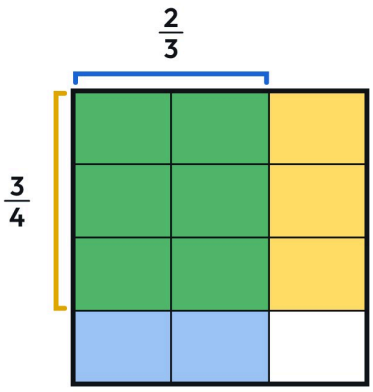
Name _____ Date _____

Is the Product Greater or Smaller?

Example



$$\frac{2}{3} \times \frac{3}{4} = \frac{6}{12}$$

The green part is $\frac{2}{3}$ of $\frac{3}{4}$. It is smaller than the blue part ($\frac{2}{3}$) and smaller than the yellow part ($\frac{3}{4}$).

The product $\frac{6}{12}$ is smaller than **both factors**: we took a part of a part.

Multiplying **does not always** give a bigger number.

1 IN PAIRS First predict: will the product be greater than the first factor, equal to it or smaller? Then work it out and check.

product	prediction (circle)	answer	prediction right?
$8 \times \frac{1}{2}$	greater / equal / smaller		☐
8×1	greater / equal / smaller		☐
$8 \times \frac{3}{2}$	greater / equal / smaller		☐
$8 \times \frac{1}{4}$	greater / equal / smaller		☐
$\frac{3}{4} \times 2$	greater / equal / smaller		☐
$\frac{3}{4} \times \frac{1}{3}$	greater / equal / smaller		☐
$\frac{2}{5} \times \frac{5}{4}$	greater / equal / smaller		☐
$\frac{6}{7} \times 1$	greater / equal / smaller		☐

Names (pair) _____ Date _____

Remember

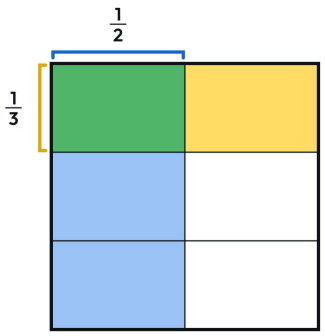
When we multiply a number by a number **less than 1**, the product is smaller than that number. When we multiply it by 1, it does not change. When we multiply it by a number **greater than 1**, the product is bigger.

2 ON YOUR OWN Without calculating, write <, > or =.

$5 \times \frac{3}{4} \bigcirc 5$ $\quad \frac{2}{3} \times \frac{7}{6} \bigcirc \frac{2}{3}$ $\quad \frac{9}{10} \times \frac{9}{10} \bigcirc \frac{9}{10}$ $\quad 4 \times 1 \bigcirc 4$

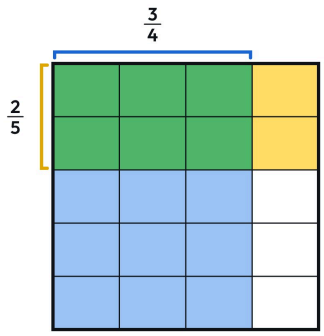
$\frac{5}{8} \times \frac{8}{5} \bigcirc \frac{5}{8}$ $\quad 7 \times \frac{11}{12} \bigcirc 7$

3 IN PAIRS Which calculation does the picture show? Write it and work it out. Is the product smaller than both factors?



$\square/\square \times \square/\square = \square/\square$

smaller than both factors: **yes** / **no**



$\square/\square \times \square/\square = \square/\square$

smaller than both factors: **yes** / **no**

4 IN PAIRS **Who is right?** Mark says: "When I multiply, I always get a bigger number." Give an example to explain when Mark is wrong.

_____

_____

The Fraction Rectangles app · otooly.com/fraction-rectangles

In **Multiply** mode change the factors and watch the green part. Can the green part ever be bigger than the blue one?

★ ON YOUR OWN **Exit card.** Without calculating: is $12 \times \frac{2}{3}$ greater or smaller than 12? Why?

_____