Fractions

Master The Curriculum

4

Fluency & Reasoning Teaching Slides

What is a Fraction?

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Fluency & Reasoning Teaching Slides

What is a Fraction?

Can you remember the meaning of these words?

$\frac{1}{8}$

numerator

$\frac{1}{4}$

denominator

$\frac{5}{9}$

unit fraction

$\frac{3}{4}$

non-unit fraction

Learning Notes

What is a Fraction?

Can you remember the meaning of these words?

Numerator – The top part of a number. It shows how many parts we have. → $\frac{5}{9}$

Denominator – The bottom part of a number. It shows how many equal parts the whole is divided into. → $\frac{3}{4}$

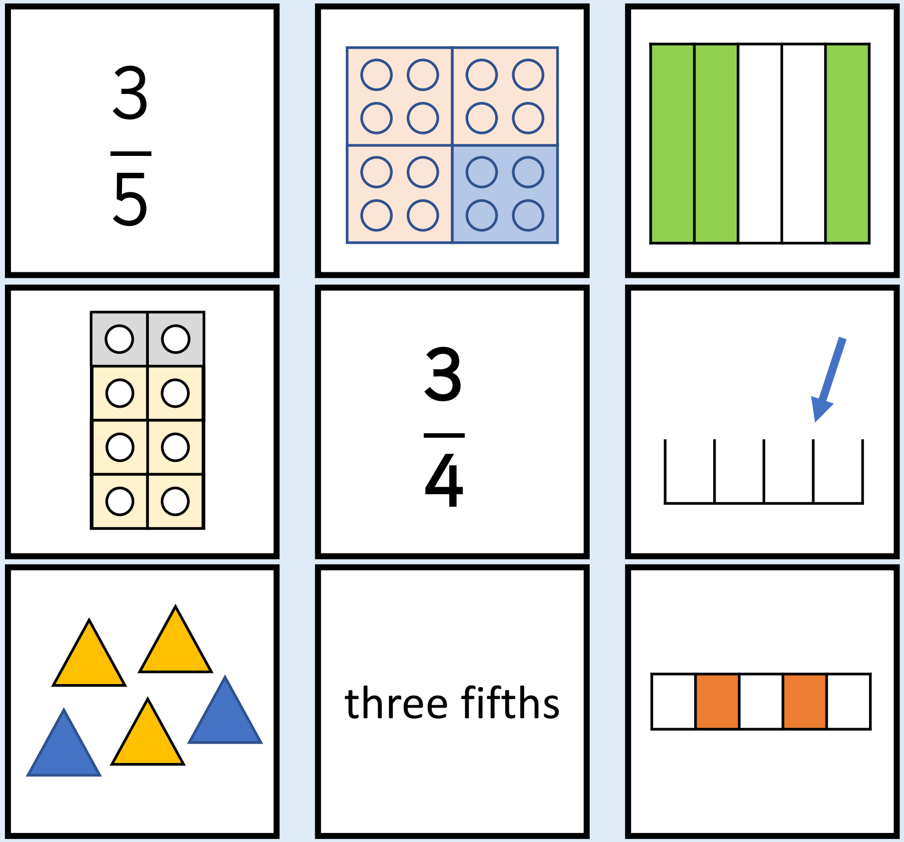
Unit fraction – The numerator is 1 → $\frac{1}{4}$ $\frac{1}{8}$

Non-unit fraction – A fraction with a numerator other than 1 → $\frac{3}{4}$ $\frac{5}{9}$

Activity 1

What is a Fraction?

How would you sort these cards?



? *Can you sort them in a different way?*

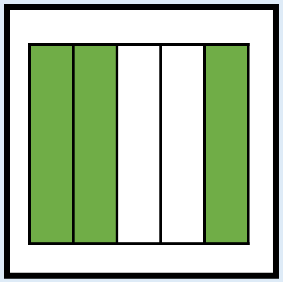
Activity 1

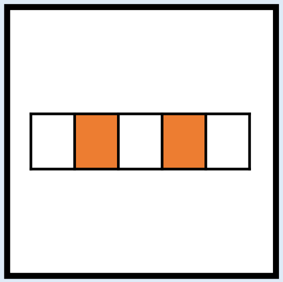
What is a Fraction?

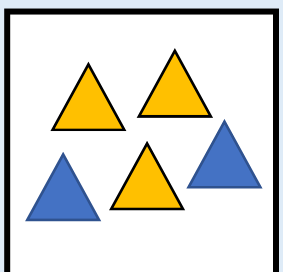
How would you sort these cards?

$\frac{3}{5}$

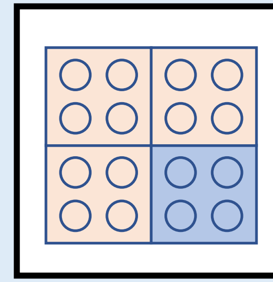
three fifths

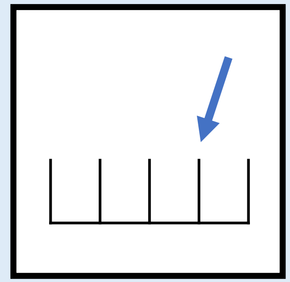


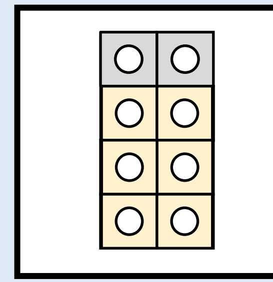




$\frac{3}{4}$







What is a Fraction?

Complete the Frayer model to describe a unit fraction.

Definition	Characteristics
Examples	Non-examples

Unit Fraction

?

Can you use the model to describe the following terms?

Non-unit fraction

Numerator

Denominator

What is a Fraction?

Complete the Frayer model to describe a unit fraction.

Definition	Characteristics
One part of a whole number, a region, or a set.	The numerator is one.
Examples	**Non-examples**
$\frac{1}{4}$ $\frac{1}{2}$ $\frac{1}{3}$	$\frac{6}{7}$ $\frac{3}{4}$ $\frac{2}{3}$

Unit Fraction

What is a Fraction?

Complete the Frayer model to describe a non-unit fraction.

Definition	Characteristics
Many parts of a whole number, a region, or a set.	The numerator is more than one.
Examples	**Non-examples**
$\frac{6}{7}$ $\frac{3}{4}$ $\frac{2}{3}$	$\frac{1}{4}$ $\frac{1}{2}$ $\frac{1}{3}$

Non-unit Fraction

What is a Fraction?

Complete the Frayer model to describe a numerator.

Numerator

Definition	Characteristics
The number that represents how many parts are considered.	The top number in a fraction.
Examples	**Non-examples**
$\frac{\boxed{6}}{7}$ $\frac{\boxed{3}}{4}$ $\frac{\boxed{2}}{3}$	$\frac{6}{\boxed{7}}$ $\frac{3}{\boxed{4}}$ $\frac{2}{\boxed{3}}$

Activity 2

What is a Fraction?

Complete the Frayer model to describe a denominator.

Definition	Characteristics
The number that represents the number of equal parts in a whole.	The bottom number in a fraction.
Examples	**Non-examples**
$\frac{6}{\boxed{7}}$ $\frac{3}{\boxed{4}}$ $\frac{2}{\boxed{3}}$	$\frac{\boxed{1}}{4}$ $\frac{\boxed{1}}{2}$ $\frac{\boxed{1}}{3}$

Denominator

Activity 3

What is a Fraction?

Complete the model to describe this fraction.

Bar Model	Draw it
In words	Number line

$$\frac{3}{4}$$

?

Can you use the same model to describe the following fractions?

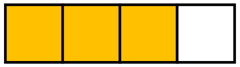
$\frac{1}{10}$ $\frac{3}{6}$ $\frac{1}{5}$

What is a Fraction?

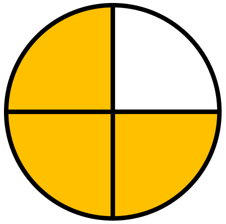
Complete the model to describe this fraction.

$\frac{3}{4}$

Bar Model



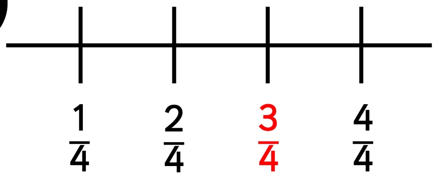
Draw it



In words

Three quarters.

Number line



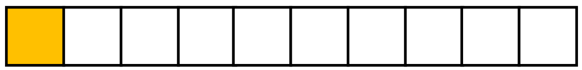
Activity 3

What is a Fraction?

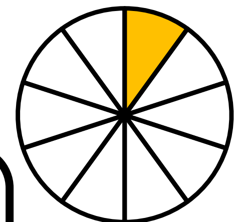
Complete the model to describe this fraction.

$$\frac{1}{10}$$

Bar Model



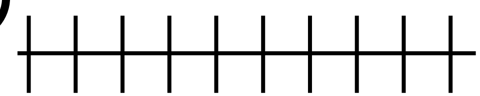
Draw it



In words

One tenth.

Number line



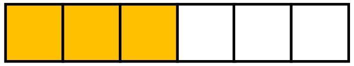
$\frac{1}{10}$ $\frac{2}{10}$ $\frac{3}{10}$ $\frac{4}{10}$ $\frac{5}{10}$ $\frac{6}{10}$ $\frac{7}{10}$ $\frac{8}{10}$ $\frac{9}{10}$ $\frac{10}{10}$

What is a Fraction?

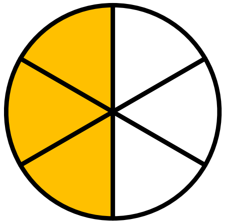
Complete the model to describe this fraction.

$\frac{3}{6}$

Bar Model



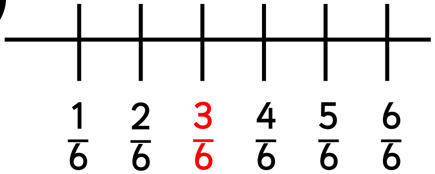
Draw it



In words

Three sixths.

Number line

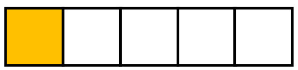


Activity 3

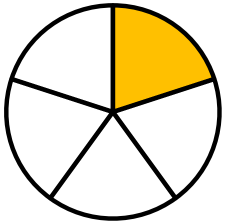
What is a Fraction?

Complete the model to describe this fraction.

Bar Model



Draw it

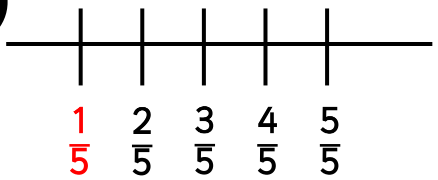


$$\frac{1}{5}$$

In words

One fifth.

Number line



Activity 4

What is a Fraction?

Use Cuisenaire rods.

