

# Eureka Remediation Tool: Grade 5

## Module 2, Topic B

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 Standards:

5.OA.A.1: Use parentheses or brackets in numerical expressions, and evaluate expressions with these symbols.

5.OA.A.2: Write simple expressions that record calculations with whole numbers, fractions, and decimals, and interpret numerical expressions without evaluating them. *For example, express the calculation “add 8 and 7, then multiply by 2” as  $2 \times (8 + 7)$ . Recognize that  $3 \times (18,932 + 9.21)$  is three times as large as  $18,932 + 9.21$ , without having to calculate the indicated sum or product.*

5.NBT.B.5: Fluently multiply multi-digit whole numbers using the standard algorithm.

**Note to Louisiana Teachers:** The **Grade 4 Louisiana Guide to Implementing Eureka** encourage 4<sup>th</sup> grade teachers to only teach the lessons regarding the standard algorithm for multiplication as enrichment as time allows. The Louisiana Student Standards for Mathematics do not require that students be introduced to the standard algorithm for multiplication until 5<sup>th</sup> grade. Therefore, most students entering 5<sup>th</sup> grade will not have been exposed to the algorithm and will need instruction to connect the algorithm to previously learned models.

#### Topic Overview per the Eureka Curriculum

In Topic B, place value understanding moves toward understanding the distributive property by using area models to generate and record partial products (**5.OA.1**, **5.OA.2**), which are combined within the standard algorithm (**5.NBT.5**). Writing and interpreting numerical expressions in Lessons 1 and 2 and comparing those expressions using visual models, lay the necessary foundation for students to make connections between the distributive property, as depicted in area models, and the partial products within the standard multiplication algorithm. The algorithm is built over a period of days, increasing in complexity as the number of digits in both factors increases. Reasoning about zeros in the multiplier, along with considerations about the reasonableness of products, also provides opportunities to deepen understanding of the standard algorithm. Although word problems provide context throughout Topic B, the final lesson offers a concentration of multi-step problems that allows students to apply this new knowledge.

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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 5

### Eureka Module 2, Topic B

#### Part A: 3.OA.C.7

1. Administer Sprint from 3<sup>rd</sup> Grade Module 3, Lesson 1. Be sure to follow the administration guidance provided by Eureka.

#### Part B: 4.NBT.B.4

2. Find the sum.

$$\begin{array}{r} 324 \\ + 6,480 \\ \hline \end{array}$$

3. Find the sum.

$$\begin{array}{r} 21,625 \\ + 129,750 \\ \hline \end{array}$$

4. Find the sum.

$$\begin{array}{r} 22,023 \\ 48,940 \\ + 244,700 \\ \hline \end{array}$$

#### Part C: 4.NBT.B.5

5. Find the product. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

$$423 \times 4$$

6. Find the product. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

$$7,321 \times 6$$

7. Find the product. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

$$54 \times 23$$

## Diagnostic Assessment Key: Grade 5 Eureka Module 2, Topic B

Solutions:

1. See 3<sup>rd</sup> Grade Module 3, Lesson 1 Sprint
2. 6,804
3. 151,375
4. 315,663
5. 1,692
6. 43,926
7. 1,242

## Remediation Guidance: Grade 5 Eureka Module 2, Topic B

**Part A Focus:** 3.OA.C.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that  $8 \times 5 = 40$ , one knows  $40 \div 5 = 8$ ) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

<p><b>Why this is important for current grade level work:</b></p> <p>Fluency is equally as important as conceptual understanding; therefore, students should know all products of two one-digit numbers to aid in fluency of more complex multiplication and division problems. Knowing these products from memory frees up students to focus on the new learning of the grade-level work.</p>	<p><b>Remediation Resources for Targeted Instruction:</b></p> <p><u>3rd Grade, Module(s) 1 and 3</u></p> <p>Use the Concept Development portion from a selection of Lessons and a sampling of problems from the Problem Set focused on procedural skill and fluency. Choose Lessons based on the factors with which students struggled.</p>
<p><b>Using the Diagnostic Assessment to identify gaps:</b></p> <p><b>Problem 1:</b></p> <p>The Sprint should be administered as directed by Eureka, ensuring a low-pressure setting. Look for students who work efficiently with a high level of accuracy, and look for students who may not “know from memory” these facts and rely on strategies that are not efficient, such as counting on fingers or drawing pictures.</p>	

