South Park School District		**Lesson Plan**	**2018-2019**
Dates	This unit consists of approximately 9 days of instruction, review, and assessment.	**Course/Grade**	7th Grade Math
Unit	Ratios and Proportional Relationships Unit 2 Part 1	**Teacher**	**Mrs. Radomski**

Essential Questions (Maximum 2):

How can rates and proportions be used to solve real-world problems?

Explain how proportions are used to represent direct relationship and inverse relationships.

Pennsylvania State Standards: (Mathematics)

M07.A-R.1.1.1 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.

M07.A-R.1.1.2 Determine whether two quantities are proportionally related (e.g., by testing for equivalent ratios in a table, or graphing on a coordinate plane and observing whether the graph is a straight line through the origin).

M07.A-R.1.1.3 Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

M07.A-R.1.1.4 Represent proportional relationships by equations.

M07.A-R.1.1.5 Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points $(0, 0)$ and $(1, r)$ where r is the unit rate.

M07.A-R.1.1.6 Use proportional relationships to solve multi-step ratio and percent problems.

M07.B-E.2.3.1 Determine the reasonableness of an answer(s), or interpret the solution(s) in the context of the problem.

Pennsylvania State Common Core Standards: (Mathematics)

2.1 Numbers and Operations

CC.2.1.7.D.1 Analyze proportional relationships and use them to model and solve real-world and mathematical problems.

CC.2.1.HS.F.1 Apply and extend the properties of exponents to solve problems with rational exponents.

2.2 Algebraic Concepts

CC.2.2.7.B.3 Model and solve real-world and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations.

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

- Identify, Write, & Compare Ratios
- Find & Compare Unit Rates
- Determine the Slope of a Line
- Recognize Constant & Variable Rates of Change
- Find Equivalent Ratios & Identify Proportions
- Solve Proportions by Using Cross Product
- Use Ratios to Determine if 2 Figures are Similar
- Use Similar Figures to Find Unknown Lengths
- Understand Ratios & Proportions in Scale Drawings
- Learn to Use Ratios & Proportion & Scale

Assessments

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

Resources

☒ Textbook
Go Math! Grade 7 Accelerated
Scholastic Math Magazine

☒ Supplementary Materials
Materials listed on Unit Lesson Plans

☒ Workbook/Worksheets

☒ Teacher-prepared materials

☒ Individual Title (Name)

☒ Technology
Google Classroom
Online Textbook
Chrome books
Khan Academy

☒ Other
Modified homework and assessments
Intervention and Enrichment worksheets to help reinforce difficult concepts presented or to engage in higher-level applications of concepts. 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 2 Part 1– Ratios and Proportional Relationships (9 days)

Unit Order *Date*	Lessons and *Objectives* **Bell Ringer**	Activities / Materials / Assessments / **Homework**
1 of 9 *9/21/18*	Ratios and Proportions *Students find equivalent ratios to create proportions.* **Warm-up Question:** What are ratios? {comparison of two quantities by division/compare a part to a whole}	· Pass back and go over the Unit 1 Number System Test · Go over the Introduction to Unit 2 Notes · Go over the Unit 2 Practice A WS together · Have the students complete the Unit 2 Practice B WS and Problem Solving WS · Go over the answers when the students finish · Go over the What is a Unit Rate? Notes · Have the students complete the What is a Unit Rate? WS and go over the answers when the students finish **HW: None**
2 of 9 *9/24/18*	Unit Rates and Unit Prices *Students will compute unit rates and unit prices in real-world situations.* **Warm-up Question:** What are the three ways to write ratios? {fraction, colon, to}	· Go over the How Can Two Unit Rates Be Compared? Notes · Go over the Unit Price WS together · Have the students work on pg. 120-122 #1-16 and go over the answers when they finish · Go over the Solving Proportions Notes · Go over the Unit 2 Solving Proportions Practice B and C WS together **HW: Complete the Unit 2 Solving Proportions Practice B and C WS**

3 of 9
 	
9/25/18
	Solving Proportions
	Students will be able to solve proportions.
	