If the orange rod is one whole, what fraction is represented by:

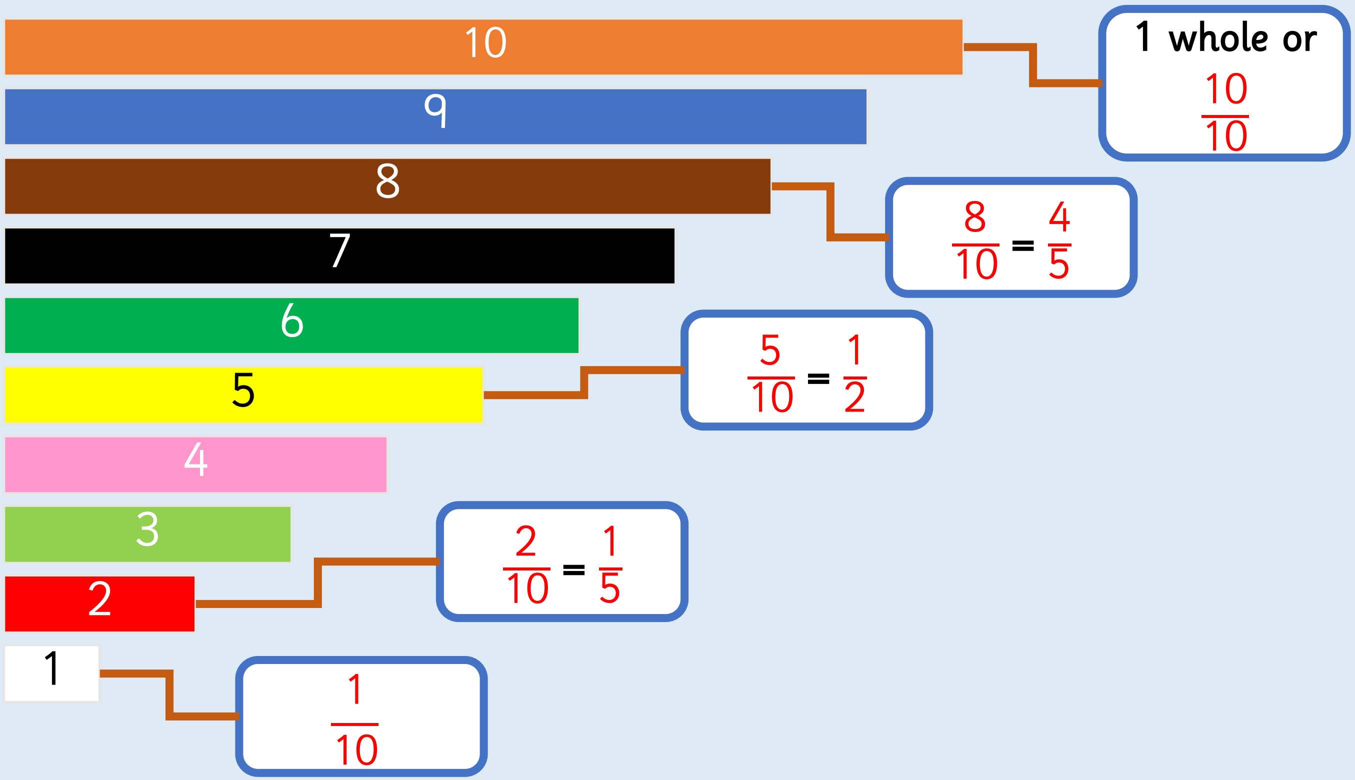
- The white rod
- The yellow rod
- The red rod
- The brown rod

?

Choose a different rod to represent one whole.
What do the other rods represent now?

What is a Fraction?

Use Cuisenaire rods.



Discuss

What is a Fraction?

How can we sort the fraction cards?

What fraction does each one represent?

Could some cards represent more than one fraction?

Is $\frac{1.5}{3}$ an example of a non-unit fraction? Why?

Using Cuisenaire rods, how many white rods are equal to an orange rod? How does this help us work out what fraction the white rod represents?

Equivalent Fractions (1)

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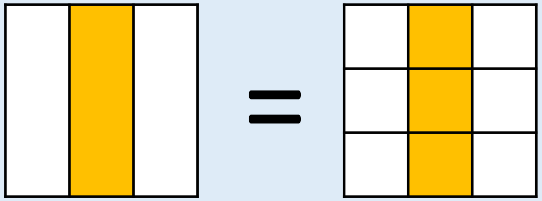
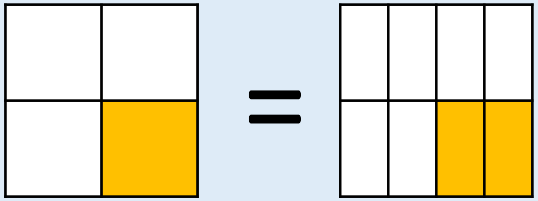
Equivalent Fractions (1)

Look at the diagram.
Can you write the equivalent fractions shown?



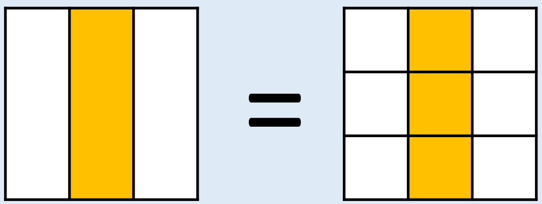
$\frac{1}{3}$ = ?



$\frac{1}{4}$ = ?

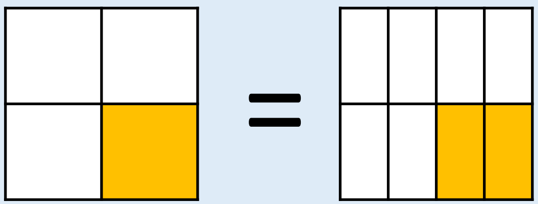
Equivalent Fractions (1)

**Look at the diagram.
Can you write the equivalent fractions shown?**



$\frac{1}{3}$ $\frac{3}{9}$

$$\frac{1}{3} \quad \begin{matrix} \longrightarrow & 1 \times 3 = \mathbf{3} \\ \longrightarrow & 3 \times 3 = \mathbf{9} \end{matrix}$$



$\frac{1}{4}$ $\frac{2}{8}$

$$\frac{1}{4} \quad \begin{matrix} \longrightarrow & 1 \times 2 = \mathbf{2} \\ \longrightarrow & 4 \times 2 = \mathbf{8} \end{matrix}$$

Activity 1

Equivalent Fractions (1)

Use two strips of equally sized paper.

1. Fold one strip into quarters and the other into eighths.
2. Place the quarters on top of the eighths and lift up one quarter.
3. How many eighths are equivalent to one quarter?

?

Which other equivalent fractions can you find?

Activity 1

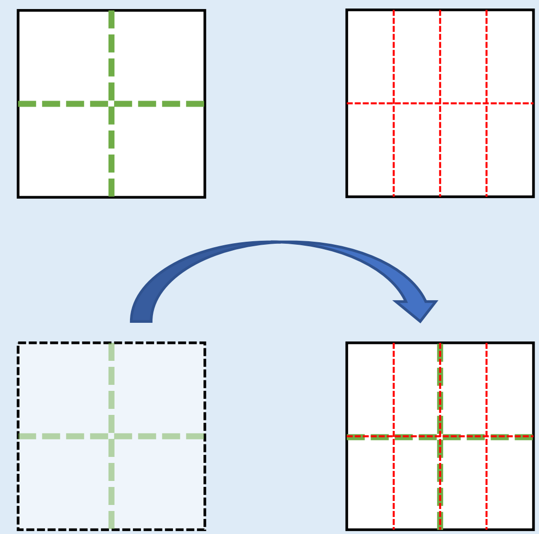
Equivalent Fractions (1)

Use two strips of equally sized paper.

1. Fold one strip into quarters and the other into eighths.

2. Place the quarters on top of the eighths and lift up one quarter.

3. How many eighths are equivalent to one quarter?



2, therefore $\frac{2}{8} = \frac{1}{4}$.

Equivalent Fractions (1)

Try this using squared paper.

Using squared paper, investigate equivalent fractions using equal parts e.g. $\frac{3}{4} = \frac{?}{8}$.

1. Start by drawing a bar eight squares long.

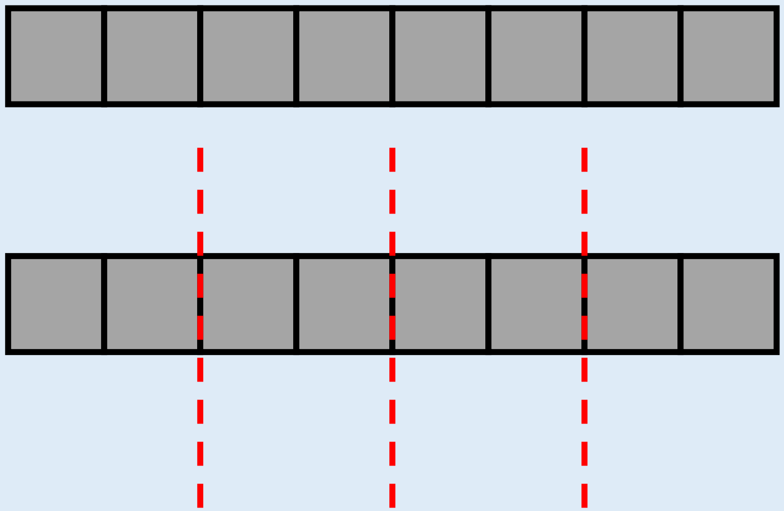
2. Underneath, compare the same length bar split into four equal parts.

Equivalent Fractions (1)

Using squared paper, investigate equivalent fractions using equal parts e.g. $\frac{3}{4} = \frac{?}{8}$.

1. Start by drawing a bar eight squares long.

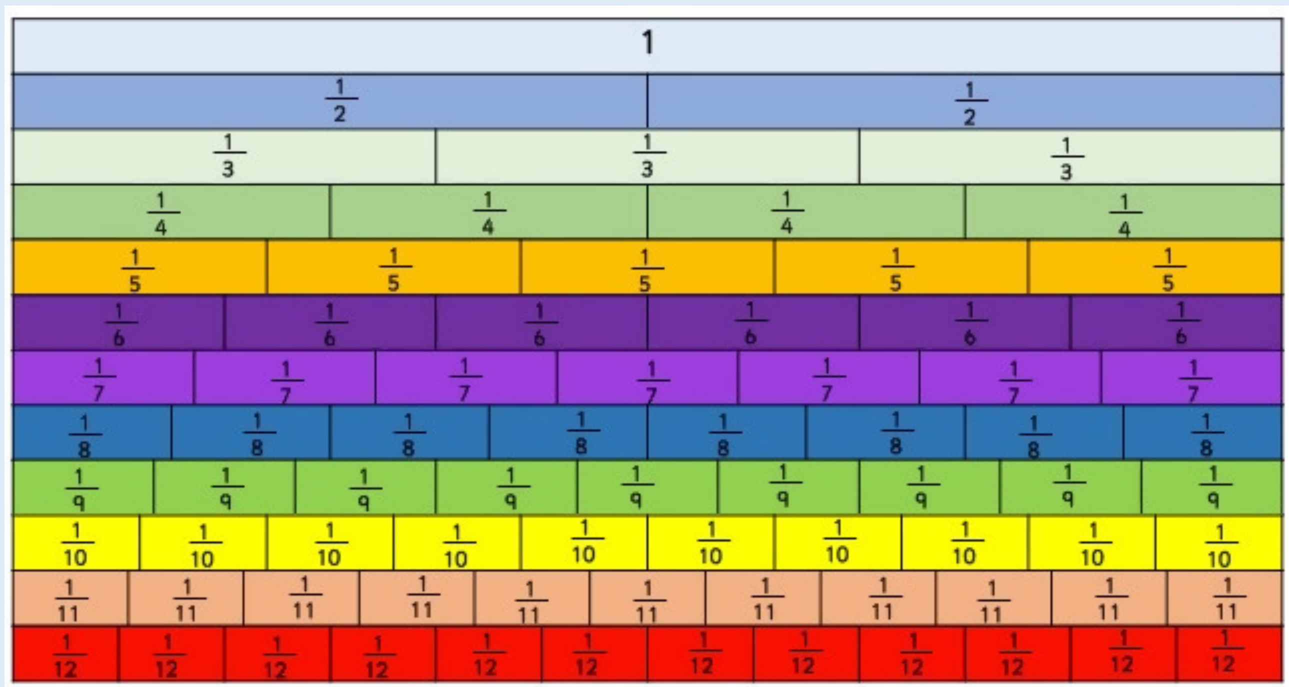
2. Underneath, compare the same length bar split into four equal parts.



$$\frac{3}{4} = \frac{6}{8}$$

Equivalent Fractions (1)

How many fractions equivalent to one half can you see on the fraction wall?

