Lesson 5:

Add and subtract fractions with related units by using pictorial models.

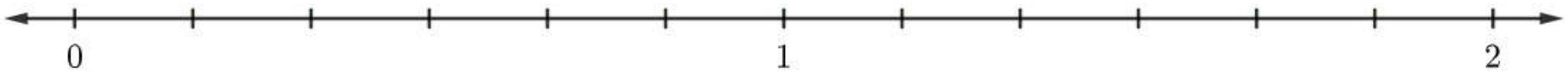
CCSS Standard – 5.NF.A

FLUENCY (15-min) **Counting on the Number Line**

What FRACTIONAL UNIT does the number line show? Raise your hand when you know.

Sixths

Use the number line to count forward by sixths



Now count forward by sixths again. This time rename the fractions as **whole numbers** when possible.

Now count forward by sixths again. This time rename the fractions as **whole numbers and mixed numbers** when possible.

Notice: Whole numbers and fractional units.

FLUENCY (15-min) **Sprint: Add and subtract Fractions or Mixed Numbers**

SPRINT: Add or subtract. Write the sum or difference as a whole number when possible.

1.	$\frac{3}{4}+\frac{2}{4}=$ _____	5/4
2.	$\frac{8}{6}-\frac{2}{6}=$ _____	6/6 or 1
3.	$1\frac{2}{5}+1\frac{3}{5}=$ _____	1 5/5 or 2
4.	$2\frac{6}{8}-1\frac{5}{8}=$ _____	1 1/8

FLUENCY (15-min)

Sprint: Add and subtract Fractions or Mixed Numbers

Sprint A – Page 40

Sprint A

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: _____

Add or subtract. Write the sum or difference as a whole number when possible.

1.	$\frac{1}{3}+\frac{1}{3}=$ _____	$\frac{2}{3}$
2.	$\frac{1}{4}+\frac{1}{4}=$ _____	$\frac{2}{4}$
3.	$\frac{1}{5}+\frac{3}{5}=$ _____	$\frac{3}{5}$
4.	$\frac{2}{6}+\frac{3}{6}=$ _____	$\frac{4}{6}$
5.	$\frac{3}{8}+\frac{3}{8}=$ _____	$\frac{5}{8}$
6.	$\frac{2}{10}+\frac{5}{10}=$ _____	$\frac{6}{10}$
7.	$\frac{2}{3}-\frac{1}{3}=$ _____	$\frac{1}{3}$
8.	$\frac{3}{4}-\frac{1}{4}=$ _____	$\frac{1}{4}$
9.	$\frac{4}{5}-\frac{2}{5}=$ _____	$\frac{1}{5}$
10.	$\frac{5}{6}-\frac{2}{6}=$ _____	$\frac{2}{6}$
11.	$\frac{7}{8}-\frac{3}{8}=$ _____	$\frac{3}{8}$
12.	$\frac{8}{10}-\frac{4}{10}=$ _____	$\frac{3}{10}$
13.	$\frac{1}{5}+\frac{4}{5}=$ _____	1
14.	$\frac{3}{6}+\frac{3}{6}=$ _____	1
15.	$\frac{4}{8}+\frac{5}{8}=$ _____	$\frac{9}{8}$
16.	$\frac{5}{10}+\frac{6}{10}=$ _____	$\frac{11}{10}$
17.	$\frac{6}{12}+\frac{8}{12}=$ _____	$\frac{14}{12}$
18.	$\frac{5}{5}-\frac{2}{5}=$ _____	$\frac{2}{5}$
19.	$\frac{6}{6}-\frac{2}{6}=$ _____	$\frac{2}{6}$
20.	$\frac{9}{8}-\frac{3}{8}=$ _____	$\frac{3}{8}$
21.	$\frac{12}{10}-\frac{2}{10}=$ _____	1
22.	$\frac{14}{12}-\frac{5}{12}=$ _____	$\frac{5}{12}$
23.	$1\frac{1}{3}+1\frac{1}{3}=$ _____	$2\frac{2}{3}$
24.	$1\frac{1}{4}+2\frac{1}{4}=$ _____	$3\frac{2}{4}$
25.	$1\frac{2}{5}+2\frac{2}{5}=$ _____	$3\frac{4}{5}$
26.	$2\frac{1}{6}+2\frac{4}{6}=$ _____	$4\frac{5}{6}$
27.	$1\frac{2}{8}+4\frac{5}{8}=$ _____	$5\frac{7}{8}$
28.	$2\frac{3}{10}+3\frac{6}{10}=$ _____	$5\frac{9}{10}$
29.	$2\frac{2}{3}-1\frac{1}{3}=$ _____	$1\frac{1}{3}$
30.	$3\frac{3}{4}-1\frac{1}{4}=$ _____	$2\frac{1}{4}$
31.	$3\frac{4}{5}-2\frac{1}{5}=$ _____	$1\frac{1}{5}$
32.	$4\frac{4}{6}-2\frac{2}{6}=$ _____	$2\frac{2}{6}$
33.	$5\frac{7}{8}-1\frac{2}{8}=$ _____	$4\frac{2}{8}$
34.	$5\frac{9}{10}-2\frac{4}{10}=$ _____	$3\frac{4}{10}$
35.	$1\frac{1}{5}+1\frac{1}{5}=$ _____	$2\frac{2}{4}$
36.	$1\frac{2}{6}+1\frac{2}{6}=$ _____	$2\frac{4}{5}$
37.	$2\frac{3}{8}+4\frac{5}{8}=$ _____	7
38.	$5\frac{4}{10}+2\frac{6}{10}=$ _____	8
39.	$2\frac{5}{12}+5\frac{6}{12}=$ _____	$7\frac{11}{12}$
40.	$3\frac{20}{100}+6\frac{70}{100}=$ _____	$9\frac{90}{100}$
41.	$6\frac{8}{8}-1\frac{2}{8}=$ _____	$5\frac{2}{8}$
42.	$8\frac{10}{10}-2\frac{3}{10}=$ _____	$6\frac{3}{10}$
43.	$9\frac{16}{12}-4\frac{7}{12}=$ _____	$5\frac{7}{12}$
44.	$13\frac{170}{100}-7\frac{80}{100}=$ _____	$6\frac{80}{100}$

