Number: Fractions

Master The Curriculum

3

Fluency & Reasoning Teaching Slides

Unit and Non-unit Fractions

3

Fluency & Reasoning Teaching Slides

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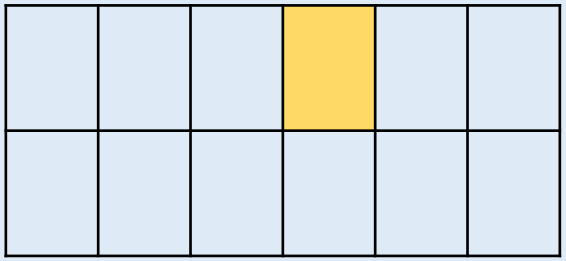
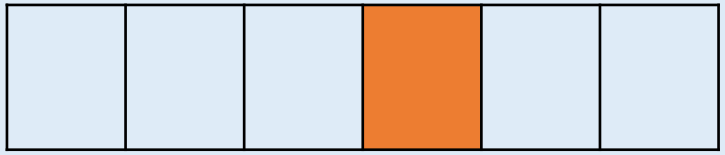
Activity 1 Unit and Non-unit Fractions

Complete the sentences to describe the images.



____ out of ____ equal parts are shaded.

$\frac{\square}{\square}$ of the shape is shaded.



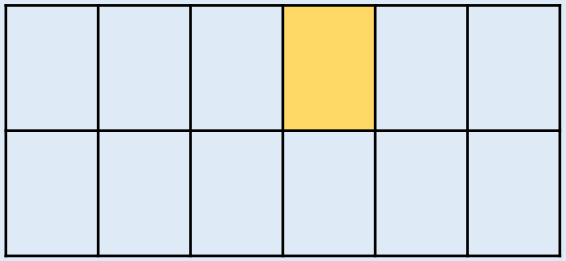
____ out of ____ equal parts are shaded.

$\frac{\square}{\square}$ of the shape is shaded.

Are these unit fractions or non-unit fractions?

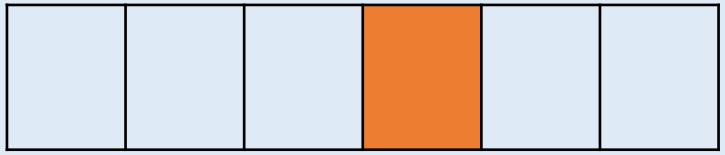
Activity 1 Unit and Non-unit Fractions

Complete the sentences to describe the images.



1 out of 12 equal parts are shaded.

$\frac{1}{12}$ of the shape is shaded.



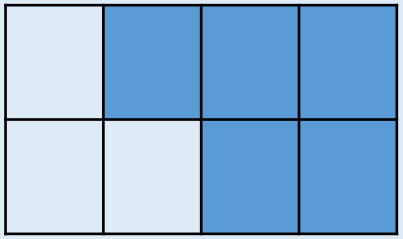
1 out of 6 equal parts are shaded.

$\frac{1}{6}$ of the shape is shaded.

These are unit fractions.

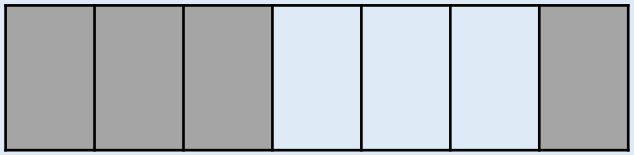
Activity 1 Unit and Non-unit Fractions

Complete the sentences to describe the images.



____ out of ____ equal parts are shaded.

$\frac{\square}{\square}$ of the shape is shaded.



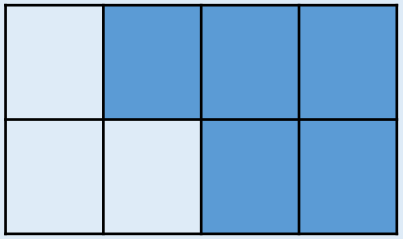
____ out of ____ equal parts are shaded.

$\frac{\square}{\square}$ of the shape is shaded.

Are these unit fractions or non-unit fractions?

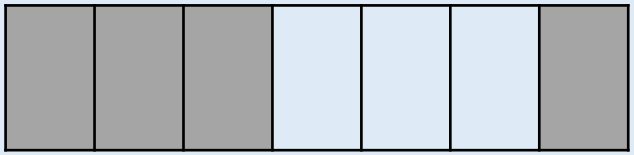
Activity 1 Unit and Non-unit Fractions

Complete the sentences to describe the images.



5 out of 8 equal parts are shaded.

$\frac{5}{8}$ of the shape is shaded.



4 out of 7 equal parts are shaded.

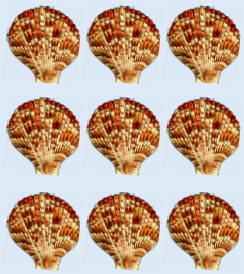
$\frac{4}{7}$ of the shape is shaded.

These are non-unit fractions.

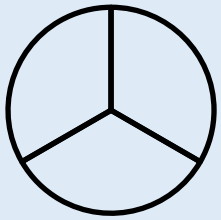
Activity 2 Unit and Non-unit Fractions

Shade the shapes according to the given fraction.
Represent the given fraction by circling the seashells.

$\frac{1}{3}$



$\frac{2}{3}$

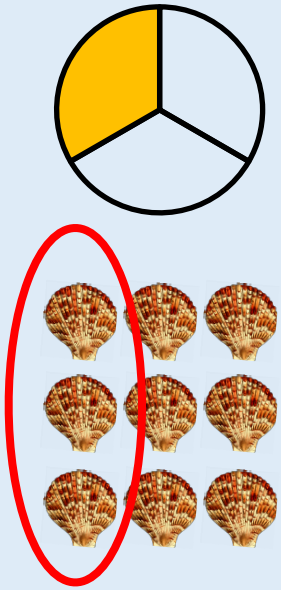


What's the same and what's different about $\frac{1}{3}$ and $\frac{2}{3}$?

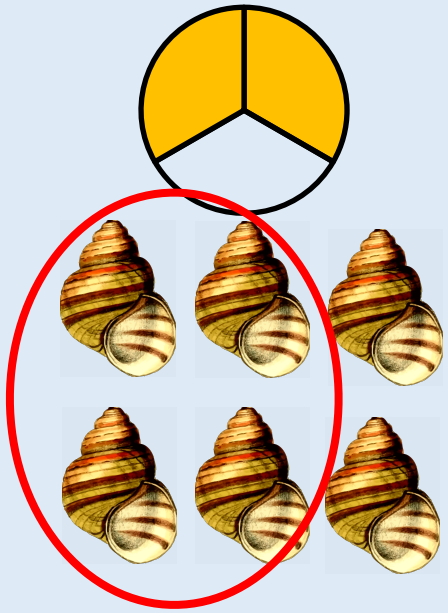
Activity 2 Unit and Non-unit Fractions

Shade the shapes according to the given fraction.
Represent the given fraction by circling the seashells.

$\frac{1}{3}$



$\frac{2}{3}$



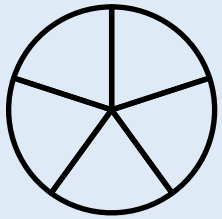
They have the same denominator but different numerator.

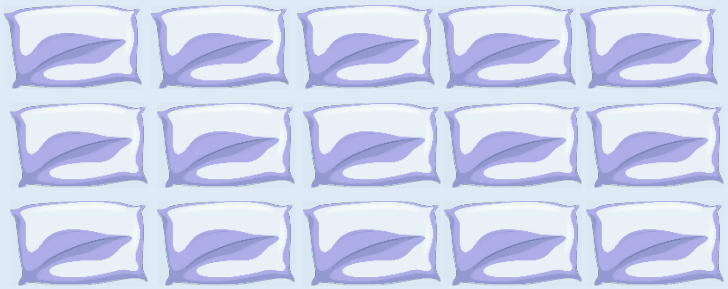
Activity 2

Unit and Non-unit Fractions

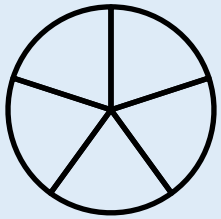
Shade the shapes according to the given fraction.
Represent the given fraction by circling the pillows.

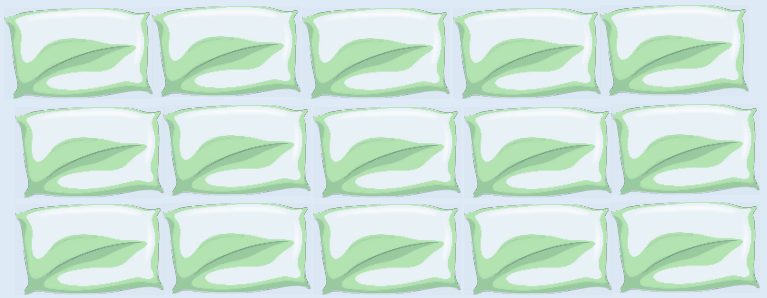
$\frac{1}{5}$





$\frac{3}{5}$



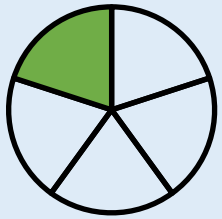


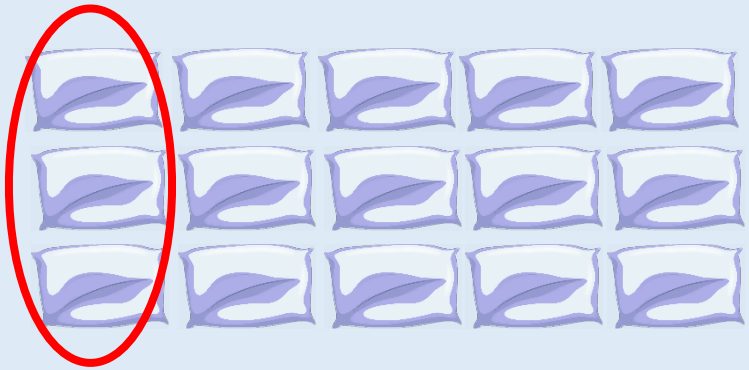
Activity 2

Unit and Non-unit Fractions

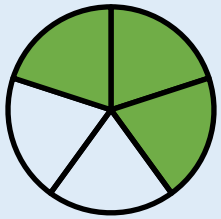
Shade the shapes according to the given fraction.
Represent the given fraction by circling the pillows.

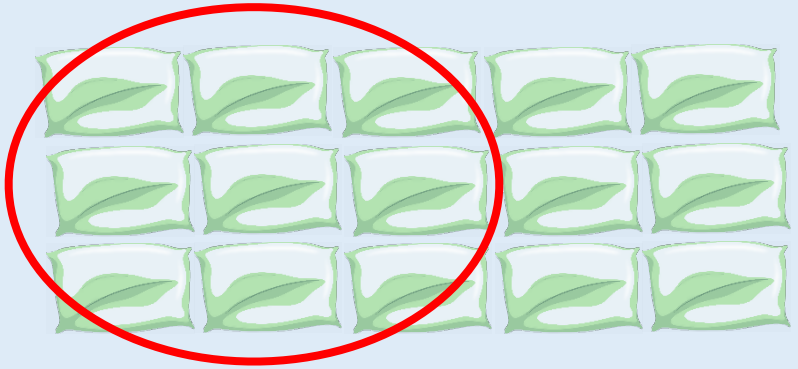
$\frac{1}{5}$





$\frac{3}{5}$





Activity 3 Unit and Non-unit Fractions

Complete the sentences.

A unit fraction always has a numerator of ___.

A non-unit fraction has a numerator that is ____ than ___.

An example of a unit fraction is ____.

An example of a non-unit fraction is ____.

Can you draw a unit fraction and a non-unit fraction with the same denominator?

Activity 3 Unit and Non-unit Fractions

Complete the sentences.

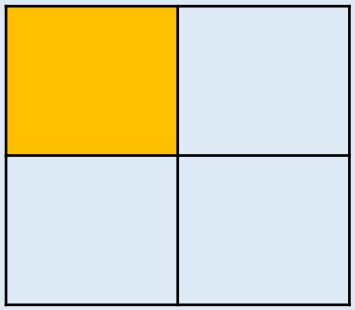
A unit fraction always has a numerator of 1.

A non-unit fraction has a numerator that is more than 1.

An example of a unit fraction is $\frac{1}{4}$.

An example of a non-unit fraction is $\frac{3}{4}$.

