Dates	This unit consists of approximately 27 days of instruction, review, and assessment.	**Course/Grade**	7th Grade Math
Unit	8th Grade Math Prep Unit 6	**Teacher**	**Mrs. Radomski**

Essential Questions (Maximum 2):

How can you use exponents, roots, and equations to solve real world problems with rational numbers?

Pennsylvania State Common Core Standards: (Mathematics)

CC.2.1.8.E.1   Distinguish between rational and irrational numbers using their properties.

CC.2.1.8.E.4   Estimate irrational numbers by comparing them to rational numbers.

C.2.2.8.B.1   Apply concepts of radicals and integer exponents to generate equivalent expressions.

CC.2.3.8.A.3   Understand and apply the Pythagorean Theorem to solve problems.

Pennsylvania State Common Core Standards: (English Language Arts)

1.2 Reading Informational Text
Students read, understand, and respond to informational text—with an emphasis on comprehension, vocabulary acquisition, and making connections among ideas and between texts with focus on textual evidence.

CC.1.2.7.A
Determine two or more central ideas in a text and analyze their development over the course of the text; provide an objective summary of the text.

CC.1.2.7.B
Cite several pieces of textual evidence to support analysis of what the text says explicitly, as well as inferences, conclusions, and/or generalizations drawn from the text.

CC.1.2.7.F
Determine the meaning of words and phrases as they are used in grade-level reading and content, including interpretation of figurative, connotative, and technical meanings.

CC.1.2.7.J
Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

CC.1.2.7.K
Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade-level reading and content, choosing flexibly from a range of strategies and tools.

CC.1.2.7.L
Read and comprehend literary nonfiction and informational text on grade level, reading independently and proficiently.

1.3 Reading Literature
Students read and respond to works of literature—with an emphasis on comprehension, vocabulary acquisition, and making connections among ideas and between texts with a focus on textual evidence.

CC.1.3.7.B
Cite several pieces of textual evidence to support analysis of what the text says explicitly, as well as inferences, conclusions, and/or generalizations drawn from the text.

CC.1.3.7.F
Determine the meaning of words and phrases as they are used in grade-level reading and content, including interpretation of figurative, connotative meanings.

CC.1.3.7.I
Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade-level reading and content, choosing flexibly from a range of strategies and tools.

1.4 Writing
Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

CC.1.4.7.A
Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information clearly.

CC.1.4.7.C
Develop and analyze the topic with relevant facts, definitions, concrete details, quotations, or other information and examples; include graphics and multimedia when useful to aiding comprehension.

CC.1.4.7.D
Organize ideas, concepts, and information using strategies such as definition, classification,
comparison/contrast, and cause/effect; use appropriate transitions to create cohesion and clarify the relationships among ideas and concepts; provide a concluding statement or section; include formatting when useful to aiding comprehension.

CC.1.4.7.F
Demonstrate a grade appropriate command of the conventions of Standard English grammar, usage, capitalization, punctuation, and spelling.

CC.1.4.7G
Write arguments to support claims.

CC.1.4.7.I
Acknowledge alternate or opposing claims and support claim with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic.

CC.1.4.7.J
Organize the claim(s) with clear reasons and evidence clearly; clarify relationships among claim(s) and reasons by using words, phrases, and clauses to create cohesion; provide a concluding statement or section that follows from and supports the argument presented.

CC.1.4.7.L
Demonstrate a grade appropriate command of the conventions of Standard English grammar, usage, capitalization, punctuation, and spelling.

1.5 Speaking and Listening
Students present appropriately in formal speaking situations, listen critically, and respond intelligently as individuals or in group discussions.

CC.1.5.7.A
Engage effectively in a range of collaborative discussions, on grade-level topics, texts, and issues, building on others' ideas and expressing their own clearly.

CC.1.5.7.D
Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.

CC.1.5.7.G
Demonstrate command of the conventions of Standard English when speaking based on Grade 7 level and content.

