

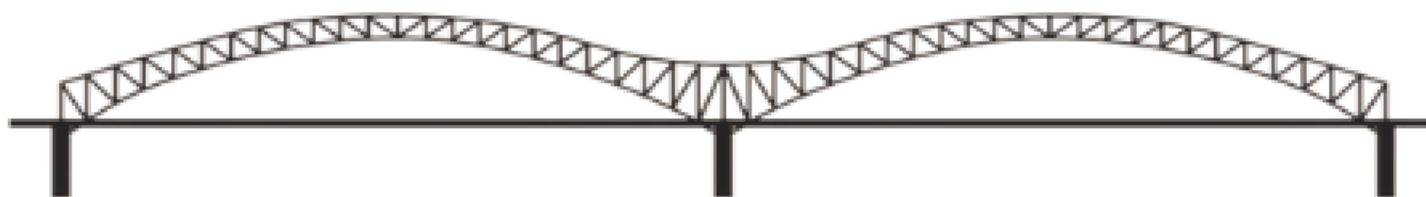


Bridging for Math Strength Resources

[Standards of Learning Curriculum Framework \(SOL\)](#)

[Bridging Standards of Learning \(SOL\) for Grade 7](#)

Standard of Learning (SOL) 7.10b Graph a line representing a proportional relationship between two quantities given the slope and an ordered pair, or given the equation in $y = mx$ form where m represents the slope as rate of change



Student Strengths	Bridging Concepts	Standard of Learning
Students can identify, describe, create, express, and extend number patterns found in objects, pictures, numbers, and tables.	Students can identify the coordinates of a point and graph ordered pairs in a coordinate plane. Students can identify proportional relationships given a table or verbal description.	Students can graph a line representing a proportional relationship between two quantities given the slope and an ordered pair, or given the equation in $y = mx$ form.

Understanding the Learning Trajectory

Big Ideas:

- When two quantities, x and y , vary in such a way that one of them is a constant multiple of the other, the two quantities are “proportional.”
- The slope of a proportional relationship can be determined by finding the unit rate.
- The slope of a line is a rate of change, a ratio describing the vertical change to horizontal change of the line.

Formative Assessment:

- [Just in Time Mathematics Quick Check 7.10b Word](#)
- [Just in Time Mathematics Quick Check 7.10b PDF](#)
- [Just in Time Mathematics Quick Check 7.10b Desmos](#)

Important Assessment Look Fors:

- The student utilizes the origin and the given slope to locate another point in a given graph.
- The student is able to insert a chosen input value into the equation of the line, and determine an output value.

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- The student can consistently determine the x-value given the y-value, or find the y-value given the x-value in a linear equation.

Purposeful Questions:

- How will knowing the slope of the line help you to figure out an initial set of points?
- What strategy do you prefer to use when selecting three other points on the line? Explain your strategy.
- Is the incline of the line between all of your points identical? Why is this important?

Bridging Activity to Support Standard	Instructional Tips
Routine Same, But Different	Inform the students that $m = 6$ on both graphs. Have them select ordered pairs to prove that to be the case.
Rich Tasks Illustrative Mathematics: Video Streaming	Emphasize Parts C and D of the task (to be utilized in conjunction with SOL 7.10d.)
Games/Tech Turtle Time Trials Khan Academy: Graphing Proportion Given Slope Desmos 7.10ab Investigating Rate of Change	Engaging technology tool to help students explore connections among different representations of proportional relationships, with a glimpse at non-proportional relationships. The lesson centers around a race between turtles of different constant speeds. After encountering the context with an animation, students analyze and create other representations of the scenario: number lines, graphs, tables, and equations. This quiz game provides practice with graphing a line representing a proportional relationship. Play with a friend to answer the most each round. In this activity students will compare slopes of lines with a y-intercept of zero. They'll use their comparisons to learn how to write the equations of lines of the form $y=ax$.
Other Resources: • Open Up Curriculum Let's see how graphs of proportional relationships differ from graphs of other relationships • VDOE Mathematics Instructional Plans (MIPS) ◦ 7.10ab - Discover Slope (m) (Word) / PDF Version • VDOE Algebra Readiness Formative Assessments ◦ SOL 7.10b (Word) / PDF • VDOE Algebra Readiness Remediation Plans ◦ Slope-Rate of Change in Proportional Relationship (Word) / PDF • VDOE Word Wall Cards: Grade 7 (Word) (PDF) ◦ Slope ◦ Graphing Linear Relationships ◦ Proportional Relationship: $y=mx$ • Desmos Activity ◦ Slope Investigation Student Activity Learning Trajectory Resources:	

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Journal of Mathematics Education Leadership, 7(3), NCSM.

Common Core Standards Writing Team. (2019). [Progressions for the Common Core State Standards for Mathematics.](#)
Tucson, AZ: Institute for Mathematics and Education, University of Arizona.

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 \(SOL\)](#)