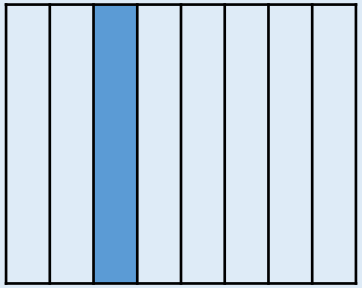
Unit fraction and non-unit fraction with the same denominator.

$\frac{1}{4}$ 

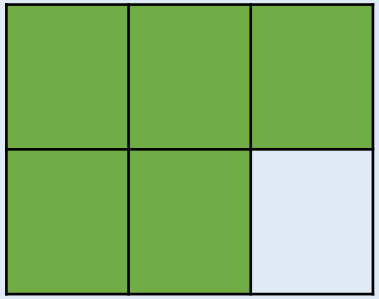
$\frac{3}{4}$

Activity 4 Unit and Non-unit Fractions

Complete the sentences to describe how these shapes have been shaded. Write it as a fraction below the sentence.



$\frac{\square}{\square}$ of the shape is shaded.

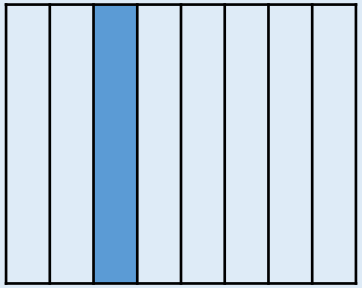


$\frac{\square}{\square}$ of the shape is shaded.

Which is the non-unit fraction? How do you know?

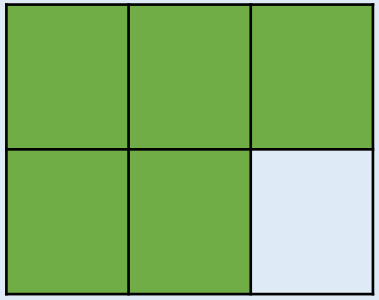
Activity 4 Unit and Non-unit Fractions

Complete the sentences to describe how these shapes have been shaded. Write it as a fraction below the sentence.



1 out of 8 equal parts are shaded.

$\frac{1}{8}$ of the shape is shaded.



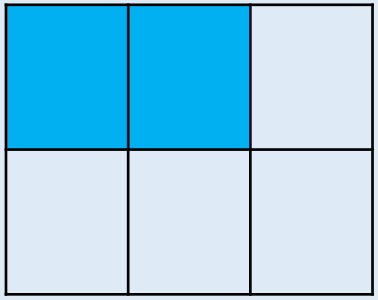
5 out of 6 equal parts are shaded.

$\frac{5}{6}$ of the shape is shaded.

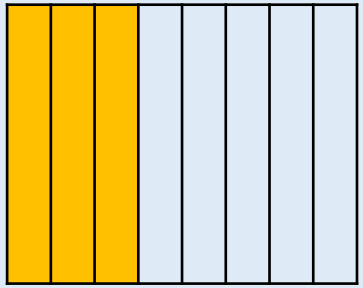
The one on the left is a unit fraction because it has only one shaded equal part. The one on the right is a non-unit fraction because it has more than one shaded equal part.

Activity 4 Unit and Non-unit Fractions

Complete the sentences to describe how these shapes have been shaded. Write it as a fraction below the sentence.



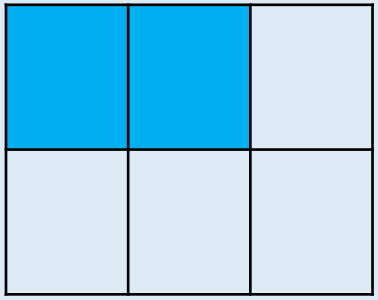
$\frac{\square}{\square}$ of the shape is shaded.



$\frac{\square}{\square}$ of the shape is shaded.

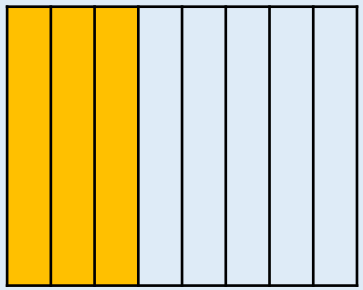
Activity 4 Unit and Non-unit Fractions

Complete the sentences to describe how these shapes have been shaded. Write it as a fraction below the sentence.



2 out of 6 equal parts are shaded.

$\frac{2}{6}$ of the shape is shaded.



3 out of 8 equal parts are shaded.

$\frac{3}{8}$ of the shape is shaded.

Both fractions are non-unit fractions because they have more than one shaded equal part.

Reasoning 1 Unit and Non-unit Fractions

True or False?

$\frac{2}{3}$ of the shape is shaded.

Unit and Non-unit Fractions

True or False?

False, $\frac{3}{4}$ is shaded. Ensure when counting the parts of the whole that children also count the shaded part.

Reasoning 2 Unit and Non-unit Fractions

Sort the fractions into the table.

	Fractions equal to one whole	Fractions less than one whole
Unit fractions		
Non-unit fractions		

Are there any empty boxes in the table? Why?

$\frac{2}{5}$	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{3}{3}$	$\frac{3}{5}$	$\frac{2}{2}$	$\frac{1}{3}$	$\frac{3}{4}$

Reasoning 2 Unit and Non-unit Fractions

Sort the fractions into the table.

	Fractions equal to one whole	Fractions less than one whole
Unit fractions		$\frac{1}{4}$ $\frac{1}{3}$ $\frac{1}{2}$
Non-unit fractions	$\frac{3}{3}$ $\frac{2}{2}$	$\frac{2}{5}$ $\frac{3}{5}$ $\frac{3}{4}$

Discussion

Unit and Non-unit Fractions

What is a unit fraction?

What is a non-unit fraction?

Show me $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}$. What's the same? What's different?

What fraction is shaded? What fraction is not shaded?

What is the same about the fractions? What is different?

Making the Whole

3

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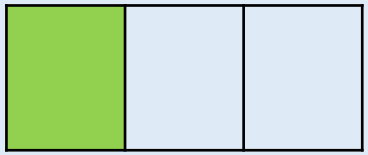
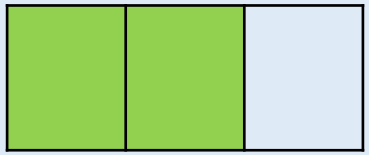
Activity 1 Making the Whole

Complete the missing information.



$\frac{\square}{\square}$



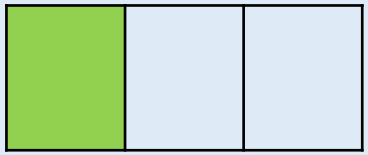
$\frac{\square}{\square}$

$\frac{\square}{\square}$

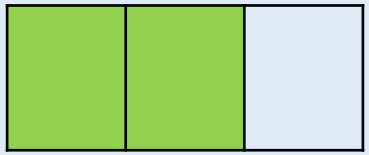
1 whole = $\frac{\square}{\square}$

Activity 1 Making the Whole

Complete the missing information.



$\frac{1}{3}$



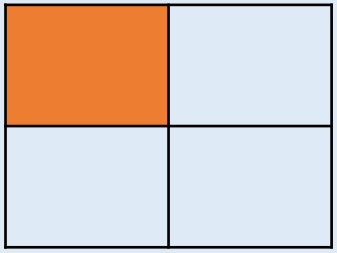
$\frac{2}{3}$

$\frac{3}{3}$

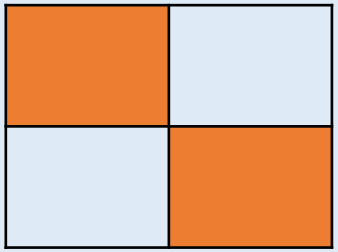
1 whole = $\frac{3}{3}$

Activity 1 Making the Whole

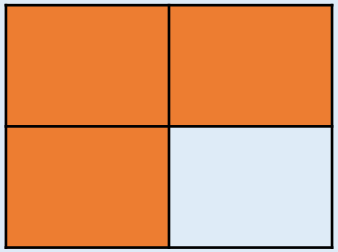
Complete the missing information.



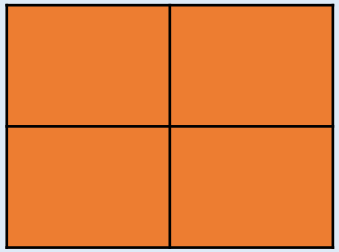
$\frac{\square}{\square}$



$\frac{\square}{\square}$



$\frac{\square}{\square}$

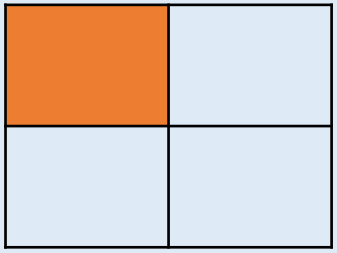


$\frac{\square}{\square}$

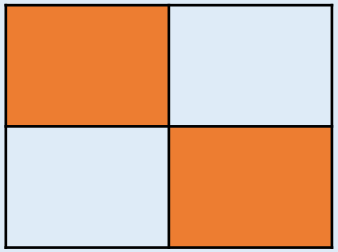
1 whole = $\frac{\square}{\square}$

Activity 1 Making the Whole

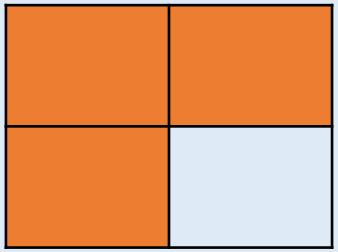
Complete the missing information.



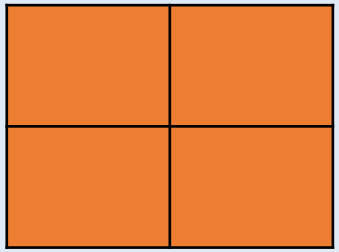
$\frac{1}{4}$



$\frac{2}{4}$



$\frac{3}{4}$

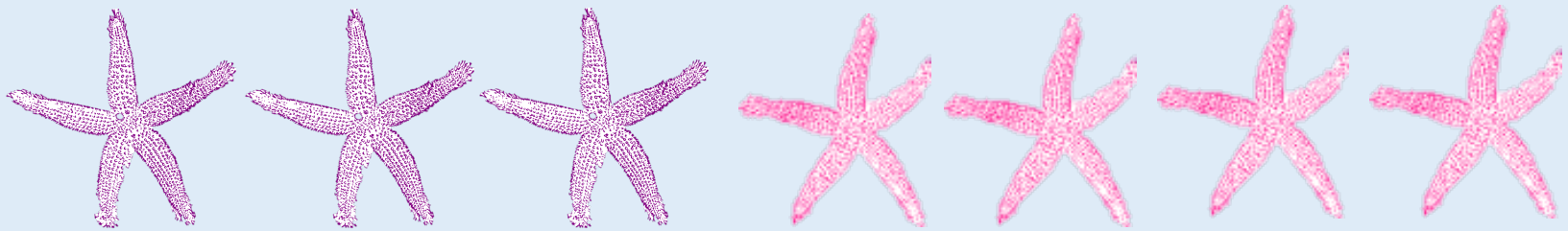


$\frac{4}{4}$

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

Activity 2 Making the Whole

Complete the sentences to describe the starfish.



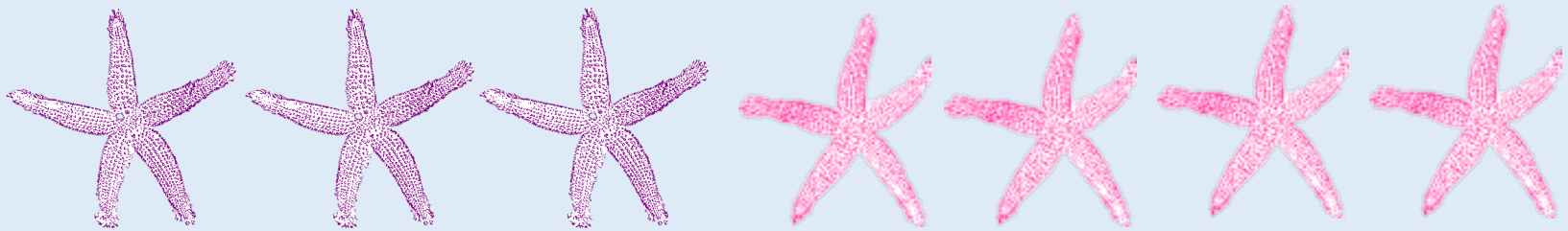
$\frac{\square}{\square}$ of the starfish are purple.

