

Module 3 - Lesson 3:

Multiply a whole number by a fraction less than 1.

CCSS Standard – 5.NF.B.4 / 5.NF.B.4.a / 5.NF.B.5.a

FLUENCY (15-min)**Sprint: Multiply Fractions by Whole Numbers**

SPRINT: Students determine the **SUM** or **PRODUCT** to prepare for multiplying a whole number by a fraction.
(PAGE 21)

Write the sum or product. Use a whole or mixed number when possible.

1.	$\frac{1}{8} + \frac{1}{8} + \frac{1}{8}$	$\frac{3}{8}$
2.	$8 \times \frac{1}{8}$	$\frac{8}{8}$
3.	$9 \times \frac{1}{8}$	$\frac{9}{8}$

or 1

or 1 $\frac{1}{8}$

I don't expect you to finish. Do as many problems as you can. Go for YOUR personal best.
Take your mark. Get set. Think!

FLUENCY (15-min)

Sprint A – Page 22

Sprint A



Sprint: Multiply Fractions by Whole Numbers

STOP!!

Underline the last problem that you did.

I am going to read the answers. If you got it right, call out “Yes!” If you made a mistake, circle the answer.

Count the number you got **correct** and write the number at the top of the page.

THIS WILL BE YOUR PERSONAL GOAL FOR SPRINT B

A

Number Correct: _____

Write the sum or product. Use a whole or mixed number when possible.

1.	$\frac{1}{5} + \frac{1}{5}$	$\frac{2}{5}$
2.	$2 \times \frac{1}{5}$	$\frac{2}{5}$
3.	$\frac{1}{7} + \frac{1}{7}$	$\frac{2}{7}$
4.	$2 \times \frac{1}{7}$	$\frac{2}{7}$
5.	$\frac{1}{5} + \frac{1}{5} + \frac{1}{5}$	$\frac{3}{5}$
6.	$3 \times \frac{1}{5}$	$\frac{3}{5}$
7.	$\frac{1}{4} + \frac{1}{4} + \frac{1}{4}$	$\frac{3}{4}$
8.	$3 \times \frac{1}{4}$	$\frac{3}{4}$
9.	$\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7}$	$\frac{4}{7}$
10.	$4 \times \frac{1}{7}$	$\frac{4}{7}$
11.	$\frac{1}{3} + \frac{1}{3} + \frac{1}{3}$	1
12.	$3 \times \frac{1}{3}$	1
13.	$4 \times \frac{1}{3}$	$1\frac{1}{3}$
14.	$\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$	1
15.	$4 \times \frac{1}{4}$	1
16.	$5 \times \frac{1}{4}$	$1\frac{1}{4}$
17.	$\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$	1
18.	$5 \times \frac{1}{5}$	1
19.	$6 \times \frac{1}{5}$	$1\frac{1}{5}$
20.	$\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$	1
21.	$6 \times \frac{1}{6}$	1
22.	$7 \times \frac{1}{6}$	$1\frac{1}{6}$

23.	$\frac{3}{5} + \frac{3}{5}$	$1\frac{1}{5}$
24.	$2 \times \frac{3}{5}$	$1\frac{1}{5}$
25.	$\frac{4}{5} + \frac{4}{5}$	$1\frac{3}{5}$
26.	$2 \times \frac{4}{5}$	$1\frac{3}{5}$
27.	$\frac{2}{3} + \frac{2}{3} + \frac{2}{3}$	2
28.	$3 \times \frac{2}{3}$	2
29.	$\frac{3}{5} + \frac{3}{5} + \frac{3}{5}$	$1\frac{4}{5}$
30.	$3 \times \frac{3}{5}$	$1\frac{4}{5}$
31.	$\frac{2}{7} + \frac{2}{7} + \frac{2}{7} + \frac{2}{7}$	$1\frac{1}{7}$
32.	$4 \times \frac{2}{7}$	$1\frac{1}{7}$
33.	$\frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3}$	$1\frac{1}{3}$
34.	$4 \times \frac{1}{3}$	$1\frac{1}{3}$
35.	$3 \times \frac{2}{3}$	2
36.	$6 \times \frac{2}{3}$	4
37.	$5 \times \frac{3}{4}$	$3\frac{3}{4}$
38.	$7 \times \frac{3}{4}$	$5\frac{1}{4}$
39.	$6 \times \frac{5}{5}$	6
40.	$8 \times \frac{4}{5}$	$6\frac{2}{5}$
41.	$9 \times \frac{4}{6}$	6
42.	$9 \times \frac{6}{7}$	$7\frac{5}{7}$
43.	$7 \times \frac{5}{8}$	$4\frac{3}{8}$
44.	$8 \times \frac{7}{9}$	$6\frac{2}{9}$

