GRADE 7 UNIT 3-RATIOS AND PROPORTIONS

Established Goals:	Transfer
Standards	
7.RP.1 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction 1/2/1/4 miles per hour, equivalently 2 miles per hour.	*Students will be able to:* • Calculate and interpret unit rates of various quantities involving ratios of fractions that contain like and different units using real world examples such as speed and unit price. For example, if a person walks ½ mile in each ¼ hour, compute the unit rate as the complex fraction 1/2/1/4 miles per hour, equivalently 2 miles per hour. • Determine if a proportional relationship exists between two quantities e.g. by testing for equivalent ratios in a table or graph on the coordinate plane and observing whether the graph is a straight line through the origin.
7.RP.2 Recognize and represent proportional relationships between quantities.	• Identify the constant of proportionality (unit rate) from tables, graphs, equations, diagrams, and verbal descriptions. • Write equations to model proportional relationships in real world problems. For example, if a recipe that serves 6 people calls for 2 ½ cups of sugar. How much sugar is needed if you are serving only 2 people?
CCSS.MATH.CONTENT.7.RP.A.2.A	
Decide whether two quantities are in a proportional relationship, 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.	• Represent real world problems with proportions on a graph and describe how the graph can be used to explain the values of any point (x,y) on the graph including the points (0,0) and (1,r) recognizing that r is the unit rate.
CCSS.MATH.CONTENT.7.RP.A.2.B	• Solve multi-step ratio and percent problems using proportional relationships, including scale drawings of geometric figures simples interest, tax, markups ad markdowns, gratuities and commissions, and fees.

	Meaning	
Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.	**ENDURING UNDERSTANDING**	**ESSENTIAL QUESTIONS**
CCSS.MATH.CONTENT.7.RP.A.2.C	• Proportional relationships express how quantities change in relationship to each other. • The way that data is collected, organized and displayed influences interpretation. • The probability of an event's occurrence can be predicted with varying degrees of confidence.	• When are ratios and proportions used and why are they important? • When and why do I use proportional comparisons? • How does comparing quantities describe the relationship between them? Why is data collected and analyzed? • How do people use data to influence others? • How can predictions be made based on data?
Represent proportional relationships by equations. For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn.		

	Acquisition	
CCSS.MATH.CONTENT.7.RP.A.2.D	**KNOWLEDGE**	**SKILLS**
Explain what a point (x, y) on the graph of a	*Students will know how to…*	*Students will be skilled at…*

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. 7.RP.3 CCSS.MATH.CONTENT.7.RP.A.3 Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.	Determine know how to find unit rates with fractions. Determine if a proportional relationship exists between two quantities.	Applying their knowledge to solve real world situations involving proportional relationships such as cutting a recipe from 6 to two people.

Vocabulary		Instruction and Pacing	
Rate	Origin	Pretest	1 day
Unit rate	Quadrant	Computing rates	2 week
Equivalent ratios	Ordered Pair	Proportions	1 week
Proportions	Slope	Corresponding shapes	1 week
Cross Product	Rate of Change	Coordinate Plane	2 week
Similar	Percent of change	Interest and Commission	1 week
Corresponding sides	Percent of increase		
Corresponding angles	Percent of decrease		
Coordinate plane	Commission		
x-axis, y-axis	Commission Rate		
Interest, Simple Interest, Principal			

Resources
Prentice Hall Course 2 Mathematics Common Core Textbook, Study Island, Teacher created materials.

Differentiation and Accommodations

Provide graphic organizers
Provide additional examples and opportunities for additional problems for repetition
Provide tutoring opportunities
Provide retesting opportunities after remediation (up to teacher and district discretion)
Teach for mastery not test
Teaching concepts in different modalities
Adjust pace and homework assignments

ELL Modifications

21st Century Skills	Critical Thinking, Creative, Thinking, Collaborating, and Technology Literacy
Instructional Strategies	Fairfield Township School recognizes the importance of the varying methodologies that may be successfully employed by teachers within the classroom and, as a result, identifies a wide variety of possible instructional strategies that may be used effectively to support student achievement. These may include, but not be limited to, strategies that fall into categories identified by the Framework for Teaching by Charlotte Danielson: • Communicating with students • Using questioning and discussion techniques • Engaging students in learning • Using assessment in instruction Demonstrating Flexibility and Responsiveness
Interdisciplinary Connections	ELA, Science and Technology

| Common Misconceptions	Proper understandings
That a fraction or a decimal cannot be the numerator or the denominator of a fraction	When finding unit rates or proportions, fractions and decimals are often part of a fraction/ratio

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Performance Task
** A map uses a scale of 1 inch = 20 miles. Cindy measured the distance from her house to several popular amusement parks nearby. Set up a proportion for each destination to determine how many miles it is from her house, and solve each proportion.** **To Six Flags, Cindy measured 5.5 inches:** **To Hershey Park, Cindy measured 7 ¾ inches:** **To Morey's Pier, Cindy Measured 1 1/10 inches:** **Rubric: One point for each correct answer.**
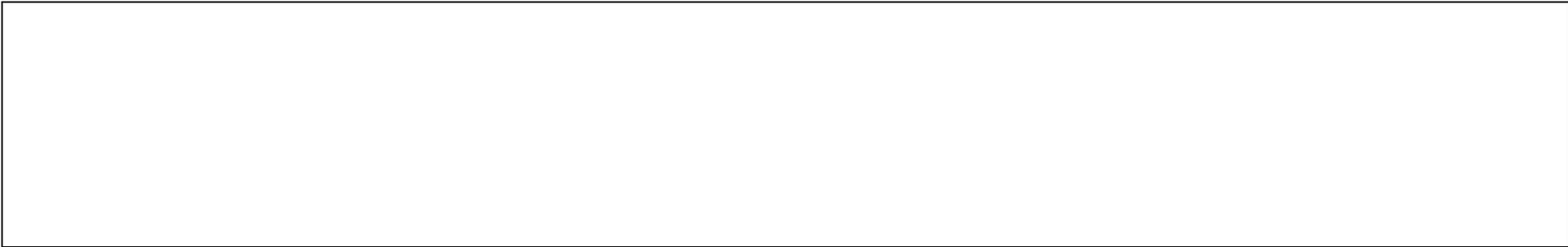
ASSESSMENTS

Suggested Formative Assessment

Problem of the Day

Exit Ticket

Suggested Summative Assessment

topic quizzes

homework

Grade level developed Unit Tests

Ed-Connect Express Tests /State Unit Benchmark Assessment/Performance Task