$\frac{\square}{\square}$ of the starfish are pink.

$\frac{\square}{\square}$ and $\frac{\square}{\square}$ make one whole.

Activity 2 Making the Whole

Complete the sentences to describe the starfish.

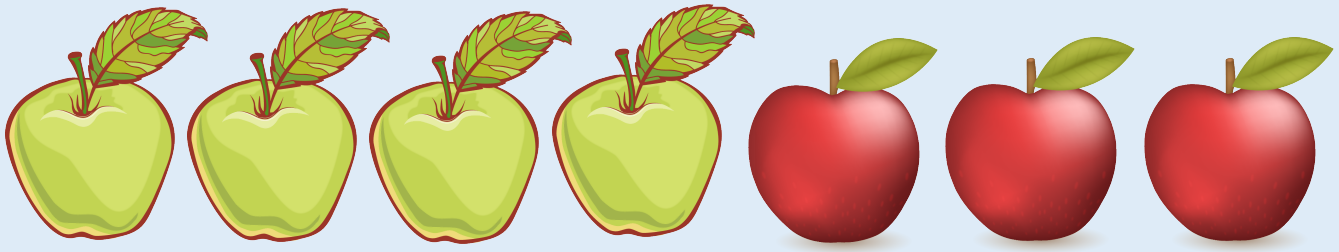


$\frac{3}{7}$ of the starfish are purple. $\frac{4}{7}$ of the starfish are pink.

$\frac{3}{7}$ and $\frac{4}{7}$ make one whole.

Activity 2 Making the Whole

Complete the sentences to describe the apples.



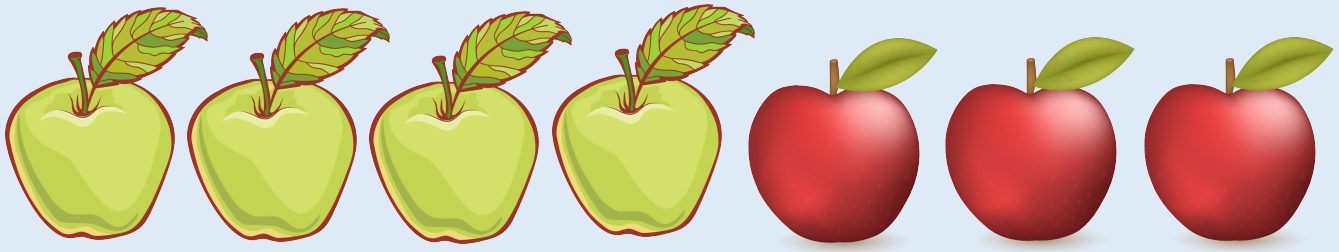
$\frac{\square}{\square}$ of the apples are red.

$\frac{\square}{\square}$ of the apples are green.

$\frac{\square}{\square}$ and $\frac{\square}{\square}$ make one whole.

Activity 2 Making the Whole

Complete the sentences to describe the apples.



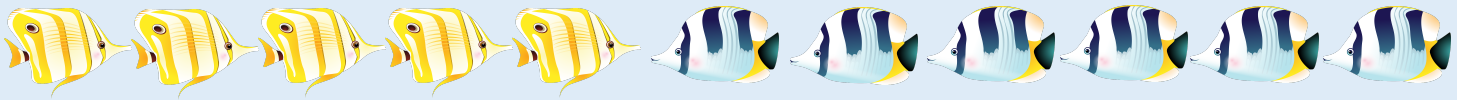
$\frac{3}{7}$ of the apples are red.

$\frac{4}{7}$ of the apples are green.

$\frac{3}{7}$ and $\frac{4}{7}$ make one whole.

Activity 3 Making the Whole

Zach went fishing.
He caught five yellow fish and six blue fish.



What fraction of the fish are yellow?

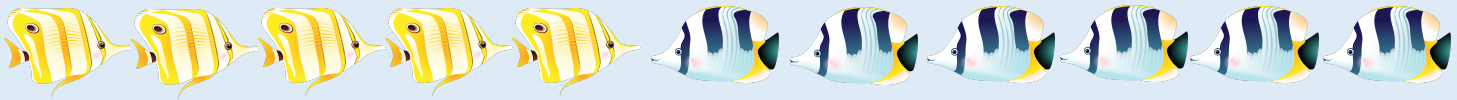
What fraction of the fish are blue?

What fraction represents all the fish he caught?

Complete a part-whole model to show your findings.

Activity 3 Making the Whole

Zach went fishing.
He caught five yellow fish and six blue fish.

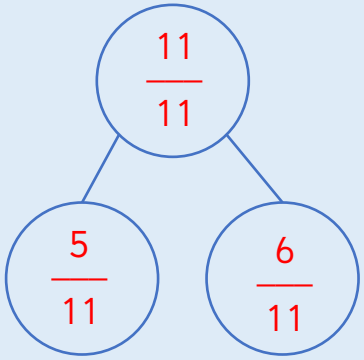


What fraction of the fish are yellow? $\frac{5}{11}$

What fraction of the fish are blue? $\frac{6}{11}$

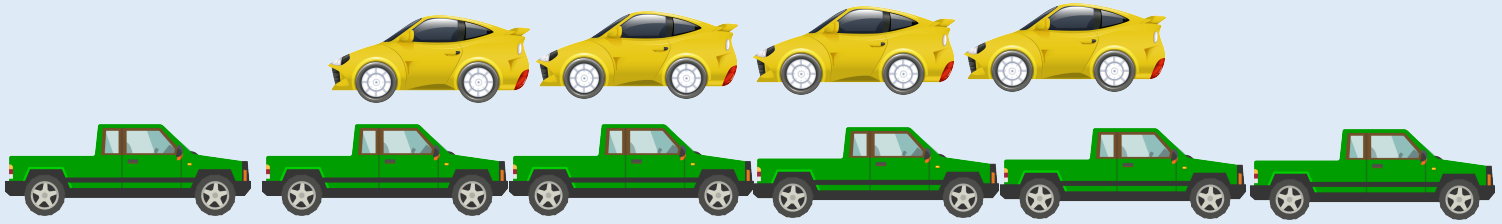
What fraction represents all the fish he caught? $\frac{11}{11}$

Complete a part-whole model to show your findings.



Activity 3 Making the Whole

Malachi is playing.
He has six green cars and four yellow cars.



What fraction of the cars are green?

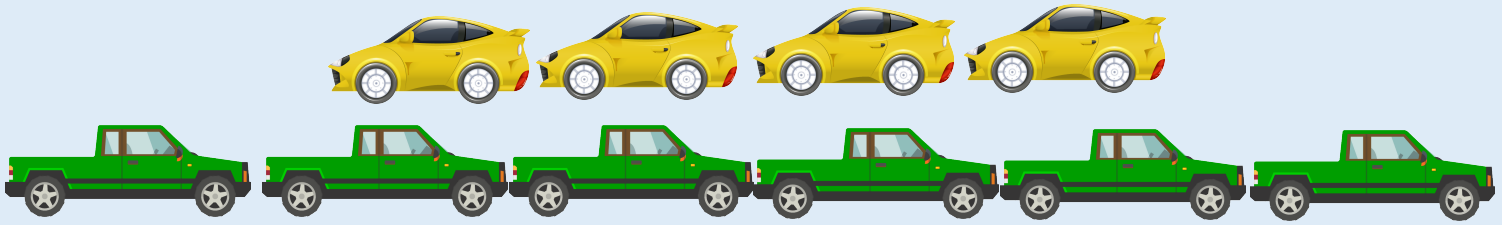
What fraction of the cars are yellow?

What fraction represents all the cars he has?

Complete a part-whole model to show your findings.

Activity 3 Making the Whole

Malachi is playing.
He has six green cars and four yellow cars.

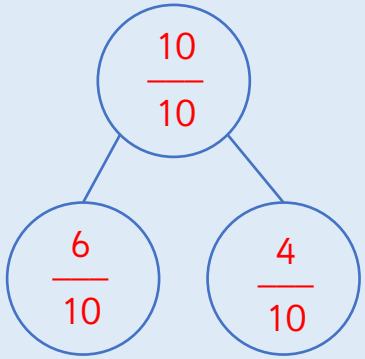


What fraction of the cars are green? $\frac{6}{10}$

What fraction of the cars are yellow? $\frac{4}{10}$

What fraction represents all the cars he has? $\frac{10}{10}$

Complete a part-whole model to show your findings.



Reasoning 1 Making the Whole

Malachi

I have one pizza cut into eight equal pieces. I have eaten $\frac{8}{8}$ of the pizza.

Does Malachi have any pizza left?
Explain your answer.

Reasoning 1 Making the Whole

Malachi

I have one pizza cut into eight equal pieces. I have eaten $\frac{8}{8}$ of the pizza.

No because $\frac{8}{8}$ is equal to one whole, so Malachi has eaten all of his pizza.

Reasoning 2 Making the Whole

Complete the sentence.

When a fraction is equal to a whole, the numerator and the denominator are _____.

Use pictures to prove your answer.

Making the Whole

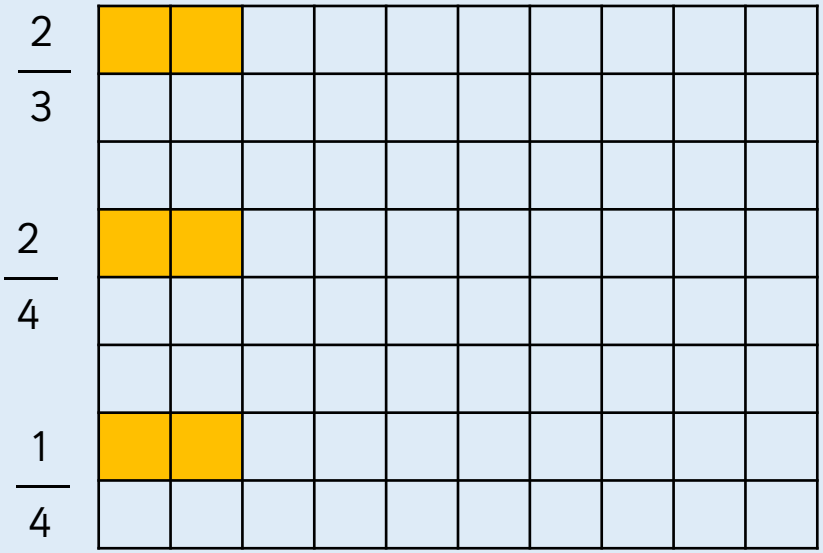
Complete the sentence.

When a fraction is equal to a whole,
the numerator and the denominator are
the same/equal.

Children may draw a range of pictures to prove this statement.

Reasoning 3 Making the Whole

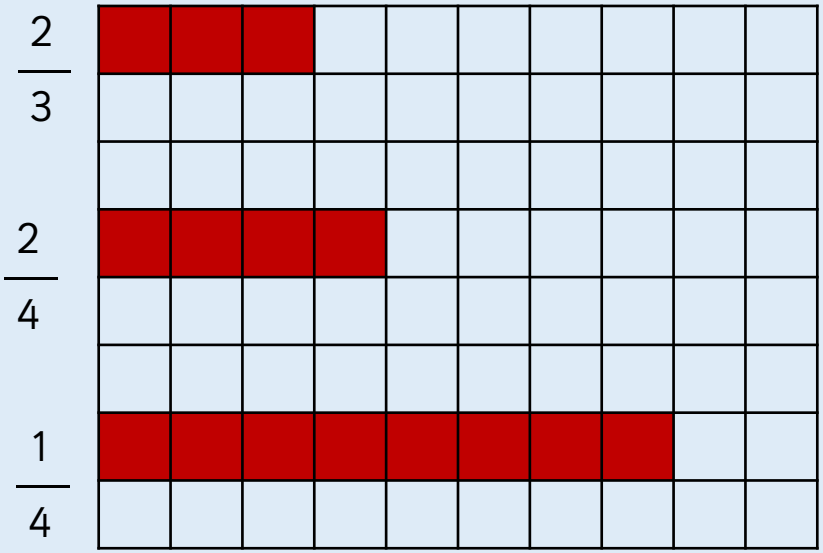
Esin is drawing bar models to represent a whole.
She has drawn a fraction of each of her bars.



Can you complete Esin's bar models?

Reasoning 3 Making the Whole

Esin is drawing bar models to represent a whole.
She has drawn a fraction of each of her bars.



Discussion

Making the Whole

Is a fraction always less than one?

When the fraction is equivalent to one, what do you notice about the numerator and denominator?