FLUENCY (15-min)

Sprint: Multiply Fractions by Whole Numbers

Sprint A – Page 24

Take your mark. Get set. Improve!

Sprint B



STOP!!

Underline the last problem that you did.

I am going to read the answers. If you got it right, call out “Yes!” If you made a mistake, circle the answer.

Count the number you got **correct** and write the number at the top of the page.

Determine your improved score!

B

Number Correct: _____

Improvement: _____

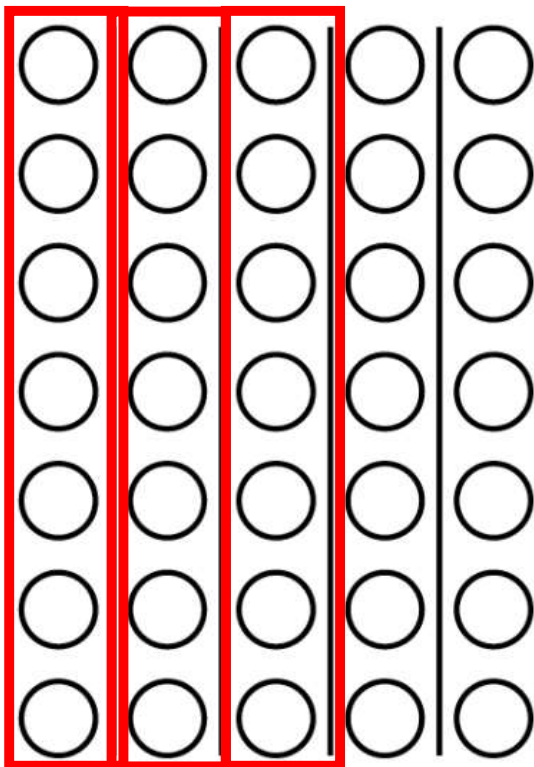
Write the sum or product. Use a whole or mixed number when possible.

1.	$\frac{1}{3} + \frac{1}{3}$	$\frac{2}{3}$
2.	$2 \times \frac{1}{3}$	$\frac{2}{3}$
3.	$\frac{1}{5} + \frac{1}{5}$	$\frac{2}{5}$
4.	$2 \times \frac{1}{5}$	$\frac{2}{5}$
5.	$\frac{1}{4} + \frac{1}{4} + \frac{1}{4}$	$\frac{3}{4}$
6.	$3 \times \frac{1}{4}$	$\frac{3}{4}$
7.	$\frac{1}{5} + \frac{1}{5} + \frac{1}{5}$	$\frac{3}{5}$
8.	$3 \times \frac{1}{5}$	$\frac{3}{5}$
9.	$\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$	$\frac{4}{5}$
10.	$4 \times \frac{1}{5}$	$\frac{4}{5}$
11.	$\frac{1}{2} + \frac{1}{2}$	1
12.	$2 \times \frac{1}{2}$	1
13.	$3 \times \frac{1}{2}$	$1\frac{1}{2}$
14.	$\frac{1}{3} + \frac{1}{3} + \frac{1}{3}$	1
15.	$3 \times \frac{1}{3}$	1
16.	$4 \times \frac{1}{3}$	$1\frac{1}{3}$
17.	$\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$	1
18.	$4 \times \frac{1}{4}$	1
19.	$5 \times \frac{1}{4}$	$1\frac{1}{4}$
20.	$\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$	1
21.	$5 \times \frac{1}{5}$	1
22.	$6 \times \frac{1}{5}$	$1\frac{1}{5}$

