

Grade 3 Module 1

Module Overview: Key Skills, Academic Vocabulary/ Language	Learning Targets	CCSS	I Can Statements	Levels of Mastery
<p>Concepts & Skills:</p> <ul style="list-style-type: none"> Determine the total number of objects when given a specific number of groups with the same number of objects in each group. Count groups, not individual objects Given the total number of objects and groups, determine the number of objects in a group. (Partition model) Given the total number of objects and the number of objects in each group, determine the number of equal groups that can be made.(Measurement model) Use a variety of strategies to multiply and divide within 100; Strategies should include forming equal groups, using arrays and area, and measurement quantities (comparing two objects) Given an equation relating to three whole numbers solve for: the Unknown Product, Unknown Group Size, and Unknown Number of Groups. Multiply: using $a \times b = b \times a$ (Commutative Property of Multiplication); $(a \times b) \times c = a \times (b \times c)$ (Associative property); and $a \times (b + c) = a \times b + a \times c$ (Distributive Property) Use multiplication facts to solve division problems. Explain division as an unknown factor problem Solve problems using manipulatives, pictures, arrays, word problems, and numbers Use a variety of strategies to solve multiplication and division problems within 100 Internalize the basic facts (up to 9×9) in both vertical and horizontal forms 	<p>Target 1: Understand properties of multiplication & represent and solve multiplication problems.</p>	<p>3.OA.1 Interpret products of whole numbers</p>	<p>I can demonstrate products of whole numbers.</p>	<p>Level 1: I can understand <i>equal groups of</i> as multiplication and can relate multiplication to the array model L: 1</p> <p>Level 2: Interpret the meaning of factors- the size of the group or the number of groups L: 1, 3</p> <p>Level 3: I can complete multiplication problems (units 2-5, & 10) and explain the meaning of factors L: 6</p> <p>Level 4: I can demonstrate multiplication using models (array/equal groups/etc) L: 7, 8</p> <p>Level 1: I can draw an array to represent mul</p> <p>Level 4: I can model & explain distributive property with arrays to decompose units as a strategy to multiply.</p>
		<p>3.OA.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers.</p>	<p>I can determine the unknown whole number in a multiplication problem.</p>	
		<p>3.OA.5 Apply properties of operations as strategies to multiply and divide.</p>	<p>I can decompose, regroup, and reorder factors to make it easier to multiply.</p>	
		<p>3.OA.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division or properties of operations.</p>	<p>I can multiply any two numbers with a product within 100 by choosing the correct strategies.</p>	
	<p>Target 2: Understand properties of division & represent and solve division problems.</p>	<p>3.OA.2 Interpret whole-number quotients of whole numbers</p>	<p>I can demonstrate whole-number quotients of whole numbers.</p>	<p>Level 1: I can understand the meaning of the unknown as the size of the group in division and can interpret the unknown in division using the array model L: 4</p>
		<p>3.OA.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers.</p>	<p>I can determine the unknown whole number in a division problems.</p>	

<ul style="list-style-type: none"> Solve two step word problems involving adding and subtracting numbers within 1,000, and multiplying and dividing numbers including single-digit factors and products less than 100. Represent unknowns with a letter Perform operations in conventional order strategies to solve 2step word problem Estimate and revisit estimates to check for reasonableness of the answer <p><u>Vocabulary:</u> groups of product total number partition divide shares quotient division arrays equal groups equations unknown number/value multiplication equal sign operation factor inverse multiply mental computation fluently accuracy efficiency flexibility Properties of operations Commutative property estimate rounding conventional order addition subtraction Pattern</p>		<p>3.OA.6 Understand division as an unknown-factor problem.</p>	<p>I can explain the relationship between multiplication and division. I can turn a division problem into a multiplication problems with an unknown factor.</p>	<p>Level 2: Interpret the meaning of factors- the size of the group or the number of groups L: 5 Level 3: I can complete division problems (units 2-5 & 10) and find an unknown factor L: 6 Level 4: I can interpret & explain the quotient as the number of groups or the number of objects in each group</p>
		<p>3.OA.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division or properties of operations.</p>	<p>I can divide any two numbers with a quotient within 100 by choosing the correct strategies.</p>	
	<p>Target 3: Applying tools & representations to problem solving with multi-step word problems</p>	<p>3.OA.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.</p>	<p>I can determine when to multiply and divide in word problems. I can represent multiplication and division word problems using drawings and equations with unknowns in all positions. I can solve word problems involving equal groups, arrays, and measurement quantities using drawings and equations.</p>	<p>Level 1: I can identify the two steps (hidden question, addition problems) in a word problem Level 2: I can solve two- step word problems involving multiplication and division Level 3: I can solve two-step word problems involving all four operations Level 4: I can assess the reasonableness of my answers using a number of strategies (i.e. checking work, reverse operations, etc</p>
		<p>3.OA.5 Apply properties of operations as strategies to multiply and divide.</p>	<p>I can explain and apply the commutative, associative, and distributive properties of multiplication. I can explain how the multiplication properties may or may not relate to division.</p>	
		<p>3.OA.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division or properties of operations.</p>	<p>I can instantly recall my multiplication facts.</p>	