In the counter activity, what's the same about the part-whole models? What's different?

Tenths

3

Fluency & Reasoning Teaching Slides

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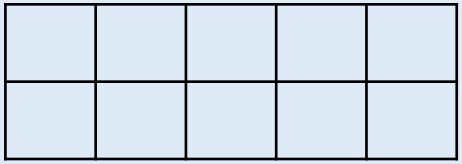
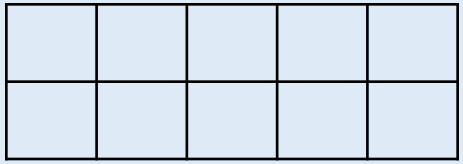
Activity 1 Tenths

Each frame is one whole.
Shade the correct number of boxes for the fraction shown.

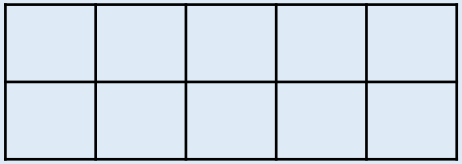
one tenth



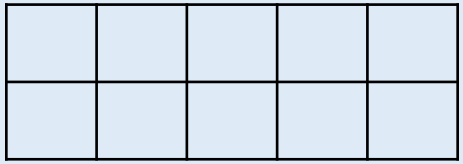
two tenths



three tenths



one tenth less than eight tenths

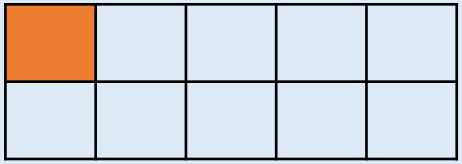


If the frame represents one whole, what does each box represent?

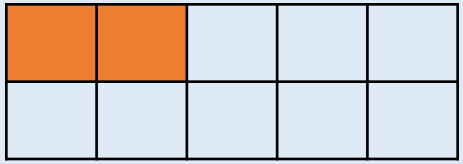
Activity 1 Tenths

Each frame is one whole.
Shade the correct number of boxes for the fraction shown.

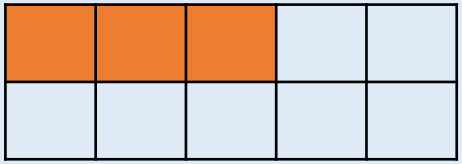
one tenth



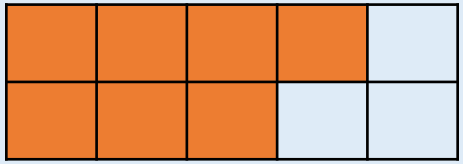
two tenths



three tenths



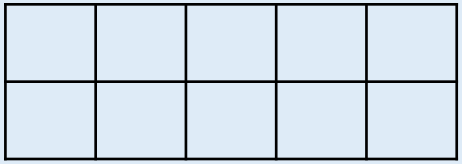
one tenth less than eight tenths



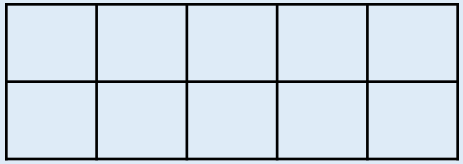
Activity 1 Tenths

Each frame is one whole. Shade the correct number of boxes for the fraction shown.

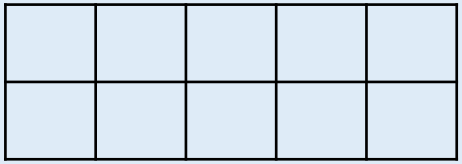
three tenths



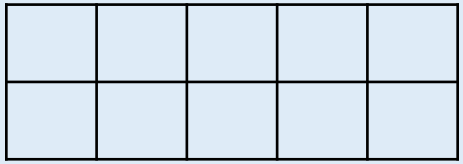
four tenths



two tenths



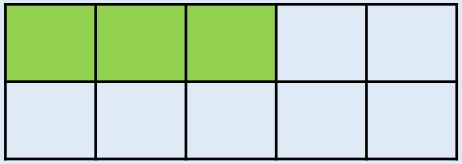
one tenth



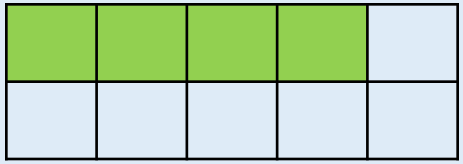
Activity 1 Tenths

Each frame is one whole. Shade the correct number of boxes for the fraction shown.

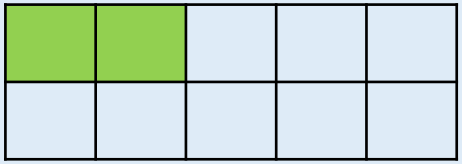
three tenths



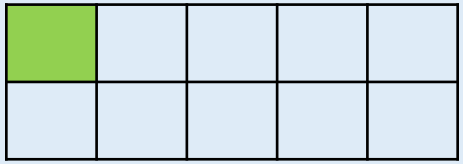
four tenths



two tenths



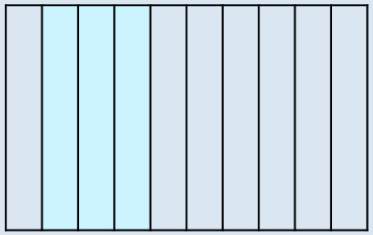
one tenth



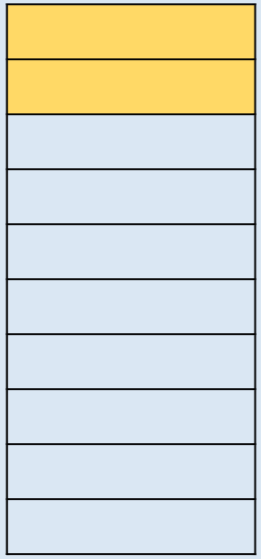
Activity 2 Tenths

Identify what fraction of each shape is shaded.
Give your answer in words and as a fraction.

1.

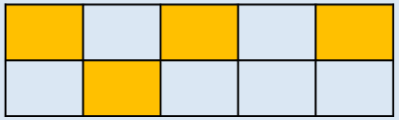


2.

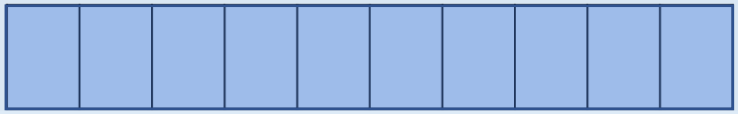


3.

4.

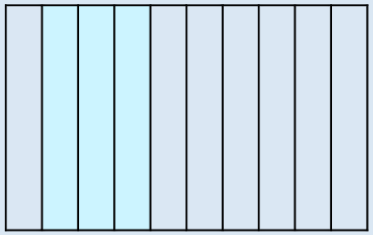


5.



Activity 2 Tenths

Identify what fraction of each shape is shaded.
Give your answer in words and as a fraction.

1. 

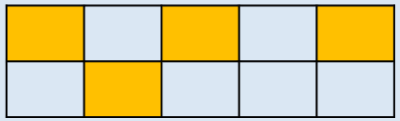
$\frac{3}{10}$ Three tenths

2.

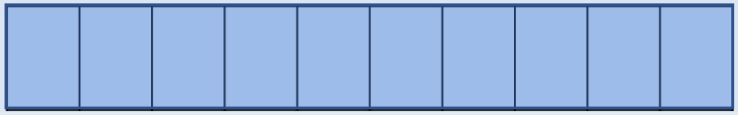
$\frac{2}{10}$ Two tenths

3.

$\frac{3}{10}$ Three tenths

4. 

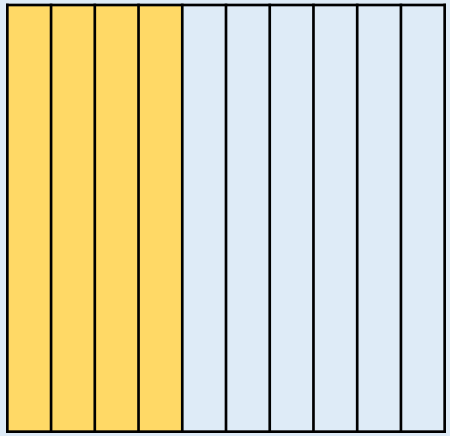
$\frac{4}{10}$ Four tenths

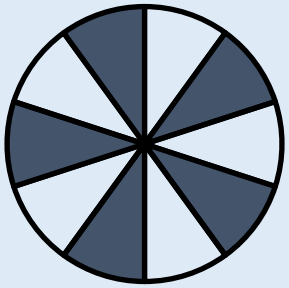
5. 

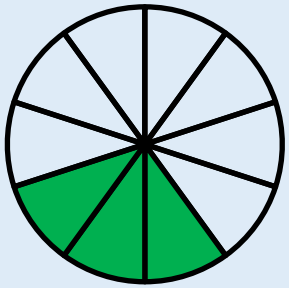
$\frac{10}{10}$ One whole

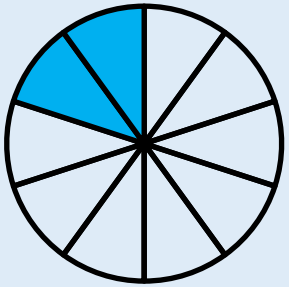
Activity 2 Tenths

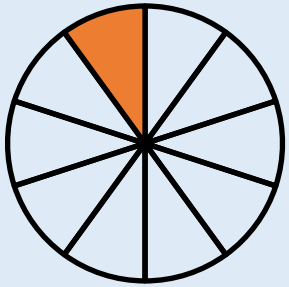
Identify what fraction of each shape is shaded.
Give your answer in words and as a fraction.







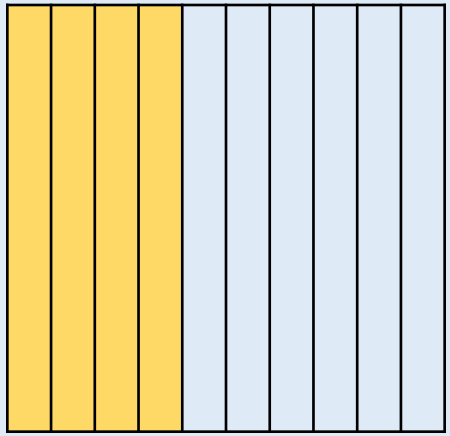




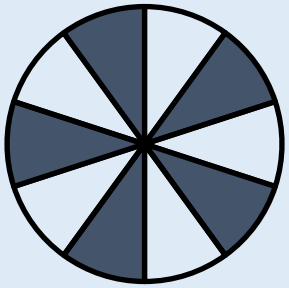
Activity 2 Tenths

Identify what fraction of each shape is shaded.
Give your answer in words and as a fraction.

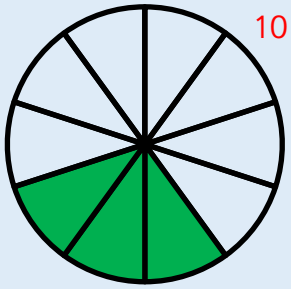
$\frac{4}{10}$ Four tenths



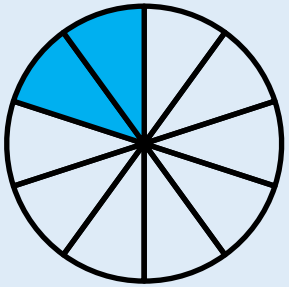
$\frac{5}{10}$ Five tenths



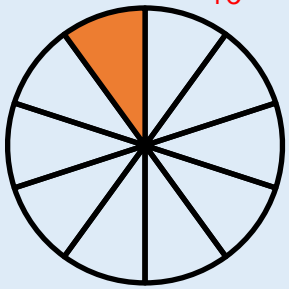
$\frac{3}{10}$ Three tenths



$\frac{2}{10}$ Two tenths



$\frac{1}{10}$ One tenth



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Activity 3 Tenths

Tia has one cookie.
She wants to share it equally between 10 people.

What fraction of the cookie will each person get?

There is _____ cookie.

It is shared equally between _____ people.

Each person has $\frac{\square}{\square}$ of the cookie.

_____ ÷ _____ = _____

What fraction would they get if Tia had two cookies? four cookies? eight cookies?

Activity 3 Tenths

Tia has one cookie.
She wants to share it equally between 10 people.

What fraction of the cookie will each person get?

There is 1 cookie.

It is shared equally between 10 people.

Each person has $\frac{1}{10}$ of the cookie.

1 ÷ 10 = $\frac{1}{10}$

What fraction would they get if Tia had two cookies? four cookies? eight cookies?