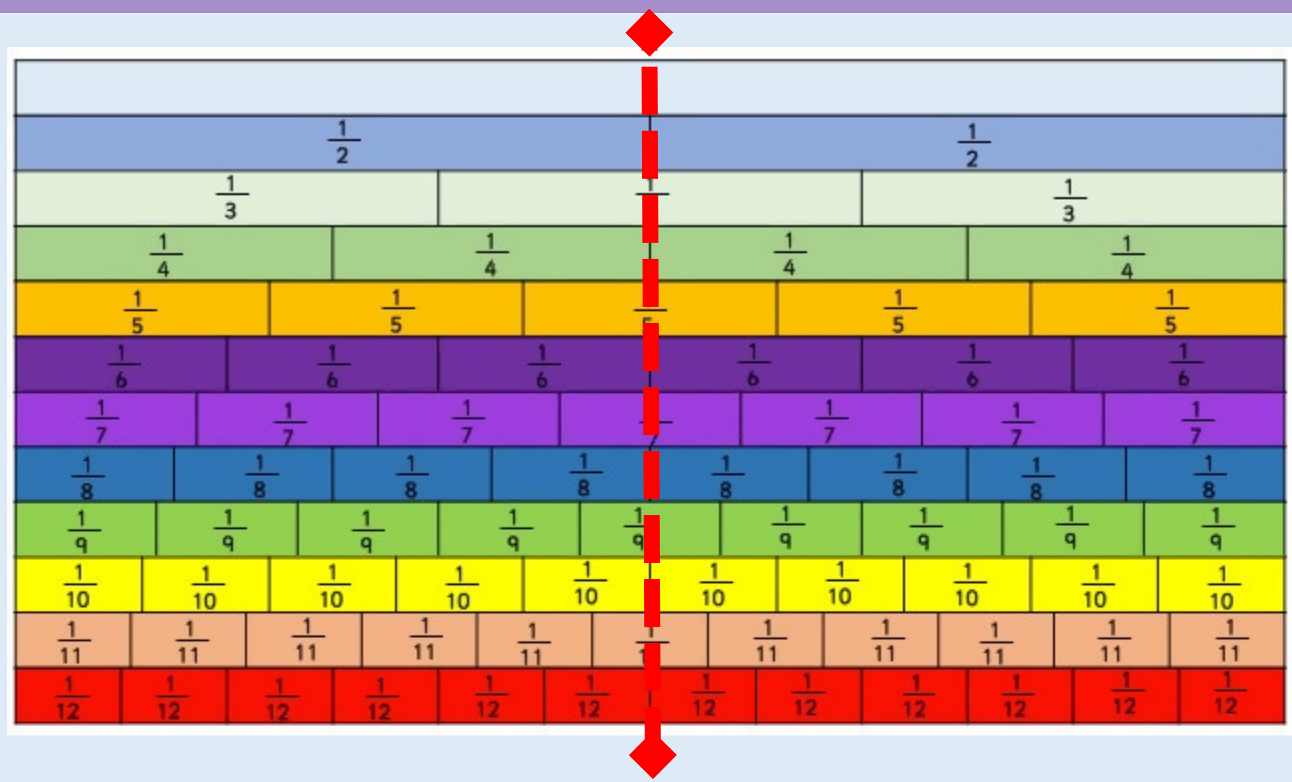


?

Draw extra rows to show other equivalent fractions.

Equivalent Fractions (1)

How many fractions equivalent to one half can you see on the fraction wall?



$\frac{1}{2}$

$\frac{2}{4}$

$\frac{3}{6}$

$\frac{4}{8}$

$\frac{5}{10}$

$\frac{6}{12}$

Discuss

Equivalent Fractions (1)

Look at the equivalent fractions you have found. What relationship can you see between the numerators and denominators? Are there any patterns?

Can a fraction have more than one equivalent fraction?

Can you use Cuisenaire rods or pattern blocks to investigate equivalent fractions?

Equivalent Fractions (2)

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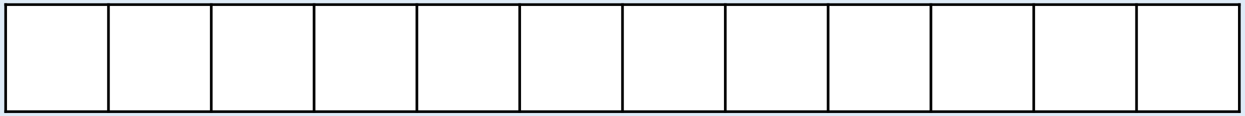
Equivalent Fractions (2)

Use the diagram or fraction wall to complete the fractions.



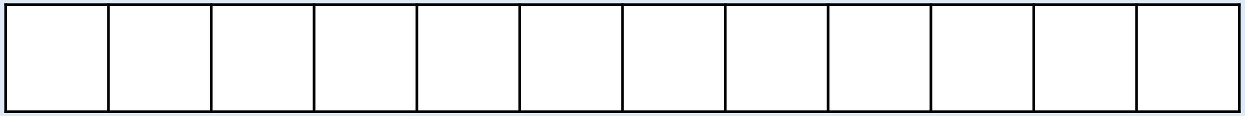
$\frac{1}{3} = \frac{\square}{12}$ $\frac{1}{\square} = \frac{3}{6}$ $\frac{3}{4} = \frac{\square}{8}$ $\frac{5}{12} = \frac{\square}{24}$

?

Remember to multiply the numerator and denominator by the same number.

Equivalent Fractions (2)

Use the diagram or fraction wall to complete the fractions.



$\frac{1}{3} = \frac{\boxed{4}}{12}$

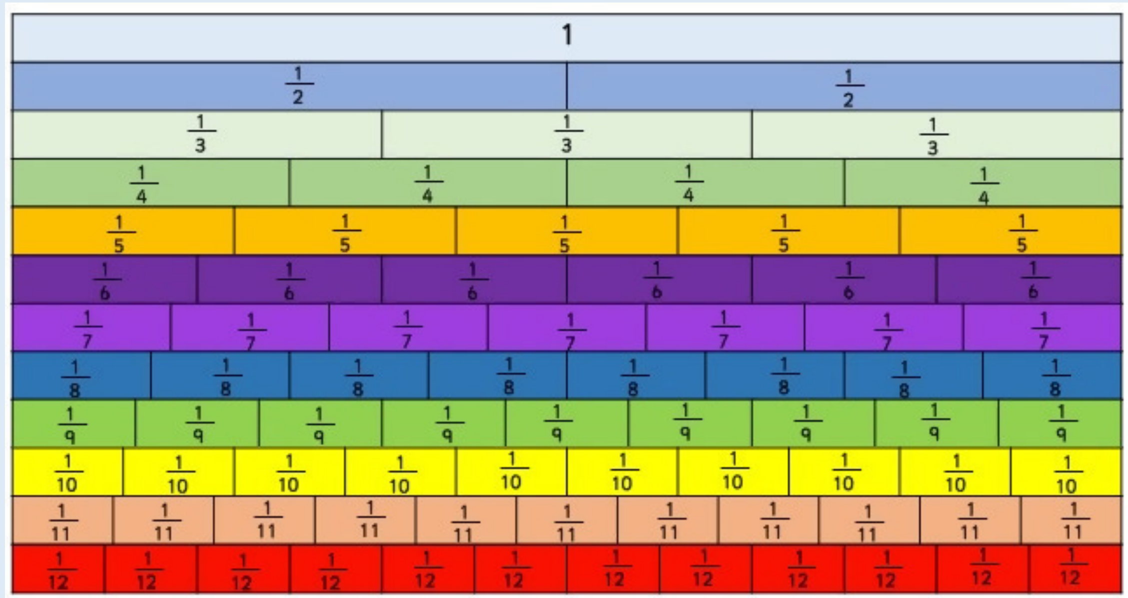
$\frac{1}{\boxed{2}} = \frac{3}{6}$

$\frac{3}{4} = \frac{\boxed{6}}{8}$

$\frac{5}{12} = \frac{\boxed{10}}{24}$

Equivalent Fractions (2)

Now complete these fractions.



$$\frac{1}{3} = \frac{\square}{6} = \frac{\square}{12} = \frac{\square}{24}$$

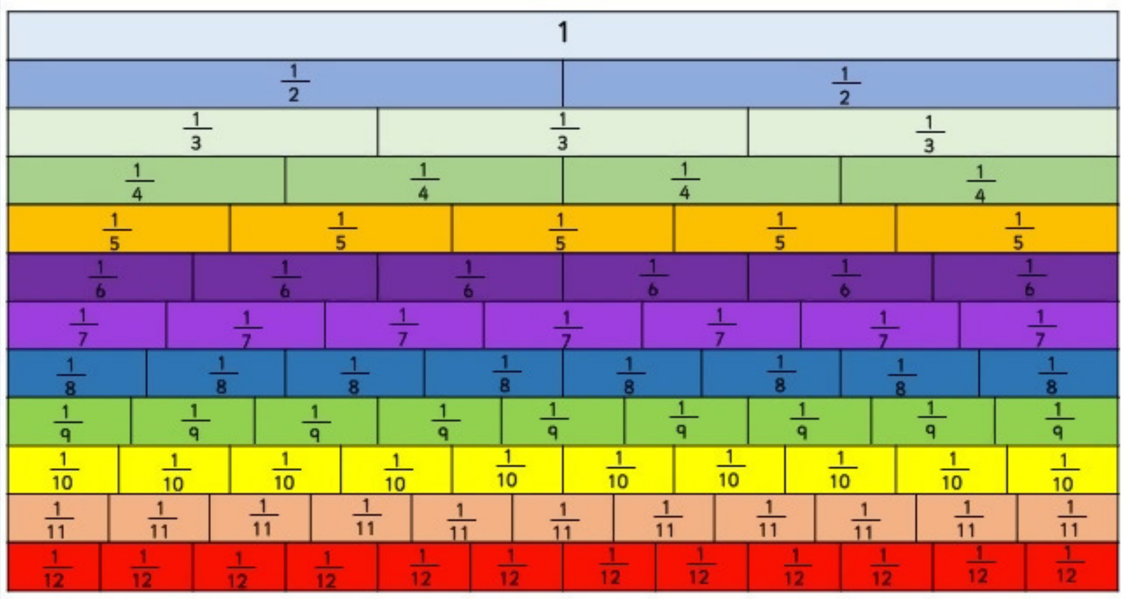
?

Remember to multiply the numerator and the denominator by the same number.

Activity 2

Equivalent Fractions (2)

Now complete these fractions.



$$\frac{1}{3} = \frac{\boxed{2}}{6} = \frac{\boxed{4}}{12} = \frac{\boxed{8}}{24}$$

Equivalent Fractions (2)

Now complete these fractions.

$$\frac{1}{4} = \frac{2}{\boxed{}} = \frac{\boxed{}}{12} = \frac{4}{\boxed{}} = \frac{\boxed{}}{100} = \frac{\boxed{}}{200}$$

$$\frac{1}{2} = \frac{2}{\boxed{}} = \frac{\boxed{}}{6} = \frac{4}{\boxed{}} = \frac{\boxed{}}{100} = \frac{\boxed{}}{200}$$

?

Remember to multiply the numerator and the denominator by the same number.

Equivalent Fractions (2)

Now complete these fractions.

$$\frac{1}{4} = \frac{2}{\boxed{8}} = \frac{\boxed{3}}{12} = \frac{4}{\boxed{16}} = \frac{\boxed{25}}{100} = \frac{\boxed{50}}{200}$$

$$\frac{1}{2} = \frac{2}{\boxed{4}} = \frac{\boxed{3}}{6} = \frac{4}{\boxed{8}} = \frac{\boxed{50}}{100} = \frac{\boxed{100}}{200}$$

Discuss

Equivalent Fractions (2)

What other equivalent fractions can you find using the diagram?

What relationships can you see between the fractions?

If I multiply the numerator by a number, what do I have to do to the denominator to keep it equivalent? Is this always true?

What relationships can you see between the numerator and denominator?

Fractions Greater than 1

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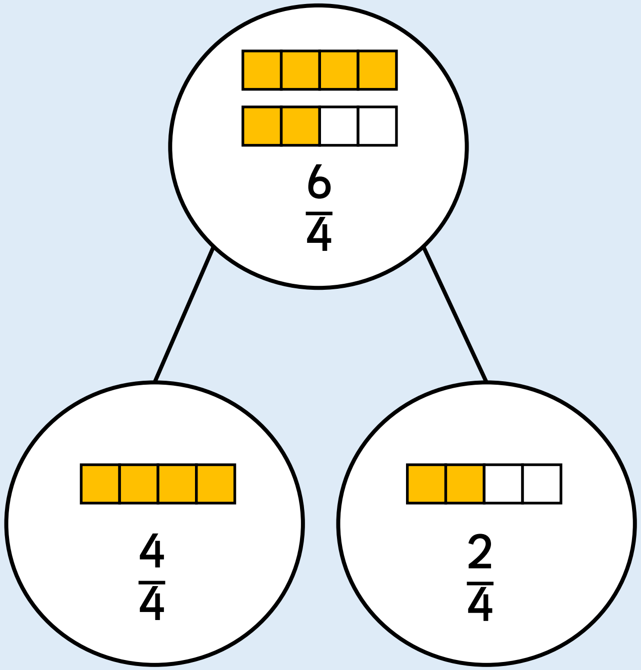
Fractions Greater than 1

A fraction can be split into wholes and parts.

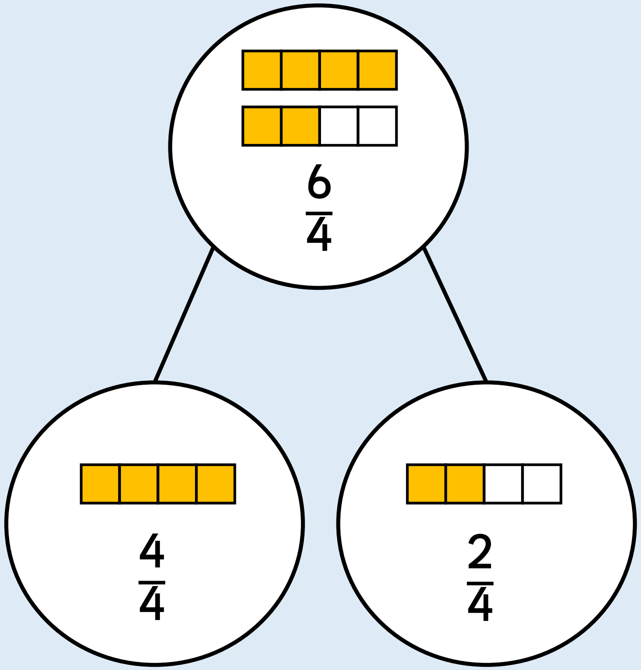


There are ☐ quarters altogether.

☐ quarters = ☐ whole and ☐ quarters.

Fractions Greater than 1

A fraction can be split into wholes and parts.

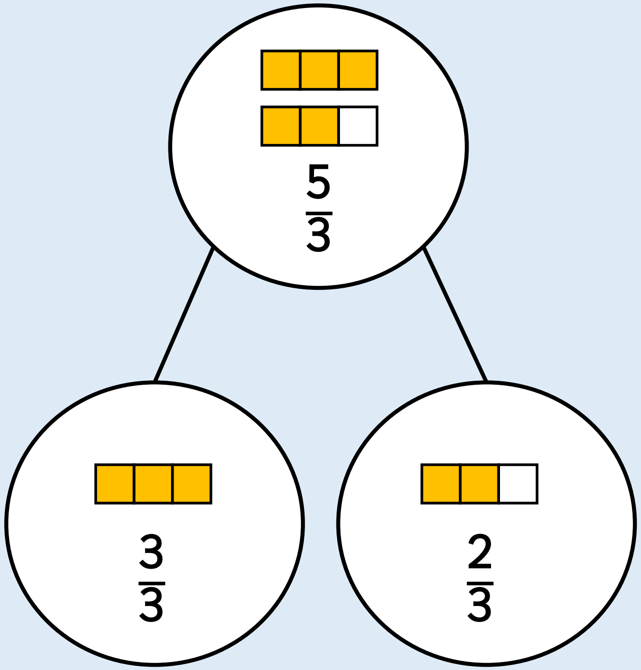


There are $\boxed{6}$ quarters altogether.

$\boxed{6}$ quarters = $\boxed{1}$ whole and $\boxed{2}$ quarters.

Fractions Greater than 1

A fraction can be split into wholes and parts.

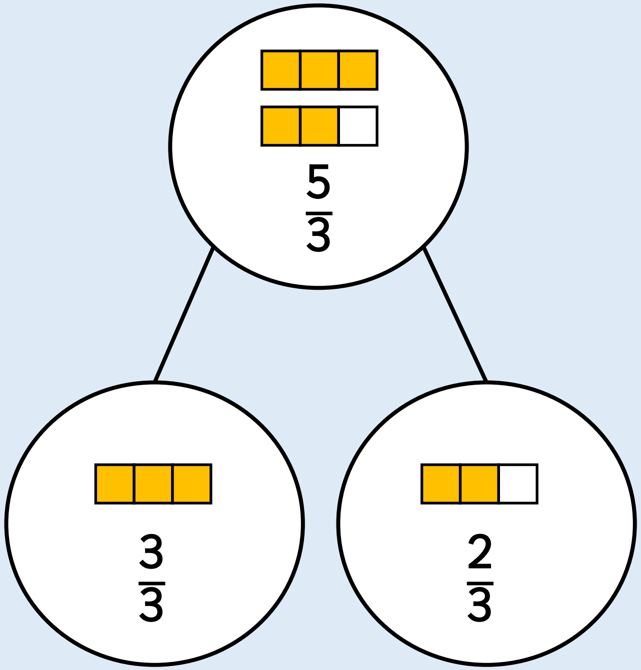


There are ☐ thirds altogether.

☐ thirds = ☐ whole and ☐ thirds.

Fractions Greater than 1

A fraction can be split into wholes and parts.

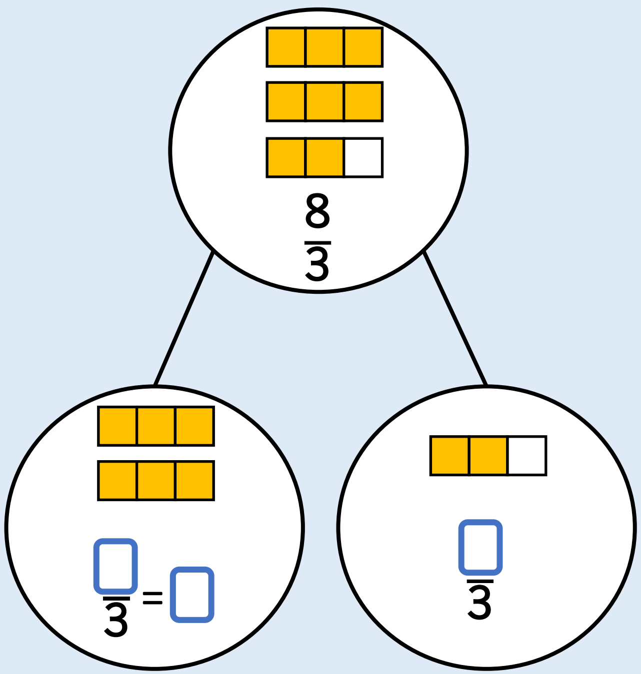


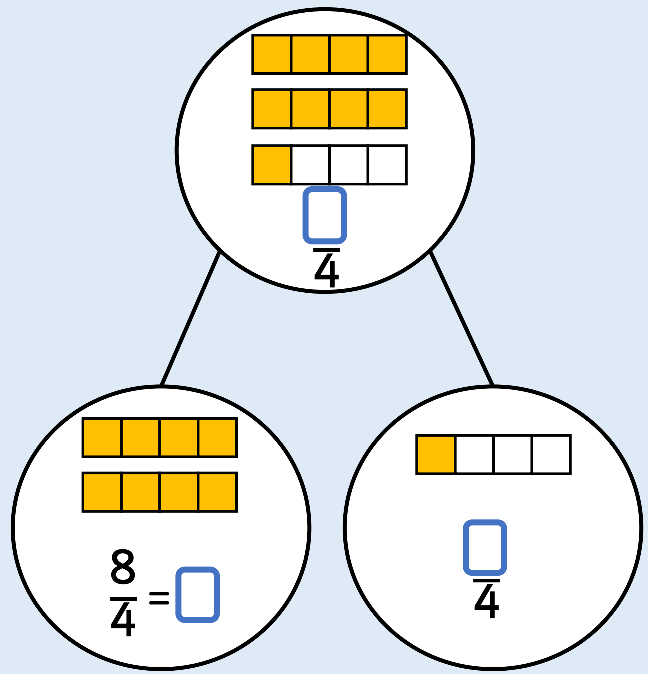
There are $\boxed{5}$ thirds altogether.

$\boxed{5}$ thirds = $\boxed{1}$ whole and $\boxed{2}$ thirds.

Activity 3 Fractions Greater than 1

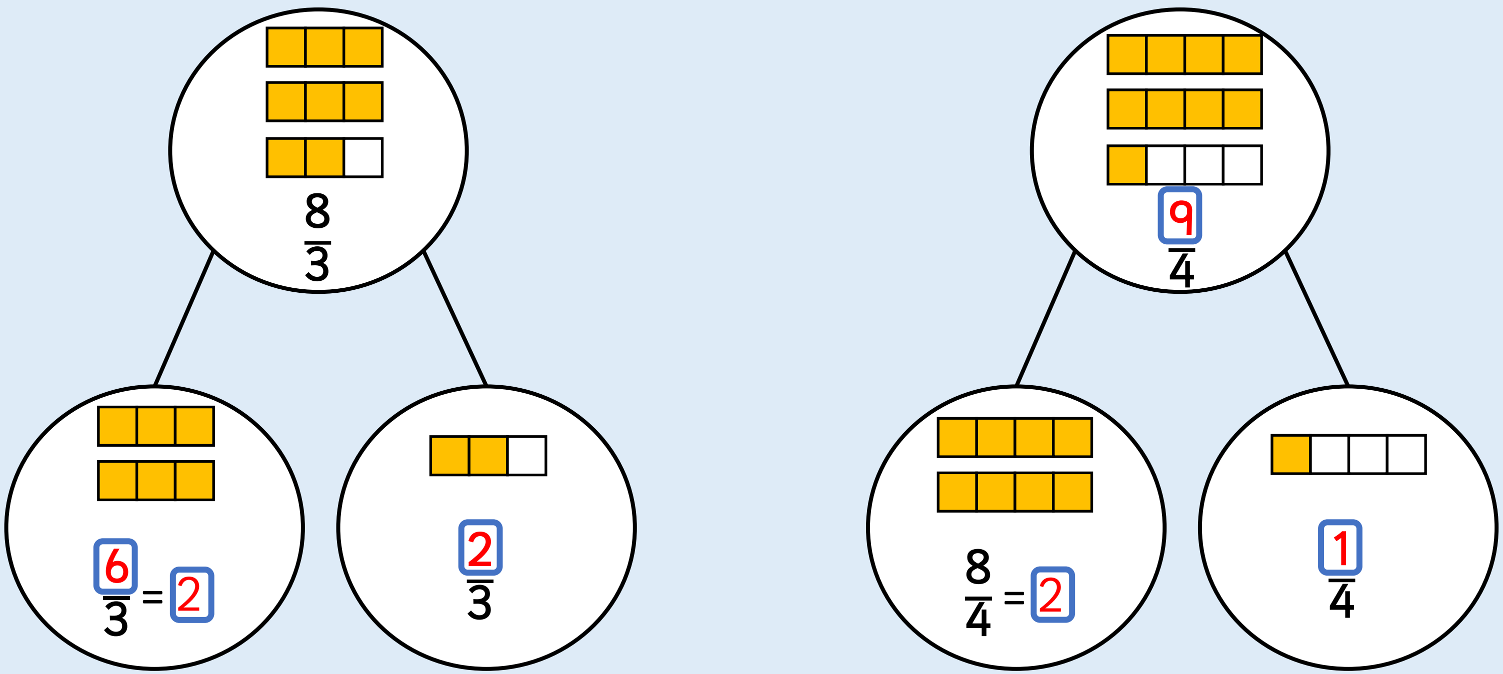
Complete the part-whole model.





Fractions Greater than 1

Complete the part-whole model.



Fractions Greater than 1

Complete.
You may use part-whole models to help you.

$$\frac{13}{4} = \frac{12}{4} + \frac{\boxed{}}{4} = 3\frac{\boxed{}}{4}$$

$$\frac{\boxed{}}{3} = \frac{9}{3} + \frac{2}{3} = \boxed{}\frac{2}{3}$$

$$\frac{\boxed{}}{7} = \frac{28}{7} + \frac{5}{7} = \boxed{}\frac{5}{7}$$

Fractions Greater than 1

Complete.
You may use part-whole models to help you.

$$\frac{13}{4} = \frac{12}{4} + \frac{\boxed{1}}{4} = 3\frac{\boxed{1}}{4}$$

$$\frac{\boxed{11}}{3} = \frac{9}{3} + \frac{2}{3} = \boxed{3}\frac{2}{3}$$

$$\frac{\boxed{33}}{7} = \frac{28}{7} + \frac{5}{7} = \boxed{4}\frac{5}{7}$$

Discuss

Fractions Greater than 1

How many ____ make a whole?

If I have ____ eighths, how many more do I need to make a whole?

What do you notice about the numerator and denominator when a fraction is equivalent to a whole?

