Unit 3a-Proportional Relationships

Content Area: **Math**
Course(s): **Math 7 Pre-Algebra Honors**
Time Period: **Marking Period 3**
Length: **Wk 1 Go Math! Advanced 2 Module 11**
Status: **Published**

Essential Questions

- How can you use tables, graphs, and equations to represent proportional situations?
- How do you find a rate of change and interpret the unit rate as slope?

Big Ideas

Understand the connections between proportional relationships, lines, and linear equations.

Cross Curricular Integration

Integration Area: Language Arts

LA.W.AW.7.1 Write arguments to support claims with clear reasons and relevant evidence

LA.W.AW.7.1.A Introduce claim(s)about a topic or issue, acknowledge alternate or opposing claims, and organize the reasons and evidence logically

LA.W.AW.7.1.B Support claim(s) with logical reasoning and relevant, accurate data and evidence, that demonstrate an understanding of the topic or text using accurate, credible sources and demonstrating an understanding of the topic or text.

LA.W.AW.7.1.C Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), reasons, and evidence.

LA.W.AW.7.1.D Establish and maintain a formal style/academic style, approach, and form.

LA.W.AW.7.1.E Provide a concluding statement or section that follows from and supports the argument presented.

LA.W.WP.4 With some guidance and support from peers and adults, develop and strengthen writing as needed by planning flexibly making editing and revision choices and sustaining effort to complete complex writing tasks; and focusing on how well the purpose and audience have been addressed.

LA.W.WR.7.75 Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.

LA.W.SE.7.6 Gather relevant information from multiple print and digital sources, using search terms

effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation. Students may determine the credibility of multiple digital and print data sources that can be used as supporting evidence in constructing a model for describing the cycling of water through Earth's systems driven by energy from the sun and the force of gravity

LA.W.RW.7.107 Write routinely over extended time frames (time for research, reflection, metacognition/self-correction, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

8.G.2 Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.

8.G.3 Describe the effect of dilations, translations, rotations and reflections on two-dimensional figures using coordinate.

Activity: Write a biography of a mathematician or of an artist who uses mathematics to make art. In the biography, highlight the mathematics the person used or developed. Include illustrations.

CSDT Technology Connection

8.1.8.DA.1 Organize and transform data collected using computational tools to make it usable for a specific purpose

Enduring Understandings

Expressions and Equations

8.EE.5[M] Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.

8.EE.6[M] Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation y = mx for a line through the origin and the equation y= mx + b for a line intercepting the vertical axis at b.

Functions

8.F.B.4 Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x,y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.

Mathematical Practices Focus

2. Reason abstractly and quantitatively. Lesson 11.2, 11.3
3. Construct viable arguments and critique the reasoning of others. Lesson 11.1, 11.2, 11.3
4. Model with mathematics. Lesson 11.1, 11.2, 11.3
5. Use appropriate tools strategically. Lesson 11.1, 11.2
6. Attend to precision. Lesson 11.1
7. Look for and make use of structure. Lesson 11.1, 11.2