

Great Minds
100 M Street SE, Suite 500
Washington, DC 20003

Phone: 844.853.1010
Email: info@eureka-math.org
Web: eureka-math.org
Twitter: [eureka_math](https://twitter.com/eureka_math)

**EUREKA
MATH™**

Grade 4 Pacing and Preparation Guide

Grade 4 Pacing and Preparation Guide

This guide includes three components. The first section, *Preparing to Teach a Module*, outlines a process for understanding the instructional sequences of the module—a vital foundation for making decisions about pacing. Next, *Preparing to Teach a Lesson* outlines a process for customizing a lesson to fit the daily time constraints and unique needs of the students.

The final section of this guide, *Suggestions for Consolidation or Omissions*, is intended to provide guidance in the event that educators need to reduce the number of days in the 180-day curriculum. Keep in mind that Grade 4 is comprised of 153 daily lessons. The remaining 27 instructional days are devoted to the 12 assessments. Assessments are typically allotted half a day to administer the assessment, half a day to return and review the assessment, and one day for remediation or enrichment. The embedded 10 remediation/enrichment days are intended to provide some built-in flexibility for teachers. However, in the event that even more flexibility is needed, these suggestions for consolidation or omissions will free up additional days. These suggestions should not be viewed as a mandate to omit or consolidate lessons, but as guidance for how to do so wisely when the need arises.

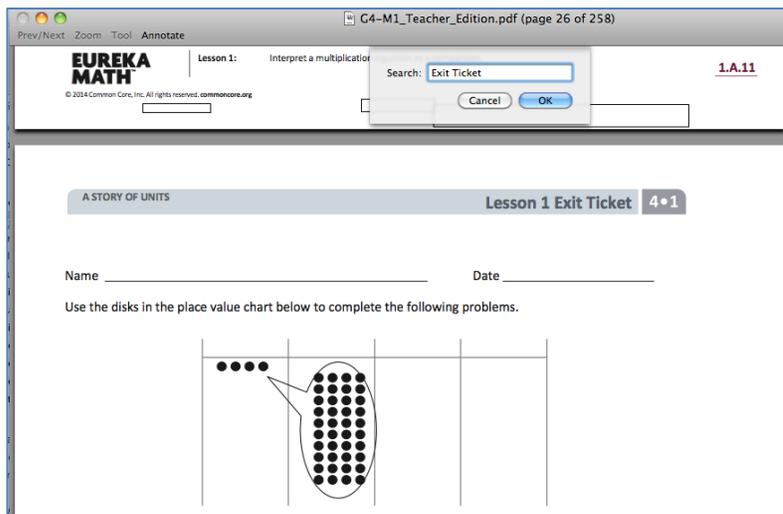
Preparing to Teach a Module

Preparation of lessons will be more effective and efficient if there has been an adequate analysis of the module first. Each module in *A Story of Units* can be compared to a chapter in a book. How is the module moving the plot, the mathematics, forward? What new learning is taking place? How are the topics and objectives building on one another? The following is a suggested process for preparing to teach a module.

Step 1: Get a preview of the plot.

- A: Read the Table of Contents. At a high level, what is the plot of the module? How does the story develop across the topics?
- B: Preview the module's Exit Tickets¹ to see the trajectory of the module's mathematics and the nature of the work students are expected to be able to do.

Note: When studying a PDF file, enter "Exit Ticket" into the search feature to navigate from one Exit Ticket to the next.



Step 2: Dig into the details.

- A: Dig into a careful reading of the Module Overview. While reading the narrative, liberally reference the lessons and Topic Overviews to clarify the meaning of the text—the lessons demonstrate the strategies, show how to use the models, clarify vocabulary, and build understanding of concepts.

¹ A more in-depth preview can be done by searching the Problem Sets rather than the Exit Tickets. Furthermore, this same process can be used to preview the coherence or flow of any component of the curriculum, such as Fluency Practice or Application Problems.

Consider searching the video gallery on *Eureka Math's* website to watch demonstrations of the use of models and other teaching techniques.

- B: Having thoroughly investigated the Module Overview, read through the chart entitled Overview of Module Topics and Lesson Objectives to further discern the plot of the module. How do the topics flow and tell a coherent story? How do the objectives move from simple to complex?

Step 3: Summarize the story.

Complete the Mid- and End-of-Module Assessments. Use the strategies and models presented in the module to explain the thinking involved. Again, liberally reference the work done in the lessons to see how students who are learning with the curriculum might respond.