FLUENCY (15-min)

Sprint: Add and subtract Fractions or Mixed Numbers

Sprint A – Page 42

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: _____

Add or subtract. Write the sum or difference as a whole number when possible.

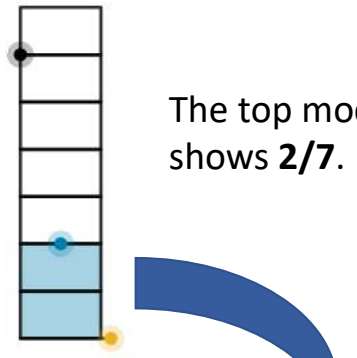
1.	$\frac{1}{3}+\frac{1}{3}=$ _____	$\frac{2}{3}$
2.	$\frac{1}{4}+\frac{1}{4}=$ _____	$\frac{2}{4}$
3.	$\frac{1}{5}+\frac{2}{5}=$ _____	$\frac{3}{5}$
4.	$\frac{2}{6}+\frac{2}{6}=$ _____	$\frac{4}{6}$
5.	$\frac{3}{8}+\frac{2}{8}=$ _____	$\frac{5}{8}$
6.	$\frac{2}{10}+\frac{4}{10}=$ _____	$\frac{6}{10}$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

23.	$1\frac{1}{3}+1\frac{1}{3}=$ _____	$2\frac{2}{3}$
24.	$2\frac{1}{4}+1\frac{1}{4}=$ _____	$3\frac{2}{4}$
25.	$2\frac{2}{5}+1\frac{2}{5}=$ _____	$3\frac{4}{5}$
26.	$2\frac{4}{6}+2\frac{1}{6}=$ _____	$4\frac{5}{6}$
27.	$4\frac{5}{8}+1\frac{2}{8}=$ _____	$5\frac{7}{8}$
28.	$3\frac{6}{10}+2\frac{3}{10}=$ _____	$5\frac{9}{10}$
29.	$2\frac{2}{3}-1\frac{1}{3}=$ _____	$1\frac{1}{3}$
30.	$3\frac{3}{4}-1\frac{2}{4}=$ _____	$2\frac{1}{4}$
31.	$3\frac{4}{5}-2\frac{3}{5}=$ _____	$1\frac{1}{5}$
32.	$4\frac{4}{6}-2\frac{2}{6}=$ _____	$2\frac{2}{6}$
33.	$5\frac{7}{8}-1\frac{5}{8}=$ _____	$4\frac{2}{8}$
34.	$5\frac{9}{10}-2\frac{5}{10}=$ _____	$3\frac{4}{10}$
35.	$1\frac{1}{4}+1\frac{1}{4}=$ _____	$2\frac{2}{4}$
36.	$1\frac{2}{5}+1\frac{2}{5}=$ _____	$2\frac{4}{5}$
37.	$4\frac{5}{8}+2\frac{3}{8}=$ _____	7
38.	$2\frac{6}{10}+5\frac{4}{10}=$ _____	8
39.	$5\frac{6}{12}+2\frac{5}{12}=$ _____	$7\frac{11}{12}$
40.	$6\frac{70}{100}+3\frac{20}{100}=$ _____	$9\frac{90}{100}$
41.	$6\frac{8}{8}-1\frac{6}{8}=$ _____	$5\frac{2}{8}$
42.	$8\frac{10}{10}-2\frac{7}{10}=$ _____	$6\frac{3}{10}$
43.	$9\frac{16}{12}-4\frac{9}{12}=$ _____	$5\frac{7}{12}$
44.	$13\frac{170}{100}-7\frac{90}{100}=$ _____	$6\frac{80}{100}$

