Grade 7 Math Ratios and Proportional Relationships

Grade 7 Math   Grade 7 Math
Start Date: October 01, 2012
End Date : November 16, 2012

Unit Overview	Content Elaborations	Unit Resources
Students will be able to: compute whole number and fractional unit rates, including lengths and areas, in like or different units decide whether two quantities are in a proportional relationship identify the constant of porportionality (unit rate) write and solve an equation which represents a proportional relationship given a graph of a unit rate, explain the meaning of a point (x,y) on the graph use proportional relationships to solve multistep problems use proportional relationships to solve percent problems	.	Common Core Model Curriculum Holt Middle School Math Course 2: Lessons 5-1, 5-2, 5-3,5-4, 5-5, 5-6, 5-7, 6-1, 6-2, 6-3, 6-4, 6-5, 6-6, 12-7 Teacher-made lessons for tax, markups, markdowns, gratuities, commissions, fees, and percent error Manipulatives Smart Board Resources United Streaming Video Study Island Calculator Laptops Document Camera Play Money Advertisements in Newspapers
Unit Vocabulary Ratio, Rate, Unit Rate, Equivalent Ratios, Ratio Table, Proportion, Proportional Relationship, Non-Proportional, Constant Rate of Change, Varying Rate of change, Fractions,	**Enduring Understandings (Big Ideas)** Students will analyze unit rates, proportional relationships, and percents through the use of graphs, tables, equations, and diagrams	**Connections** Real world applications. Research newspaper sales and construct question(s), keeping a log of prices (particularly sales) and determining savings by

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Decimal, Percent, Tax, Tip, Commission, Fees, Percent of Change, Percent of Increase, Percent of Decrease, Percent Error, Interest, Simple Interest, Principal, Linear, Variable, Constant, Evaluate, Coordinate Plane, Origin, Plot, Cross Products,		purchasing items on sale. Time students as they walk a lap on the track and figure their rates. Create open-ended problem scenarios with and without numbers to give students the opportunity to demonstrate conceptual understanding. Invite students to create a similar problem to a given problem and explain their reasoning. Correlations to other subjects or project applications.

Standards

CC_Common Core State Standards - Mathematics (2010) - Grade 7

Domain 7.RP Ratios and Proportional Relationships

  Cluster Analyze proportional relationships and use them to solve real-world and mathematical problems.

   Standard 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.

   Standard 7.RP.2 Recognize and represent proportional relationships between quantities.

    7.RP.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.

    7.RP.2.b Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

    7.RP.2.c Represent proportional relationships by equations.

    7.RP.2.d 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.

   Standard 7.RP.3 Use proportional relationships to solve multistep ratio and percent problems.

Student Assessment	Unit Refection
Common Core Short Cycles Benchmark Tests Formative Assessments (teacher made)	Teacher comments following instruction and assessment. This could provide a topic for discussion at department meetings..

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Summative Assessments correlated to CCSS Teacher Observation	

Ratios and Proportional Relationships

Content	Skills	Assessment

A. Compute unit rates
B. Recognize and represent proportional relationships between quantities
C. Solve multi-step ratio and percent problems
	A. Compute unit rates
	   1. write rates
	   2. solve unit rate problems using fractions
	   3. solve unit rates for lengths
	   4. solve unit rates for areas
	   5. use quantities measured in like or different units of measurement
	B. Recognize and represent proportional relationships between quantities
	   1. define and understand terms
	   2. create equivalent ratios
	   3. use cross products to determine equivalent ratios
	   4. create ratio tables to represent equivalent ratios
	   5. recognize tables that are not constant rates of change
	   6. recognize unit rates as those that pass through the origin of a graph
	   7. use equations and diagrams to represent proportional relationships
	   8. identify unit rates in graphs, tables, equations, diagrams, and verbal representation
	   9. write equations of the form $y = cx$, where c is a constant of proportionality (unite rate)
	   10. give verbal descriptions of proportional relationships
	C. Solve multi-step ratio and percent problems
	   1. estimate with percents
	   2. use percents above 100
	   3. translate word problems into ratio or percent equations
	   4. compute percents
	   5. compute simple interest
	   6. compute tax
	   7. compute markups and markdowns
	   8. compute gratuities (tips)
	   9. compute commissions
		Ratios and Proportional Relationships-Common Core Short Cycles
		
		Benchmark Test
		
		Chapter Tests for Holt Middle School Math Course 2 Chapters 3.2, 5.1, 5.2, 5.3, 6.1, 6.3, 6.4, 6.5, 6.6
		
		Formative Assessments

	10. compute fees 11. compute percent increase and decrease 12. compute percent error	