practice	The eight Standards of Mathematical Practice: 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. The Standards for Mathematical Practice describe ways in which developing student practitioners of the discipline of mathematics increasingly ought to engage with the subject matter as they grow in mathematical maturity and expertise throughout the elementary, middle and high school years.			
		LEARN how the standards improve teaching, make learning more engaging, create shared expectations, and cultivate lifelong learning for students.	NCTM and The Hunt Institute have produced a series of videos to enhance understanding of the mathematics that students need to succeed in college, life, and careers. Beginning in the primary grades, the videos address the importance of developing a solid foundation for algebra, as well as laying the groundwork for calculus and other postsecondary mathematics coursework. The series also covers the Standards for Mathematical Practice elaborated in the PA Core Standards for Mathematics and examines why developing conceptual understanding requires a different approach to teaching and learning.	https://itunes.apple.com/us/itunes-u/hunt-institute-ccss-series/id461816983?mt=10

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. The content standards which set an expectation of understanding are potential “points of intersection” between the Standards for Mathematical Content and the Standards for Mathematical Practice. These points of intersection are intended to be weighted toward central and generative concepts in the school mathematics curriculum that most merit the time, resources, innovative energies, and focus necessary to qualitatively improve the curriculum, instruction, assessment, professional development, and student achievement in mathematics.			
		DEEPEN your understanding of the PA Core Standards shifts in mathematics.	This course is intended to deepen your understanding of the PA Core Standards shifts in mathematics. It is designed to stimulate thinking around designing and delivering instruction matched to the Standards and how this may change your classroom practice. The content describes how the Standards differ from previous Standards and thoroughly explains the Shifts of focus, coherence and rigor.	https://itunes.apple.com/us/course/ccss-for-teachers-math-shifts/id679843407

Topic and Title	Message	Assignment/Call To Action	Content Directions	Content URL or Location
Module 1: Ratios and Unit Rates	In Module 1, students build on their prior work in measurement and in multiplication and division as they study the concepts and language of ratios and unit rates. They use proportional reasoning to solve problems. In particular, students solve ratio and rate using tape diagrams, tables of equivalent ratios, double number line diagrams, and equations. Students will be introduced to percentages as a rate per 100.			
	Module 1 Focus Standard(s): CC.2.1.6.D.1 Understand ratio concepts and use ratio reasoning to solve problems.			
	Module 1 Objective(s): 1. Use ratio language and notation to describe a ratio relationship between two quantities. 2. Find the unit rate a/b associated with a ratio a: b (with b ≠ 0) and use rate language in the context of a ratio relationship. 3. Construct tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and/or plot the pairs of values on the coordinate plane. Use tables to compare ratios. 4. Solve unit rate problems including those involving unit pricing and constant speed. 5. 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.			
		ACCESS Module 1 Mathematics Curriculum Framework		http://www.pdesas.org/CMap/CMap/DefaultCmap/16771
Ratio Language and Notation	In this lesson, you will use ratio language and notation to describe a ratio relationship between two quantities.	LEARN about all types of ratios using a diagram.		https://learnzillion.com/lessons/601-identify-all-types-of-ratios-using-a-diagram
		WRITE examples of ratios given in the previous video, and **CREATE** two pictorial examples of your own, using the Explain Everything app.		https://itunes.apple.com/us/app/explain-everything/id431493086?mt=8
		LEARN about the difference between a ratio and a fraction.		https://learnzillion.com/lessons/602-understand-the-difference-between-fractions-and-ratios
		USE the Explain Everything App to explain in your own words the difference between a fraction and a ratio.		https://itunes.apple.com/us/app/explain-everything/id431493086?mt=8
		PRATICE identifying ratios.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-ratios-prop-topic/cc-6th-ratios-intro/e/representing-ratios
		PRACTICE identifying the correct ratio or fraction. **DEMONSTRATE** and **EXPLAIN** your thinking within the Explain Everything app.		https://www.illustrativemathematics.org/content-standards/6/RP/A/1/tasks/912
				https://itunes.apple.com/us/app/explain-everything/id431493086?mt=8

Tables of Equivalent Ratios	In this lesson, you will construct tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and/or plot the pairs of values on the coordinate plane. You will use tables to compare ratios.	**LEARN** how to expand a diagram to create equivalent ratios.		https://learnzillion.com/lesson_plans/11152-5-understand-equivalent-ratios-c?card=92980
		LEARN how to use a table to create equivalent ratios.		https://learnzillion.com/lessons/587-solve-ratio-problems-using-tables-and-multiplication
		PRACTICE finding equivalent ratios.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-ratios-prop-topic/cc-6th-ratios-intro/e/solving-ratio-problems-with-tables
		LEARN how to use a tape diagram to create equivalent ratios.		https://www.youtube.com/watch?v=UqWRaat5klA
		PRACTICE with equivalent ratios by accessing the Thinking Blocks: Ratio and Proportion Practice app. Try the missing quantity portion of the app (green blocks).		https://itunes.apple.com/us/app/thinking-blocks-ratios/id670448325?mt=8
		PRACTICE using equivalent ratios to solve word problems.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-ratios-prop-topic/cc-6th-ratio-word-problems/e/ratio_word_problems
		PRACTICE using equivalent rates to solve a rate problem and graph the coordinates in the table.	Use the Educreations app to plot the points by choosing the coordinate plane option. Use a separate page to create the table and provide explanation.	https://www.illustrativemathematics.org/content-standards/6/RP/A/3/tasks/711
				https://itunes.apple.com/us/app/educreations-interactive-whiteboard/id478617061?mt=8
Finding Unit Rate	In this lesson, you will find the unit rate a/b associated with a ratio a: b (with b ≠ 0) and use rate language in the context of a ratio relationship.	**LEARN** about unit rates.		https://learnzillion.com/lessons/841-create-unit-rate-using-tape-diagram
		PRACTICE with unit rates and equivalent rates.		http://www.ixl.com/math/grade-6/unit-rates-and-equivalent-rates
		PRACTICE finding unit rates. **SOLVE** the problems and demonstrate your thinking using the Explain Everything app.		https://www.illustrativemathematics.org/content-standards/6/RP/A/2/tasks/1611
				https://itunes.apple.com/us/app/explain-everything/id431493086?mt=8
		PRACTICE finding unit rates. Solve the problems and demonstrate your thinking using the Explain Everything app.		https://www.illustrativemathematics.org/content-standards/6/RP/A/2/tasks/1975