DIGITAL

LAUNCH (5-min) **Students analyze models that show like units, related units, and unlike units.**

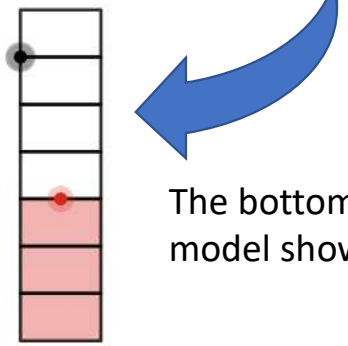
Display Vertical Block Drop Digital Interactive



The top model shows **2/7**.

What **addition expression** can we write to represent what we see in the model?

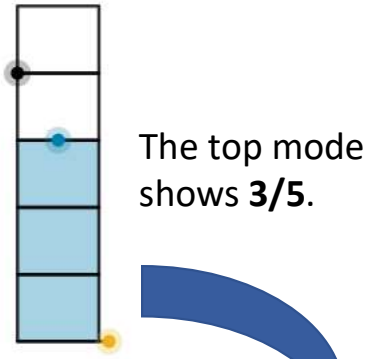
What would it look like if we drop the 2/7 into the 3/7?.



The bottom model shows **3/7**.

2/7 + 3/7 = 5/7

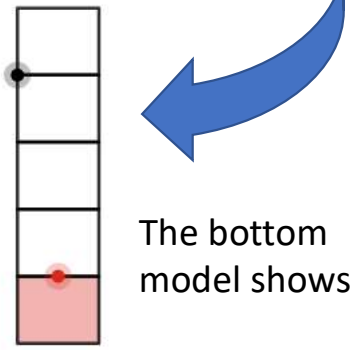
Reset



The top model shows **3/5**.

What addition expression can we write to represent what we see in the model?

What do you expect to see when I drop the blocks?



The bottom model shows **1/5**.

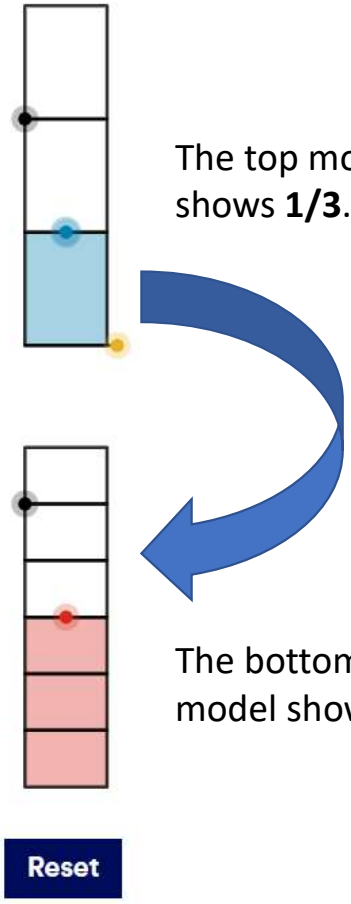
3/5 + 1/5 = 4/5

Reset

DIGITAL

LAUNCH (5-min) **Students analyze models that show like units, related units, and unlike units.**

Display Vertical Block Drop Digital Interactive



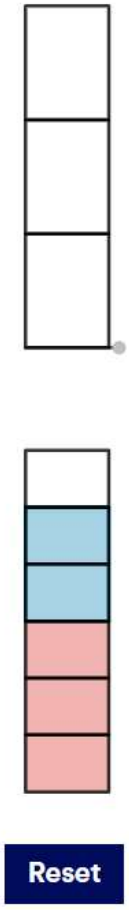
The top model shows **1/3**.

What **addition expression** can we write to represent what we see in the model?

What would it look like if we drop the 1/3 into the 3/6?