Preparing to Teach a Lesson

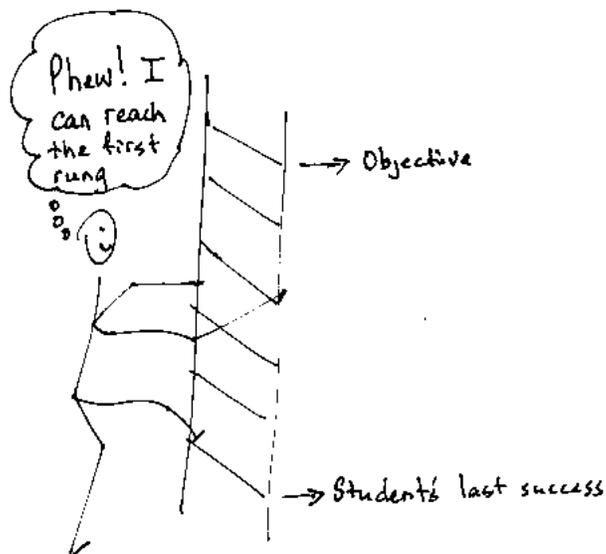
A three-step process is suggested to prepare a lesson. It is understood that at times teachers may need to make adjustments (customizations) to lessons in order to fit the time constraints and unique needs of their students. The recommended planning process is outlined below. Note: The ladder of Step 2 is a metaphor for the teaching sequence. The sequence can be seen not only at the macro level in the role that this lesson plays in the overall story, but also at the lesson level, where each rung in the ladder represents the next step in understanding or the next skill needed to reach the objective. To reach the objective, or the top of the ladder, all students must be able to access the first rung and each successive rung.

Step 1: Discern the plot.

- A: Briefly review the module’s Table of Contents, recalling the overall story of the module and analyzing the role of this lesson in the module.
- B: Read the Topic Overview related to the lesson, and then review the Problem Set and Exit Ticket of each lesson in the topic.
- C: Review the assessment following the topic, keeping in mind that assessments can usually be found midway through the module and at the end of the module.

Step 2: Find the ladder.

- A: Complete the lesson’s Problem Set.
- B: Analyze and write notes on the new complexities of each problem as well as the sequences and progressions throughout problems (e.g., pictorial to abstract, smaller to larger numbers, single- to multi-step problems). The new complexities are the rungs of the ladder.
- C: Anticipate where students might struggle, and write a note about the potential cause of the struggle.
- D: Answer the Student Debrief questions, always anticipating how students will respond.



Step 3: Hone the lesson.

At times, the lesson and Problem Set are appropriate for all students and the day’s schedule. At others, they may need customizing. If the decision is to customize based on either the needs of students or scheduling constraints, a suggestion is to decide upon and designate “Must Do” and “Could Do” problems.

- A: Select “Must Do” problems from the Problem Set that meet the objective and provide a coherent experience for students; reference the ladder. The expectation is that the majority of the class will complete the “Must Do” problems within the allocated time. While choosing the “Must Do” problems, keep in mind the need for a balance of calculations, various word problem types², and work at both the pictorial and abstract levels.
- B: “Must Do” problems might also include remedial work as necessary for the whole class, a small group, or individual students. Depending on anticipated difficulties, those problems might take different forms as shown in the chart below.

Anticipated Difficulty	“Must Do” Customization Suggestion
The first problem of the Problem Set is too challenging.	Write a short sequence of problems on the board that provides a ladder to Problem 1. Direct the class or small group to complete those first problems to empower them to begin the Problem Set. Consider labeling these problems “Zero Problems” since they are done prior to Problem 1.
There is too big of a jump in complexity between two problems.	Provide a problem or set of problems that creates a bridge between the two problems. Label them with the number of the problem they follow. For example, if the challenging jump is between Problems 2 and 3, consider labeling the bridging problems “Extra 2s.”
Students lack fluency or foundational skills necessary for the lesson.	Before beginning the Problem Set, do a quick, engaging fluency exercise, such as a Rapid White Board Exchange, Counting Exercise, or Sprint. Before beginning any fluency activity for the first time, assess that students are poised for success with the easiest problem in the set.
More work is needed at the concrete or pictorial level.	Provide manipulatives or the opportunity to draw solution strategies. Especially in Kindergarten, at times the Problem Set or pencil and paper aspect might be completely excluded, allowing students to simply work with materials.
More work is needed at the abstract level.	Hone the Problem Set to reduce the amount of drawing as appropriate for certain students or the whole class.

- C: “Could Do” problems are for students who work with greater fluency and understanding and can, therefore, complete more work within a given time frame. Adjust the Exit Ticket and Homework to

² See the Progression documents “K, Counting and Cardinality” and “K–5, Operations and Algebraic Thinking” pp. 9 and 23, respectively.

reflect the “Must Do” problems or to address scheduling constraints.

- D: At times, a particularly tricky problem might be designated as a “Challenge!” problem. This can be motivating, especially for advanced students. Consider creating the opportunity for students to share their “Challenge!” solutions with the class at a weekly session or on video.
- E: Consider how to best use the vignettes of the Concept Development section of the lesson. Read through the vignettes, and highlight selected parts to be included in the delivery of instruction so that students can be independently successful on the assigned task.
- F: Pay close attention to the questions chosen for the Student Debrief. Regularly ask students, “What was the lesson’s learning goal today?” Help them make observations, draw connections, and articulate the goal.
- G: Adjust the balance of the lesson’s components as necessary to support the work students are expected to do in the Problem Set or task (e.g., the Fluency Practice, Exit Ticket, Homework, Application Problem).