Skills

- Estimate Square Roots
- Convert Fractions and Decimals
- Compare Rational and Irrational Numbers
- Classify, Compare, and Order Real Numbers
- Apply Properties of Exponents to Integers
- Find Square and Cube Roots
- Convert to Scientific Notation
- Perform Operations with Scientific Notation
- Solve Equations with Two-Steps, Variables on Both Sides, and the Distributive Property

Assessments

☒ Tests	☐ Peer Evaluation
☒ Quizzes	☐ Rubric Scoring
☒ Worksheets	☒ Group Grade
☒ Homework	☐ Other
☒ Teacher Observation	
☒ Student Writing	
☒ Student Presentations	
☐ Student Projects	
☒ Student Written Response (reflection)	

Resources

☒ Textbook
Holt Go Math
Scholastic Math Magazine

☒ Supplementary Materials
Materials listed on Unit Lesson Plans

☒ Workbook/Worksheets

☒ Teacher-prepared materials

☒ Individual Title

☒ Technology
Holt Go Math Online Textbook
Chromebook

☒ Other
Modified homework and assessments:
Intervention and Enrichment worksheets to help reinforce difficult concepts presented or to engage in higher-level applications of concepts.

Special Education Adaptations/Modifications:
• Adapted/modified assignments and/or assessments for gifted / enriched students
• Follow IEP / 504 / GIEP / SDI accommodations as documented

Differentiated Instruction / SGI Activities:
• Critical thinking – Open-ended class discussion
• Cooperative learning
• Peer lead grouping
• Problem-solving activities

Reading & Writing:
• Non-fiction reading excerpts that include writing prompts and multiple choice questions – monthly Scholastic Math Magazines and unit related articles

Math 7
Mrs. Radomski
Unit 6 – 8th Grade Math Prep (27 days)

Unit Order Date	Lessons and *Objectives* Bell Ringer	Activities / Materials / Assessments / **Homework**
1 of 27 4/25/18	Squares, Square Roots, Decimals, Fractions *Students will be able to review squares square roots, decimals, and fractions in preparation for the next unit.* **Warm-up Question**: How do you convert a fraction into a decimal? {You divide the numerator by the denominator}	▪ Go over the Squares and Square Roots Notes ▪ Have the students complete the Squares and Square Roots WS and go over the answers when the students finish ▪ Go over Fractions and Decimals Notes ▪ Have the students complete the Fractions and Decimals WS and go over the answers when the students finish ▪ Play the Trashketball Review Game **HW: None**
EXTRA 4/26/18	**Take Your Child to Work Day**	
2 of 27 4/27/18	Rational and Irrational Numbers *Students will be able to distinguish between rational and irrational numbers.* Estimating Square Roots *Students will be able to estimate square roots of irrational numbers.* **Warm-up Question**: What is a rational number? {a number that can be expressed as a ratio}	▪ Go over the Rational vs. Irrational Numbers Notes ▪ Have the students complete the Rational vs. Irrational Numbers WS and go over the answers when the students finish ▪ Go over the Estimating Square Roots Notes ▪ Have the students complete the Estimating Square Roots WS and go over the answers when the students finish ▪ Have the students work on the Estimating Irrational Square Roots WS with a partner **HW: Finish the Estimating Irrational Square Roots WS**
3 of 27 4/30/18	Real Numbers *Students will be able to classify, compare, and order real numbers.* **Warm-up Question**: What is the difference between whole numbers and integers? {whole numbers are only positive numbers and zero}	▪ Check and go over the homework (Estimating Irrational Square Roots WS) ▪ Go over the Classifying Real Numbers Notes ▪ Have the students complete the Classifying Real Numbers WS and go over the answers when the students finish ▪ Go over the Comparing and Ordering Real Numbers Notes ▪ Have the students complete the Comparing and Ordering Real Numbers WS and go over the answers when the students finish ▪ Have the students work on the Classifying and Estimating Real Numbers Review Sheet with a partner **HW: Finish the Classifying and Estimating Real Numbers Review Sheet**