The bottom model shows **3/6**.

Reset



Reset

This model represents two fractions with unlike but related units.

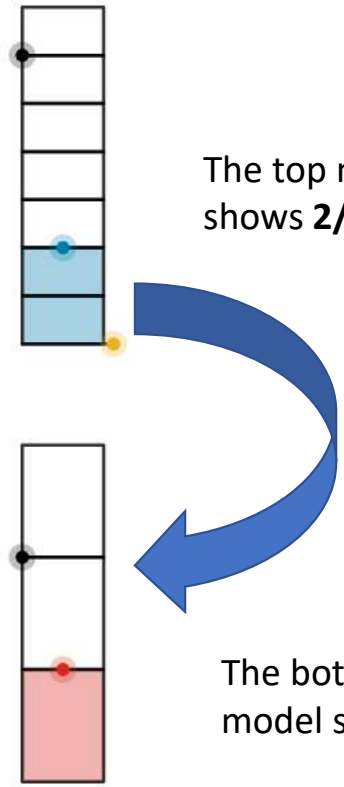
The units thirds and sixths are related because 6 is a multiple of 3 and 3 is a factor of 6.

When we drop the blocks, we can see the sum in sixths.

DIGITAL

LAUNCH (5-min) **Students analyze models that show like units, related units, and unlike units.**

Display Vertical Block Drop Digital Interactive



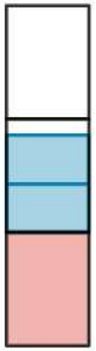
The top model shows **2/7**

What **addition expression** can we write to represent what we see in the model?

What would it look like if we drop the 2/7 into the 1/3?

The bottom model shows **1/3**

Reset



Reset

This model represents two fractions with unlike that are NOT related.

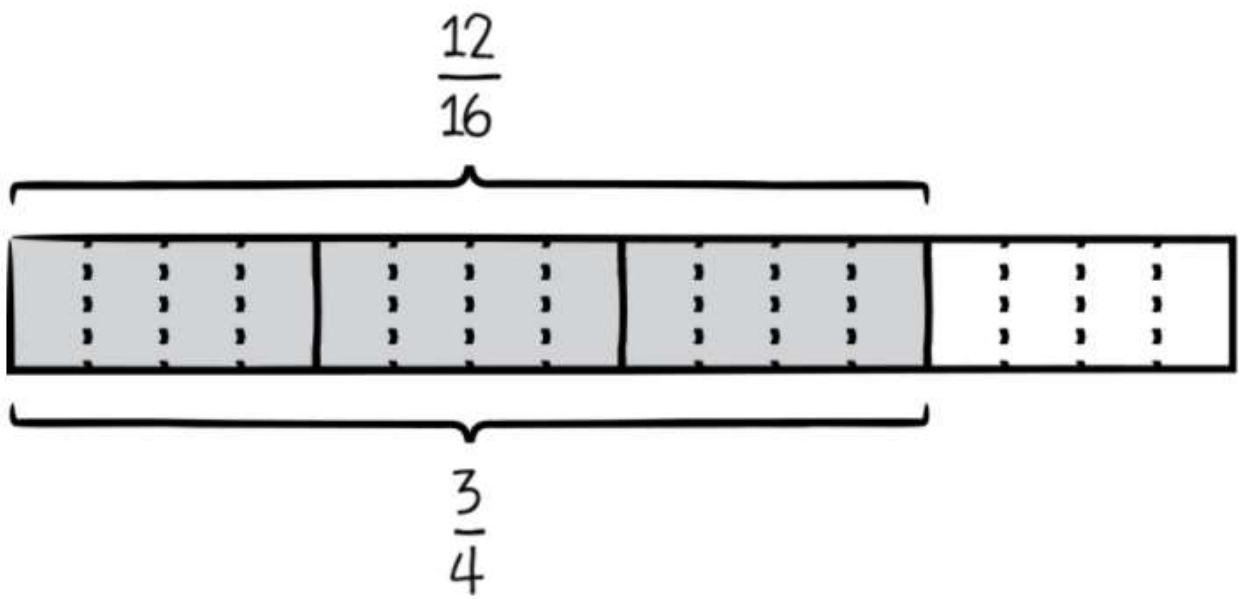
When the blocks were dropped, we saw that 2/7 did not completely fill one of the thirds on the bottom, so we cannot determine the sum by looking only at the model.

LEARN (30-min) **Tape Diagrams: Use to Rename Fractions with Related Units**

What steps did the student take to subtract? How do you know?