Suggestions for Consolidation or Omissions

Module 1

If pacing is a challenge, consider omitting Lesson 17 since multi-step problems are taught in Lesson 18. Instead, embed problems from Lesson 17 into Module 2 or 3 as extensions. Since multi-step problems are taught in Lesson 18, Lesson 19 could also be omitted.

Module 2

Although composed of just five lessons, Module 2 has great importance in the Grade 4 sequence of modules. Module 2, along with Module 1, is paramount in setting the foundation for developing fluency with the manipulation of place value units, a skill upon which Module 3 greatly depends. Teachers who have taught Module 2 prior to Module 3 have reportedly moved through Module 3 more efficiently than colleagues who have omitted it. Module 2 also sets the foundation for work with fractions and mixed numbers in Module 5. Therefore, it is not recommended to omit any lessons from Module 2.

To help with the pacing of Module 3's Topic A, consider replacing the Convert Units fluencies in Module 2, Lessons 13, with area and perimeter fluencies. Also, consider incorporating Problem 1 from Module 3, Lesson 1, into the fluency component of Module 2, Lessons 4 and 5.

Module 3

Within this module, if pacing is a challenge, consider the following omissions. In Lesson 1, omit Problems 1 and 4 of the Concept Development. Problem 1 could have been embedded into Module 2. Problem 4 can be used for a center activity. In Lesson 8, omit the drawing of models in Problems 2 and 4 of the Concept Development and in Problem 2 of the Problem Set. Instead, have students think about and visualize what they would draw. Omit Lesson 10 because the objective for Lesson 10 is the same as that for Lesson 9. Omit Lesson 19, and instead, embed discussions of interpreting remainders into other division lessons. Omit Lesson 21 because students solve division problems using the area model in Lesson 20. Using the area model to solve division problems with remainders is not specified in the Progressions documents. Omit Lesson 31, and instead, embed analysis of division situations throughout later lessons. Omit Lesson 33, and embed into Lesson 30 the discussion of the connection between division using the area model and division using the algorithm.

Look ahead to the Pacing Suggestions for Module 4. Consider partnering with the art teacher to teach Module 4's Topic A simultaneously with Module 3.

Module 4

The placement of Module 4 in *A Story of Units* was determined based on the New York State Education Department Pre-Post Math Standards document, which placed **4.NF.5–7** outside the testing window and **4.MD.5** inside the testing window. This is not in alignment with PARCC’s Content Emphases Clusters (<http://www.parcconline.org/mcf/mathematics/content-emphases-cluster-0>), which reverses those priorities, labeling **4.NF.5–7** as Major Clusters and **4.MD.5** as an Additional Cluster, the status of lowest priority.

Those from outside New York State may want to teach Module 4 after Module 6 and truncate the lessons using the Preparing a Lesson protocol (see the Module Overview, just before the Assessment Overview).

This would change the order of the modules to the following: Modules 1, 2, 3, 5, 6, 4, and 7.

Those from New York State might apply the following suggestions and truncate Module 4’s lessons using the Preparing a Lesson protocol. Topic A could be taught simultaneously with Module 3 during an art class. Topics B and C could be taught directly following Module 3, prior to Module 5, since they offer excellent scaffolding for the fraction work of Module 5. Topic D could be taught simultaneously with Module 5, 6, or 7 during an art class when students are served well with hands-on, rigorous experiences.

Keep in mind that Topics B and C of this module are foundational to Grade 7’s missing angle problems.

Module 5

For Module 5, consider the following modifications and omissions. Study the objectives and the sequence of problems within Lessons 1, 2, and 3, and then consolidate the three lessons. Omit Lesson 4. Instead, in Lesson 5, embed the contrast of the decomposition of a fraction using the tape diagram versus using the area model. Note that the area model’s cross hatches are used to transition to multiplying to generate equivalent fractions, add related fractions in Lessons 20 and 21, add decimals in Module 6, add/subtract all fractions in Grade 5’s Module 3, and multiply a fraction by a fraction in Grade 5’s Module 4. Omit Lesson 29, and embed estimation within many problems throughout the module and curriculum. Omit Lesson 40, and embed line plot problems in social studies or science. Be aware, however, that there is a line plot question on the End-of-Module Assessment.

Module 6

In Module 6, students explore decimal numbers for the first time by means of the decimal numbers’ relationship to decimal fractions. Module 6 builds directly from Module 5 and is foundational to students’ Grade 5 work with decimal operations. Therefore, it is not recommended to omit any lessons from Module 6.

Module 7

Module 7 affords students the opportunity to use all that they have learned throughout Grade 4 as they first relate multiplication to the conversion of measurement units and then explore multiple strategies for solving measurement problems involving unit conversion. Module 7 ends with practice of the major skills

and concepts of the grade as well as the preparation of a take-home summer folder. Therefore, it is not recommended to omit any lessons from Module 7.