4 of 27 *5/1/18*	Classifying and Estimating Real Numbers Quiz *Students will be able to discuss and demonstrate understanding of previous lessons by working on a graded assessment.* The Real Number System Review *Students will be able to review the concepts taught in this unit.* **Warm-up Question:** Are there any questions before the quiz? {Answers will vary}	▪ Check and go over the homework (Classifying and Estimating Real Numbers Review Sheet) ▪ Have the students take the Classifying and Estimating Real Numbers Quiz ▪ When they finish, they should work on the Real Number System Study Guide **HW: Finish the Real Number System Study Guide and study for the test tomorrow**
5 of 27 *5/2/18*	The Real Number System Test *Students will be able to discuss and demonstrate an understanding of previous lessons by working on a graded assessment.* **Warm-up Question:** Are there any questions before the test? {Answers will vary}	▪ Check and go over the homework (Real Number System Study Guide) ▪ Have the students take the Real Number System Test ▪ When they finish, they should work on Khan Academy on their Chrome Books **HW: None**
6 of 27 *5/3/18*	Exponents *Students will be able to apply properties to exponents and integer exponents.* **Warm-up Question:** List the order of operations. {Parentheses, Exponents, Multiplication/Division, Addition/Subtraction}	▪ Pass back and go over the Real Number System Test ▪ Go over the Properties of Exponents and Integer Exponent Notes ▪ SGI: Have the students complete the Properties of Exponents Cut and Paste Activity ▪ When they are finished, the students should work on the Properties of Exponents and Integer Exponent WS **HW: Finish the Properties of Exponents and Integer Exponent WS**
5/4/18	**7th Grade Reward Trip**	

7 of 27
 	
5/7/18
	Square and Cube Roots
	Students will be able to find square and cube roots.
	
	Warm-up Question: All numbers (expect zero) raised to the zero power is _____. {1}
		▪ Check and go over the homework (Properties of Exponents and Integer Exponent WS)
		▪ Go over the Square Roots and Cube Roots Notes
		▪ SGI Activities
		  ○ SGI Group 1: Properties of Exponents Solve and Color Activity
		  ○ SGI Group 2: Square and Cube Roots Puzzle Activity
		▪ When they are finished, the students should work on the Square Roots and Cube Roots WS
		
		HW: Finish the Square Roots and Cube Roots WS

8 of 27 *5/8/18*	Exponents, Square Roots, and Cube Roots Quiz *Students will be able to discuss and demonstrate understanding of previous lessons by working on a graded assessment.* Estimating Quantities and Scientific Notation *Students will be able to estimate quantities and convert between standard and scientific notation.* **Warm-up Question:** Are there any questions before the quiz? {Answers will vary}	▪ Check and go over the homework (Square Roots and Cube Roots WS) ▪ Have the students take the Exponents, Square Roots, and Cube Roots Quiz ▪ When they finish, they should work on the Khan Academy on their Chrome Books ▪ When everyone is finished, we will go over the Estimating Quantities **HW: None**

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5/9/18
	Operations with Scientific Notation
	Students will be able to perform operations using scientific notation.
	
	Warm-up Question: Why is scientific notation used? {To express very large or very small numbers}
		▪ Go over the Scientific Notation Notes
		▪ SGI Activities
		  o SGI Group 1: Scientific Notation Scavenger Hunt Activity
		  o SGI Group 2: Scientific Notation Maze Activity
		▪ When they are finished with both activities, they should work on the Scientific Notation WS
		
		HW: Finish the Scientific Notation WS

10 of 27 *5/10/18*	Operations with Scientific Notation *Students will be able to perform operations using scientific notation.* **Warm-up Question:** True or False- In order to add numbers in scientific notation, each value has to be written with the same power of 10. {True}	▪ Check and go over the homework (Scientific Notation WS) ▪ Go over the Adding and Subtracting with Scientific Notation Notes ▪ Have the students complete the Adding and Subtracting with Scientific Notation WS and go over the answers when the students finish ▪ Go over the Multiplying and Dividing with Scientific Notation Notes ▪ Have the students complete the Multiplying and Dividing with Scientific Notation WS and go over the answers when the students finish **HW: None**

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5/11/18
	Exponents and Scientific Notation Review
	Students will be able to review the concepts taught in this unit.
	