23.	$\frac{2}{3} + \frac{2}{3}$	$1\frac{1}{3}$
24.	$2 \times \frac{2}{3}$	$1\frac{1}{3}$
25.	$\frac{3}{5} + \frac{3}{5}$	$1\frac{1}{5}$
26.	$2 \times \frac{3}{5}$	$1\frac{1}{5}$
27.	$\frac{2}{3} + \frac{2}{3} + \frac{2}{3}$	2
28.	$3 \times \frac{2}{3}$	2
29.	$\frac{2}{5} + \frac{2}{5} + \frac{2}{5}$	$1\frac{1}{5}$
30.	$3 \times \frac{2}{5}$	$1\frac{1}{5}$
31.	$\frac{2}{5} + \frac{2}{5} + \frac{2}{5} + \frac{2}{5}$	$1\frac{3}{5}$
32.	$4 \times \frac{2}{5}$	$1\frac{3}{5}$
33.	$\frac{1}{2} + \frac{1}{2} + \frac{1}{2}$	$1\frac{1}{2}$
34.	$3 \times \frac{1}{2}$	$1\frac{1}{2}$
35.	$2 \times \frac{2}{2}$	2
36.	$4 \times \frac{2}{2}$	4
37.	$5 \times \frac{2}{3}$	$3\frac{1}{3}$
38.	$7 \times \frac{2}{3}$	$4\frac{2}{3}$
39.	$6 \times \frac{4}{4}$	6
40.	$7 \times \frac{4}{5}$	$5\frac{3}{5}$
41.	$6 \times \frac{5}{6}$	5
42.	$8 \times \frac{6}{7}$	$6\frac{6}{7}$
43.	$5 \times \frac{5}{8}$	$3\frac{1}{8}$
44.	$7 \times \frac{7}{9}$	$5\frac{4}{9}$

LAUNCH (5-min)

Students consider whether a fraction of a set can be found by using multiplication.

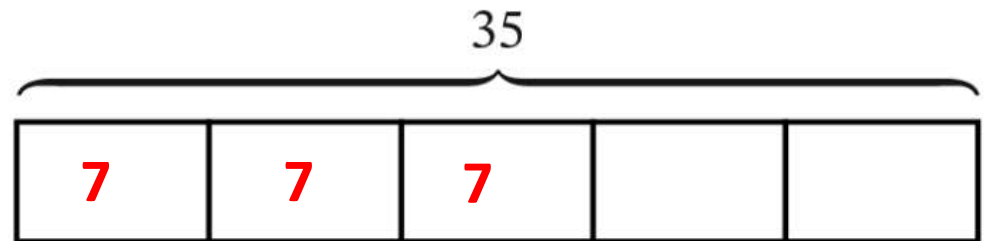


What do you notice?

The array shows 35 objects in 5 equal groups and the tape diagram shows 35 partitioned into 5 equal groups.

Where can you find the answer to 1/5 of 35??

In the array, look at the number of circles in one group; in the tape diagram – do $35 \div 5 = 7$



Where can you find the answer to 2/5 of 35??

In the array, look at the number of circles in two groups; in the tape diagram – do $35 \div 5 = 7$

Where can you find the answer to 3/5 of 35??

LEARN (35-min)

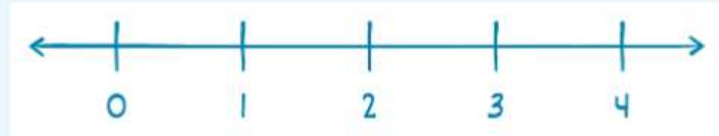
Interpret Finding a Fraction of a Whole Number as Multiplication

Let's practice finding $\frac{1}{6}$ of 4 by using a number line. If we want to find $\frac{1}{6}$ of 4 using a number line, what should we draw first?