	Warm-up Question: What are the two ways to determine if ratios are proportionate? {cross multiply or reduce}
		· Check and go over the homework (Unit 2 Solving Proportions Practice B and C WS)
		· Small Group Instruction
		  o SGI Group 1: Proportions Review Packet (Partners)
		  o SGI Group 2: How are Ratios and Rates Related? WS (Partners)
		  o SGI Group 3: Simplify Ratio: Word Problems WS (Partners)
		
		HW: Study for the quiz tomorrow

4 of 9 *9/26/18*	Unit 2 Section 4.1Check Point *Students discuss and demonstrate understanding of previous lessons by working on a graded spiral assessment.* Constant Rates of Change *Students will be able to identify and represent proportional relationships.* **Warm-up Question:** Any questions before we start the quiz? {Answers will vary}	- Have the students complete the Unit 2 Section 4.1 Check Point - Once the students finish, they should work on Khan Academy until everyone finishes - When everyone is done, we will go over the What Makes a Relationship Proportional? Notes - Have the students complete pg. 127-128 #5-17 and go over the answers when they finish **HW: Complete What Makes A Relationship Proportional? WS**
5 of 9 *9/27/18*	Constant Rates of Change *Students will be able to identify and represent proportional relationships.* **Warm-up Question:** What makes a relationship proportional? {they have to have a constant relationship represented by $y = kx$}	- Check and go over the homework (What Makes A Relationship Proportional? WS) - Go over the How Can Relationships Be Compared? Notes - SGI Group 1: Proportional vs. Non-Proportional Card Sort Activity (Partners) - SGI Group 2: How Can Relationships Be Compared? WS (Teacher will assist this group) - SGI Group 3: "He Said, She Said" Constant of Proportionality Activity (Groups) **HW: Complete any of the activities**
6 of 9 *9/28/18*	Proportional Relationships and Graphs *Students will decide whether two quantities are in a proportional relationship by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.* **Warm-up Question:** On a coordinate plane, what do you call the point (0,0)? {Origin}	- Pass back and go over the activities from yesterday - Go over the Coordinate Plane Review Notes and Examples - Go over the How Can Proportional Relationships Be Graphed? Notes - Go over the Unit 2 Section 4.3 WS together - Have the students work on the Proportional Tables and Graphs Activity with their partner. - When they are done, they should work on the How Can Proportional Relationships Be Graphed? WS **HW: Complete the How Can Proportional Relationships Be Graphed? WS**

7 of 9 *10/1/18*	Representation of Proportional Relationships *Students will be able to identify the constant of proportionality in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.* **Warm-up Question:** When would it be more useful to represent a proportional relationship with a graph rather than an equation? {When comparing two relationships, the comparison may be easier to see on a graph}	· Check and go over the homework (How Can Proportional Relationships Be Graphed? WS) · Go over the How Are Proportional Relationships Represented? Notes · Have the students complete pg. 132 #1-7, 15-18, 20-21 and go over when they finish · Have the students complete the Proportional Relationships Card Match Activity in small groups · When they are done, they should complete the How Are Proportional Relationships Represented? WS **HW: Complete the How Are Proportional Relationships Represented? WS**

8 of 9
 	
10/2/18
	Cumulative Review of Unit 2 Part 1 Objectives.
	Students will be able to review the concepts taught in this unit.
	
	Warm-up Question: On a recent day, 8 euros were worth \$9 and 24 euros were worth \$27. Write an equation of the form y=kx to show the relationship between the number of euros and the value of dollars. {y = 1.125 x}
		· Check and go over the homework (How Are Proportional Relationships Represented? WS)
		· Have the students take the Proportional Relationships Quiz
		· Small Group Instruction
		  o SGI Group 1: Proportional Relationships Stations to review the concepts taught in this unit (Groups of 3-4)
		  o SGI Group 2: Unit 2 Part 1 Review Sheet WS to review the concepts taught in this unit (Partners)
		
		HW: Study for the Unit 2 Part 1 Test tomorrow

9 of 9 *10/3/18*	Unit 2 Part 1 Test *Students are individually evaluated on their understanding of the objectives in Unit 2 Part 1.* **Warm-up Question:** Any questions before we start the test? {Answers will vary}	· Give the students a final chance to ask any questions they have about the material that will be covered on the test · Have the students complete the Unit 2 Part 1 Test · When the students finish the test, they should work on Khan Academy on their Chrome Books **HW: None**