				https://itunes.apple.com/us/app/explain-everything/id431493086?mt=8
Using Unit Rate to Solve Word Problems	In this lesson, you will solve unit rate problems including those involving unit pricing and constant speed.	**PRACTICE** solving problems involving rate.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-ratios-prop-topic/cc-6th-rates/e/rate_problems_0.5
		SOLVE the problems involving rate and **DEMONSTRATE** your thinking using the Explain Everything app.		https://www.illustrativemathematics.org/content-standards/6/RP/A/3/tasks/1641
				https://itunes.apple.com/us/app/explain-everything/id431493086?mt=8
		LEARN how to use the thinking block app to solve ratio problems involving unit rate.		https://www.youtube.com/watch?v=GBVy87kLjdA
		APPLY your knowledge to solve more challenging rate problems.	Choose the yellow bars.	https://itunes.apple.com/us/app/thinking-blocks-ratios/id670448325?mt=8
Percents	In this lesson, you will find a percent of a quantity as a rate per 100 and solve problems involving finding the whole, given a part and the percent.	**LEARN** how to define percents by using ratios.		https://learnzillion.com/lessons/593-define-percents-as-ratios
		LEARN how to visualize percents on a hundred grid.		https://learnzillion.com/lessons/594-visualize-percents-using-10-x-10-grids
		MODEL a percent, decimal, and fraction with a hundred grid.	Using a hundred grid, shade 32 blocks. Represent the shaded region with a fraction, decimal, and percent. Take a screenshot of the final answers.	https://itunes.apple.com/us/app/number-frames-by-math-learning/id873198123?mt=8
		PRACTICE finding the percent.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-ratios-prop-topic/cc-6th-percent-problems/e/finding_percents
		LEARN how to solve percent problems using ratio tables.		https://learnzillion.com/lessons/598-solve-percent-problems-using-a-ratio-table
		PRACTICE solving percent word problems.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-ratios-prop-topic/cc-6th-percent-word-problems/e/percentage_word_problems_1

		SOLVE a problem involving percents. **DEMONSTRATE** and **EXPLAIN** your thinking within the Explain Everything app.		https://www.illustrativemathematics.org/content-standards/6/RP/A/3/tasks/1982
				https://itunes.apple.com/us/app/explain-everything/id431493086?mt=8

Alternative to IOS and Notes
https://play.google.com/store/apps/details?id=com.explaineverything.explaine
https://play.google.com/store/apps/details?id=com.explaineverything.explaineverything&hl=en
Bag of Marbles task
https://play.google.com/store/apps/details?id=com.explaineverything.explaineverything&hl=en

http://www.mathplayground.com/tb_ratios/thinking_blocks_ratios.html
Walk a thon 1 task
https://play.google.com/store/apps/details?id=com.explaineverything.explaineverything&hl=en
Hippos love pumpkins task
https://play.google.com/store/apps/details?id=com.explaineverything.explaineverything&hl=en
ticket booth task

https://play.google.com/store/apps/details?id=com.explaineverything.explaineverything&hl=en
Gianna's job task
https://play.google.com/store/apps/details?id=com.explaineverything.explaineverything&hl=en
http://www.mathplayground.com/tb_ratios/thinking_blocks_ratios.html
https://www.mathlearningcenter.org/web-apps/number-frames/

Exam scores task
https://play.google.com/store/apps/details?id=com.explaineverything.explaineverything&hl=en

Topic and Title	Message	Assignment/Call To Action	Content Directions	Content URL or Location	Alternative to IOS or Notes
Module 2: Arithmetic Operations	Students expand their understanding of the number system and build their fluency in arithmetic operations in Module 2. Students learned in Grade 5 to divide whole numbers by unit fractions and unit fractions by whole numbers. Now, they apply and extend their understanding of multiplication and division to divide fractions by fractions. The meaning of this operation is connected to real-world problems as students are asked to create and solve fraction division word problems. Students continue (from fifth grade) to build fluency with adding, subtracting, multiplying, and dividing multi-digit decimal numbers using the standard algorithms. Students also extend the concepts of factors and multiples to include Greatest Common Factor and Least Common Multiple.				
	Focus Standard(s): CC.2.1.6.E.1Apply and extend previous understandings of multiplication and division to divide fractions by fractions. CC.2.1.6.E.2Identify and choose appropriate processes to compute fluently with multi-digit numbers. CC.2.1.6.E.3Develop and/or apply number theory concepts to find common factors and multiples.				
	Module 2 Objective(s): 1. Interpret and compute quotients of fractions (including mixed numbers), and solve word problems involving division of fractions by fractions. 2. Solve problems involving operations (+,–, ×, ÷) with whole numbers, decimals (through thousandths), straight computation, or word problems. 3. Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. 4. Apply the distributive property to express a sum of two while numbers, 1 through 100, with a common factor as a multiple of a sum two whole numbers with no common factor.				
		ACCESS Module 2 Mathematics Curriculum Framework		http://www.pdesas.org/CMap/CMap/DefaultCmap/17127	
Fractions	In this lesson, you will interpret and compute quotients of fractions (including mixed numbers), and solve word problems involving multiplication and division of fractions.	**LEARN** how to divide fractions by fractions using models.		https://www.brainingcamp.com/lessons/dividing-fractions/lesson.php	
		PRACTICE dividing fractions and mixed numbers using a number line model.		http://www.visualfractions.com/DivideEasy/	
		SOLVE word problems by dividing fractions and mixed numbers.		https://www.brainingcamp.com/lessons/dividing-fractions/problems.php	
		SOLVE word problems by dividing fractions and mixed numbers.	Use the number line app to demonstrate your solution. Demonstrate and explain your solution within the Explain Everything app.	https://www.illustrativemathematics.org/content-standards/6/NS/A/1/tasks/50	Baking cookies task
				https://itunes.apple.com/us/app/number-line-manipulative/id805013846?mt=8	https://www.mathlearningcenter.org/web-apps/number-line/
				https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	https://play.google.com/store/apps/details?id=com.explaineverything.explaineverything&hl=en
		DETERMINE another way to divide fractions and **PRACTICE** dividing fractions and mixed numbers with models.	Choose Dividing, watch the lesson, use the manipuatives, and then try the questions.	https://itunes.apple.com/us/app/fractions-by-brainingcamp/id471353363?mt=8	