		3.OA.8 Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	I can solve two-step word problems using the four operations. I can write equations using a letter for the unknown number. I can decide if my answers are reasonable using mental math and estimation strategies. I can solve problems using the Order of Operations.	
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Engage New York: Third Grade, Module 1 Vocabulary Demands

The vocabulary below was generated from a partial analysis of Module 1. Reviewed were the teaching text, story problems, worksheets, general background vocabulary, words that describe everyday mathematics behavior expectations, and Engage New York specific lesson vocabulary. Engage New York's designated vocabulary word lists are embedded throughout the module. This means finding the vocabulary to be taught may be a challenge. There is a brief reference to using math journal/dictionaries.

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| 1. addend | 26. product |
| 2. array | 27. quotient |
| 3. backward | 28. rectangle |
| 4. blank | 29. redraw |
| 5. bucket | 30. regular voice |
| 6. column | 31. repeated addition |
| 7. counters | 32. represent |
| 8. disagree | 33. rotate |
| 9. division; dividend; divided by | 34. row |
| 10. equation | 35. seconds (concept of time) |
| 11. exit ticket | 36. skip-count |
| 12. expression (not equation) | 37. sprint |
| 13. factors | 38. square |
| 14. forward | 39. story problem |
| 15. goal | 40. switch |
| 16. group; equal groups | 41. sum |
| 17. hum | 42. tape diagram |
| 18. math sentence | 43. template |
| 19. match | 44. triangle |
| 20. method | 45. unit |
| 21. multiplier; multiply; multiplication (equal groups of) | 46. unknown |
| 22. number bond | 47. value |
| 23. number sentence | 48. whisper |
| 24. parenthesis | 49. word problem |
| 25. partition | 50. 90 degrees |

· Word problem vocabulary needed to be understood (examples from third grade: seashells, lemonade, pond, volunteers) in order to unpack the problem. * Vocabulary needed to teach the Commutative Property of Multiplication and the Distributive Property of Division.

Teaching math vocabulary is more challenging than any other subjects for several reasons:

- There is less overlap with concepts, ideas, and terms. Math has distinct vocabulary terms.
- Students must learn to decipher and use a wide range of symbols.
- Students must learn to read the problems many ways, not just left to right.
- Math texts have a denser concentration of abstract concepts than other academic texts.
- Math concepts are embedded within other math concepts: they depend on prior knowledge and experience.
- Historically there has been a lack of extended student talk about math in math classes.

From *Building Academic Language* by Jeff Zwiers

Notes on Pacing for Differentiation

If pacing is a challenge, consider the following modifications and omissions.

Consolidate Lessons 12 and 13, both of which are division lessons sharing the same objective. Include units of 2 and units of 3 in the consolidated lesson.

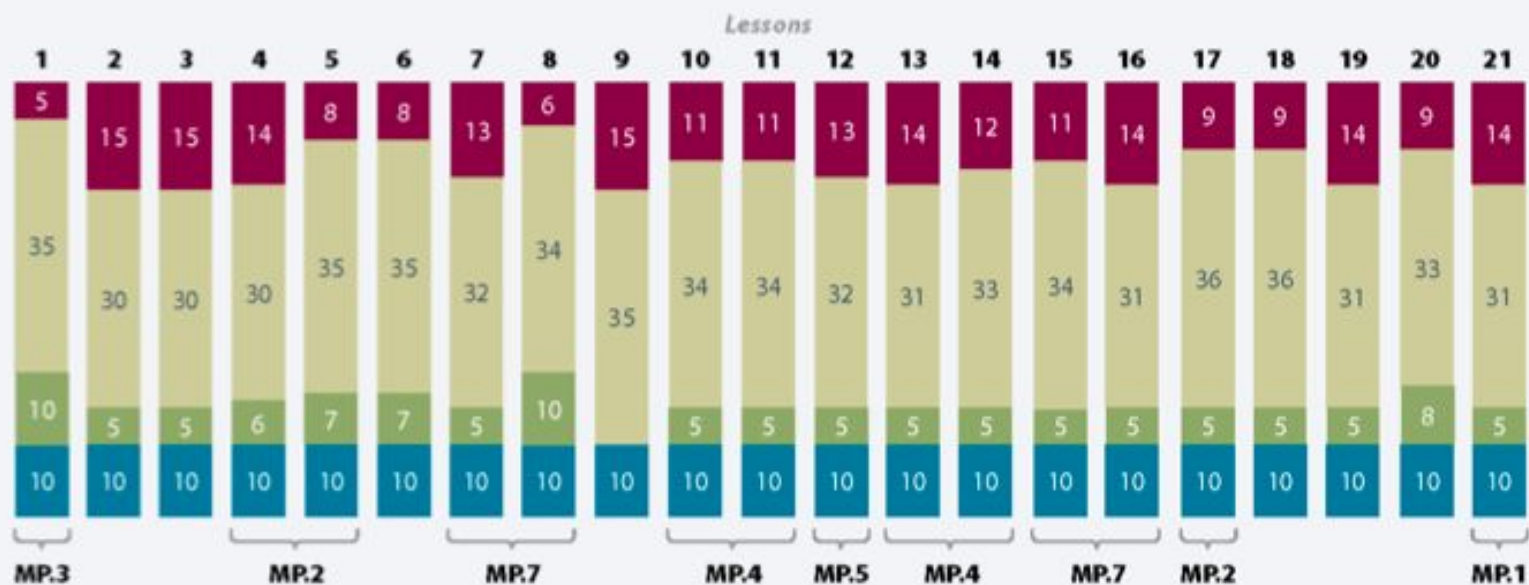
Omit Lessons 15 and 19. Lesson 15 uses the tape diagram to provide a new perspective on the commutative property, a concept students have studied since Lesson 7. Lesson 19 introduces the significant complexity of the distributive property with division. The concepts from both lessons are reinforced within Module 3.