## Remediation Guidance: Grade 5 Eureka Module 2, Topic B

**Part B Focus:** 4.NBT.B.4. Fluently add and subtract multi-digit whole numbers with sums less than or equal to 1,000,000, using the standard algorithm.

### **Why this is important for current grade level work:**

When solving a multi-digit multiplication problem using the standard algorithm, students are required to add multi-digit numbers. When following the standard algorithm for multiplication, the products continue to get larger, resulting in an addition problem aligned vertically with the smaller addends on top and larger addends on bottom. This means students also need to have a deep understanding of place value. Being able to add multi-digit whole numbers fluently using the standard algorithm will allow students to focus more on the multiplication, the target operation. The problems were all generated from multiplying a number with up to four digits by a two- or three-digit number to ensure alignment to the expected grade-level work. The most important look-fors here are the accuracy of the answer. The problems scaffold in difficulty.

### **Using the Diagnostic Assessment to identify gaps:**

#### **Problems 2-4:**

Look for students who fail to add according to place value, i.e., add ones to ones and tens to tens, and/or fail to compose new tens, hundreds, etc. Also, students may struggle adding three addends, not knowing where to start. Encourage them to work with a single place value at a time, beginning with the ones and moving towards the thousands. A place value chart may prove beneficial for such students.

### **Remediation Resources for Targeted Instruction:**

[4th Grade, Module 1, Topic D, Lesson 11](#)

Use the Concept Development portion of each Lesson and a sampling of problems from the Problem Set focused on procedural skill and fluency.

## Remediation Guidance: Grade 5 Eureka Module 2, Topic B

**Part C Focus:** 4.NBT.B.5 Multiply a whole number of up to four digits by a one-digit whole number, and multiply 2 two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

<p><b>Why this is important for current grade level work:</b></p> <p>This standard does not call for the standard algorithm, so students may engage with these problems in a variety of ways (distributive property, area models, rectangular array, etc.). The target grade-level standard expects students to be able to work with numbers having more digits than is called for by 4.NBT.B.5. If students can accurately calculate the products in these problems and do so in a reasonable amount of time, they should be considered ready for the target standard. The most important look-fors here are the accuracy of their answer and the efficiency of their strategy. The problems scaffold in difficulty.</p>		<p><b>Remediation Resources for Targeted Instruction:</b></p> <p><u>4th Grade, Module 3, Topic C, Lesson(s) 7 - 10</u> <b>OR</b> <u>4th Grade, Module 3, Topic H, Lesson(s) 34 - 36</u></p> <p>Use the Fluency Practice and Concept Development portion of each Lesson and a sampling of problems from the Problem Set that focus on conceptual understanding and procedural skill and fluency. Topic C focusses on multiplying three- and four-digit numbers by a single-digit number, while Topic H focusses on multiplying two two-digit numbers.</p>
<p><b>Using the Diagnostic Assessment to identify gaps:</b></p> <p><b>Problems 5-6:</b></p> <p>Look for students who struggle combining the three or four individual products, neglecting place value when they add leading to an answer that is not reasonable for the given problem. Such students may benefit from a place value chart and/or an area model.</p>	<p><b>Problem 7:</b></p> <p>Students should show flexibility in breaking numbers apart. Using area models, array models, and/or the distributive property to solve this problem accurately shows the student is ready for the target standard. Look for students who do not know how to use any of the strategies to solve this problem. Those students are not ready for the target standard.</p>	