Count in Fractions

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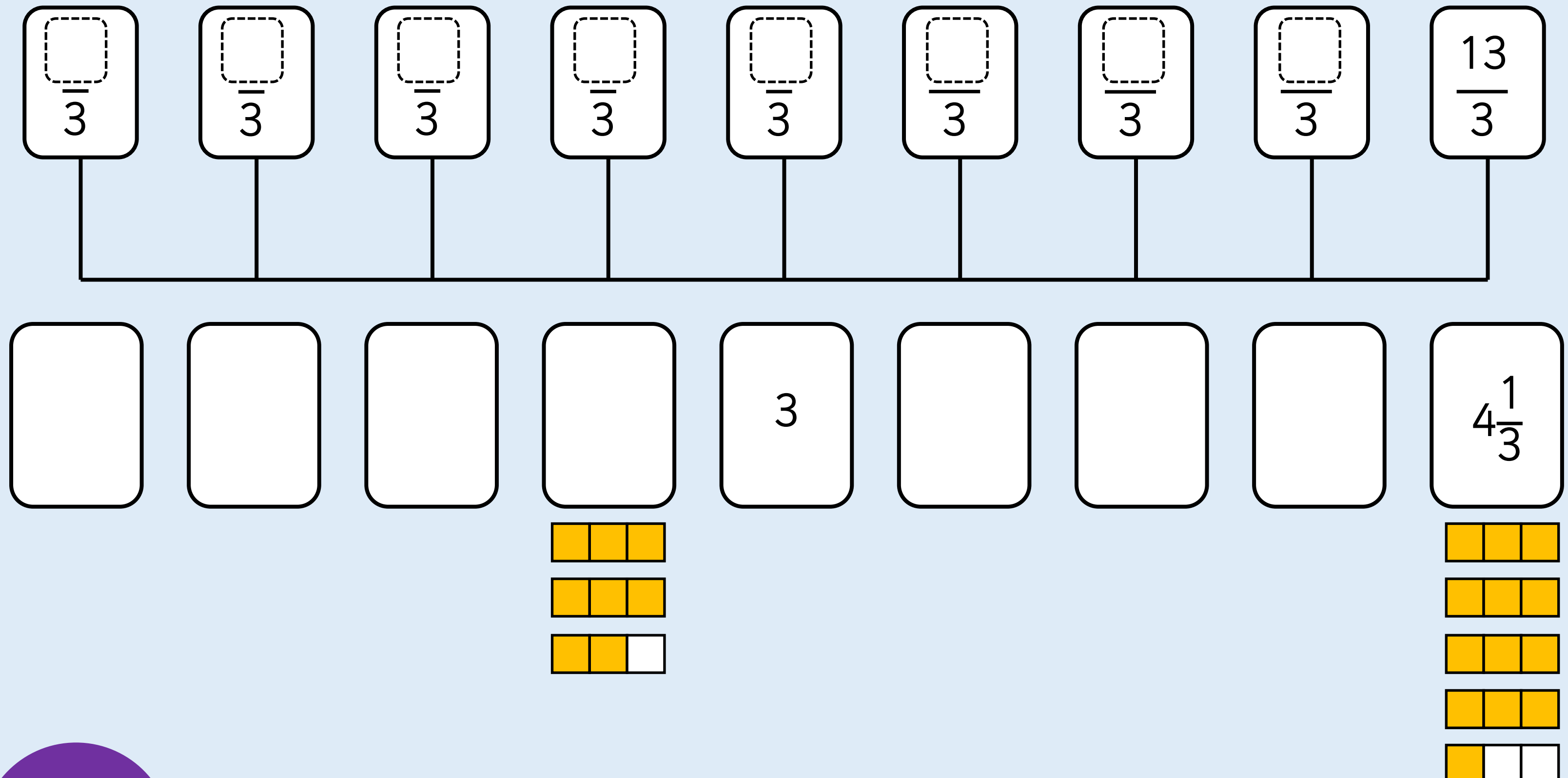
Activity 1 Count in Fractions

Complete the number line.

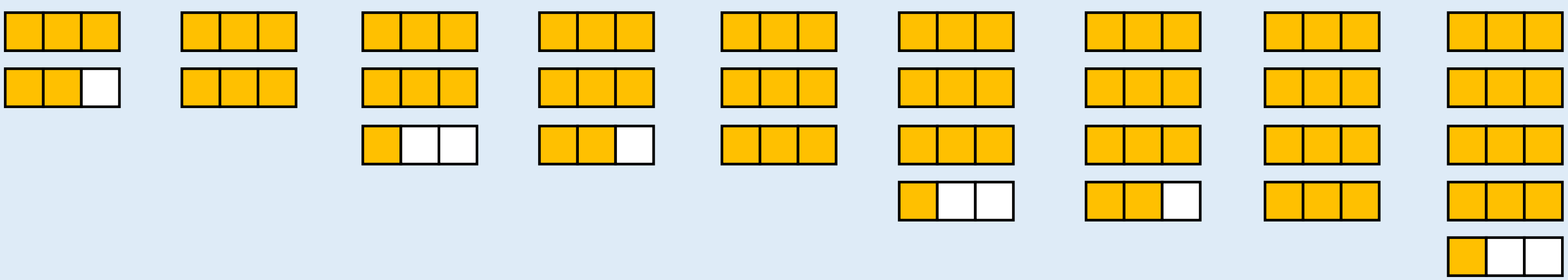


? *Draw bar models to represent each fraction.*

Count in Fractions

Complete the number line.

$\frac{5}{3}$	$\frac{6}{3}$	$\frac{7}{3}$	$\frac{8}{3}$	$\frac{9}{3}$	$\frac{10}{3}$	$\frac{11}{3}$	$\frac{12}{3}$	$\frac{13}{3}$
$1\frac{2}{3}$	2	$2\frac{1}{3}$	$2\frac{2}{3}$	3	$3\frac{1}{3}$	$3\frac{2}{3}$	4	$4\frac{1}{3}$

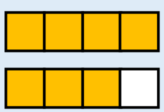


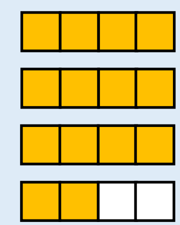
Activity 2

Count in Fractions

Fill in the blanks using cubes or bar models to help you.

$\frac{\square}{4}$	$\frac{\square}{4}$	$\frac{\square}{4}$	$\frac{\square}{4}$	$\frac{\square}{4}$	$\frac{\square}{4}$	$\frac{\square}{4}$	$\frac{13}{4}$	$\frac{14}{4}$
		2						$3\frac{2}{4}$





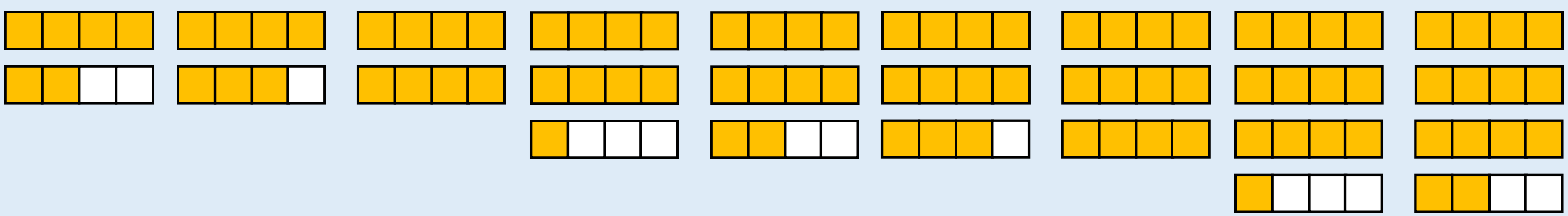
?

Draw bar models to represent each fraction.

Activity 2 Count in Fractions

Fill in the blanks using cubes or bar models to help you.

$\frac{6}{4}$	$\frac{7}{4}$	$\frac{8}{4}$	$\frac{9}{4}$	$\frac{10}{4}$	$\frac{11}{4}$	$\frac{12}{4}$	$\frac{13}{4}$	$\frac{14}{4}$
$1\frac{2}{4}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$	$2\frac{2}{4}$	$2\frac{3}{4}$	3	$3\frac{1}{4}$	$3\frac{2}{4}$



Activity 2

Count in Fractions

Write the next fractions in each sequence.

$\frac{12}{8}, \frac{11}{8}, \frac{10}{8},$ ___ , ___ , ___

$5\frac{1}{3}, 6, 6\frac{2}{3},$ ___ , ___ , ___

$\frac{4}{17}, \frac{6}{17}, \frac{8}{17},$ ___ , ___ , ___

$7\frac{3}{5}, 8\frac{1}{5}, 8\frac{4}{5},$ ___ , ___ , ___

Activity 2 Count in Fractions

Write the next fractions in each sequence.

$\frac{12}{8}, \frac{11}{8}, \frac{10}{8}, \frac{9}{8}, 1, \frac{7}{8}$

$5\frac{1}{3}, 6, 6\frac{2}{3}, 7\frac{1}{3}, 8, 8\frac{2}{3}$

$\frac{4}{17}, \frac{6}{17}, \frac{8}{17}, \frac{10}{17}, \frac{12}{17}, \frac{14}{17}$

$7\frac{3}{5}, 8\frac{1}{5}, 8\frac{4}{5}, 9\frac{2}{5}, 10, 10\frac{3}{5}$

Discuss

Count in Fractions

How many ____ make a whole?

Can you write the missing fractions in more than one way?

Are the fractions ascending or descending?

Add 2 or More Fractions

4

Fluency & Reasoning Teaching Slides

Activity 1

Add 2 or More Fractions

Take two identical strips of paper.
Fold your paper into quarters.
Can you use the strips to solve:

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

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

$\frac{3}{4} + \frac{3}{4} = \boxed{}$

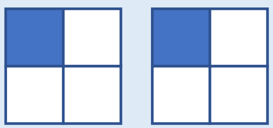
$\frac{\boxed{}}{4} + \frac{\boxed{}}{4} = \frac{7}{4}$

?

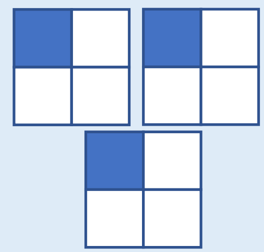
What other fractions can you make and add?

Add 2 or More Fractions

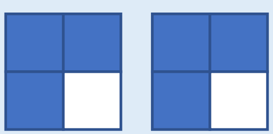
Take two identical strips of paper.
Fold your paper into quarters.
Can you use the strips to solve:



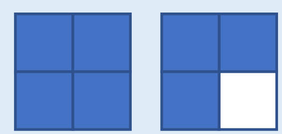
$$\frac{1}{4} + \frac{1}{4} = \boxed{\frac{2}{4}}$$



$$\frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \boxed{\frac{3}{4}}$$



$$\frac{3}{4} + \frac{3}{4} = \boxed{\frac{6}{4}}$$



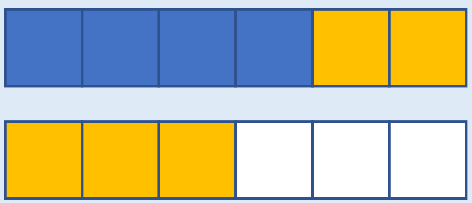
$$\frac{\boxed{4}}{4} + \frac{\boxed{3}}{4} = \frac{7}{4}$$

Activity 2

Add 2 or More Fractions

Use the models to add the fractions:

$$\frac{2}{7} + \frac{2}{7} = \boxed{\frac{4}{7}}$$



$$\frac{4}{6} + \frac{5}{6} = \boxed{\frac{9}{6}}$$

?