		LEARN how to interpret and compute the quotient of fractions.		https://learnzillion.com/lesson_plans/7615-computing-quotients-using-the-fractions-division-rule	
		PRACTICE dividing fractions by fractions.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-arithmetic-operations/cc-6th-dividing-fractions/e/dividing-fractions-by-fractions-word-problems	
Decimals	In this lesson, you will solve problems involving operations (+,–, ×, ÷) with whole numbers, decimals (through thousandths), straight computation, or word problems.	**LEARN** how to divide decimals using the standard algorithm.		https://learnzillion.com/lessons/3065-divide-decimals	
		SOLVE word problems by dividing decimals.	Demonstrate and explain your solution within the Explain Everything App.	https://www.illustrativemathematics.org/content-standards/6/NS/B/3/tasks/274	buying gas task
				https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	https://play.google.com/store/apps/details?id=com.explaineverything.explaineverything&hl=en
		LEARN how to efficiently solve word problems involving decimals.		https://learnzillion.com/lessons/2503-solve-real-world-problems-with-multi-digit-decimals	
		SOLVE word problems involving decimals.	Demonstrate and explain your solution within the Explain Everything App.	https://www.illustrativemathematics.org/content-standards/6/NS/B/3/tasks/374	gifts from grandma task
				https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	https://play.google.com/store/apps/details?id=com.explaineverything.explaineverything&hl=en
		SOLVE word problems involving decimals.	Demonstrate and explain your solution within the Explain Everything App.	https://www.illustrativemathematics.org/content-standards/6/NS/B/3/tasks/273	Jayden's snack task
				https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	https://play.google.com/store/apps/details?id=com.explaineverything.explaineverything&hl=en
Greatest Common Factors	In this lesson,you will find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12.	**LEARN** how to find the greatest common factor and least common multiple of numbers.	Engage completely in all 3 lessons.	https://learnzillion.com/lesson_plans/2816-5-understand-least-common-multiple-and-greatest-common-factor-c	
				https://learnzillion.com/lesson_plans/2821-6-pratice-least-common-multiple-and-greatest-common-factor-fp	
				https://learnzillion.com/lesson_plans/3663-7-apply-knowledge-of-least-common-multiples-and-greatest-common-factors-a	
		LEARN how to find greatest common factor and least common mutliple using prime factorization.		https://learnzillion.com/lessons/2796-find-the-gcf-and-lcm-using-prime-factorization	

		READ about and **PRACTICE** the greatest common factor using the factor tree.	Click the PRACTICE button.	http://www.ck12.org/arithmetic/Greatest-Common-Factor-Using-Factor-Trees/lesson/Greatest-Common-Factor-Using-Factor-Trees-MSM6/	
		SOLVE word problems involving greatest common factors and least common multiples.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-factors-and-multiples/cc-6th-gcf/e/gcf-and-lcm-word-problems	
		SOLVE word problems involving greatest common factors and least common multiples.	Demonstrate and explain your solution within the Explain Everything App.	https://www.illustrativemathematics.org/content-standards/6/NS/B/4/tasks/258	Bake sale task
				https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	https://play.google.com/store/apps/details?id=com.explaineverything.explaineverything&hl=en
		SOLVE word problems involving greatest common factors and least common multiples.	Demonstrate and explain your solution within the Explain Everything App.	https://www.illustrativemathematics.org/content-standards/6/NS/B/4/tasks/259	The florist shop task
				https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	https://play.google.com/store/apps/details?id=com.explaineverything.explaineverything&hl=en
Distributive Property	In this lesson, you will apply the distributive property to express a sum of two whole numbers, 1 through 100, with a common factor as a multiple of a sum of two whole numbers with no common factor.	**LEARN** how to express the sum of two whole numbers as a multiple of a sum.		https://learnzillion.com/lessons/2581-rewrite-addition-problems-as-multiplication-problems-using-the-distributive-property	
		PRACTICE applying distributive properties of addition and subtraction.		http://www.ixl.com/math/grade-6/distributive-property	

Topic and Title	Message	Assignment/Call To Action	Content Directions	Content URL or Location	Alternative to IOS or Notes
Module 3: Rational Numbers	Major themes of Module 3 are to understand rational numbers as points on a number line and to extend previous understandings of numbers to the system of rational numbers, which now include negative numbers. Students exten coordinate axes to represent points in the place with negative number coordinates and, as part of doing so, see that negative numbers can represent quantities in real-world contexts. They use the number line to order numbers and to understand the absolute value of a number. They begin to solve real-world and mathematical problems by graphing points in all four quadrants, a concept that continues throughout to be used into high school and beyond.				
	Module 3 Focus Standards: CC.2.1.6.E.4Apply and extend previous understandings of numbers to the system of rational numbers.				
	Module 3: Objectives: 1. Represent quantities in real-world contexts using positive and negative numbers, explaining the meaning of 0 in each situation. 2. Determine the opposite of a number and recognize that the opposite of the opposite of a number is the number itself. 3. Locate and plot integers and other rational numbers on a horizontal or vertical number line; locate and plot pairs of integers and other rational numbers on a coordinate plane. 4. Write, interpret, and explain statements of order for rational numbers in real-world contexts. Example: Write $-3^{o}C > -7^{o}C$ to express the fact that $-3^{o}C$ is warmer than $-7^{o}C$. 5. Interpret the absolute value of a rational number as its distance from 0 on the number line and as a magnitude for a positive or negative quantity in a real-world situation. 6. Solve real-world and mathematical problems by plotting 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.				
		ACCESS Module 3 Mathematics Curriculum Framework		http://www.pdesas.org/CMap/CMap/DefaultCmap/17128	
Rational Numbers	In this lesson, you will represent quantities in real-world contexts using positive and negative numbers.	LEARN about representing quantities in the real world.		http://www.virtualnerd.com/middle-math/integers-coordinate-plane/integers-absolute-value/represent-real-world-examples	
		READ about integers that represent different situations.		http://www.ck12.org/arithmetic/Integers-that-Represent-Different-Situations/lesson/Integers-that-Represent-Different-Situations-MSM6/	
		LEARN about integers in the real world.		http://www.slideshare.net/bigpassy/integers-in-the-real-world	
		LEARN about elevation.		https://www.youtube.com/watch?v=NX3mNjSfERo	
		PRACTICE answering questions about integer quantities.		http://www.mathgames.com/skill/6.56-working-with-temperatures-above-and-below-zero	
		COMPLETE the number line task and **EXPLAIN** your solution.		http://s3.amazonaws.com/illustrativemathematics/attachments/000/009/824/original/student_task_283.pdf?1462399322	
				https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	https://play.google.com/store/apps/details?id=com.explaineverything.explaineverything&hl=en