- Drew a tape diagram to show 3/4 with solid lines and labeled the bottom of the tape diagram.
- They portioned each fourth into 4 equal parts with dotted lines to make sixteenths.
- They labeled the shaded sixteenths in the tape diagram as 12/16. The student renamed 3/4 as 12/16 in the subtraction expression.

$$\frac{3}{4} - \frac{3}{16} = \frac{12}{16} - \frac{3}{16} = \frac{9}{16}$$



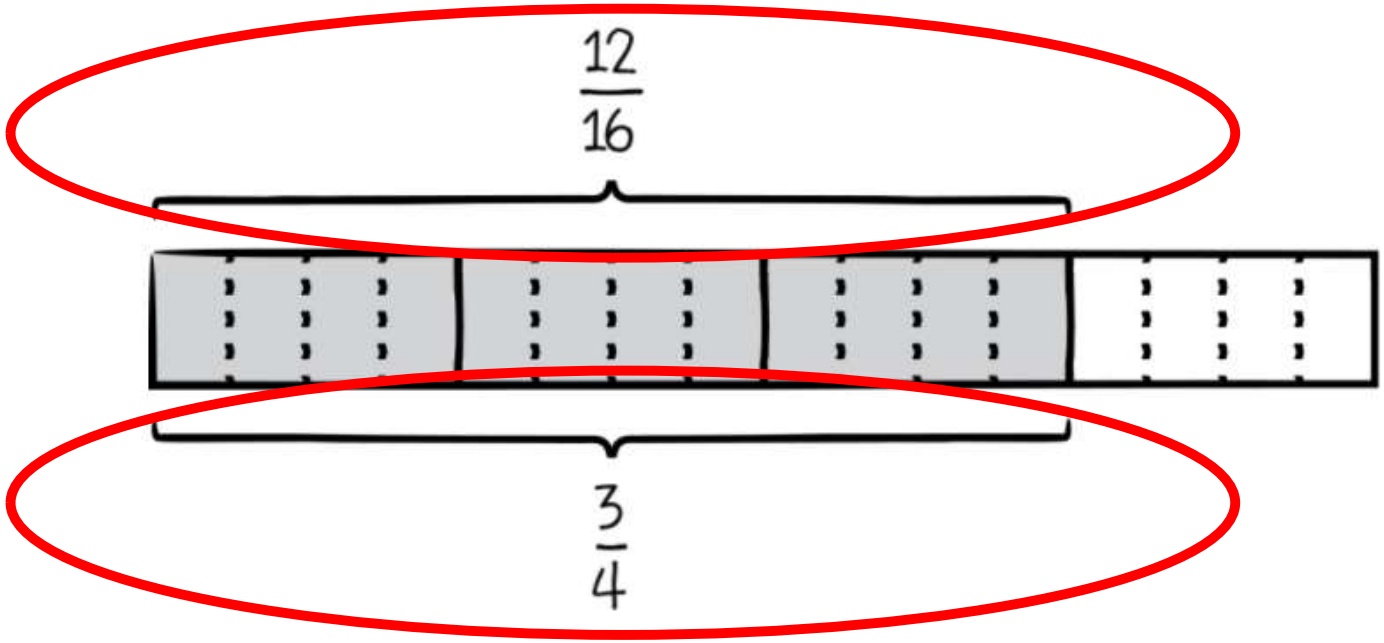
THINK-PAIR-SHARE:
What do you notice about this work?
From your observations, what do you wonder?

LEARN (30-min) **Tape Diagrams: Use to Rename Fractions with Related Units**

Let's focus on using the tape diagram to rename fractions. Where do you see that in this work?

$$\frac{3}{4} = \frac{12}{16}$$

$$\frac{3}{4} - \frac{3}{16} = \frac{12}{16} - \frac{3}{16} = \frac{9}{16}$$



What was the reason for using a tape diagram?