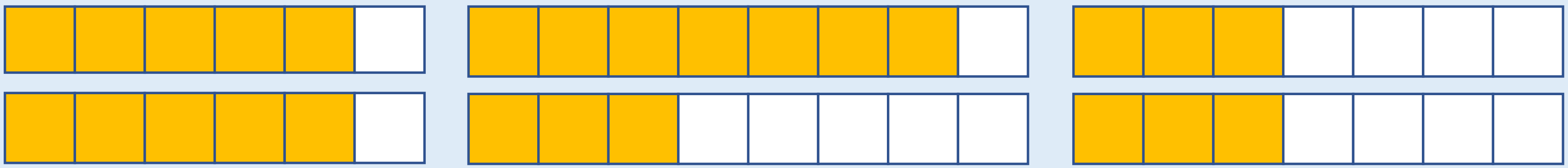
Choose your preferred model to add:

$\frac{5}{6} + \frac{5}{6} = \boxed{}$ $\frac{7}{8} + \frac{3}{8} = \boxed{}$ $\frac{3}{7} + \frac{3}{7} = \boxed{}$

Activity 2

Add 2 or More Fractions

Use the models to add the fractions:



or *or* *or*

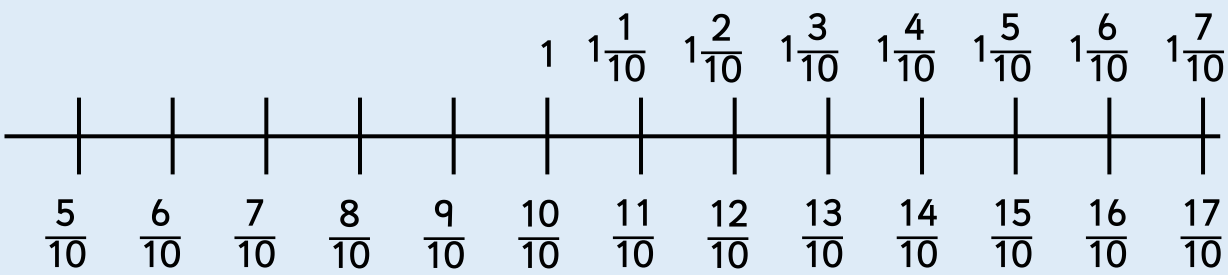
$$\frac{5}{6} + \frac{5}{6} = \boxed{\frac{10}{6}}$$

$$\frac{7}{8} + \frac{3}{8} = \boxed{\frac{10}{8}}$$

$$\frac{3}{7} + \frac{3}{7} = \boxed{\frac{6}{7}}$$

Add 2 or More Fractions

Use the number line to add the fractions.



$$\frac{5}{10} + \frac{2}{10} + \frac{4}{10} = \boxed{\frac{11}{10}}$$

?

Choose your preferred model to add:

$$\frac{9}{10} + \frac{9}{10} = \boxed{}$$

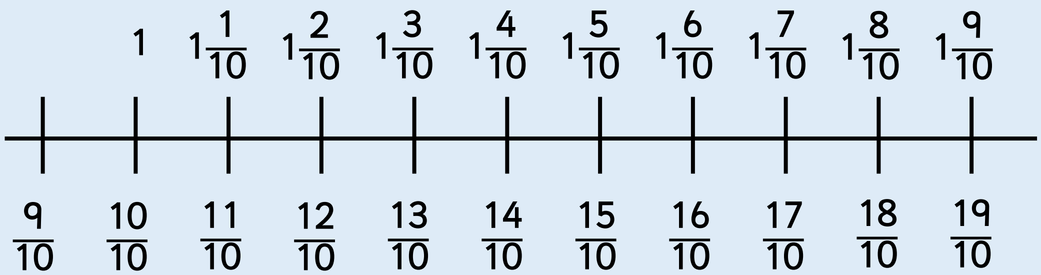
$$\frac{1}{9} + \frac{4}{9} + \frac{8}{9} = \boxed{}$$

$$\frac{2}{11} + \frac{5}{11} + \frac{3}{11} = \boxed{}$$

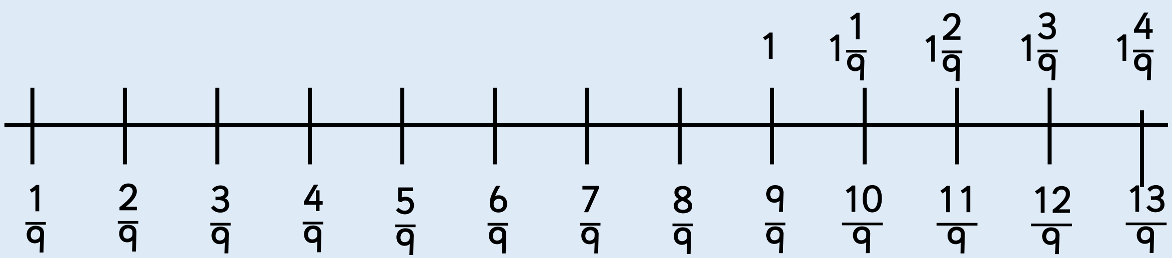
Activity 3

Add 2 or More Fractions

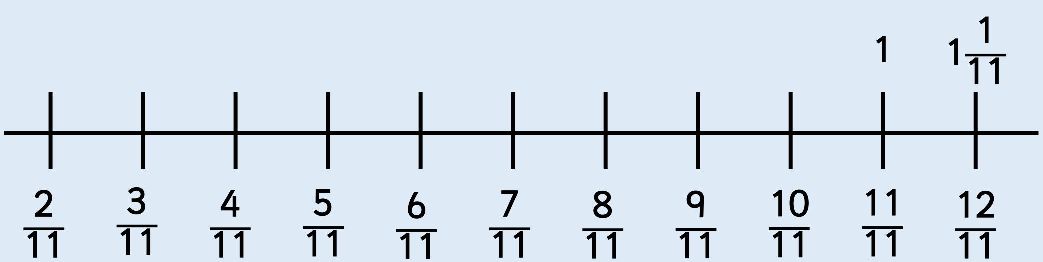
Use the number line to add the fractions.



$$\frac{9}{10} + \frac{9}{10} = \boxed{\frac{18}{10}}$$



$$\frac{1}{9} + \frac{4}{9} + \frac{8}{9} = \boxed{\frac{13}{9}}$$



$$\frac{2}{11} + \frac{5}{11} + \frac{3}{11} = \boxed{\frac{10}{11}}$$

Discuss

Add 2 or More Fractions

How many equal parts is the whole split into? How many equal parts am I adding?

Which bar model do you prefer when adding fractions? Why?

Can you combine any pair of fractions to make one whole when you are adding three fractions?

Subtract 2 Fractions

4

Fluency & Reasoning Teaching Slides

Activity 1

Subtract 2 Fractions

Use identical strips of paper and fold them into eighths. Use the strips to solve the calculations.

$\frac{7}{8} - \frac{1}{8} = \boxed{}$

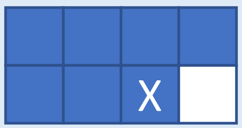
$\frac{6}{8} - \frac{3}{8} = \boxed{}$

$\frac{14}{8} - \frac{8}{8} = \boxed{}$

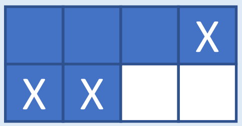
$\frac{11}{8} - \frac{\boxed{}}{8} = \frac{4}{8}$

Subtract 2 Fractions

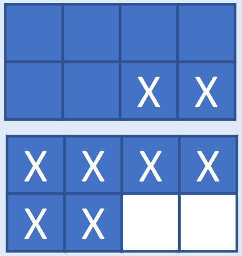
Use identical strips of paper and fold them into eighths. Use the strips to solve the calculations.



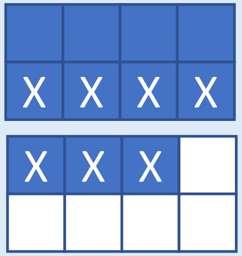
$$\frac{7}{8} - \frac{1}{8} = \boxed{\frac{6}{8}}$$



$$\frac{6}{8} - \frac{3}{8} = \boxed{\frac{3}{8}}$$



$$\frac{14}{8} - \frac{8}{8} = \boxed{\frac{6}{8}}$$



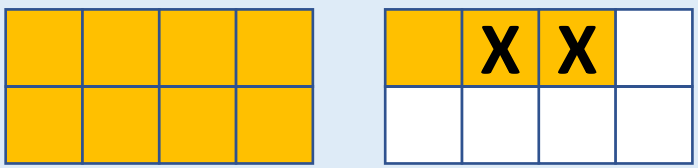
$$\frac{11}{8} - \frac{\boxed{7}}{8} = \frac{4}{8}$$

Activity 2

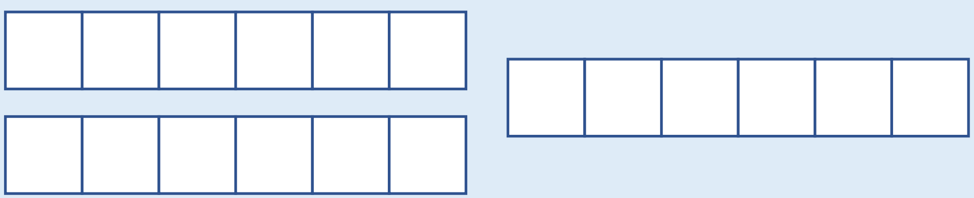
Subtract 2 Fractions

Use the bar models to subtract the fractions.

$$\frac{5}{8} - \frac{2}{8} = \square$$



$$\frac{11}{8} - \frac{\square}{8} = \frac{\square}{8}$$

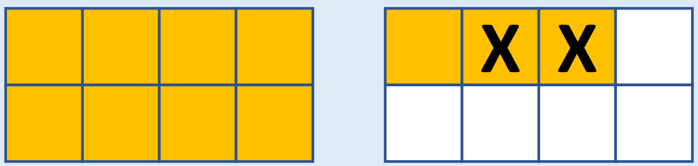


$$\frac{15}{6} - \frac{12}{6} = \frac{\square}{6}$$

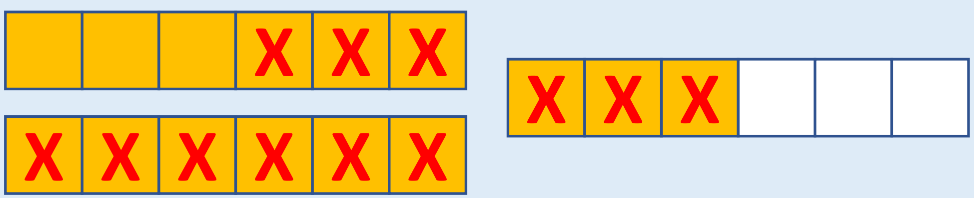
Subtract 2 Fractions

Use the bar models to subtract the fractions.

$$\frac{5}{8} - \frac{2}{8} = \boxed{\frac{3}{8}}$$



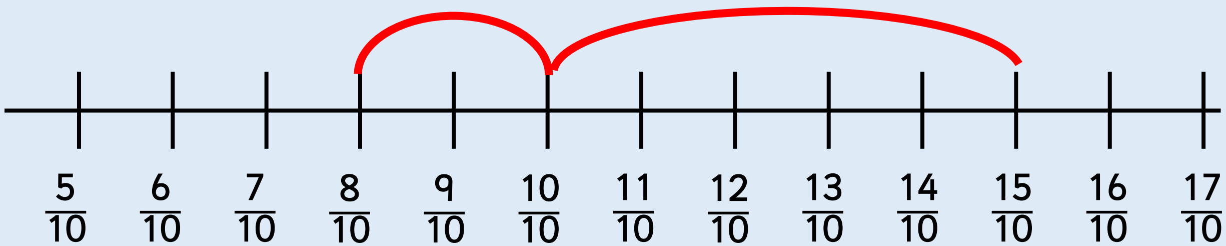
$$\frac{11}{8} - \frac{\boxed{2}}{8} = \frac{\boxed{9}}{8}$$



$$\frac{15}{6} - \frac{12}{6} = \frac{\boxed{3}}{6}$$

Subtract 2 Fractions

Use the number line to subtract the fractions.



$$\frac{15}{10} - \frac{7}{10} = \boxed{\frac{8}{10}}$$

? *Use the method to solve:*

$\frac{14}{8} - \frac{8}{8} = \square$

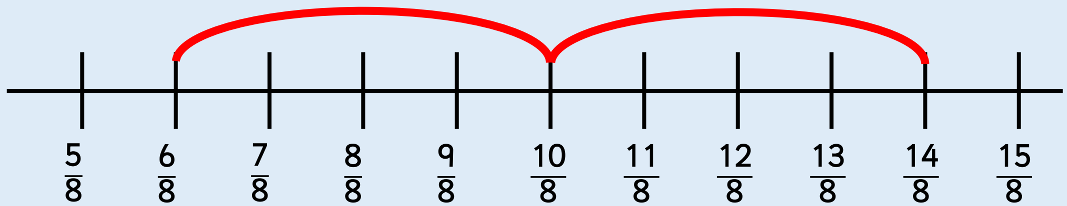
$\frac{14}{7} - \frac{8}{7} = \square$

$\frac{14}{12} - \frac{8}{12} = \square$

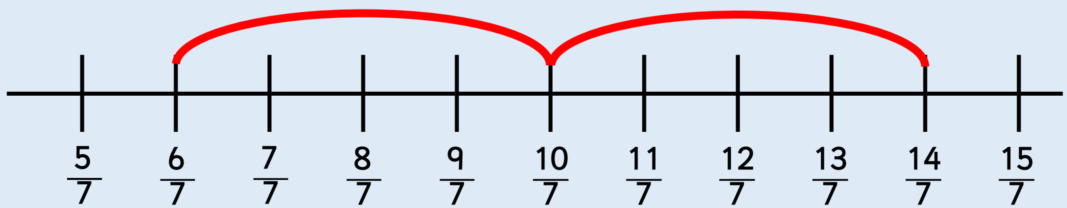
$\frac{14}{3} - \frac{8}{3} = \square$

Subtract 2 Fractions

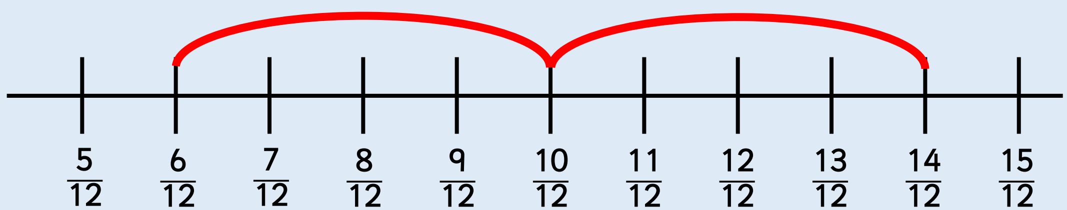
Use the number line to subtract the fractions.