Opposites	In this lesson, you will determine the opposite of a number and recognize that the opposite of the opposite of a number is the number itself.	**READ** about opposites of given integers.		http://www.ck12.org/arithmetic/Opposites-of-Given-Integers/lesson/Opposites-of-Given-Integers-MSM6/?referrer=concept_details	
		GRAPH opposites.		https://www.illustrativemathematics.org/content-standards/6/NS/C/6/tasks/2009	integers on the number line 2 task
				https://itunes.apple.com/us/app/geogebra/id687678494?mt=8	https://www.geogebra.org
Ordering Rational Numbers	In this lesson, you will write, interpret, and explain statements of order for rational numbers in real world contexts.	**READ** about and **PRACTICE** integer comparison on a number line.		http://www.ck12.org/arithmetic/Integer-Comparison-on-a-Number-Line/	
		PRACTICE comparing and ordering rational numbers.		http://www.helpingwithmath.com/printables/worksheets/numbers/int0601integers_01.htm	
		COMPARE and **ORDER** rational numbers in a real world context.		https://www.illustrativemathematics.org/content-standards/6/NS/C/7/tasks/285	Comparing temps task
				https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	https://play.google.com/store/apps/details?id=com.explaineverything.explaineverything&hl=en
		COMPARE real world numbers.		temperature task from wikispace	
				https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	https://play.google.com/store/apps/details?id=com.explaineverything.explaineverything&hl=en
Absolute Value	In this lesson, you will interpret the absolute value of a rational number as its distance from 0 on the number line and as a magnitude for a positive or negative quantity in a real-world situation.	LEARN about integers and absolute value.		https://learnzillion.com/lessons/1140	
		PRACTICE finding absolute value.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-negative-number-topic/cc-6th-absolute-value/e/absolute_value	
		PRACTICE use of absolute value in real world situations.		https://www.illustrativemathematics.org/content-standards/6/NS/C/7/tasks/288	Above and below sea level task
				https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	https://play.google.com/store/apps/details?id=com.explaineverything.explaineverything&hl=en
		PRACTICE use of absolute value in real world situations.		https://www.illustrativemathematics.org/content-standards/6/NS/C/7/tasks/286	Jumping flea task
				https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	https://play.google.com/store/apps/details?id=com.explaineverything.explaineverything&hl=en

Rational Numbers on a Coordinate Plane	In this lesson, you will locate and plot integers and other rational numbers on a horizontal or vertical number line; locate and plot pairs of integers and other rational numbers on a coordinate plane.	LEARN how to graph points on a coordinate plane.		http://www.virtualnerd.com/middle-math/integers-coordinate-plane/coordinate-plane/coordinate-plane-graph-points-example	
		LEARN how to graph rational numbers on a coordinate plane.		https://learnzillion.com/lessons/491-graph-rational-numbers-on-a-coordinate-plane	
		PRACTICE plotting pairs of integers on a coordinate plane.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-negative-number-topic/cc-6th-coordinate-plane/e/identifying_points_1	
		PRACTICE plotting pairs of integers on a coordinate plane.		https://itunes.apple.com/us/app/co-ordinates/id594462845?mt=8	app is 1.99
Distances on the Coordinate Plane	In this lesson, you will solve real-world and mathematical problems by plotting points in all four quadrants of the coordinate plane.	LEARN how to find the distance between points on a coordiante plane when the two points share an x or y value.		https://learnzillion.com/lessons/1147-use-absolute-value-to-find-distances-between-points	
		ENGAGE in the task to explore finding the distance between points on a coordinate plane.		problem solvivng and the coordinate plane task on the wikispace	
		PRACTICE finding distances between points on the coordinate plane.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-negative-number-topic/cc-6th-coordinate-plane/e/relative-position-on-the-coordinate-plane	
		PRACTICE finding distances between points on the coordinate plane.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-negative-number-topic/cc-6th-coordinate-plane/e/coordinate-plane-word-problems	

Topic and Title	Message	Assignment/Call To Action	Content Directions	Content URL or Location	Alternative to IOS or Notes
Module 4: Expressions and Equations	With their sense of number expanded to include negative numbers, in Module 4 students begin formal study of algebraic expressions and equations. Students learn equivalent expressions by continuously relating algebraic expressions back to arithmetic and the properties of arithmetic (commutative, associative, and distributive). They write, interpret, and use expressions and equations as they reason about and solve one variable equations and inequalities and analyze quantitative relationships between two variables.				
	Module 4 Focus Standards: CC.2.2.6.B.1Apply and extend previous understandings of arithmetic to algebraic expressions. CC.2.2.6.B.2Understand the process of solving a one-variable equation or inequality and apply to real-world and mathematical problems. CC.2.2.6.B.3Represent and analyze quantitative relationships between dependent and independent variables.				
	Module 4 Objectives: 1. Write and evaluate numerical expressions involving whole-number exponents. 2. Write algebraic expressions from verbal descriptions. 3. Identify parts of an expression using mathematical terms. (e.g. sum, term, product, factor, quotient, coefficient, quantity) 4..Evaluate expressions at specific values of their variables, including expressions that arise from formulas used in real-world problem 5. Apply the properties of operations to generate equivalent expressions 6. Use substitution to determine whether a given number is a specified set makes an equation or inequality true. 7. Write algebraic expressions to represent real-world or mathematical problems. 8. 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 non-negative rational numbers. 9. Write an inequality of the form x > c or x < c to represent a constraint or condition in a real-world or mathematical problem and/or represent solutions of such inequalities on number lines. 10. Write an equation to express the relationship between the dependent and independent variables. 11. Analyze the relationship between the dependent and independent variables using graphs and tables, and/or relate these to an equation.				
		ACCESS Module 4 Math Curriculum Framework		http://www.pdesas.org/CMap/CMap/	
Numerical Expressions	In this lesson, you will write and evaluate numerical expressions involving whole-number exponents.	**LEARN** how to write numerical expressions involving exponents.		https://learnzillion.com/lessons/460-write-numerical-expressions-involving-whole-number-exponents	
		WRITE numerical expressions with exponents.		http://www.mathgames.com/skill/6.111-write-multiplication-expressions-using-exponents	
		LEARN how to evaluate numerical expressions with whole number exponents.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-arithmetic-operations/cc-6th-order-of-operations/v/order-of-operations-with-exponents-examples	
		EVALUATE numerical expressions with whole number exponents.		http://www.mathgames.com/skill/6.1-evaluate-exponents	
				https://www.khanacademy.org/math/pre-algebra/order-of-operations/order_of_operations/e/order_of_operations_2	
Algebraic Expressions	In this lesson, you will write algebraic expressions from verbal descriptions.	**LEARN** about writing algebraic expressions from verbal descriptions.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-expressions-and-variables/cc-6th-writing-expressions/v/writing-expressions-with-variables-examples	
		PRACTICE writing expressions from variable descriptions.		https://www.khanacademy.org/math/algebra/introduction-to-algebra/writing-expressions-tutorial/e/writing_expressions_1	
		PRACTICE writing expressions.		http://www.mathgoodies.com/lessons/vol7/expressions.html	