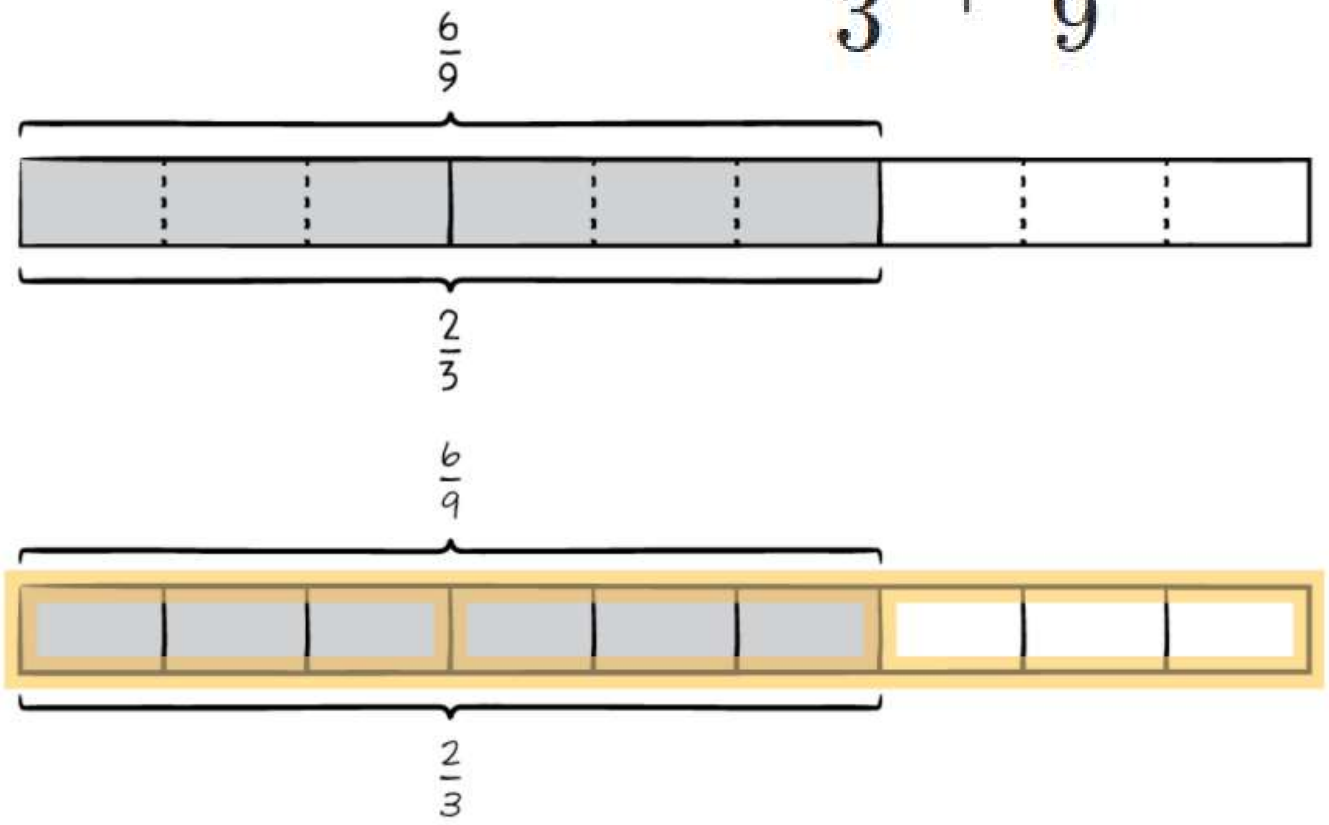
LEARN (30-min)

Tape Diagrams: Use to Rename Fractions with Related Units

THINK-PAIR-SHARE:
Look at this next problem. Do you think the final answer will be less than 1, between 1 and 2, or greater than 2? Why?

$$\frac{2}{3} + \frac{6}{9}$$

TAPE DIAGRAM:
Now draw a tape diagram to rename fractions and find the sum. Remember, the size of your WHOLE bars needs to be the same.