Activity 3 Tenths

Leanna has two cakes.
She wants to share them equally between 10 people.

What fraction of the cakes will each person get?

There are ____ cakes.

They are shared equally between ____ people.

Each person has $\frac{\square}{\square}$ of the cake.

_____ ÷ _____ = _____

What fraction would they get if Leanna had one cake? four cakes? eight cakes?

Activity 3 Tenths

Leanna has two cakes.
She wants to share them equally between 10 people.

What fraction of the cakes will each person get?

There are 2 cakes.

They are shared equally between 10 people.

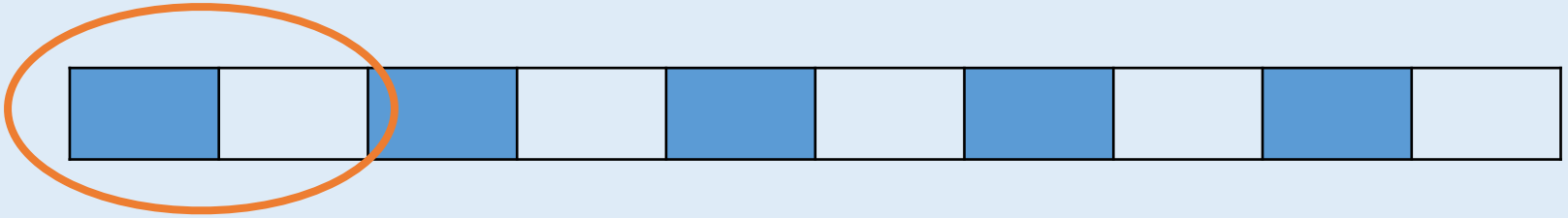
Each person has $\frac{2}{10}$ of the cake.

2 ÷ 10 = $\frac{2}{10}$

What fraction would they get if Leanna had one cake? four cakes? eight cakes?

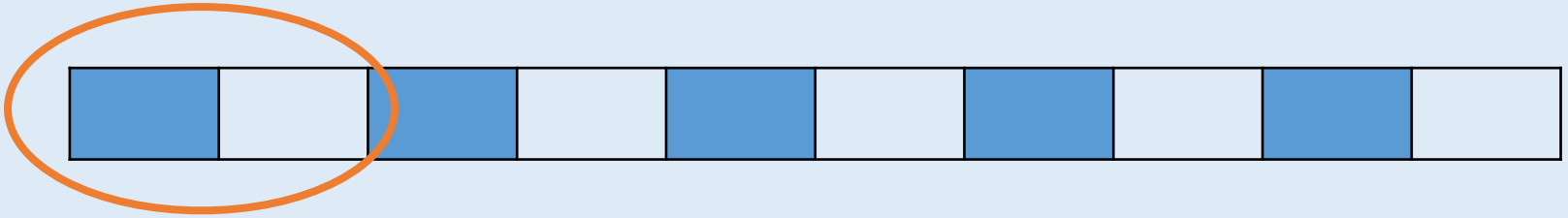
Activity 4 Tenths

How many pieces have been circled?
Say your answer in different ways.



Activity 4 Tenths

How many pieces have been circled?
Say your answer in different ways.



Example:

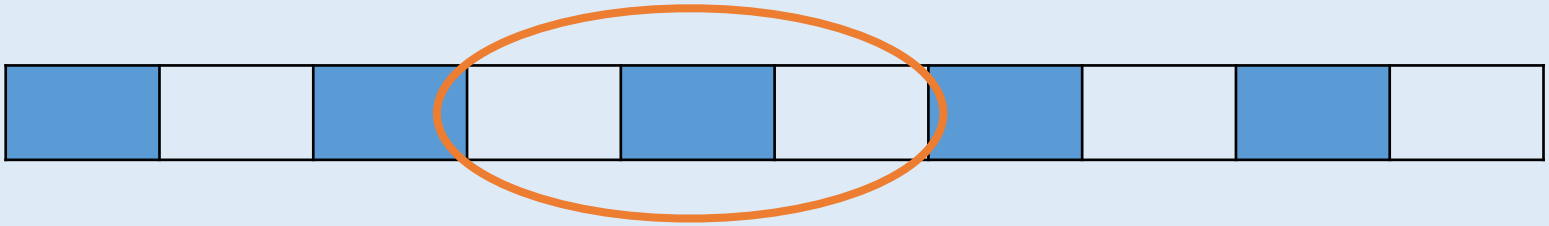
Two out of ten equal pieces have been circled.
(in a sentence)

$\frac{2}{10}$
(in numbers)

Two tenths
(in words)

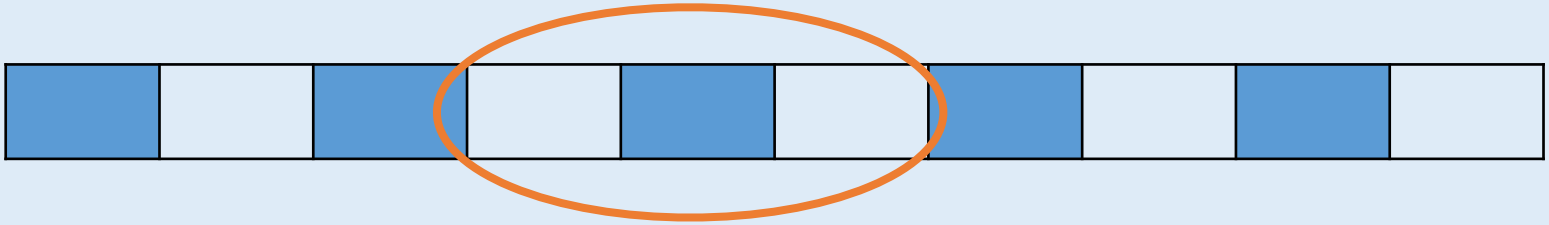
Activity 4 Tenths

How many pieces have been circled?
Say your answer in different ways.



Activity 4 Tenths

How many pieces have been circled?
Say your answer in different ways.



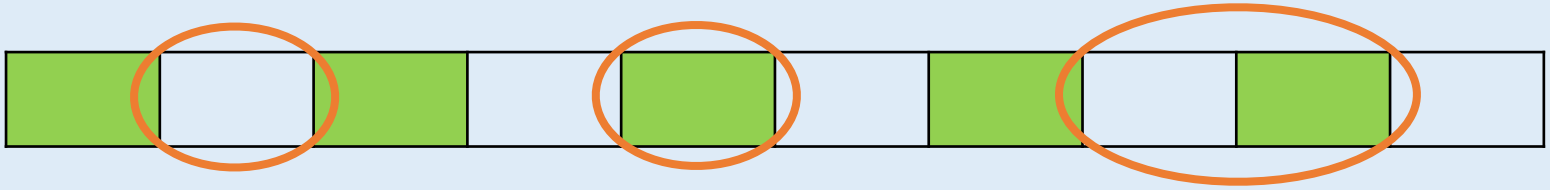
Three out of ten equal pieces have been circled.

$\frac{3}{10}$

Three tenths

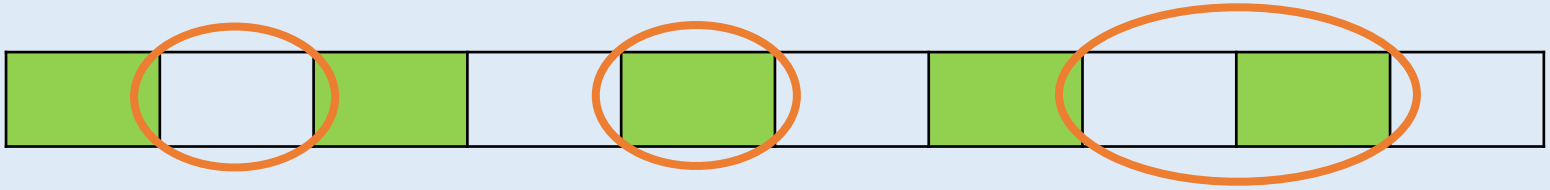
Activity 4 Tenths

How many pieces have been circled?
Say your answer in different ways.



Activity 4 Tenths

How many pieces have been circled?
Say your answer in different ways.



Four out of ten equal pieces have been circled.

$\frac{4}{10}$

Four tenths

Activity 5 Tenths

Use counters/images to represent:

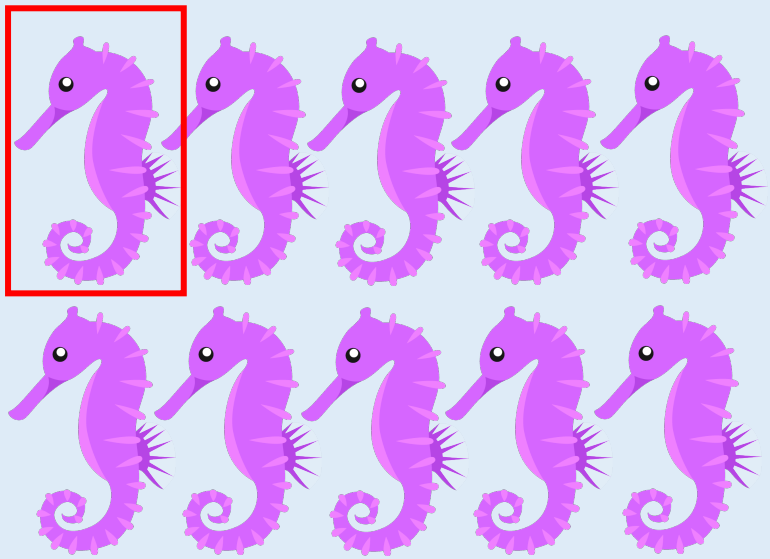
$\frac{1}{10}$

One tenth less than seven tenths

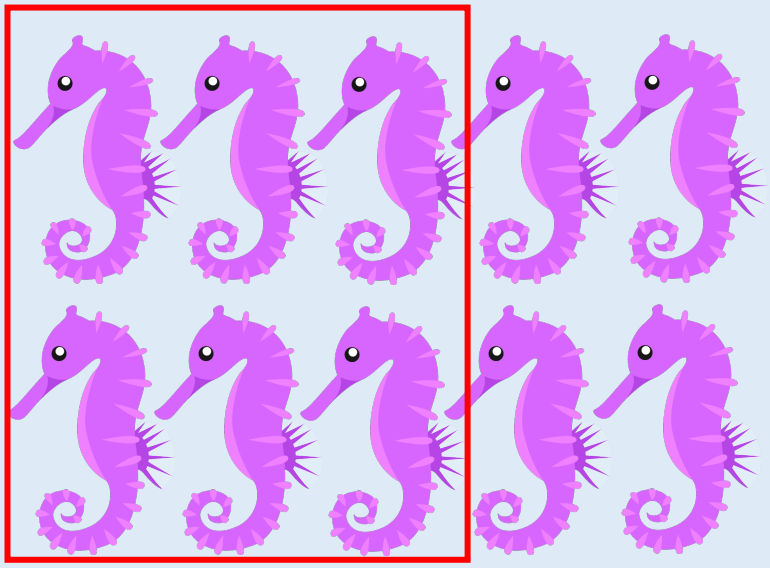
Activity 5 Tenths

Use counters/images to represent:

$\frac{1}{10}$



One tenth less than seven tenths



Activity 5 Tenths

Use counters/images to represent:

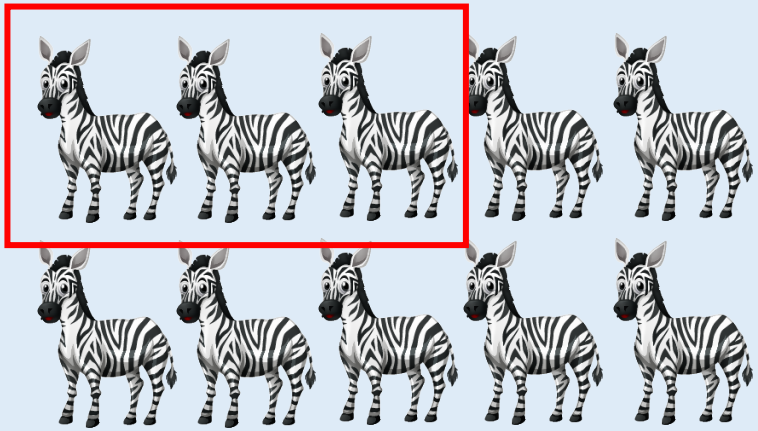
$\frac{3}{10}$

One tenth less than six tenths

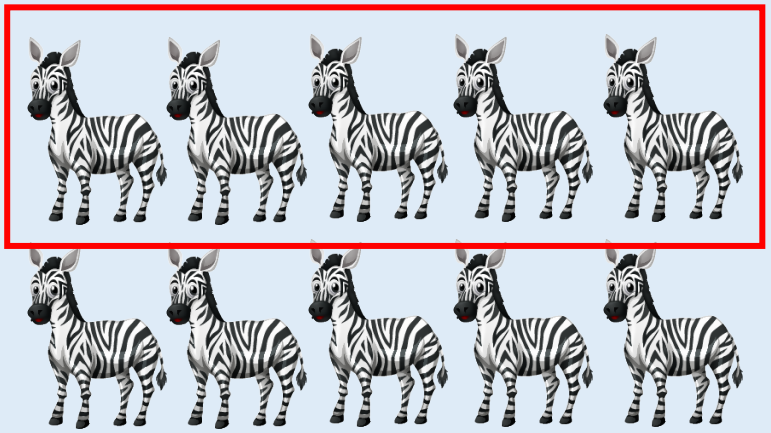
Activity 5 Tenths

Use counters/images to represent:

$\frac{3}{10}$

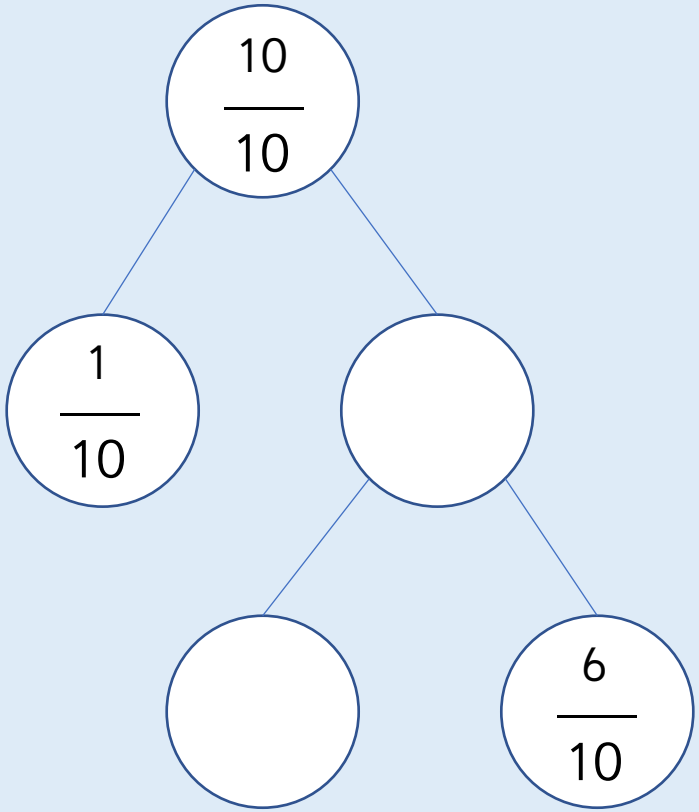


One tenth less than six tenths



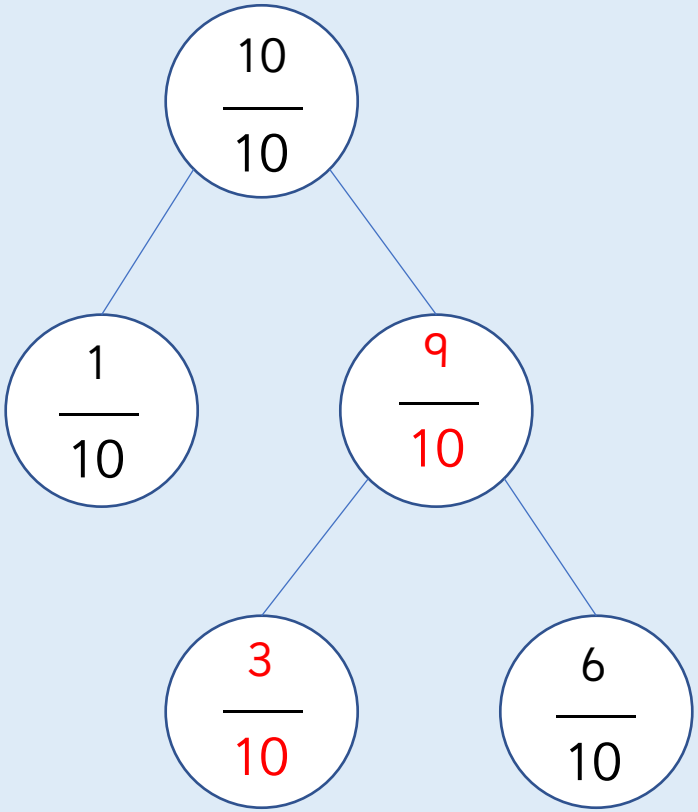
Reasoning 1 Tenths

Fill in the missing values.
Explain how you got your answers.



Reasoning 1 Tenths

Fill in the missing values.
Explain how you got your answers.

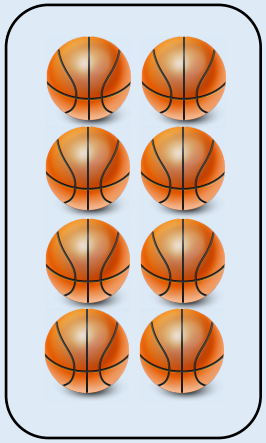


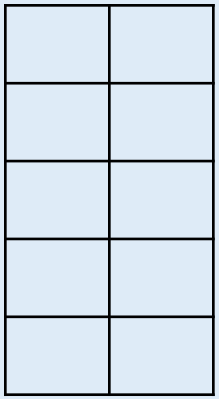
Children could use practical equipment to explain why and how, and relate back to the counting stick.

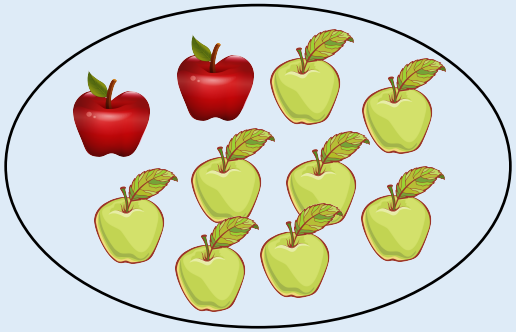
Reasoning 1

Tenths

Odd One Out



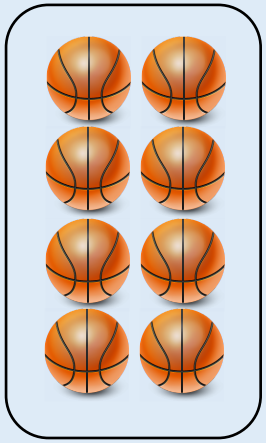


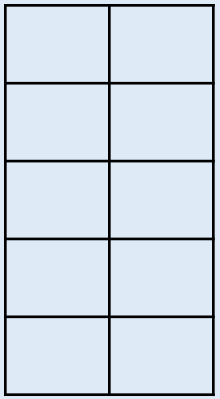


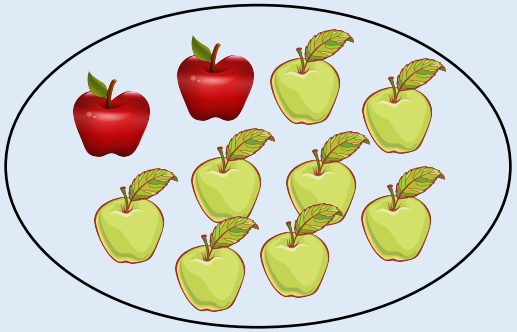
Which is the odd one out?
Explain your answer.

Tenths

Odd One Out







The group of basketballs is the odd one out because it represents 8 or eighths. All the other images have a whole which has been split into ten equal parts.

Discussion

Tenths

How many tenths make a whole?

How many tenths are shaded?

How many more tenths do I need to make a whole?

When I am writing tenths, the _____ is always 10.

How are fractions linked to division?

Count in Tenths

3

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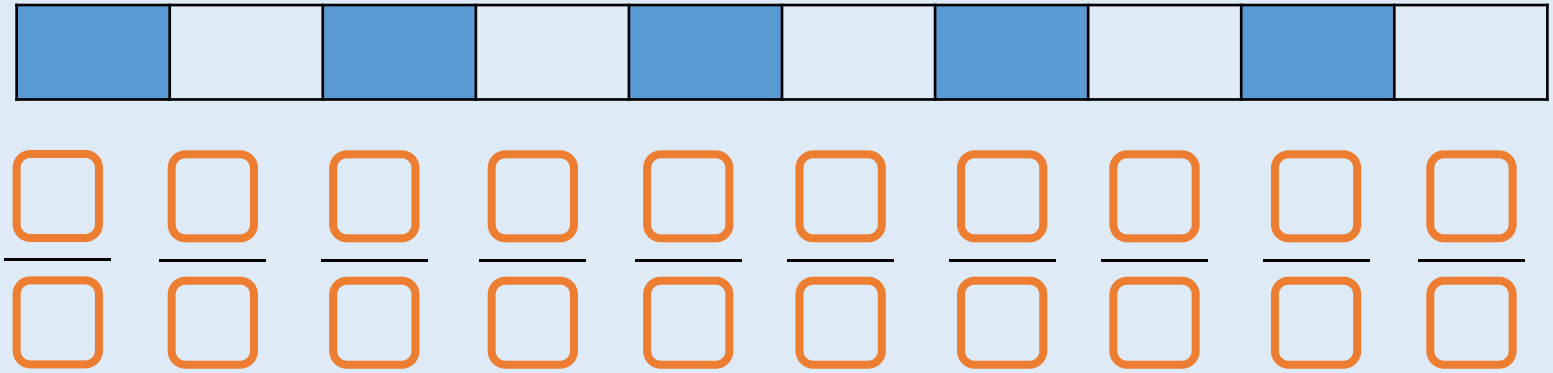
Activity 1 Count in Tenths

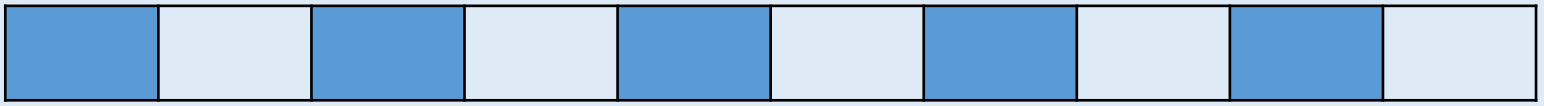
This counting stick is worth one whole.
Label each part of the counting stick.



Can you count forwards and backwards
along the counting stick?

Activity 1 Count in Tenths

This counting stick is worth one whole.
Label each part of the counting stick.

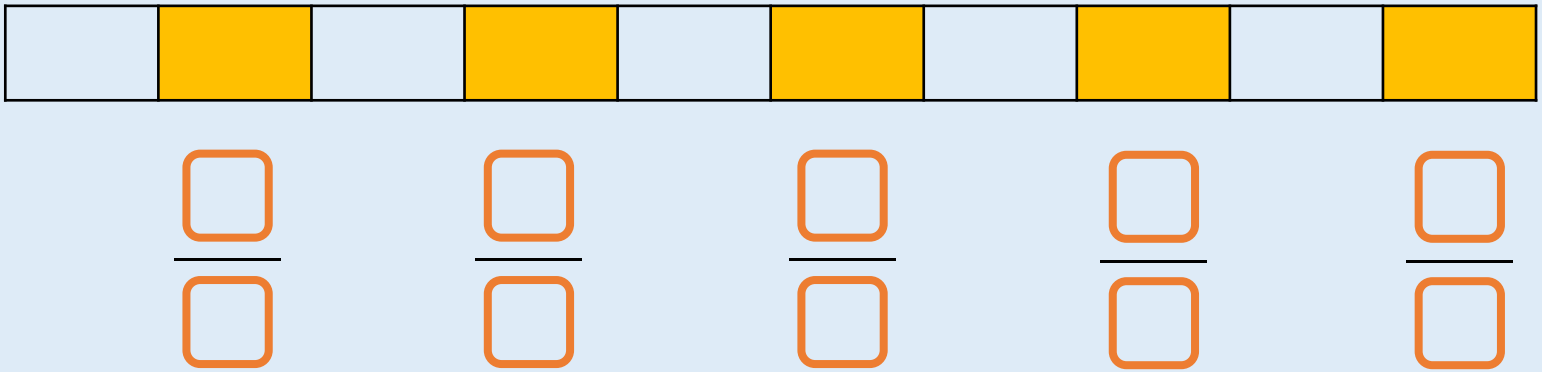


$\frac{1}{10}$ $\frac{2}{10}$ $\frac{3}{10}$ $\frac{4}{10}$ $\frac{5}{10}$ $\frac{6}{10}$ $\frac{7}{10}$ $\frac{8}{10}$ $\frac{9}{10}$ $\frac{10}{10}$

Yes, counting forwards and backwards is possible along the counting stick.