Expression Vocabulary	In this lesson, you will identify parts of an expression using mathematical terms (e.g., sum, term, product, factor, quotient, coefficient, quantity) and evaluate expressions.	**LEARN** how to identify parts of a mathematical expression.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-expressions-and-variables/cc-6th-parts-of-expressions/v/expression-terms-factors-and-coefficients	
		PRACTICE identifying parts of a mathematical expression.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-expressions-and-variables/cc-6th-parts-of-expressions/e/identifying-parts-of-expressions	
Evaluating Expressions	In this lesson, you will evaluate expressions at specific values of their variables, including expressions that arise from formulas used in real-world problem	LEARN how to evaluate formulas by using substitution.		https://www.khanacademy.org/math/algebra/introduction-to-algebra/variable-and-expressions/v/evaluate-a-formula-using-substitution?playlist=Developmental+Math+2	
		PRACTICE evaluating expressions.		https://www.khanacademy.org/math/algebra/introduction-to-algebra/variable-and-expressions/e/evaluating_expressions_1	
		PRACTICE evaluating expressions.	Import the task into Explain Everything to complete.	http://s3.amazonaws.com/illustrativemathematics/attachments/000/009/917/original/student_task_421.pdf?1462399880	
Properties of Operations	In this lesson, you will apply properties of operations to generate equivalent expressions.	**LEARN** how to apply properties of operations to generate equivalent expressions.		https://learnzillion.com/lessons/3277-simplify-algebraic-expressions-by-applying-the-distributive-property	
		LEARN how to simplify algebraic expressions by combining like terms and applying the distributive property.		https://learnzillion.com/lessons/3411-simplify-algebraic-expressions-by-combining-like-terms-and-applying-the-distributive-property	
		PRACTICE using the distributive property.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-expressions-and-variables/cc-6th-distributive-property/e/distributive-property-with-variables	
		PRACTICE simplifying expressions.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-expressions-and-variables/cc-6th-combining-like-terms/e/combining-like-terms-with-distribution	
		ANALYZE expressions to determine whether they are equivalent or not.		https://www.illustrativemathematics.org/content-standards/6/EE/A/4/tasks/461	Rectangle perimeter task
				https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	https://play.google.com/store/apps/details?id=com.explaineverything.explaineverything&hl=en
Substitution	In this lesson, you will use substitution to determine whether a given number in a specified set makes an equation or inequality true.	**LEARN** how to use substitution to determine whether a given number in a specified set makes an equation true.		https://learnzillion.com/lessons/2514-understand-that-equations-have-one-solution-using-a-pan-balance	
		PRACTICE substituting to determine whether a given number in a specified set makes an equation or inequality true.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-equations-and-inequalities/cc-6th-intro-equations/e/testing-solutions-of-equations-inequalities	
Algebraic Expressions in the Real World	In this lesson, you will write algebraic expressions to represent real-world or mathematical problems.	**LEARN** how to write algebraic expressions to represent real-world problems.		https://learnzillion.com/lessons/2868-write-multi-step-algebraic-expressions	
		PRACTICE writing numerical expressions.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-expressions-and-variables/cc-6th-writing-expressions/e/writing-expressions-with-variables-word-problems	

		PRACTICE writing variable expressions to represent word problems.		http://www.ixl.com/math/grade-6/write-variable-expressions-to-represent-word-problems	
Solving Equations	In this lesson, you will 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 non-negative rational numbers	**VIEW** examples of how an equation helped solve a real world problem.		http://www.pbslearningmedia.org/resource/vtl07.math.algebra.var.findgleam/find-those-gleamers-cyberchase/en/	
		LEARN about how a pan balance relates to solving an equation.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-equations-and-inequalities/cc-6th-solving-equations/v/why-we-do-the-same-thing-to-both-sides-simple-equations	
		LEARN about solving equations using inverse operations.		https://learnzillion.com/lessons/1503-solve-algebraic-equations-involving-addition-and-subtraction-using-inverse-operations	
		PRACTICE solving equations using inverse operations.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-equations-and-inequalities/cc-6th-one-step-add-sub-equations/e/one_step_equations	
		LEARN about solving mutliplication equations using a bar model.		https://learnzillion.com/lessons/2814-write-and-solve-multiplication-equations-using-a-bar-model	
		LEARN about solving division equations using a bar model.		https://learnzillion.com/lessons/2815-write-and-solve-division-equations-using-a-bar-model	
		PRACTICE solving multiplication and division equations using inverse operations.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-equations-and-inequalities/cc-6th-one-step-mult-div-equations/e/	
		SOLVE a word problem involving an equation.		https://www.illustrativemathematics.org/content-standards/6/EE/B/7/	Firefighter allocation task
				https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	https://play.google.com/store/apps/details?id=com.explaineverything.explaineverything&hl=en
		SOLVE a word problem involving an equation.		https://www.illustrativemathematics.org/content-standards/6/EE/B/7/tasks/1107	Morning walk task
				https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	https://play.google.com/store/apps/details?id=com.explaineverything.explaineverything&hl=en
Inequality Problem Solving	In this lesson, you will write an inequality of the form x > c or x < c to represent a constraint or condition in a real-world or mathematical problem and/or represent solutions of such inequalities on number lines.	**LEARN** how to graph inequalities on a number line.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-equations-and-inequalities/cc-6th-inequalities/v/plotting-inequalities-on-a-number-line	
		PRACTICE graphing inequalities on a number line.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-equations-and-inequalities/cc-6th-inequalities/e/inequalities_on_a_number_line	
		PRACTICE writing an inequality to represent the shaded number line.		https://www.ixl.com/math/grade-6/inequalities-on-number-lines	
		PRACTICE writing inequalties to match a real world situation.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-equations-and-inequalities/cc-6th-inequalities/e/inequalities-in-one-variable-1	
		PRACTICE writing and graphing inequalties to match a real world situation.		https://www.illustrativemathematics.org/content-standards/6/EE/B/8/tasks/642	fishing adventures 1 task

