

4th grade Essential Question 3:

How does addition relate to multiplication? (2-3 wks)

Learning targets:

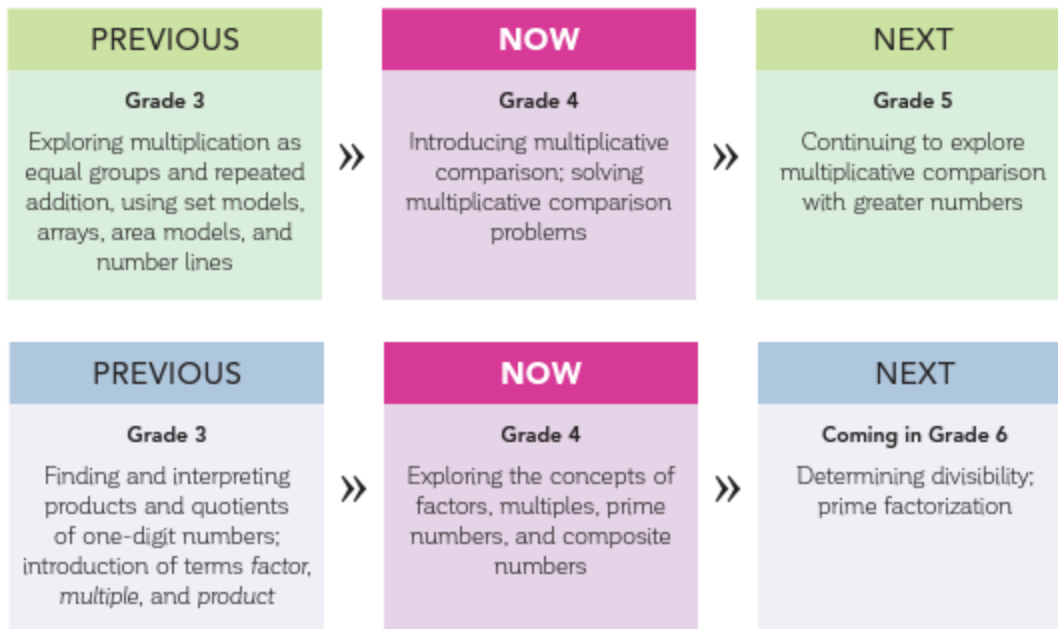
DOK 1: Recall & Reproduction

- I can find all factor pairs for whole numbers from 1 to 100. [4.OA.B.4](#)
- I can find all multiples up to 100 of a single digit number. [4.OA.B.4](#)
- I can determine if a whole number from 1 to 100 is a multiple of a given single digit number. [4.OA.B.4](#)
- I can determine if a given whole number from 1 to 100 is a prime or composite number. [4.OA.B.4](#)

DOK 2: Skills & Concepts

- I can interpret a multiplication equation as a comparison. [4.OA.A.1](#) (the equal sign means 'same as')
- I can multiply to solve word problems involving multiplicative comparisons. [4.OA.A.2](#)
- I can divide to solve comparison word problems. [4.OA.A.2](#)

By the end of this section, students will understand multiplicative comparison and understand the difference between factors and multiples and prime and composite numbers.



Number Sense Routines and Number Talks:

These activities are designed to allow everyone a voice & see something in the math. Here's a [folder of samples](#) or find more on the [curriculum map](#) (bottom of any essential question at every grade level) You can teach hand signals & they can do them over Zoom or using Zoom nonverbal cues. (routines for a number talk cheat sheet [here](#) and hand signals [here](#)).

SPLAT! [Slides](#) (open with Google Slides and click "present" so you can see transitions correctly). The first set in the presentation will have guiding questions.

Dot Talks are great for any grade level because everyone has something to see in a visual. Also models how math can be seen and done in a variety of ways. [Folder](#) of Jamboards

Number Strings are a series of equations that build a specific strategy. [Folder](#) of Jamboards

KenKen puzzles (how-to info [here](#)). [Folder of puzzles](#) or website for [online puzzles](#).

Lessons Why are these slides? More information & tips [here](#)

Sample [pretest](#)

[Numberless Word Problems](#) (comparative multiplication examples)

TABLE 2. Common multiplication and division situations.⁷

	Unknown Product	Group Size Unknown ("How many in each group?" Division)	Number of Groups Unknown ("How many groups?" Division)
	$3 \times 6 = ?$	$3 \times ? = 18$, and $18 \div 3 = ?$	$? \times 6 = 18$, and $18 \div 6 = ?$
Equal Groups	There are 3 bags with 6 plums in each bag. How many plums are there in all? <i>Measurement example.</i> You need 3 lengths of string, each 6 inches long. How much string will you need altogether?	If 18 plums are shared equally into 3 bags, then how many plums will be in each bag? <i>Measurement example.</i> You have 18 inches of string, which you will cut into 3 equal pieces. How long will each piece of string be?	If 18 plums are to be packed 6 to a bag, then how many bags are needed? <i>Measurement example.</i> You have 18 inches of string, which you will cut into pieces that are 6 inches long. How many pieces of string will you have?
Arrays,⁴ Area⁵	There are 3 rows of apples with 6 apples in each row. How many apples are there? <i>Area example.</i> What is the area of a 3 cm by 6 cm rectangle?	If 18 apples are arranged into 3 equal rows, how many apples will be in each row? <i>Area example.</i> A rectangle has area 18 square centimeters. If one side is 3 cm long, how long is a side next to it?	If 18 apples are arranged into equal rows of 6 apples, how many rows will there be? <i>Area example.</i> A rectangle has area 18 square centimeters. If one side is 6 cm long, how long is a side next to it?
Compare	A blue hat costs \$6. A red hat costs 3 times as much as the blue hat. How much does the red hat cost? <i>Measurement example.</i> A rubber band is 6 cm long. How long will the rubber band be when it is stretched to be 3 times as long?	A red hat costs \$18 and that is 3 times as much as a blue hat costs. How much does a blue hat cost? <i>Measurement example.</i> A rubber band is stretched to be 18 cm long and that is 3 times as long as it was at first. How long was the rubber band at first?	A red hat costs \$18 and a blue hat costs \$6. How many times as much does the red hat cost as the blue hat? <i>Measurement example.</i> A rubber band was 6 cm long at first. Now it is stretched to be 18 cm long. How many times as long is the rubber band now as it was at first?
General	$a \times b = ?$	$a \times ? = p$, and $p \div a = ?$	$? \times b = p$, and $p \div b = ?$

⁴The language in the array examples shows the easiest form of array problems. A harder form is to use the terms rows and columns: The apples in the grocery window are in 3 rows and 6 columns. How many apples are in there? Both forms are valuable.

⁵Area involves arrays of squares that have been pushed together so that there are no gaps or overlaps, so array problems include these especially important measurement situations.

[Lessons 1-4](#): Multiplicative Comparisons MIP Module 1

[Lessons 5-8](#): Multiples and Factors MIP Module 2

Factors & Multiples lessons [4.6 Priorities](#)/ [Slide Deck](#)/ [Spanish](#) These are from [SFUSD Math Core Curriculum](#) is licensed under the [Creative Commons Attribution 4.0 International License](#)

[Lesson 9](#): Exploring Prime and Composite Numbers MIP Module 2, p.36