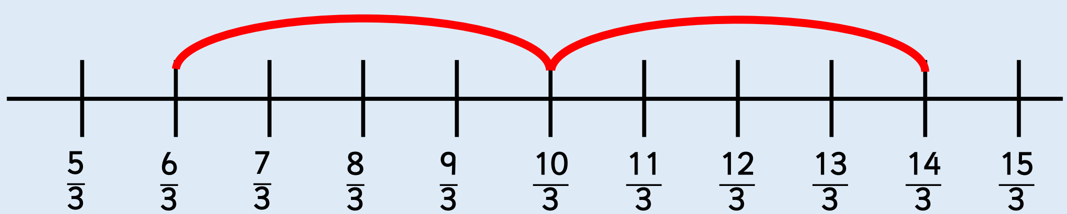
$$\frac{14}{8} - \frac{8}{8} = \boxed{\frac{6}{8}}$$



$$\frac{14}{7} - \frac{8}{7} = \boxed{\frac{6}{7}}$$



$$\frac{14}{12} - \frac{8}{12} = \boxed{\frac{6}{12}}$$



$$\frac{14}{3} - \frac{8}{3} = \boxed{\frac{6}{3}}$$

Discuss

Subtract 2 Fractions

Have you used take away or difference to subtract the eighths using the strips of paper? How are they the same? How are they different?

How can I find a missing number in subtraction? Can you count on to find the difference?

Can I partition my fraction to help me subtract?

Subtract from Whole Amounts

4

Fluency & Reasoning Teaching Slides

Subtract from Whole Amounts

Use cubes, strips of paper or a bar model to solve:

$\frac{8}{8} - \frac{5}{8} = \frac{\boxed{}}{8}$

$\frac{8}{8} - \frac{\boxed{}}{8} = \frac{6}{8}$

$\frac{13}{8} - \frac{8}{8} = \frac{\boxed{}}{8}$

?

What's the same? What's different?

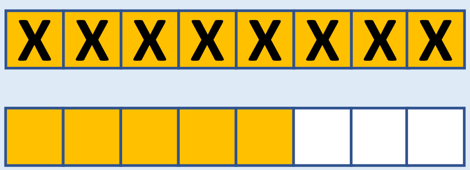
Subtract from Whole Amounts

Use cubes, strips of paper or a bar model to solve:

$$\frac{8}{8} - \frac{5}{8} = \frac{\boxed{3}}{8}$$

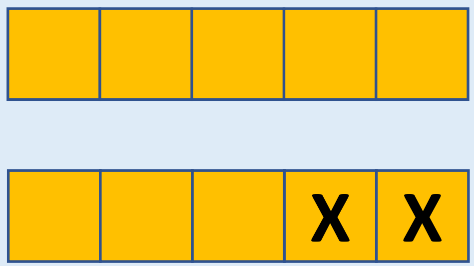
$$\frac{8}{8} - \frac{\boxed{2}}{8} = \frac{6}{8}$$

$$\frac{13}{8} - \frac{8}{8} = \frac{\boxed{5}}{8}$$



Subtract from Whole Amounts

Use bar models to subtract fractions.



$$2 - \frac{2}{5} = \frac{10}{5} - \frac{2}{5} = \frac{8}{5} = 1\frac{3}{5}$$

?

Use this model to calculate:

$3 - \frac{3}{4} = \boxed{}$

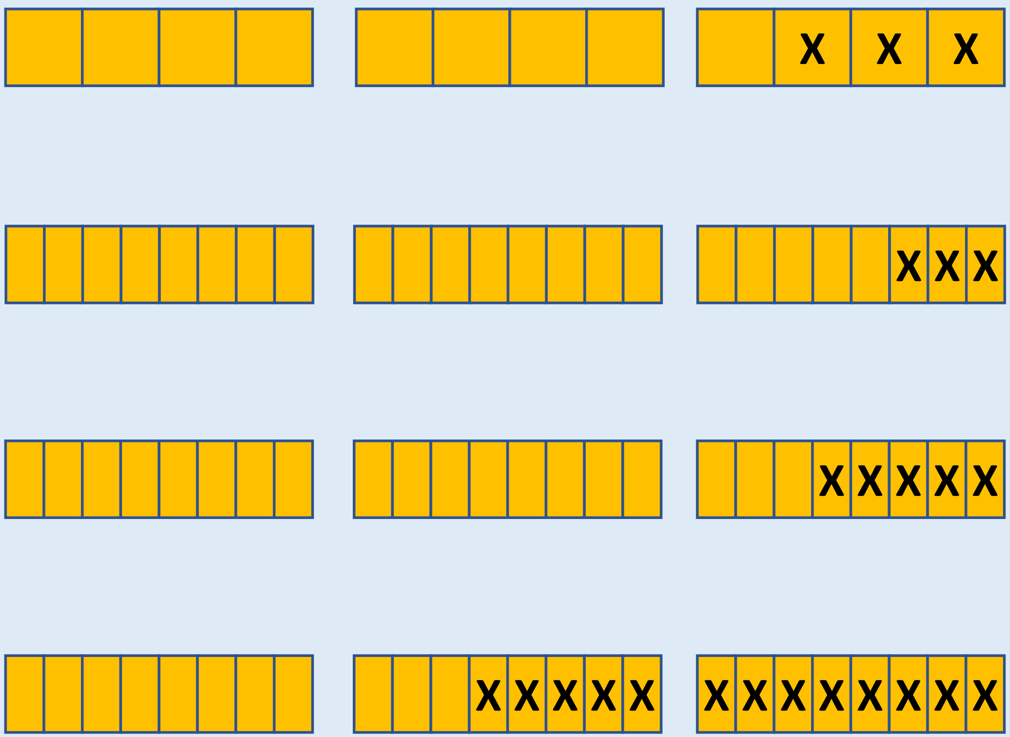
$3 - \frac{3}{8} = \boxed{}$

$3 - \frac{5}{8} = \boxed{}$

$3 - \frac{13}{8} = \boxed{}$

Subtract from Whole Amounts

Use bar models to subtract fractions.



$3 - \frac{3}{4} = \boxed{2\frac{1}{4}}$

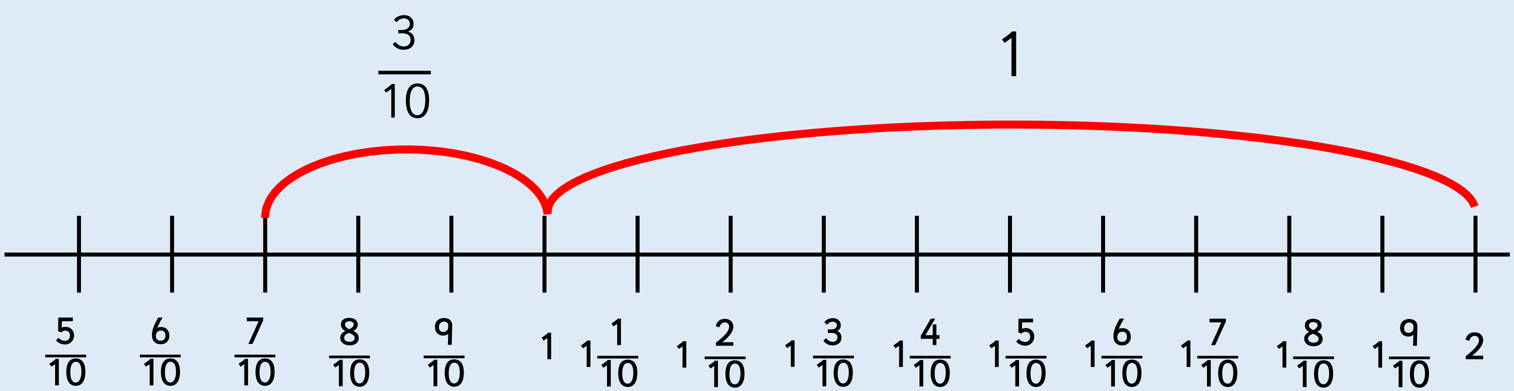
$3 - \frac{3}{8} = \boxed{2\frac{5}{8}}$

$3 - \frac{5}{8} = \boxed{2\frac{3}{8}}$

$3 - \frac{13}{8} = \boxed{1\frac{3}{8}}$

Activity 3 Subtract from Whole Amounts

Use a number line to find the difference.



$$2 - \frac{7}{10} = 1\frac{3}{10}$$

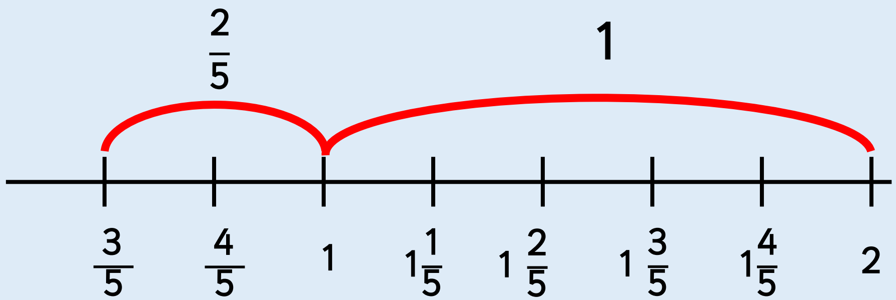
?