Activity 1 Count in Tenths

This counting stick is worth one whole.
Label each part of the counting stick.



$\frac{\square}{\square}$ $\frac{\square}{\square}$ $\frac{\square}{\square}$ $\frac{\square}{\square}$ $\frac{\square}{\square}$

Can you count forwards and backwards
along the counting stick?

Activity 1 Count in Tenths

This counting stick is worth one whole.
Label each part of the counting stick.

$\frac{2}{10}$ $\frac{4}{10}$ $\frac{6}{10}$ $\frac{8}{10}$ $\frac{10}{10}$

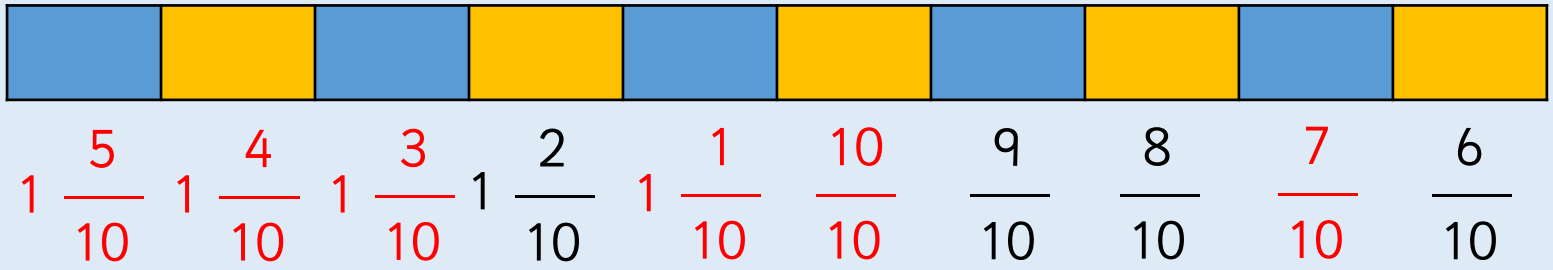
Yes, counting forwards and backwards is possible along the counting stick.

Activity 1 Count in Tenths

This counting stick is worth one whole.
Label each part of the counting stick.

Activity 1 Count in Tenths

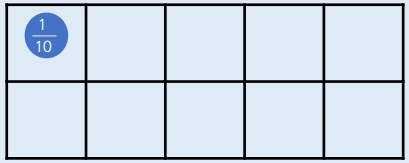
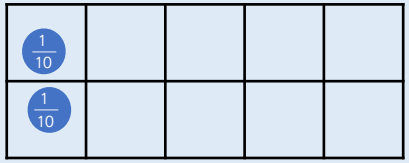
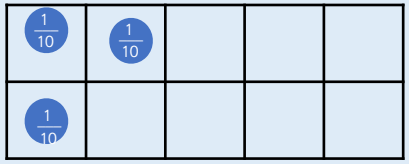
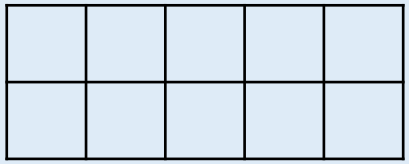
This counting stick is worth one whole.
Label each part of the counting stick.



Yes, counting forwards and backwards is possible along the counting stick.

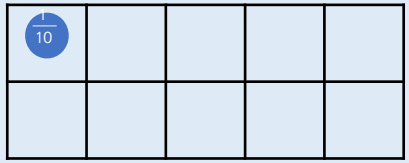
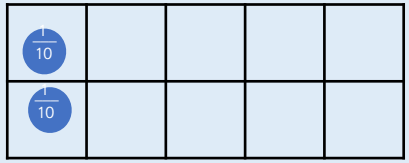
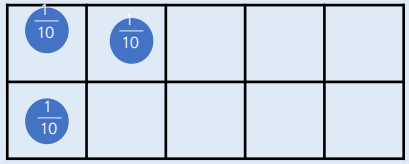
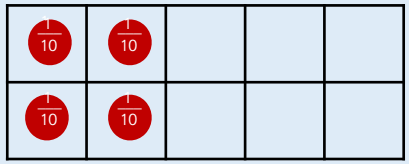
Activity 2 Count in Tenths

Continue the pattern in the table.

Pictorial representation	Words	Fraction
	One tenth	$\frac{1}{10}$
		
		
		

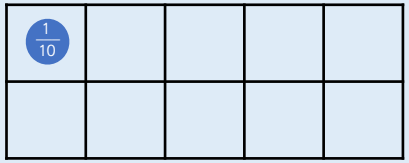
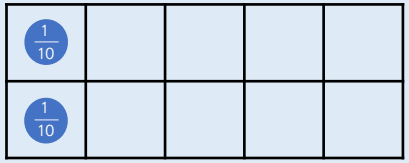
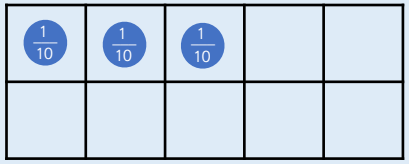
Activity 2 Count in Tenths

Continue the pattern in the table.

Pictorial representation	Words	Fraction
	One tenth	$\frac{1}{10}$
	Two tenths	$\frac{2}{10}$
	Three tenths	$\frac{3}{10}$
	Four tenths	$\frac{4}{10}$

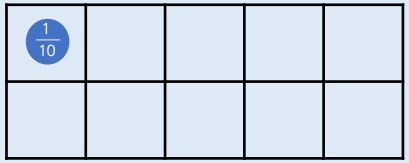
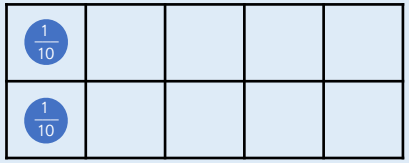
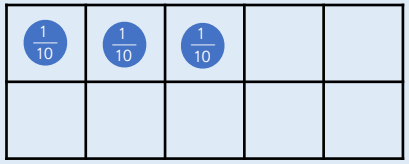
Activity 2 Count in Tenths

Continue the pattern in the table.

Pictorial representation	Words	Fraction
	One tenth	$\frac{1}{10}$
		
		

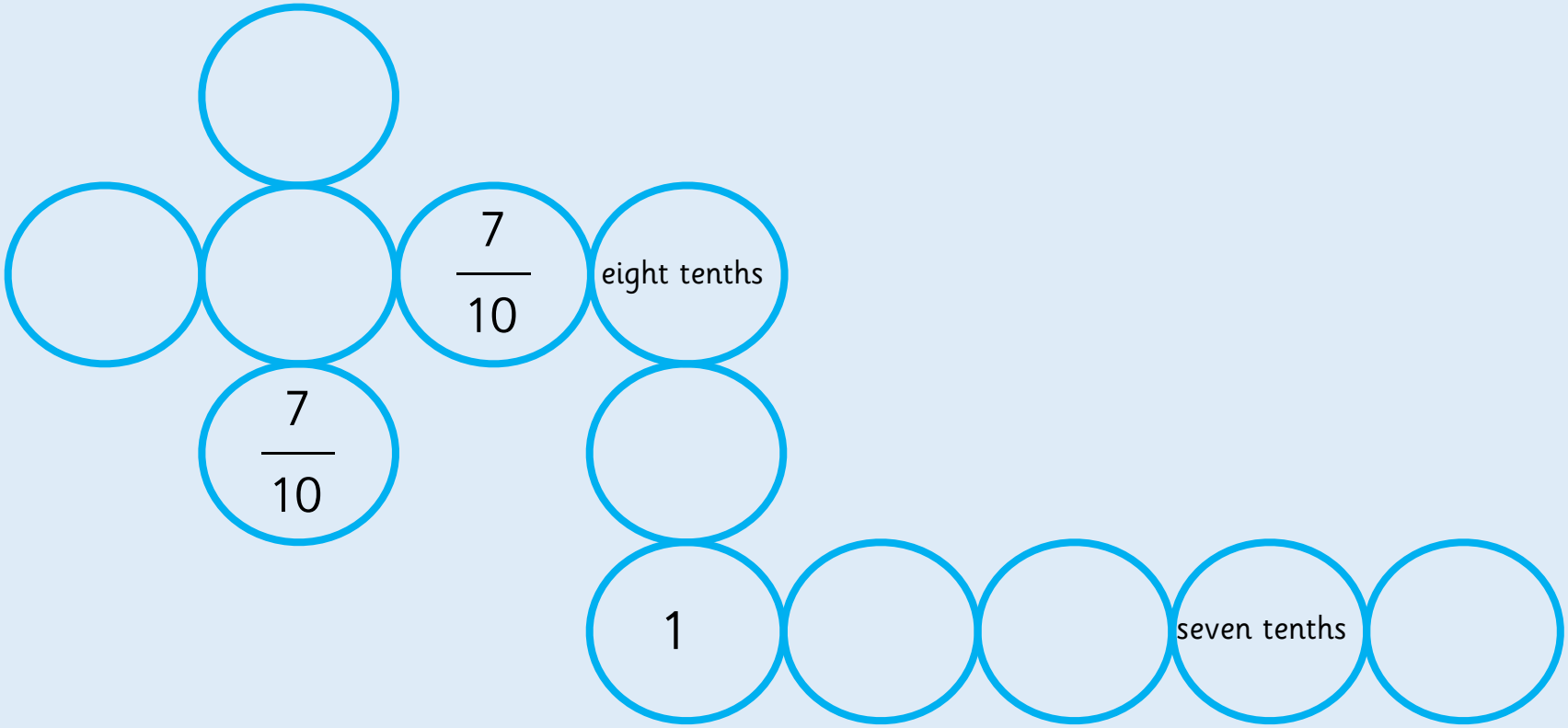
Activity 2 Count in Tenths

Continue the pattern in the table.

Pictorial representation	Words	Fraction
	One tenth	$\frac{1}{10}$
	Two tenths	$\frac{2}{10}$
	Three tenths	$\frac{3}{10}$

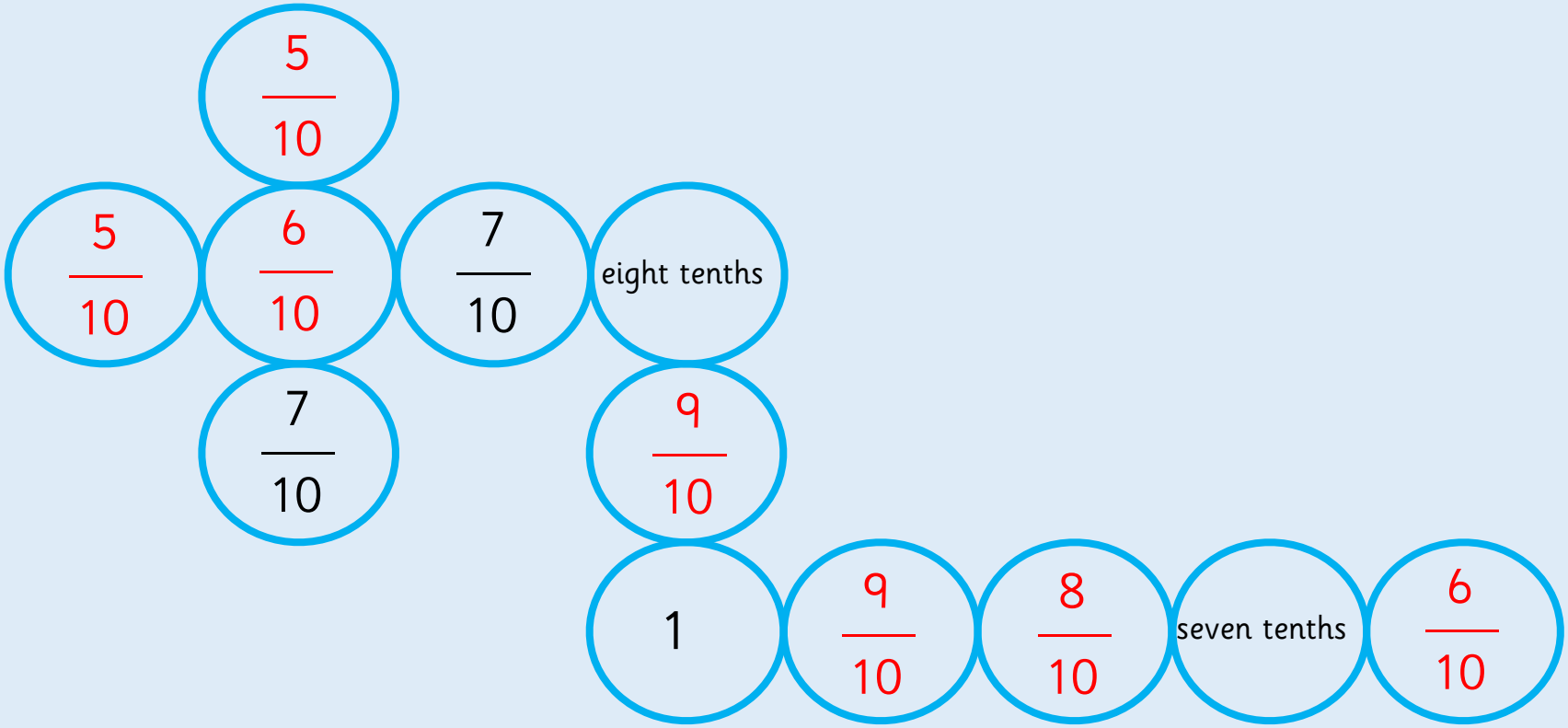
Activity 3 Count in Tenths

Continue the sequence.



