

Eureka Remediation Tool: Grade 8

Module 4, Topic C

To become mathematically proficient, students **must** access on-grade-level content. This document aims to help teachers who use the Eureka curriculum to target remediation for students needing extra support before and **during** approaching on-grade-level work, creating opportunities for on-time remediation directly connected to the new learning.

About this Topic

Focus Standard:

8.EE.B.5: 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.B.6: 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 .

Topic Overview per the Eureka Curriculum

Topic C begins with students examining the slope of non-vertical lines. Students relate what they know about unit rate in terms of the slope of the graph of a line (**8.EE.B.5**). In Lesson 16, students learn the formula for computing slope between any two points. Students reason that any two points on the same line can be used to determine slope because of what they know about similar triangles (**8.EE.B.6**). In Lesson 17, students transform the standard form of an equation into slope-intercept form. Further, students learn that the slope of a line joining any two distinct points is the graph of a linear equation with slope, . In Lesson 18, students investigate the concept of uniqueness of a line and recognize that if two lines have the same slope and a common point, the two lines are the same.

Lessons 19 and 20 prove to students that the graph of a linear equation is a line and that the line is a graph of a linear equation. In Lesson 21, students learn that the y -intercept is the location on the coordinate plane where the graph of a linear equation crosses the y -axis. Also in this lesson, students learn to write the equation of a line given the slope and a point. In Lesson 22, constant rate problems are revisited. Students learn that any constant rate problem can be described by a linear equation in two variables where the slope of the graph is the constant rate (i.e., rate of change). Lesson 22 also presents students with two proportional relationships expressed in different ways. Given a graph and an equation, students must use what they know about slope to determine which of the two has a greater rate of change. Lesson 23 introduces students to the symbolic representation of two linear equations that would graph as the same line.

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Overview

Eureka Remediation Tools include:

1. a diagnostic assessment to help teachers determine the misunderstandings or gaps in mathematical knowledge related to a specific Topic in the Eureka curriculum
2. guidance for teachers to analyze student work on the diagnostic assessment
3. suggested materials for targeted remedial instruction

Note: The use of this guidance is not intended to delay students' engagement with on-grade-level learning. On-grade-level learning should be the focus of instructional time and be treated as an opportunity for students to "finish" learning previous skills and deepen conceptual understanding.

Diagnostic Assessment

The diagnostic assessment is designed to be administered to targeted students prior to beginning instruction on the given Topic. When appropriate, it is broken into parts (Part A, Part B, and so on); each part addresses a different prerequisite standard and contains three problems. If a student correctly answers at least 2 out of the 3 problems, it can be assumed that he/she is ready to engage with the new content of the Topic with little to no support needed prior to engaging with the Topic. The diagnostic assessment is designed in this way so that teachers can determine the "entry point" to remedial instruction and/or opportunities for unfinished learning within the context of the new learning. The entry points and opportunities for unfinished learning will vary between students.

Guidance for Remediation

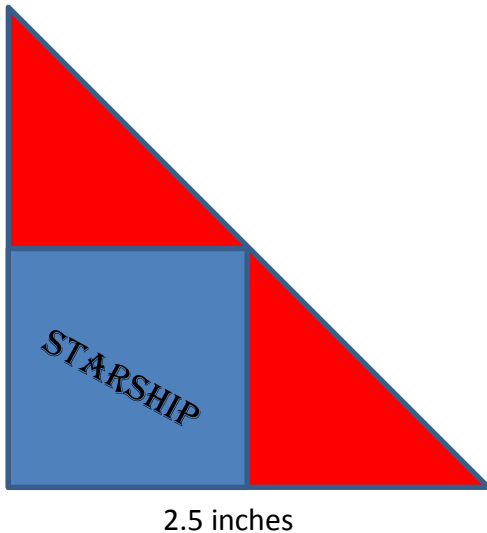
The Remediation Guidance is designed for teacher use. It is also broken into parts (Part A, Part B, and so on) and correlates to the parts on the diagnostic assessment. Each part contains the following:

1. **The focus standard:** The focus standards are strategically chosen to address prerequisite skills and are purposefully arranged in the order that students typically master the skills and knowledge.
2. **Why this is important for current grade level work:** This section describes how the work of the prerequisite standard relates to the standard(s) addressed in the Topic of instruction.
3. **Using the diagnostic assessment to identify gaps:** This section identifies common errors students make on the diagnostic assessment items.
4. **Remediation Resources for Targeted Instruction:** The resources pinpoint specific Eureka lessons and parts of lessons for teachers to use to address gaps in mathematical knowledge. Using Eureka materials to address remediation ensures alignment to the standards, consistency in approach to learning, and similarities in strategies for solving problems.

Diagnostic Assessment: Grade 8 Eureka Module 4, Topic C

Part A: 7.G.A.1

Starship Airways, sometimes called the Spirit of the Galaxy, is the largest airline in the universe by fleet size. As the largest Galaxy airline, they have in their fleet planes of various sizes and capacity. Their logo (shown below) is a right triangle with legs of equal length, and it appears on the tail of all of their planes, though it is not always the same size. Rather, the size of the logo is proportional to the size of the plane.



1. In the scale drawing above, each inch represents an actual length of 5 feet. Based on that scale factor, what is the actual width of the logo? Explain and/or show your work.
2. To fit their larger planes, Qantas uses the same scale drawing but has to change the scale. If they use a scale of $\frac{1}{2}$ inch for every 5 feet of actual length, what would be the actual width of the logo? Explain and/or show your work.
3. For their largest plane, the Airbus, they create a separate scale drawing using a scale of $\frac{1}{4}$ inch for every 5 feet of actual length. If the actual logo is to be 35 feet in length and width, how wide would the scale drawing be? Explain and/or show your work.

Diagnostic Assessment Key: Grade 8 Eureka Module 4, Topic C

Solutions:

1. 12.5 ft
2. 25 ft
3. $1\frac{3}{4}$ in

Remediation Guidance: Grade 8 Eureka Module 4, Topic C

Part A Focus: 7.G.A.1: Solve problems involving scale drawings of geometric figures, such as computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.

Why this is important for current grade level work:

Topic C extends the concept of constant of proportionality to introduce slope by leveraging students' experience with scale drawings, leading to similar figures. The three problems are intended to reinforce a student's understanding and skills related to scale drawings. Ratios, scale factors, proportionality and other components of similar triangles will be valuable tools as a student begins to compare and explain proportional relationships on a graph and uses similar triangles to recognize that the slope of a line is constant. While mastery of these items alone will not guarantee that students are indeed ready to engage in the target Topic, scale drawings serve as a crucial piece of the foundation to the new learning. The problems scaffold in difficulty.

Using the Diagnostic Assessment to identify gaps:

Problem 1:

Look for students who set up an equation to solve the problem as this might be an indication that the student does not truly understand the problem; rather, he/she just has memorized a process for solving such problems. If students are relying on a procedure instead of using their number sense, they might struggle to engage with the new concepts presented in the target Topic, being distracted by the set of procedures.

Problem 2:

Look for students who struggle to recognize that $2\frac{1}{2}$ in is comprised of five $\frac{1}{2}$ in pieces, instead relying on a procedure that distracts from the simplicity of the problem and the ability to use number sense.

Problem 3:

A student who leaves his/her answer as $\frac{7}{4}$ in may still be considered ready for the target Topic as slope is typically shown as an improper fraction instead of a mixed number.

Remediation Resources for Targeted Instruction:

[7th Grade, Module 1, Topic D, Lesson\(s\) 16 – 18](#)

Use the Classwork portion of each of the Lessons and a sampling of problems from the Problem Set focused on conceptual understanding and/or application.