7th Grade - Unit 3 Math - Ratios and Proportions

Content Area: **Mathematics**
Course(s): **Math 6, Generic Course**
Time Period: **Generic Time Period**
Length: **45 days**
Status: **Published**

Established Goals/Standards

Please choose the appropriate Goals/Standards from the Standards tab above.

MA.7.RP	Ratios and Proportional Relationships
MA.7.RP.A	Analyze proportional relationships and use them to solve real-world and mathematical problems.
MA.7.RP.A.1	Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.
MA.7.RP.A.2	Recognize and represent proportional relationships between quantities.
MA.7.RP.A.2a	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.
MA.7.RP.A.2b	Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
MA.7.RP.A.2c	Represent proportional relationships by equations.
MA.7.RP.A.2d	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.
MA.7.RP.A.3	Use proportional relationships to solve multistep ratio and percent problems.

Essential Questions

Please add your Essential Questions by clicking on the Lists tab above.

- How can proportions be used to find the dimensions of a scale drawing?
- What are examples of real life problems involving percents?
- What are percents?
- What is the constant of proportionality?
- What is the difference between a ratio, rate, and a proportion?

Enduring Understanding

Please add your Enduring Understandings by clicking on the Lists tab above.

- Percents are ratios that compare a number to 100
- Percents can be used to determine discounts, taxes, interest, and percent of change.
- Proportions can be used to find the missing dimensions by cross products.
- Ratios are comparison of two numbers by division, rates are ratios with different units of measure,

and proportions are equations formed by ratios.

- The constant of proportionality is the rate of change (slope).

Content

Students will be able to:

- Write ratios and use them to compare quantities
- Find unit rates and unit costs using proportional reasoning
- Solve proportions using unit rates, and cross products
- Use proportions to find missing lengths in similar figures, and problems involving scale.
- Identify proportional relationships and find constants of proptionality
- Convert between fractions, decimals, and percents
- Use proportions to solve problems involving percents
- Use equations to solve problems involving percents
- Find the answer to a real life percent problem and determine if the answer is reasonable
- Find percent increase or decrease

Vovabulary List:

- constant of proportionality
- cross product
- equivalent ratio
- indirect measure
- polygon
- proportion
- rate
- ratio
- scale
- scale drawing
- similiar polygon
- unit cost
- unit rate
- commission
- discount
- mark up
- percent
- percent of change
- percent error
- principal
- simple interest

Assessments

Resources

- Savvas enVision textbook and online resources
- Teacher made flip-charts
- Web-based activities (mathplayground.com) (coolmath.com)
- Teacher made worksheets/assessments
- mad minutes
- NJCTL.org (PMI math)
- Pizzazz series of worksheets