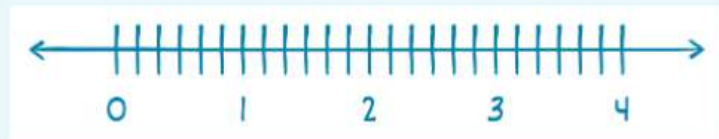
$$\frac{1}{6} \times 4 = \frac{4}{6}$$

Now, what if we wanted to find $4 \times \frac{1}{6}$? Turn & Talk – how would that look?

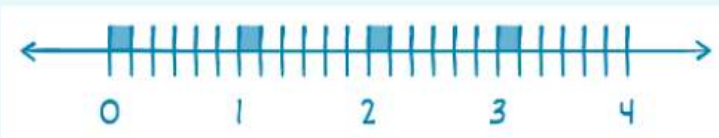
First, draw a number line to show the whole.



Next, partition each whole-number interval to show the fractional units.



Then highlight the fractional unit in each whole number.



Now compose to find the fraction of the whole.

$$\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} = \frac{4}{6}$$

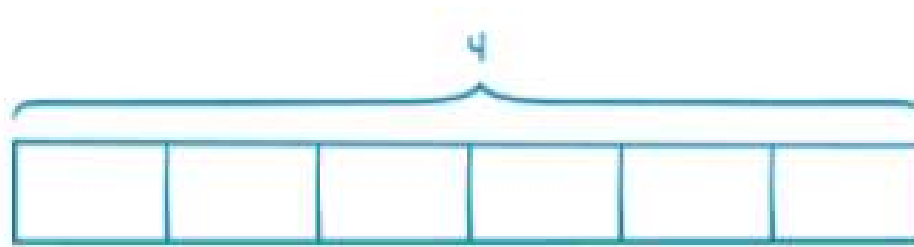
LEARN (35-min)

Interpret Finding a Fraction of a Whole Number as Multiplication

Let's practice finding 4 of $\frac{1}{6}$.

Would a number line make sense to use? Or would a tape diagram?

$$4 \times \frac{1}{6} = \frac{4}{6}$$



6 units = 4

1 unit = $\frac{4}{6}$

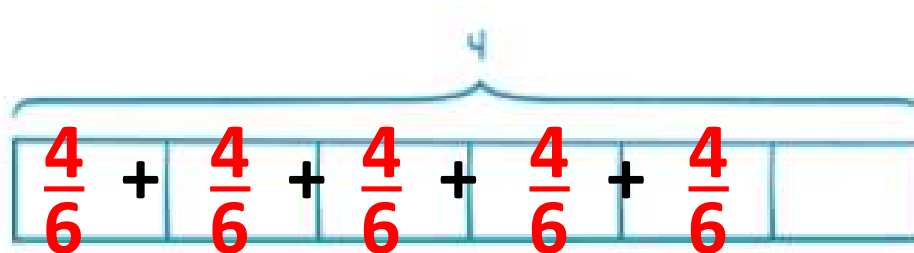
$$\frac{4}{6} + \frac{4}{6} + \frac{4}{6} + \frac{4}{6} + \frac{4}{6} + \frac{4}{6} =$$

$$\frac{24}{6} = 4$$

LEARN (35-min)**Interpret Finding a Fraction of a Whole Number as Multiplication**

How can we find the value of 5 units?

$$5 \times \frac{4}{6} = \frac{20}{6}$$



6 units = 4

1 unit = $\frac{4}{6}$

$$\frac{20}{6} = 3 \frac{2}{6}$$

TAKE-AWAY:

$$\frac{1}{6} \times 4 = \frac{4}{6}$$

$$4 \times \frac{1}{6} = \frac{4}{6}$$

LEARN (35-min)**Multiply a Whole Number by a Fraction Less Than 1**

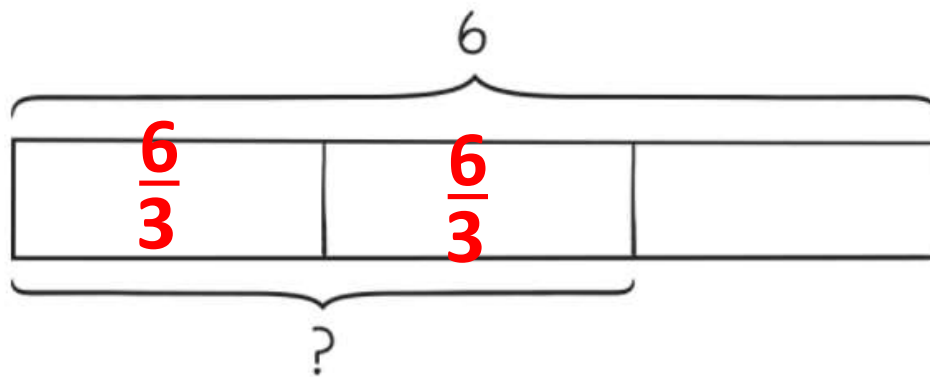
Describe what this problem means... *It means that we need to find 2/3 OF 6.*

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

Is the product going to be greater than or less than 6? How do you know?

Less than 6 because we are multiplying by a fraction LESS than 1.

$$\frac{2}{3} \times 6 = \underline{\quad}$$



$$3 \text{ units} = 6$$

$$1 \text{ unit} = \frac{6}{3}$$

$$2 \text{ units} = 2 \times \frac{6}{3} = 4$$

LEARN (35-min)

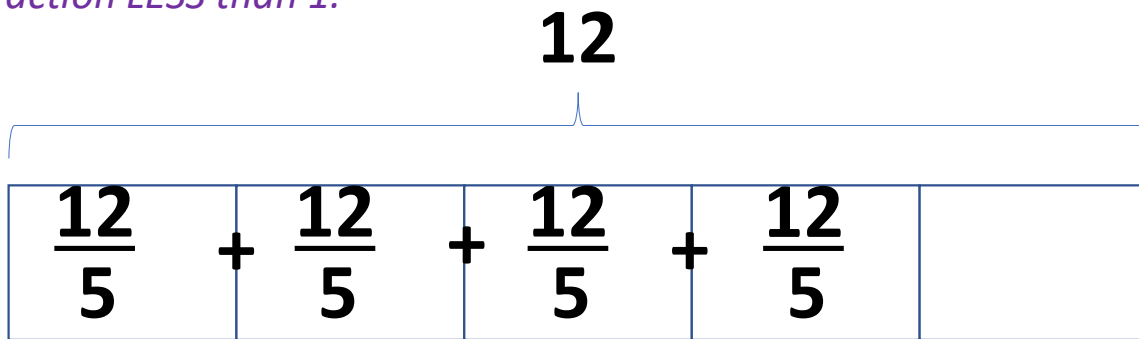
Multiply a Whole Number by a Fraction Less Than 1

Describe what this problem means.... *It means that we need to find 4/5 OF 12.*

$$\frac{4}{5} \times 12 = \frac{48}{5} = 9\frac{3}{5}$$

Is the product going to be greater than or less than 12? How do you know?

Less than 12 because we are multiplying by a fraction LESS than 1.



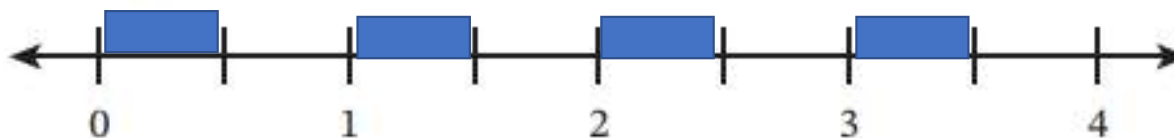


Name _____

Date _____

Use the number line to find the product. Then write a repeated addition sentence to check your work. Write your answer as a whole number when possible.

1. $\frac{1}{2} \times 4 = \frac{4}{2} = 2$



_____ = _____

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



_____ = _____

LAND (10-min)

Exit Ticket

TEACHER
HELP

QUICK
CHECK

GOOD
TO GO

Name

Date



3

Multiply. Show your work.

1. $\frac{2}{3} \times 15 = \underline{\hspace{2cm}}$

2. $\frac{3}{5} \times 8 = \underline{\hspace{2cm}}$

Exit Ticket – PAGE 29

Small Group Time:

Problem Set Pages 25 – 26

Homework:

Page 21 APPLY BOOK