				https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	https://play.google.com/store/apps/details?id=com.explaineverything.explaineverything&hl=en
		PRACTICE writing and graphing inequalties to match a real world situation.		https://www.illustrativemathematics.org/content-standards/6/EE/B/8/tasks/2010	Height requirements task
				https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	https://play.google.com/store/apps/details?id=com.explaineverything.explaineverything&hl=en
Dependent and Independent Variables	In this lesson, you will analyze the relationship between the dependent and independent variables using graphs and tables, and/or relate these to an equation.	**WATCH** a fun example of the relationship between dependent and independent variables.		http://www.pbslearningmedia.org/resource/vtl07.math.algebra.var.froghops2/frog-hops-part-2/	
		LEARN about independent and dependent variables, tables, graphs, and equations related to a common real world situations through watching a series of videos.		https://learnzillion.com/lesson_plans/6384-identify-independent-and-dependent-variables	
				https://learnzillion.com/lesson_plans/6989-relate-independent-and-dependent-variables-using-a-function-table	
		PRACTICE analyzing the relationship between the dependent and independent variables using graphs and tables, and/or relate these to an equation.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-equations-and-inequalities/cc-6th-dependent-independent/e/dependent-and-independent-variables	
		PRACTICE analyzing the relationship between the dependent and independent variables using graphs and tables, and/or relate these to an equation.		https://www.illustrativemathematics.org/content-standards/6/EE/C/9/tasks/806	chocolate bar sales task
				https://itunes.apple.com/us/app/geogebra/id687678494?mt=8	https://www.geogebra.org
				https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	https://play.google.com/store/apps/details?id=com.explaineverything.explaineverything&hl=en

Topic and Title	Message	Assignment/Call To Action	Content Directions	Content URL or Location	Alternative to IOS or Notes
Module 5: Area and Volume	Module 5 is an opportunity to practice the material learned in Module 4 in the context of geometry; students apply their newly acquired capabilities with expressions and equations to solve for unknowns in area, surface area, and volume problems. They find the area of triangles and other two-dimensional figures and use the formulas to find the volumes of right rectangular prisms with fractional edge lengths. Students use negative numbers in coordinates as they draw lines and polygons in the coordinate place. They also find the lengths of sides of figures, joining points with the same first coordinate or the same second coordinate and apply these techniques to solve real-world and mathematical problems.				
	Focus Standards: CC.2.3.6.A.1Apply appropriate tools to solve real-world and mathematical problems involving area, surface area, and volume. **Module 5 Objectives:** 1. Determine the area of triangles and special quadrilaterals (i.e., square, rectangle, parallelogram, rhombus, and trapezoids.) 2. Determine the area of irregular or compound polygons. 3. Determine the volume of right rectangular prisms with fractional edge lengths. 4. Given coordinates for the vertices of a polygon in the plane, use the coordinates to find side lengths and area of the polygon (limited to triangles and special quadrilaterals). 5. Represent three-dimensional figures using nets made up of rectangles and triangles. 6. Determine the surface area of triangular and rectangular prisms (including cubes).				
		ACCESS Module 5 Math Curriculum Framework		http://www.pdesas.org/CMap/CMap/DefaultCmap/17130	
Area of Triangles and Quadrilaterals	In this lesson, you will determine the area of triangles and special quadrilaterals (i.e., square, rectangle, parallelogram, rhombus, and trapezoid) formulas will be provided.	**LEARN** how to find the area of a parallelogram.	Complete the entire lesson.	https://learnzillion.com/lesson_plans/3057-6-develop-and-use-the-area-formulas-for-parallelograms-and-trapezoids-fp	
		PRACTICE finding the area of a parallelogram.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-geometry-topic/cc-6th-area/e/area_of_parallelograms	
		CALCULATE the area of each triangle using a Geoboard. Answer the questions in the margin of the board and take a screenshot of your final answers.		https://www.illustrativemathematics.org/content-standards/6/G/A/1/tasks/509	Same base and height variation 1 task
				https://itunes.apple.com/us/app/geoboard-by-math-learning/id519896952?mt=8	https://www.mathlearningcenter.org/web-apps/geoboard/
		READ about and **SOLVE** for areas and perimeters of triangles and quadrilaterals.		http://www.algebralab.org/lessons/lesson.aspx?file=Geometry_AreaPerimeterTrianglesQuadrilaterals.xml	
		PRACTICE finding the area of triangles.		http://www.ixl.com/math/grade-6/area	
		PRACTICE finding the area and perimeter of polygons.		http://jwilson.coe.uga.edu/EMT668/EMT668.Folders.F97/Cowart/lesson1/lesson%231.html	
				https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	https://play.google.com/store/apps/details?id=com.explaineverything.explaineverything&hl=en

