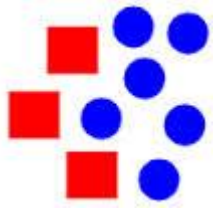


Unit 1: Ratios and Proportions

SOL 6.1: The student will describe and compare data, using ratios, and will use appropriate notations, such as a/b , a to b , and $a:b$.

SOL 6.12: The student will a) represent a proportional relationship between two quantities, including those arising from practical situations; b) determine the unit rate of a proportional relationship and use it to find a missing value in a ratio table; c) determine whether a proportional relationship exists between two quantities; and d) make connections between and among representations of a proportional relationship between two quantities using verbal descriptions, ratio tables, and graphs.

	Target Defined	Example of Target																
Target 1 T1	Identify a ratio from a pictorial representation.	 <div style="border: 1px solid black; padding: 5px; margin-left: 10px;"> <p>What is the ratio of circles to squares?</p> <p>6 to 3, 6:3, 6/3</p> <p>2 to 1, 2:1, 2/1</p> </div>																
Target 2 T2	Describe relationship by comparing part to part or part to whole.	<p>Mark's pocket money: 9 dollars John's pocket money: 11 dollars</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">John's pocket money to Mark's pocket money</td> <td style="padding: 5px;">John : Mark 11 : 9</td> </tr> <tr> <td style="padding: 5px;">Mark's pocket money to John's pocket money</td> <td style="padding: 5px;">Mark : John 9 : 11</td> </tr> <tr> <td style="padding: 5px;">John's pocket money as a fraction of the total pocket money</td> <td style="padding: 5px;"> <table style="border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding: 2px 5px;">John</td> <td style="padding: 2px 5px;">11</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px 5px;">total</td> <td style="padding: 2px 5px;">20</td> </tr> </table> </td> </tr> <tr> <td style="padding: 5px;">Mark's pocket money as a fraction of the total pocket money</td> <td style="padding: 5px;"> <table style="border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding: 2px 5px;">Mark</td> <td style="padding: 2px 5px;">9</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px 5px;">total</td> <td style="padding: 2px 5px;">20</td> </tr> </table> </td> </tr> </table>	John's pocket money to Mark's pocket money	John : Mark 11 : 9	Mark's pocket money to John's pocket money	Mark : John 9 : 11	John's pocket money as a fraction of the total pocket money	<table style="border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding: 2px 5px;">John</td> <td style="padding: 2px 5px;">11</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px 5px;">total</td> <td style="padding: 2px 5px;">20</td> </tr> </table>	John	11	total	20	Mark's pocket money as a fraction of the total pocket money	<table style="border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding: 2px 5px;">Mark</td> <td style="padding: 2px 5px;">9</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px 5px;">total</td> <td style="padding: 2px 5px;">20</td> </tr> </table>	Mark	9	total	20
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Target 3 T3	Given a rate, student will determine the unit rate.	<p style="text-align: center;"><u>Convert to Unit Rates:</u></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; padding: 5px;"> $\frac{6 \text{ miles}}{3 \text{ hours}}$ $\frac{6 \div 3}{3 \div 3}$ $= \frac{2 \text{ mi.}}{1 \text{ hr.}}$ <div style="border: 1px solid orange; padding: 2px; display: inline-block;">=2 mi./hr.</div> </td> <td style="text-align: center; padding: 5px;"> $\frac{40 \text{ words}}{2 \text{ min.}}$ $\frac{40 \div 2}{2 \div 2}$ $= \frac{20 \text{ words}}{1 \text{ min.}}$ <div style="border: 1px solid orange; padding: 2px; display: inline-block;">=20 words/min.</div> </td> <td style="text-align: center; padding: 5px;"> $\frac{5 \text{ miles}}{2 \text{ hours}}$ $\frac{5 \div 2}{2 \div 2}$ $= 2.5 \text{ mi./hr.}$ <div style="border: 1px solid orange; padding: 2px; display: inline-block;">=2.5 mi./hr.</div> </td> </tr> </table>	$\frac{6 \text{ miles}}{3 \text{ hours}}$ $\frac{6 \div 3}{3 \div 3}$ $= \frac{2 \text{ mi.}}{1 \text{ hr.}}$ <div style="border: 1px solid orange; padding: 2px; display: inline-block;">=2 mi./hr.</div>	$\frac{40 \text{ words}}{2 \text{ min.}}$ $\frac{40 \div 2}{2 \div 2}$ $= \frac{20 \text{ words}}{1 \text{ min.}}$ <div style="border: 1px solid orange; padding: 2px; display: inline-block;">=20 words/min.</div>	$\frac{5 \text{ miles}}{2 \text{ hours}}$ $\frac{5 \div 2}{2 \div 2}$ $= 2.5 \text{ mi./hr.}$ <div style="border: 1px solid orange; padding: 2px; display: inline-block;">=2.5 mi./hr.</div>													
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Challenge A	Challenge B	Challenge C

Target 4

T4

Make a Ratio Table of equivalent ratios given a ratio and a practical situation.

Find Equivalent Ratios

Ratio of Boys to Girls: 3 to 5 or $\frac{3}{5}$

Boys	3	6	9	
Girls	5	10	15	

Mult. by 2: $\frac{3}{5} \cdot \frac{2}{2} = \frac{6}{10}$ Mult. by 3: $\frac{3}{5} \cdot \frac{3}{3} = \frac{9}{15}$ Mult. by 4: $\frac{3}{5} \cdot \frac{4}{4} = \frac{12}{20}$

Target 5

T5

Find a missing value in a ratio table.

Evan saves \$2 of every \$5 he earns mowing lawns.

\$ Saved	2			8	10	20		
\$ Spent	3	6	9		15		60	
Total \$ Earned	5	10			25			150

How much will Evan have saved when he has earned \$150?

Target 6

T6

Determine if two ratios are equivalent.

Equivalent Ratios to Solve Proportions

$$\frac{9}{15} = \frac{x}{5}$$

$$9 \div 3 = 3$$

$$\frac{9 \div 3}{15 \div 3} = \frac{x}{5}$$

$$\frac{3}{5} = \frac{x}{5}$$

$$x = 3$$

Check It

~~$$\frac{9}{15} = \frac{3}{5}$$~~

$$9 \cdot 5 = 15 \cdot 3$$

$$45 = 45 \checkmark$$

Target 7

T7

Determine proportional relationships given a graph.

A **proportional relationship** is a set of **equivalent ratios**.
Equivalent ratios have **equal values** using different numbers.

Proportional Relationship From Tables / Ordered Pairs into a Graph

black keys	5	10	15	20	25	30	35
white keys	7	14	21	28	35	42	49

ORDERED PAIRS
 (Black Keys, White Keys)
 Fill in your ordered pairs

(5, 7) Plot the first 3 ordered (x,y) pairs to the right

(10, 14)

(15, 21)

(20, 28)

(,) Connect points with a straight line.

(,) Does the line touch at the Origin (0,0)?

(,)

Quiz and Test Grades:
