Bridging for Math Strength Resources

Standards of Learning Curriculum Framework (SOL)

Standard of Learning (SOL) 6.12c Determine whether a proportional relationship exists between two quantities



Student Strengths	Bridging Concepts	Standard of Learning
Students can multiply and divide fluently.	Students can determine equivalent ratios. Students can find a unit rate in a given proportional situation.	Students can determine whether a proportional relationship exists between two quantities.

Understanding the Learning Trajectory

Big Ideas:

- In order for there to be a proportional relationship between quantities, they must have a multiplicative relationship.
- Proportional relationships do not always exist between two quantities.
- Additive relationships are not proportional.
- Proportions can be represented using pictures, tables, and graphs. (Arizona, Ratios and Proportional Reasoning, p.5 and 8)

Formative Assessment:

- Just in Time Mathematics Quick Check 6.12c Word
- Just in Time Mathematics Quick Check 6.12c PDF
- Just in Time Mathematics Quick Check 6.12c Desmos

Important Assessment Look Fors:

- The student can analyze information to determine if proportional relationships exist.
- The student can find unit rate to justify thinking.
- The student can recognize differences between proportional and nonproportional relationships.
- The student can explain why a situation is proportional or nonproportional.

Purposeful Questions:

- What differences did you notice between situations that were proportional and ones that were

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nonproportional?
- What strategies did you use to help determine if a situation was proportional or not?
- Can there be a relationship between quantities and still not be a proportional situation? Explain your thinking.
- How do you know the situation is proportional?

Bridging Activity to Support Standard	Instructional Tips
Routine Notice and Wonder, MathStrength	A proportional graph to be used in a notice and wonder format as a jumping off point of how proportional relationships can be represented in different formats.
Rich Tasks Mixing Lemonade, NRich Food Chains, NRich	In this task, students need to determine which glass of lemonade is the strongest based on the ratio of water to lemonade mix. In this task, students can discuss if there is a proportional relationship between the levels of the food chain
Games/Tech Desmos Water Slide Desmos 6.12a-d Super Bear Desmos 6.12acd Marcellus the Giant	Students need to use their understanding of proportional relationships to create slides that don't "break". They will need to change measurements to create proportional relationships for "broken" slides. In this activity students will graphically discover and represent the following relationships: Unit rate, Constant of proportionality, Ratios, and Proportions This activity will help your students understand the definition of a proportional relationship. They'll create a giant and then make sure all of his features are proportional. They'll see the representation of his proportions on a graph and manipulate the graph to see the giant change dynamically. Learners will also determine relationships in tables to determine missing values in the tables.

Other Resources:
- Blooket: These can be used to review proportional reasoning skills.
  - Proportional Reasoning
  - Proportional Relationships
- VDOE Mathematics Instructional Plans (MIPS)
  - 6.12cd – Identifying and Representing Proportional Relationships (Word) / PDF
- VDOE Algebra Readiness Formative Assessments
  - 6.12c (Word) / PDF
- VDOE Algebra Readiness Remediation Plans
  - Proportional Relationships (Word) / PDF
- VDOE Word Wall Cards: Grade 6 (Word) / PDF
  - Proportional Relationship
  - Ratio Table
  - Connecting Representations
- Desmos Activity
  - Marcellus the Giant

Learning Trajectory Resources

Charles, R. (2005), Big ideas and understandings as the foundation for elementary and middle school mathematics. *Journal of Mathematics Education Leadership*, *7*(3), NCSM.

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Van De Walle, J., Karp, K. S., & Bay-Williams, J. M. (2018). *Elementary and Middle School Mathematics: Teaching Developmentally.* (10th edition) New York: Pearson (2019:9780134802084)

VDOE Curriculum Framework for All Grades - Standard of Learning Curriculum Framework (SOL)