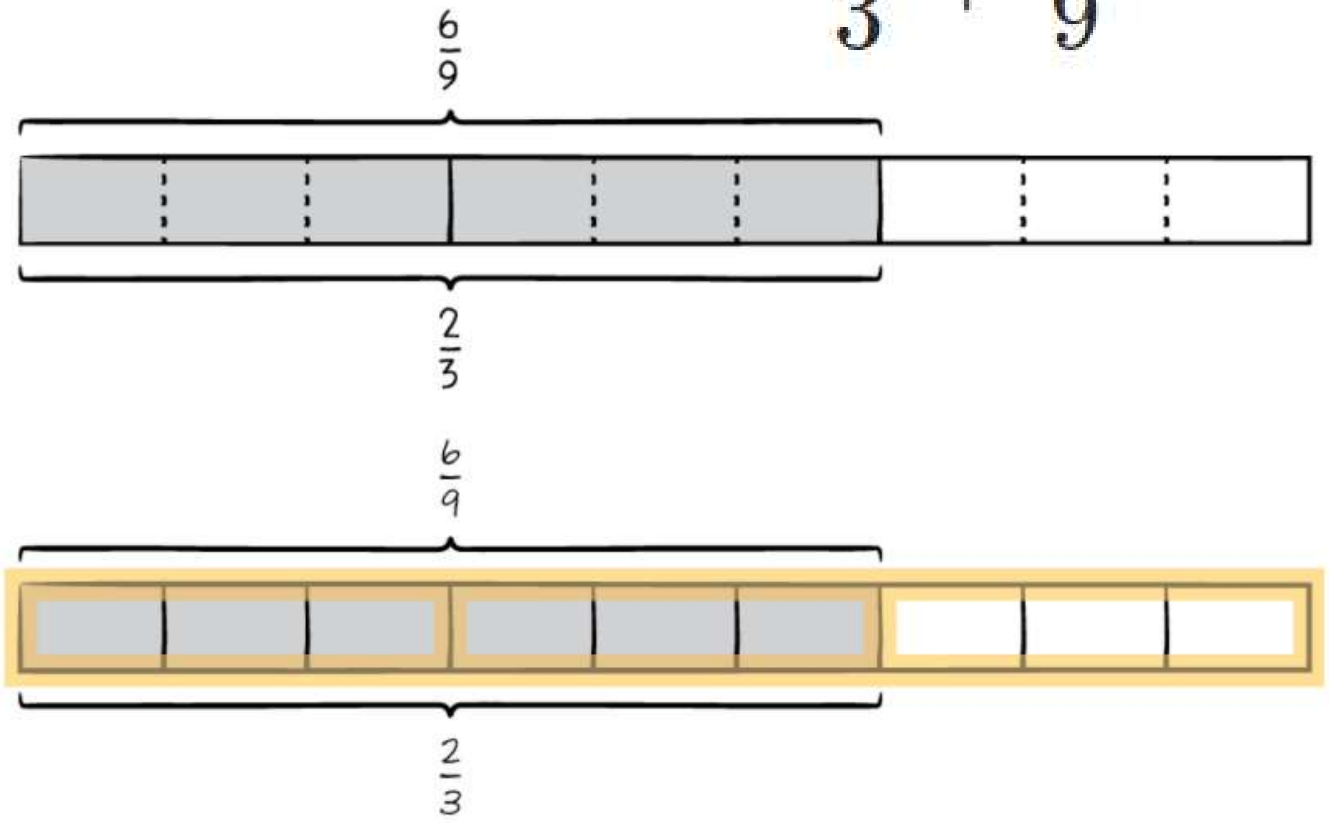
LEARN (30-min) **Tape Diagrams: Use to Rename Fractions with Related Units**

What do you notice?

$$\frac{2}{3} = \frac{6}{9}$$

$$\frac{6}{9} + \frac{6}{9} = \frac{12}{9}$$

$$\frac{2}{3} + \frac{6}{9}$$



DIGITAL

LEARN (30-min) **Tape Diagrams: Use to Rename Fractions with Related Units**

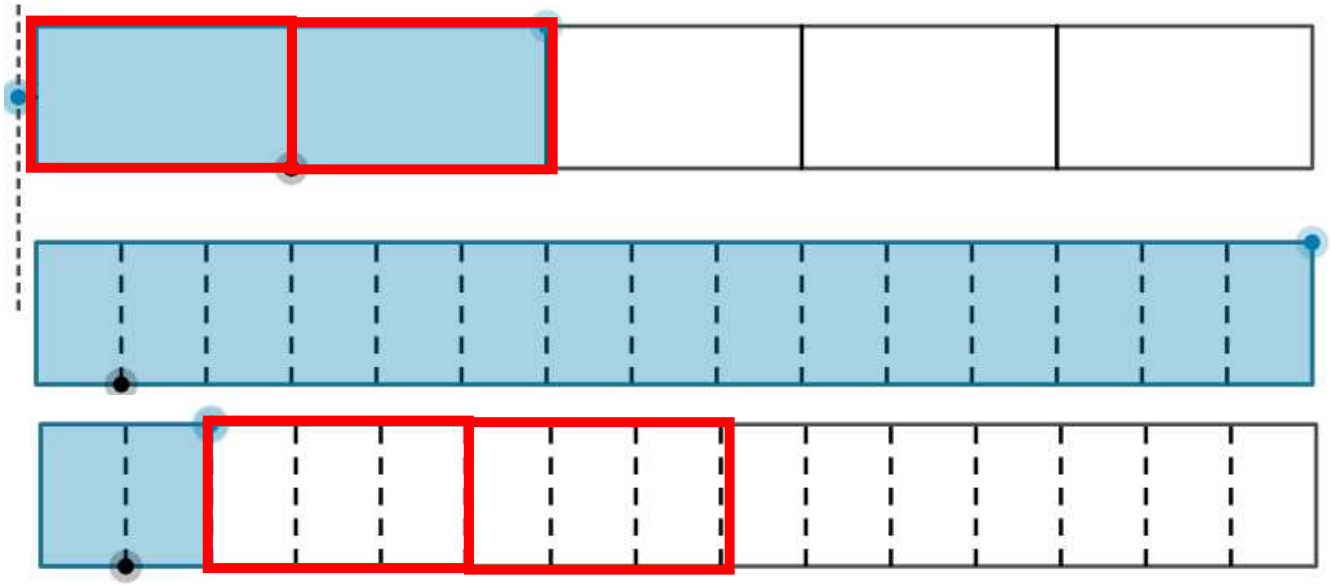
THINK-PAIR-SHARE:
Look at this next problem. Do you think the final answer will be less than 1, between 1 and 2, or greater than 2? Why?