	Warm-up Question: True or False- In order to multiply numbers in scientific notation, each value has to be written with the same power of 10. {False}
		▪ The students will work on the SGI Activities
		  o SGI Group 1: Exponents and Scientific Notation Station Review Activity
		  o SGI Group 2: Scientific Notation Task Cards Activity
		
		HW: None

12 of 27 *5/14/18*	Exponents and Scientific Notation Review *Students will be able to review the concepts taught in this unit.* **Warm-up Question:** To write a number less than 1 in scientific notation, you need to use a _____ exponent. {negative}	▪ Students should complete the SGI activities from yesterday. ▪ When they finish, they should work on the Exponents and Scientific Notation Study Guide **HW: Finish the Exponents and Scientific Notation Study Guide and study for the test tomorrow**

13 of 27 *5/16/18*	Exponents and Scientific Notation Test *Students will be able to discuss and demonstrate an understanding of previous lessons by working on a graded assessment.* **Warm-up Question:** Are there any questions before the test? {Answers will vary}	▪ Check and go over the homework (Exponents and Scientific Notation Study Guide) ▪ Have the students take the Exponents and Scientific Notation Test ▪ When they finish, they should work on Khan Academy on their Chrome Books **HW: None**
14 of 27 *5/17/18*	9-8 Pythagorean Theorem *Students will be able to use the Pythagorean Theorem to find the length of a side of a right triangle.* **Warm-up Question:** What is the hypotenuse of a right triangle? {The side opposite the right angle in a right-angled triangle}	▪ Go over the Pythagorean Theorem Notes ▪ Go over the 9-8 Reteach WS together ▪ Have the students work on the 9-8 Practice A WS ▪ Have the students work on 9-8 Practice B WS with a partner **HW: Complete the 9-8 Practice B WS**

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5/18/18
	9-8 Pythagorean Theorem
	Students use the Pythagorean Theorem to find the length of a side of a right triangle.
	
	Warm-up Question: A glass of milk is 5 in tall and a chocolate chip cookie is 8 in away. How far do you carry the cookie to dip it in the milk? {9.4 in}
		▪ Check and go over the homework (9-8 Practice B WS)
		▪ Small Group Instruction
		  o SGI Group 1: Working with Pythagorean Theorem WS to clarify any questions they still have about the topic (Teacher will work with this group)
		  o SGI Group 2: 9-8 Translating and Solving Pythagorean Theorem Word Problems WS to review the material covered in this section (Student Leader will lead the group)
		  o SGI Group 3: 9-8 Practice C WS to review the material covered in this section (Independent)
		
		HW: Any of the WS not finished in the groups

16 of 27 *5/21/18*	9-8 Pythagorean Theorem Review Game *Students use the Pythagorean Theorem to find the length of a side of a right triangle.* **Warm-up Question:** John leaves school to go home. He walks 6 blocks North and then 8 blocks west. How far is John from the school? {10 blocks}	▪ Check and go over the 3 worksheets from yesterday's SGI ▪ Using questions from the 6-3 Pythagorean Theorem Word Problems Packet, the students will play the Pythagorean Theorem Challenge Game **HW: Study for the Pythagorean Theorem Quiz Tomorrow**
17 of 27 *5/22/18*	Pythagorean Theorem Quiz *Students discuss and demonstrate understanding of lesson 9-8 by working on a graded assessment.* **Warm-up Question:** Are there any questions before the quiz? {Answers will vary}	▪ Have the students complete the Pythagorean Theorem Quiz ▪ When the students finish, they can work on Khan Academy on their Chrome Books **HW: None**