Area of Polygons	In this lesson, you will determine the area of irregular or compound polygons.	**LEARN** how to find the area of irregular polygons.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-geometry-topic/cc-6th-area/v/area-breaking-up-shape	
		PRACTICE finding the area of compound polygons.		http://www.mathgames.com/skill/6.106-area-of-complex-figures	
		PRACTICE finding the area of compound polygons.		http://www.ixl.com/math/grade-6/area-of-compound-figures	
		PRACTICE calculating the area of an irregular polygon.		http://www.shodor.org/interactivate/activities/AreaExplorer/	
		FIND **the area of the** irregular figures. Import the task into the Explain Everything app and deomonstrate your thinking for each figure.		https://www.illustrativemathematics.org/content-standards/6/G/A/1/tasks/647	Finding areas of polygons task
				https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	https://play.google.com/store/apps/details?id=com.explaineverything.explaineverything&hl=en
Volume	In this lesson, you will determine the volume of right rectangular prisms with fractional edge lengths.	**LEARN** how to find volume of a rectangular prism with fractional edge lengths.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-geometry-topic/cc-6th-volume-with-fractions/v/volume-of-a-rectangular-prism-with-	
		PRACTICE finding the volume of rectangular prisms with fractional edges.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-geometry-topic/cc-6th-volume-with-fractions/e/volume_with_fractions	
		SOLVE a word problem involving volume of a rectangular prism.		https://www.illustrativemathematics.org/content-standards/6/G/A/2/tasks/657	Banana bread task
				https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	https://play.google.com/store/apps/details?id=com.explaineverything.explaineverything&hl=en
		SOLVE a word problem involving volume of a rectangular prism.		https://www.illustrativemathematics.org/content-standards/6/G/A/2/tasks/535	computing volume compression 2 task
				https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	https://play.google.com/store/apps/details?id=com.explaineverything.explaineverything&hl=en
Coordinate Plane	In this lesson, you will use the coordinates to find side lengths and area of the polygon (limited to triangles and special quadrilaterals).	**LEARN** learn how to draw polygons by using given coordinates as vertices.		https://www.khanacademy.org/math/basic-geo/basic-geo-coord-plane/polygons-in-the-coordinate-plane/v/constructing-polygon-on-coordinate-plane-example	
		PRACTICE drawing polygons on a coordinate plane.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-geometry-topic/cc-6th-polygons-in-the-coordinate-plane/e/drawing-polygons	
		LEARN how to find perimeter and area by finding the length of sides by comparing coordinates.		http://learnzillion.com/lessons/1066-find-perimeter-and-area-by-finding-the-length-of-sides-by-comparing-coordinates	

		PRACTICE finding the distances in the coordinate plane.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-geometry-topic/cc-6th-coordinate-plane/e/coordinate-plane-word-problems	
		PRACTICE finding the area of figures in the coordinate plane. Graph the figure using the Geogebra app and calculate the area. Take a screenshot of each figure and it's area.		https://www.illustrativemathematics.org/content-standards/6/G/A/1/tasks/1188	polygons on the coordinate plane task
				https://itunes.apple.com/us/app/geogebra/id687678494?mt=8	https://www.geogebra.org
Three-Dimensional Figures	In this lesson, you will represent three-dimensional figures using nets made up of rectangles and triangles.	LEARN how to represent 3-D figures with nets.		http://learnzillion.com/lessons/195-represent-3d-figures-with-nets	
		PRACTICE determining what shape a net will create.		http://www.mathgames.com/skill/6.23-nets-of-3-dimensional-figures	
		PRACTICE determining what shape a net will create.		http://www.ixl.com/math/grade-6/nets-of-3-dimensional-figures	
		SOLVE a task involing prisms and nets.		https://www.illustrativemathematics.org/content-standards/6/G/A/4/tasks/1985	Nets for pyramids and prisms task
				https://itunes.apple.com/us/app/color-tiles-manipulative/id656246736?mt=8	https://www.mathlearningcenter.org/web-apps/number-pieces/
Surface Area	In this lesson, you will determine the surface area of triangular and rectangular prisms (including cubes). Note that formulas will be provided.	LEARN how to find the surface area of a rectangular prism.		https://learnzillion.com/lessons/191-find-the-surface-area-of-a-rectangular-prism	
		DETERMINE the surface area *only* of each rectangular prism by filling it with cubes, rows, or layers.		http://illuminations.nctm.org/Activity.aspx?id=4095	
		PRACTICE calcuating the surface area and volume.		http://www.shodor.org/interactivate/activities/SurfaceAreaAndVolume/	excellent way to practice and check answers
		LEARN how to solve real-world problems with surface area.		https://learnzillion.com/lessons/1226-solve-realworld-problems-with-surface-area	
		PRACTICE calculating surface area in a real world context.		https://www.illustrativemathematics.org/content-standards/6/G/A/tasks/135	Painting a barn task
				https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	https://play.google.com/store/apps/details?id=com.explaineverything.explaineverything&hl=en
		LEARN how to find the surface area of a triangular prism in a real world context.		http://learnzillion.com/lessons/194-find-the-surface-area-of-a-triangular-prism-in-context	
		PRACTICE finding surface area of 3D shapes.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-geometry-topic/cc-6th-surface-area/e/surface-areas	

Topic and Title	Message	Assignment/Call to Action	Content Directions	Content URL or Location	Alternative to IOS or Notes
Module 6: Statistics	In Module 6, students develop an understanding of statistical variability and apply that understanding as they summarize, desribe, and display distributions. In particular, careful attention is given to measure of center and variability.				
	Module 1 Focus Standard(s): CC.2.4.6.B.1 - Demonstrate an understanding of statistical variability by displaying, analyzing, and summarizing distributions.				
	Module 1 Objective(s): 1. Display numerical data in plots on a number line, including dot plots, histograms, and box-and-whisker plots. 2. Determine quantitative measures of center (e.g., median, mean, and/or mode) and variability (e.g., range, interquartile range, and/or mean absolute deviation). 3. Describe any overall pattern and any deviations from the overall pattern with reference to the context in which the data were gathered. 4. Relate the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.				
		ACCESS Module 6 Mathematics Instructional Framework		http://www.pdesas.org/CMap/CMap/DefaultCmap/17177	
Data Display	In this lesson, you will display numerical data in plots on a number line, including dot plots, histograms, and box-and-whisker plots.	**LEARN** about histograms.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-data-statistics/histograms/v/histograms-intro	
		PRACTICE creating histograms.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-data-statistics/creating-histograms/e/creating-histograms	
		WATCH the lesson videos and **READ** the lesson narrative to learn about box and whisker plots; **PRACTICE** what you learned by answering the lesson questions about box and whisker plots.	Click on the red Practice button to try out your skills after you watch the video.	http://www.ck12.org/statistics/Box-and-Whisker-Plots/	
		LEARN more about box-and-whisker plots.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-data-statistics/cc-6th-box-whisker-plots/v/reading-box-and-whisker-plots	
		PRACTICE interpreting box and whisker plots.		http://www.ixl.com/math/grade-7/interpret-box-and-whisker-plots	
		PRACTICE interpreting box and whisker plots.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-data-statistics/cc-6th-box-whisker-plots/e/analyzing-data-with-box-plots	
		LEARN how to construct box-and-whisker plots.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-data-statistics/cc-6th-box-whisker-plots/v/constructing-a-box-and-whisker-plot	
		PRACTICE constructing a box and whisker plot.		https://www.brainingcamp.com/lessons/box-and-whisker-plots/problems.php	