$$\frac{17}{15} + \frac{2}{5} = \frac{17}{15} + \frac{6}{15} = \frac{23}{15}$$

$$\frac{17}{15} + \frac{2}{5}$$

TAPE DIAGRAM:
Now draw a tape diagram to rename fractions and find the sum. Remember, the size of your WHOLE bars needs to be the same.

$$\frac{2}{5} = \frac{6}{15}$$



DIGITAL

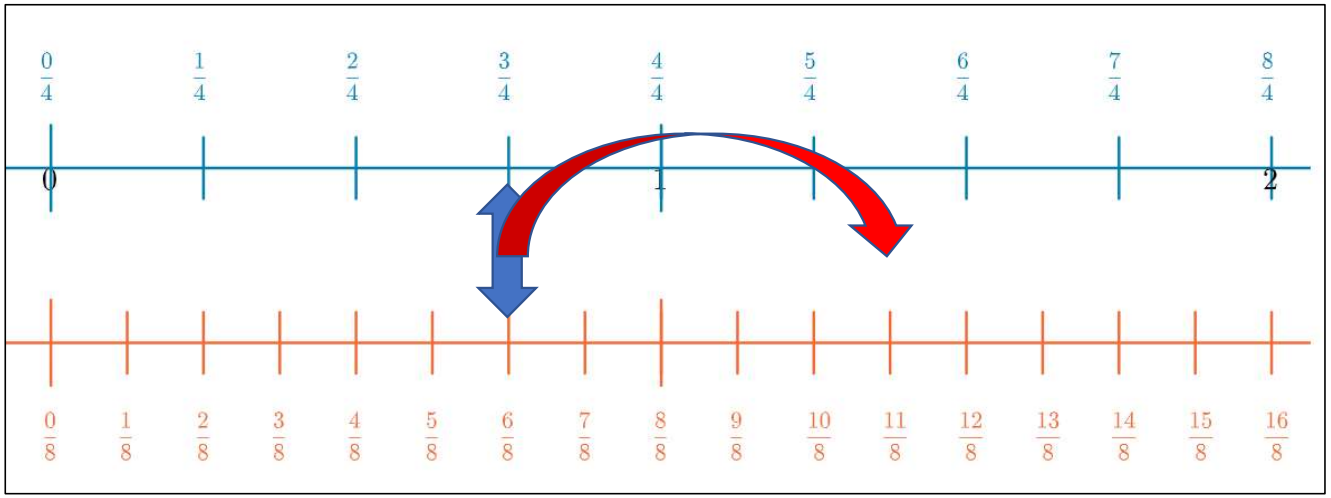
LEARN (30-min) **Number Lines**

$$\frac{3}{4} + \frac{5}{8}$$

THINK-PAIR-SHARE:
Look at this next problem. Do you think the final answer will be less than 1, between 1 and 2, or greater than 2? Why?

Are the units related? How do you know?

Are we ready to add these as they are right now or do we need to rename them?



$$\frac{3}{4} = \frac{?}{8}$$

$$\frac{6}{8} + \frac{5}{8} = \frac{11}{8}$$

LAND (10-min)

Exit Ticket

Name _____ Date _____

5

Draw a model to help you make like units. Then add or subtract.

1. $\frac{5}{8} + \frac{1}{4} =$ _____ + _____ = _____

2. $\frac{5}{8} - \frac{1}{2} =$ _____ − _____ = _____

Exit Ticket – PAGE 47

Small Group Time:
Problem Set Pages 43 – 44

Homework:
Page 35 APPLY BOOK