Use this model to calculate the difference between:

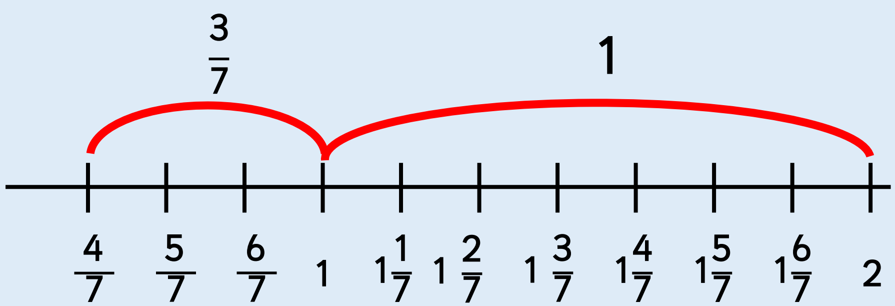
2 and $\frac{3}{5}$ $\qquad$ 2 and $\frac{4}{7}$ $\qquad$ $\frac{3}{8}$ and 3

Subtract from Whole Amounts

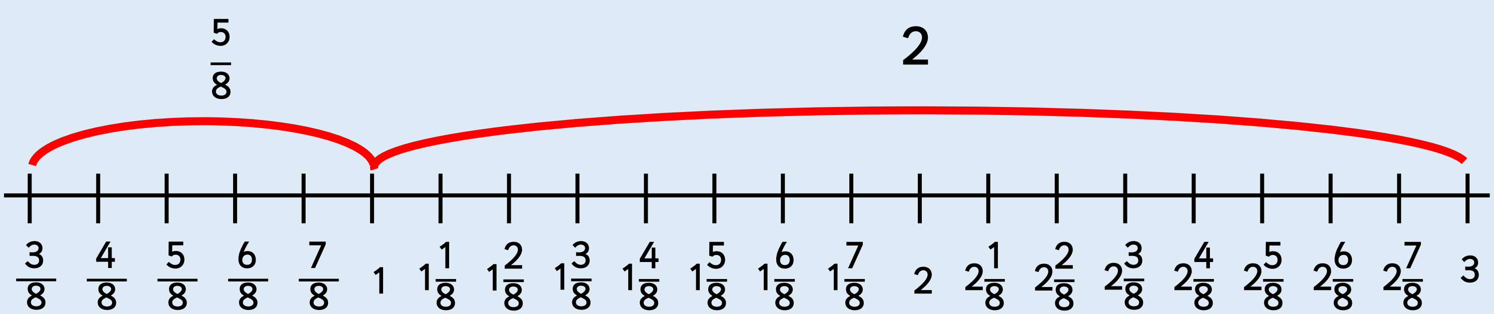
Use a number line to find the difference.



$$2 - \frac{3}{5} = 1\frac{2}{5}$$



$$2 - \frac{4}{7} = 1\frac{3}{7}$$



$$3 - \frac{3}{8} = 2\frac{5}{8}$$

Discuss

Subtract from Whole Amounts

What do you notice about the numerator and denominator when a fraction is equal to one whole?

What's the same about your bar models?
What's different?

How many more thirds/quarters/ninths do you need to make one whole?

Fractions of a Quantity

4

Fluency & Reasoning Teaching Slides

Activity 1

Fractions of a Quantity

Jeff has 18 oranges.
Use counters to represent his oranges and find:

$\frac{1}{6}$ of 18

$\frac{1}{3}$ of 18

$\frac{1}{2}$ of 18

Now find:

$\frac{4}{6}$ of 18

$\frac{2}{3}$ of 18

$\frac{2}{2}$ of 18

?

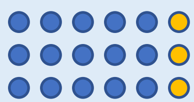
What's the same? What's different?

Activity 1

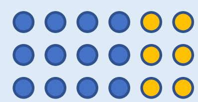
Fractions of a Quantity

Jeff has 18 oranges.
Use counters to represent his oranges and find:

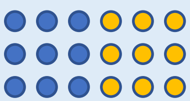
$\frac{1}{6}$ of 18 = 3



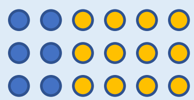
$\frac{1}{3}$ of 18 = 6



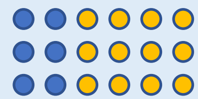
$\frac{1}{2}$ of 18 = 9



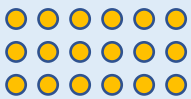
$\frac{4}{6}$ of 18 = 12



$\frac{2}{3}$ of 18 = 12



$\frac{2}{2}$ of 18 = 18

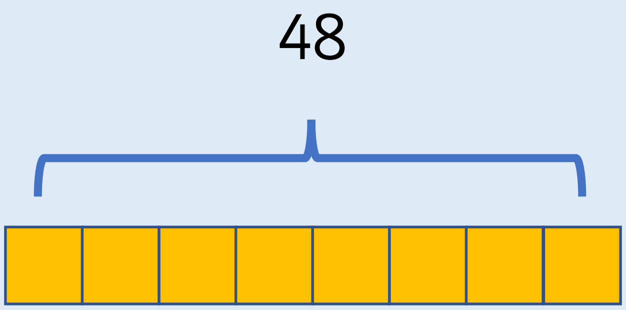


Activity 2

Fractions of a Quantity

Use the bar model to help you represent and find:

$\frac{1}{8}$ of 48 = 48 ÷ $\square$



$\frac{2}{8}$ of 48 = $\square$ $\frac{3}{8}$ of 48 = $\square$ $\frac{5}{8}$ of 48 = $\square$ $\frac{5}{8}$ of 24 = $\square$ $\frac{8}{8}$ of 24 = $\square$

Fractions of a Quantity

Use the bar model to help you represent and find:

$$\frac{1}{8} \text{ of } 48 = 48 \div \boxed{8}$$

48

$$\frac{2}{8} \text{ of } 48 = \boxed{12}$$

48

6	6	6	6	6	6	6	6

$$\frac{3}{8} \text{ of } 48 = \boxed{18}$$

48

6	6	6	6	6	6	6	6

$$\frac{5}{8} \text{ of } 48 = \boxed{30}$$

48

6	6	6	6	6	6	6	6

$$\frac{5}{8} \text{ of } 24 = \boxed{15}$$

24

3	3	3	3	3	3	3	3

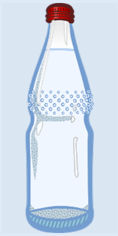
$$\frac{8}{8} \text{ of } 24 = \boxed{24}$$

24

3	3	3	3	3	3	3	3

Activity 3 Fractions of a Quantity

Calculate the following:



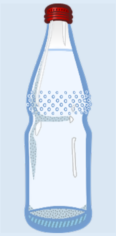
Hannah has 490 ml of water. She spills $\frac{2}{7}$ of it. How much water does she have left?

Ty eats $\frac{2}{3}$ of 180g of chocolate. How much does he have left?

Andreas eats $\frac{5}{8}$ of 320g of chocolate. How much has he eaten?

Fractions of a Quantity

Calculate the following:



Hannah has 490 ml of water. She spills $\frac{2}{7}$ of it. How much water does she have left?

$\frac{5}{7} \times 490 \text{ g} = 350 \text{ g}$

Ty eats $\frac{2}{3}$ of 180g of chocolate. How much does he have left?

$\frac{2}{3} \times 180 \text{ g} = 120 \text{ g}$

Andreas eats $\frac{5}{8}$ of 320g of chocolate. How much has he eaten?

$\frac{5}{8} \times 320 \text{ g} = 200 \text{ g}$

Fractions of a Quantity

What is the whole? What fraction of the whole are we finding? How many equal parts will I divide the whole into?

What's the same and what's different about the calculations? Can you notice a pattern?

What fraction of his chocolate bar does Andreas have left? How many grams does he have left? Can you represent this on a bar model?

Calculate Quantities

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Fluency & Reasoning Teaching Slides

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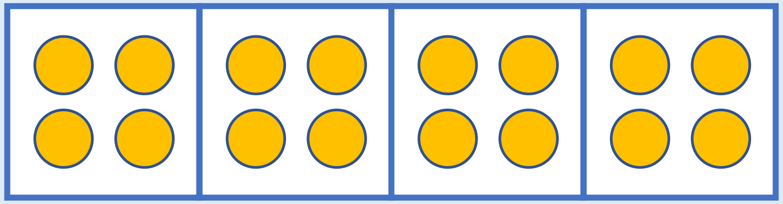
Activity 1

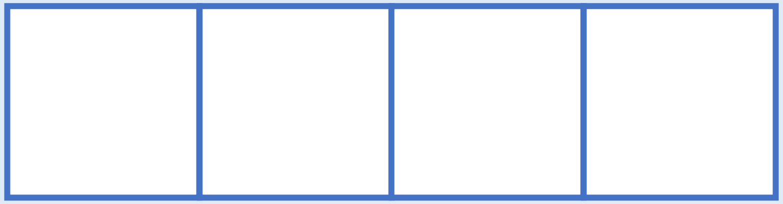
Calculate Quantities

Use the counters and bar models to calculate the whole:



There are $\square$ counters in one part.

$\frac{1}{4} = \square$ $\frac{2}{4} = \square$ $\frac{3}{4} = \square$ $\frac{4}{4}$ or 1 whole $= \square$

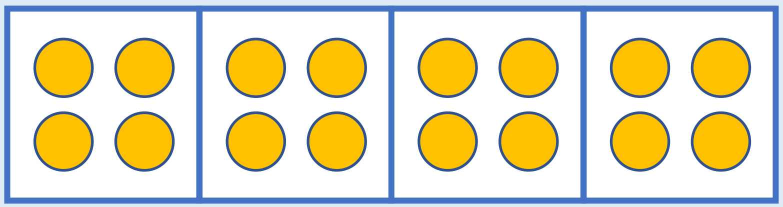


There are 8 counters in one part.

$\frac{1}{4} = \square$ $\frac{2}{4} = \square$ $\frac{3}{4} = \square$ $\frac{4}{4}$ or 1 whole $= \square$

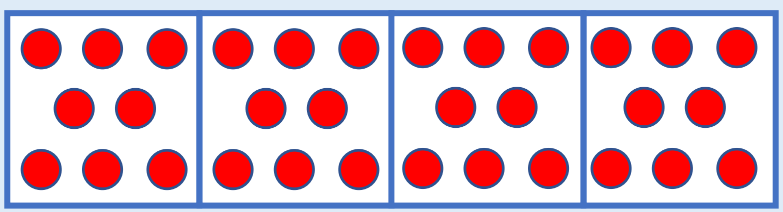
Activity 1 — Calculate Quantities

Use the counters and bar models to calculate the whole:



There are $\boxed{4}$ counters in one part.

$\frac{1}{4} = \boxed{4}$ $\frac{2}{4} = \boxed{8}$ $\frac{3}{4} = \boxed{12}$ $\frac{4}{4}$ or 1 whole $= \boxed{16}$



There are 8 counters in one part.

$\frac{1}{4} = \boxed{8}$ $\frac{2}{4} = \boxed{16}$ $\frac{3}{4} = \boxed{24}$ $\frac{4}{4}$ or 1 whole $= \boxed{32}$

Calculate Quantities

Complete.

Whole	Unit Fraction	Non-unit Fraction
The whole is 45	$\frac{1}{5}$ of 45 = __	$\frac{3}{5}$ of 45 = __
The whole is __	$\frac{1}{4}$ of __ = 6	$\frac{3}{4}$ of __ = __
The whole is __	$\frac{1}{3}$ of __ = 7	$\frac{2}{3}$ of __ = __
The whole is 3.5 l	$\frac{1}{10}$ of 3.5 l = __	$\frac{6}{10}$ of 3.5 l = __

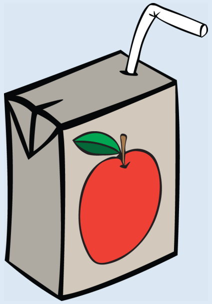
Calculate Quantities

Complete.

Whole	Unit Fraction	Non-unit Fraction
The whole is 45	$\frac{1}{5}$ of 45 = 9	$\frac{3}{5}$ of 45 = 27
The whole is 24	$\frac{1}{4}$ of 24 = 6	$\frac{3}{4}$ of 24 = 18
The whole is 21	$\frac{1}{3}$ of 21 = 7	$\frac{2}{3}$ of 21 = 14
The whole is 3.5 l	$\frac{1}{10}$ of 3.5 l = 0.35 l	$\frac{6}{10}$ of 3.5 l = 2.1 l

Activity 3 Calculate Quantities

Calculate.



Hannah has a small carton of apple juice which is 200ml.

Ty has a large carton of apple juice which is $\frac{2}{10}$ more than the small one.

How many ml is Ty's carton of apple juice?

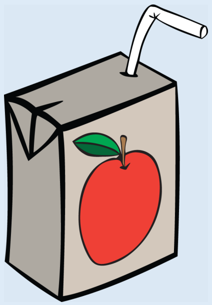
Josh has a small glass of orange juice which is 350ml.

Jane has a large glass of orange juice which is $\frac{4}{10}$ more than the small one.

How many ml is Jane's orange juice?

Calculate Quantities

Calculate.



Hannah has a small carton of apple juice which is 200ml.

Ty has a large carton of apple juice which is $\frac{2}{10}$ more than the small one.

How many ml is Ty's carton of apple juice? **240 ml**

Josh has a small glass of orange juice which is 350ml.

Jane has a large glass of orange juice which is $\frac{4}{10}$ more than the small one.

How many ml is Jane's orange juice? **490 ml**

Discuss

Calculate Quantities

If I know one quarter of a number, how can I find three quarters of a number?

If I know one of the equal parts, how can I find the whole?

How can a bar model support my working?