		CREATE a box and whisker plot within the Explain Everything app.	Demonstrate your solutions to Part a only.	https://www.illustrativemathematics.org/content-standards/6/SP/B/4/tasks/2047	Comparing test scores task
				https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	https://play.google.com/store/apps/details?id=com.explaineverything.explaineverything&hl=en
Measures of Center	In this lesson, you will determine quantitative measures of center (e.g., median, mean, and/or mode) and variability (e.g., range, interquartile range, and/or mean absolute deviation).	LEARN about finding mean, median, and mode.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-data-statistics/mean-and-median/v/mean-median-and-mode	
		PRACTICE calculating mean, median, mode, and range.		http://www.mathgames.com/skill/6.91-calculate-mean-median-mode-	
		LEARN about measures of variability.		https://learnzillion.com/lessons/539-summarize-the-spread-of-data-using-range-and-mean-absolute-deviation	
		PRACTICE finding the mean absolute deviations.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-data-statistics/cc-6-mad/e/calculating-the-mean-absolute-deviation--mad-	
		LEARN about choosing the best measure of center and variability.		http://learnzillion.com/lessons/3800-choose-the-best-measure-of-center-and-variability	
		READ about quartiles and learn how to identify the interquartile range; **PRACTICE** identifying the interquartile range.	Click on the questions at the bottom of the page to test your skills.	http://www.mathsisfun.com/data/quartiles.html	
		SOLVE **a real world** problem involving measures of center and measures of variance.	Click the red practice button.	http://www.ck12.org/statistics/Measures-of-Central-Tendency-and-Dispersion/rwa/Medians/	
Data Distribution	In this lesson, you will relate the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.	**PRACTICE** relating measures of center and variability to the context in which the data were gathered.	Demonstrate and explain your thinking within the Explain Everything app.	https://www.illustrativemathematics.org/content-standards/6/SP/B/5/tasks/1199	Electoral college task
				https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	https://play.google.com/store/apps/details?id=com.explaineverything.explaineverything&hl=en
		PRACTICE relating measures of center and variability to the context in which the data were gathered.	Demonstrate and explain your thinking within the Explain Everything app.	https://www.illustrativemathematics.org/content-standards/6/SP/B/5/tasks/2048	Mean and Median task
				https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	https://play.google.com/store/apps/details?id=com.explaineverything.explaineverything&hl=en
Displaying Data	In this lesson, you will describe any overall pattern and any deviations from the overall pattern with reference to the context in which the data were gathered.	**LEARN** about the shapes of distributions.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-data-statistics/cc-6-shape-of-data/v/shapes-of-distributions	
		PRACTICE describing the shapes of a data set.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-data-statistics/cc-6-shape-of-data/e/shape-of-distributions	

		PRACTICE analyzing the shape of a data set.		https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-data-statistics/cc-6-shape-of-data/e/clusters--gaps--peaks--and-outliers	

Mathematics Grade 6
Teacher Resources

Topic and Title	Message	Call to Action	URL	NOTES
CK-12 Middle School Math Grade 6 Resources	*CK - 12 Middle School Math Volume 1* includes Number Sense & Variable Expressions, Statistics & Measurement, Addition & Subtraction of Decimals, Multiplication & Division of decimals, Number Patterns & Fractions, and Addition & Subtraction of Fractions.	REVIEW and USE the resources in CK-12 Middle School Math Grade 6 Vol. 1 to enhance instruction.	https://itunes.apple.com/us/book/ck-12-middle-school-math-grade/id518204889?mt=11	
	CK - 12 Middle School Math Volume 2 covers the fundamentals of fractions, decimals, and geometry. Also explored are units of measurement, graphing concepts, and strategies.		https://itunes.apple.com/us/book/ck-12-middle-school-math-grade/id518232412?mt=11	
For use with module 4	PRACTICE using expressions and equations.		http://pdesas.org/module/content/resources/6159/view.ashx	
For use with module 4	PRACTICE writing algebraic equations to represent real-world scenarios (one-step).		http://cc.betterlesson.com/lesson/543969/writing-algebraic-equations-to-represent-real-world-scenarios-one-step	
For use with module 4	PRACTICE writing one step equations.		http://betterlesson.com/lesson/resource/2549570/tab-and-inm-pdf	
For use with module 4	REVIEW the steps for writing equations.		http://cc.betterlesson.com/lesson/resource/2549572/visual-anchor-pdf	
For use with module 4	PRACTICE writing algebraic equations.		http://cc.betterlesson.com/lesson/resource/2549569/partner-practice-pdf	
For use with module 4	PRACTICE writing equations.		http://betterlesson.com/lesson/resource/2549638/independent-practice-pdf	
For use with module 5	PRACTICE developing the area formula for a triangle.		http://illuminations.nctm.org/Lesson.aspx?id=1874	

Mathematics Grade 6 Teacher Resources				
For use with module 5	PRACTICE discovering the area formula for trapezoids.		http://illuminations.nctm.org/Lesson.aspx?id=1893	
For use with module 5	DEMONSTRATE with the student task, the ability to determine area of an irregular figure on a coordinate plane.		http://illuminations.nctm.org/lesson.aspx?id=1902	
For use with module 5	PRACTICE using nets to understand 3-D figures.		https://illuminations.nctm.org/Activity.aspx?id=3521	