Indicator 7 Class Notes by Mrs. Joshi

Ratio Representatives

3. Use ratio and rate reasoning to solve mathematical and real-world problems (including but not limited to percent, measurement conversion, and equivalent ratios) using a variety of models, including tables of equivalent ratios, tape diagrams, double number lines, and equations.

Clark biked 4 miles in 20 minutes. How far can he go in 2 hours if he bikes at this rate?

Enter values in the table so that it shows the number of miles, m, Clark can bike in 2 hours at this rate.

Miles (*m*)							
Minutes							
Hours							

Example for Option 1

Miles	4	8	12	16	20	24
Minutes	20	40	60	80	100	120
Hours	1/3	2/3	1	4/3	5/3	2

Complete the ratio tables.

4	12
8	24
12	36
16	
20	60

11	16
22	32
	48
44	64
55	80

7	5
14	
35	25
42	30
63	

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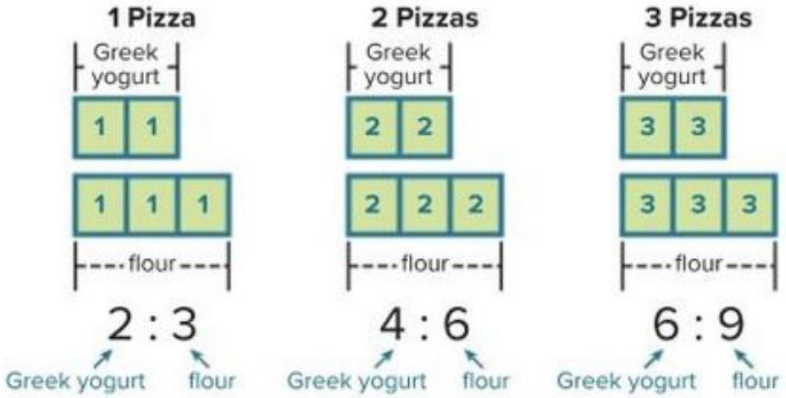
Learn Equivalent Ratios and Ratio Tables

The table shows the ingredients needed to make the dough for one pizza. You used this information in the Explore activity to find the number of cups of each ingredient needed to make 1, 2, and 3 pizzas by maintaining the ratio of 2 : 3.

Ingredient	Number of Cups
Greek Yogurt	2
Self-Rising Flour	3

The bar diagrams also show how the ratio of 2 : 3 is maintained, by using two sections that represent Greek yogurt and three sections that represent flour. The resulting ratios for 1, 2, and 3 pizzas are 2 : 3, 4 : 6, and 6 : 9, respectively. The ratios 2 : 3, 4 : 6, and 6 : 9 are **equivalent ratios** because they express the same ratio relationship between the quantities.



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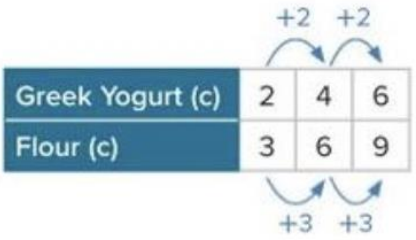
A table of equivalent ratios, or **ratio table**, is a collection of equivalent ratios that are organized in a table. Each column consists of a pair of quantities that have the same ratio as the pairs of quantities in the other columns.

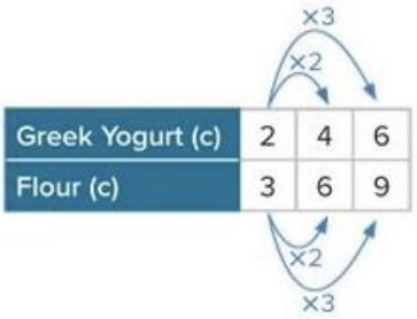
In the ratio table shown, the ratios 2 : 3, 4 : 6, and 6 : 9 are all equivalent.

Greek Yogurt (c)	2	4	6
Flour (c)	3	6	9

Ratio tables show both an additive structure and a multiplicative structure.



Add 2 to the cups of yogurt for each new column. Add 3 to the cups of flour for each new column.



Multiply each of the original quantities by the same number to obtain the values in each of the other columns.

The process of multiplying each quantity in a ratio by the same number to obtain equivalent ratios is called **scaling**.

You can use scaling to extend the ratio table to find the number of cups of each ingredient needed to make additional pizzas. By doing so, you find more equivalent ratios.

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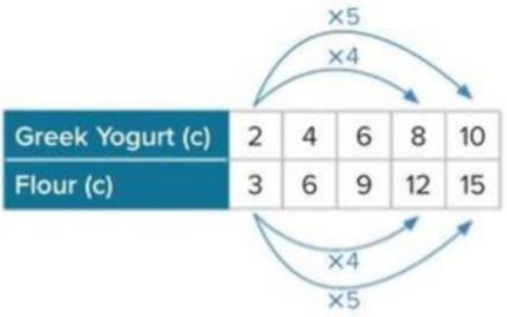

Greek Yogurt (c)	2	4	6	8	10
Flour (c)	3	6	9	12	15

Continue the pattern by multiplying each of the original quantities by the same number to obtain the values in the other columns.

To make four pizzas, you need 8 cups of Greek yogurt and 12 cups of flour. To make five pizzas, you need 10 cups of Greek yogurt and 15 cups of flour.

The ratios 8 : 12 and 10 : 15 are equivalent to 2 : 3, 4 : 6, and 6 : 9.