18 of 27 *5/23/18*	Solving Two-Step Equations *Students will be able to solve two-step equations.* **Warm-up Question**: What are the steps for solving an algebraic equation? {combine like terms, isolate x using inverse operations}	▪ Go over the Solving Multi-Step Equations Notes ▪ Have the students work on the Practice with Solving Two-Step Equations WS and go over the answers when they finish ▪ Go over the Practice with Combing Like Terms and Practice with the Distributive Property WS ▪ Have the students work on Practice with the Distributive Property and Combining Like Terms WS and go over the answers when they finish **HW: None**
19 of 27 *5/24/18*	Solving Equations with the Distributive Property *Students will be able to solve multi-step equations with the distributive property.* **Warm-up Question**: How do you solve equations with variables on both sides of the equal sign? {you have to move them to the same side}	▪ Go over the Solving Multi-Step Equations Notes ▪ Have the students work the Practice with Solving Multi-Step Equations WS and go over the answers when they finish ▪ Have the students work on the Practice with Solving Equations WS **HW: Complete the Practice with Solving Equations WS**
20 of 27 *5/25/18*	Solving Equations with Variables of Both Sides of the Equal Sign *Students will be able to solve equations that have variables on both sides of the equal sign.* **Warm-up Question**: Solve $-4x + 9x = -30$ {x = -6}	▪ Check and go over the homework (Practice with Solving Equations WS) ▪ Go over the Solving Equations with Variables on Both Sides Notes ▪ Have the students work the Practice with Solving Equations with Variables on Both Sides WS and go over the answers when they finish ▪ Have the students work on the Solving Equations Practice WS **HW: Complete the Solving Equations Practice WS**
21 of 27 *5/29/18*	Slope *Students will be able to find the slope of lines.* **Warm-up Question**: When you hear the word "slope", what do you think of? {Answers will vary}	▪ Check and go over the homework (Solving Equations Practice WS) ▪ Go over Slope Notes ▪ Have the students complete the Slope WS and go over it as a class. ▪ Have the students work on the Kuta Software Slope WS and go over it when the students finish **HW: None**
22 of 27 *5/30/18*	Solving Equations Review *Students will be able to review how to solve equations in small groups.* **Warm-up Question**: Solve ¾ - 2x = 1 ¾ {-1/2 }	▪ Have the students play the Equations Review Game ▪ Have the students work the Equations Study Guide **HW: Finish the study guide and study for the test tomorrow**
23 of 27 *5/31/18*	Equations Test *Students discuss and demonstrate understanding of previous lessons by working on a graded assessment.* **Warm-up Question**: Are there any questions before the test? {Answers will vary}	▪ Have the students complete the Equations Test ▪ When the students finish, they can work on Khan Academy on their Chrome Books **HW: None**

24 of 27 *6/1/18*	Algebra Placement Test *Students are individually evaluated on their understanding of the objectives in all chapters.*	▪ Have the students take the Algebra Placement Test ▪ When the students finish, they should work on Khan Academy on their Chrome Books **HW: None**
25 of 27 *6/5/18*	Locomotion Math *Students use formulas to calculate missing values and graph their data.*	▪ Locomotion Activity with Mrs. Rinto's Classes **HW: None**
26 of 27 *6/6/18*	Brain Games Activity *Students will participate in interactive experiments to reveal how our brains work.*	▪ Brain Games DVD/Pentamino Activity/Shut the Box **HW: None**
27 of 27 *6/7/18*	Brain Games Activity *Students will participate in interactive experiments to reveal how our brains work.*	▪ Brain Games DVD/Pentamino Activity/Shut the Box **HW: None**