

04 Ratio, Rates, and Proportions

Content Area: **Mathematics**
Course(s):
Time Period: **Week1**
Length: **1 Week**
Status: **Published**

Stage 1: Desired Results

Ratio, Rates, and Proportions

Unit Overview/ Rationale

Standards & Indicators

Common Core: Mathematics, Common Core: Grade 8, Mathematical Practice

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

MA.7.7.G.A.1

Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.

MA.7.7.RP.A

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

MA.7.7.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.7.7.RP.A.2	Recognize and represent proportional relationships between quantities.
MA.7.7.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.7.7.RP.A.2b	Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
MA.7.7.RP.A.2c	Represent proportional relationships by equations.
MA.7.7.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.

Big Ideas - Students will understand that...

- A proportional relationship involves multiplication with a scale factor.
- Scale drawings, maps, etc. are similar and are produced using a scale.
- A unit rate is known as a constant of proportionality and can be located on a graph at $(1, r)$.

Essential Questions - What provocative questions will foster inquiry and transfer of learning

- How can you find the better buy?
- How can you use proportional relationships to extend your thinking?
- How can you create a scale model?
- What does it mean for figures to be similar?
- What is a constant of proportionality?
- What does a proportional graph look like and what information can be extracted from it?

Content - Students will know...

Key concepts:

constant of proportionality, cross products, equivalent ratios, indirect measurement, polygon, proportion, rate, ratio,

scale, scale drawing, similar polygons, unit cost, unit rate

Skills - Students will be able to...

-Write ratios and unit rates.

-Write and solve proportions.

-Use rates and proportions to solve problems involving similar figures, maps, and scale models.

-Decide whether two quantities are in a proportional relationship and, if so, determine the constant of proportionality.

Stage 2: Assessment Evidence

Assessment

Stage 3: Learning Plan

Learning Activities

Resources

Pearson

Algebra 1

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