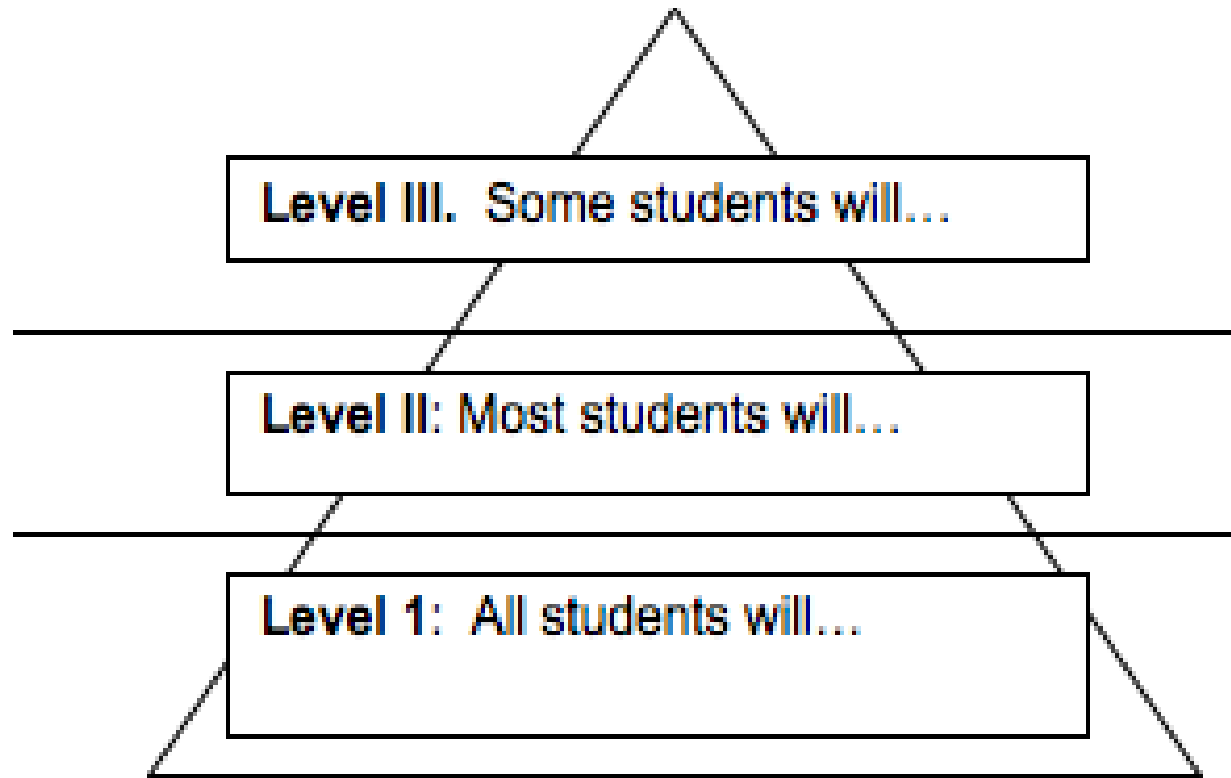
Distribution of Instructional Minutes

This diagram represents a suggested distribution of instructional minutes based on the emphasis of particular lesson components in different lessons throughout the module.

- Fluency Practice
- Concept Development
- Application Problems
- Student Debrief



MP = Mathematical Practice



Lesson/Unit Design Templates:

[Engage NY](#)

[UDL Template](#)

[UDL Example](#)

[Understanding by Design](#)