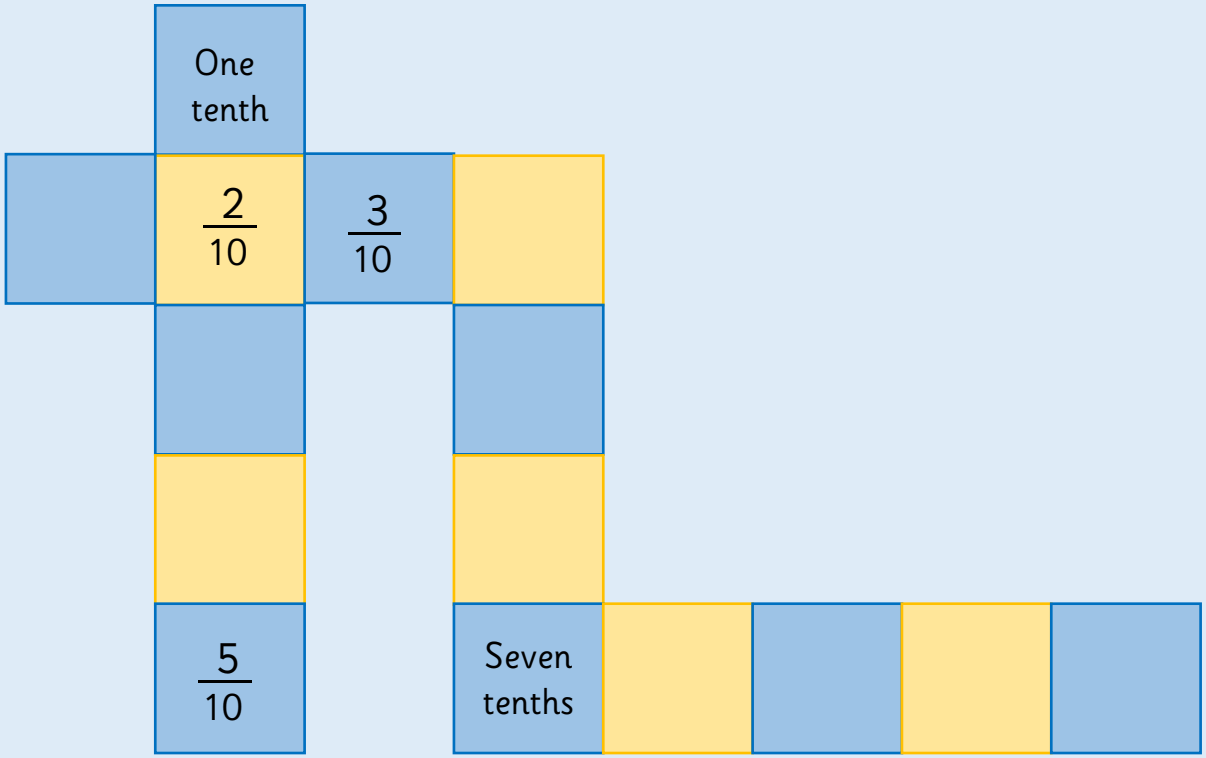
Activity 3 Count in Tenths

Continue the sequence.



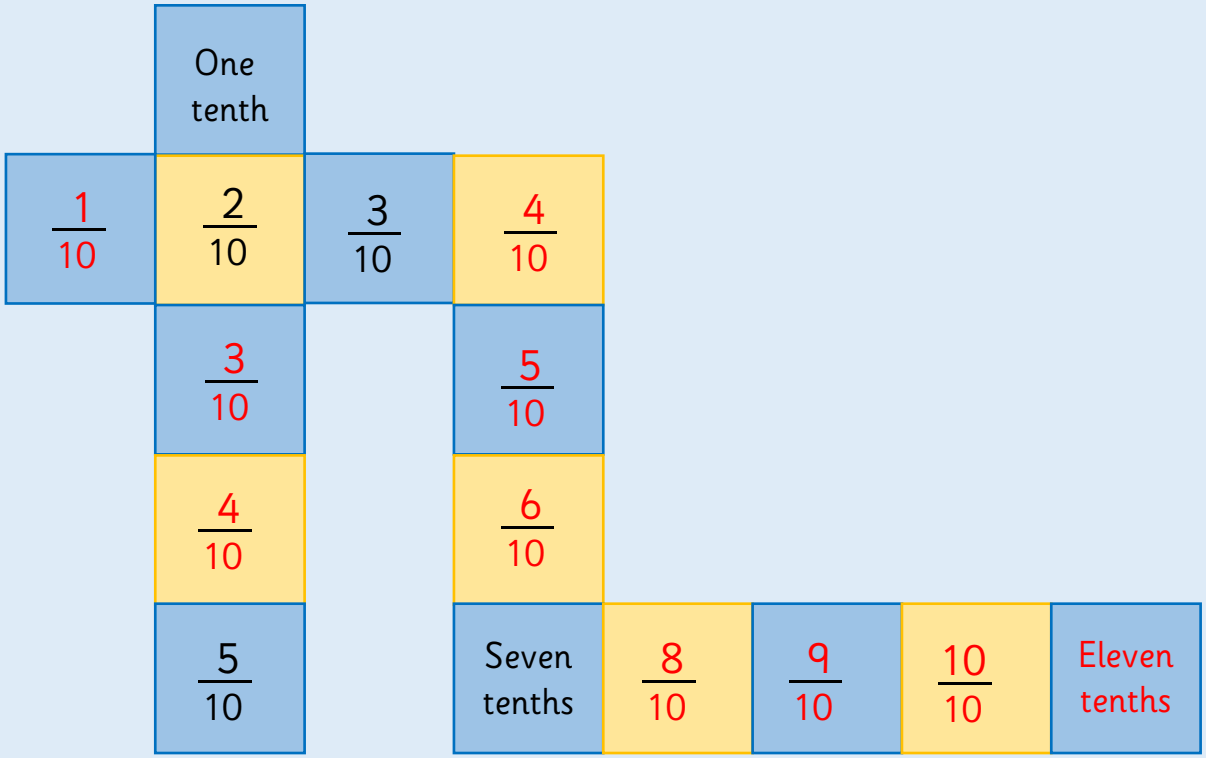
Activity 3 Count in Tenths

Continue the sequence.



Activity 3 Count in Tenths

Continue the sequence.



Activity 4 Count in Tenths

Answer the questions.

What comes before $\frac{2}{10}$?

What comes between $\frac{2}{10}$ and $\frac{4}{10}$?

What is $\frac{1}{10}$ less than $\frac{3}{10}$?

What is 1 more than $\frac{10}{10}$?

I start at $\frac{3}{10}$. I count back $\frac{2}{10}$.

Where will I stop? $\frac{\square}{\square}$

I start at $\frac{9}{10}$. I count back $\frac{5}{10}$.

Where will I stop? $\frac{\square}{\square}$

Activity 4 Count in Tenths

Answer the questions.

What comes before $\frac{2}{10}$? $\frac{1}{10}$

What comes between $\frac{2}{10}$ and $\frac{4}{10}$? $\frac{3}{10}$

What is $\frac{1}{10}$ less than $\frac{3}{10}$? $\frac{2}{10}$

What is 1 more than $\frac{10}{10}$? 2

I start at $\frac{3}{10}$. I count back $\frac{2}{10}$.

Where will I stop? $\frac{1}{10}$

I start at $\frac{9}{10}$. I count back $\frac{5}{10}$.

Where will I stop? $\frac{4}{10}$

Reasoning 1 Count in Tenths

Zach is counting in tenths.

Zach

Five tenths, six tenths, seven tenths, six tenths, eight tenths, nine tenths, ten tenths, one eleventh, two elevenths...

Can you spot his mistakes?

Reasoning 1 Count in Tenths

Zach is counting in tenths.

Zach

Five tenths, six tenths, seven tenths, six tenths, eight tenths, nine tenths, ten tenths, one eleventh, two elevenths...

Zach thinks that after ten tenths you start counting in elevenths. He does not realise that ten tenths is the whole, and so the next number in the sequence after ten tenths is eleven tenths or one and one tenth. He also counted six tenths twice.

Reasoning 2 Count in Tenths

True or False?

Five tenths is three tenths smaller than eight tenths.

Five tenths is three tenths larger than two tenths.

Do you agree?
Explain why.

Count in Tenths

True or False?

Five tenths is three tenths smaller than eight tenths.

Five tenths is three tenths larger than two tenths.

This is correct.
Children could show it using pictures,
ten frames, number lines, etc.

Discussion

Count in Tenths

Let's count in tenths. What comes next?
Explain how you know.

If I start at __ tenths, what will be next?

When we get to $\frac{10}{10}$ what else can we say?

What happens next?

Tenths as Decimals

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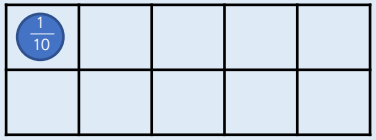
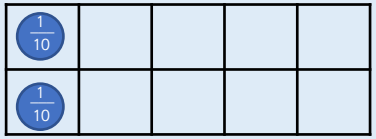
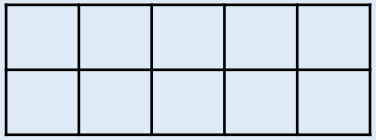
Activity 1 Tenths as Decimals

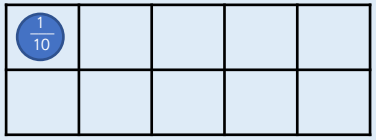
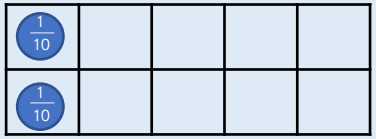
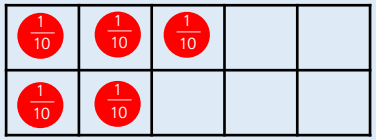
Complete the table.

Pictorial representation	Words	Fraction	Decimal
	One tenth	$\frac{1}{10}$	0.1
			
	Five tenths		

How is this similar to fractions?

Activity 1 Tenths as Decimals

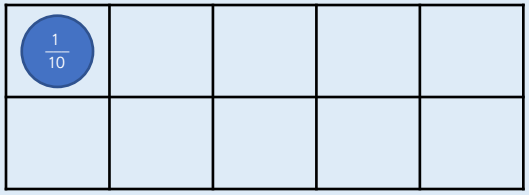
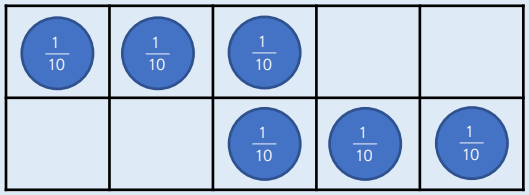
Complete the table.

Pictorial representation	Words	Fraction	Decimal
	One tenth	$\frac{1}{10}$	0.1
	Two tenths	$\frac{2}{10}$	0.2
	Five tenths	$\frac{5}{10}$	0.5

It is similar to fractions because they both show numbers that are between two whole numbers.

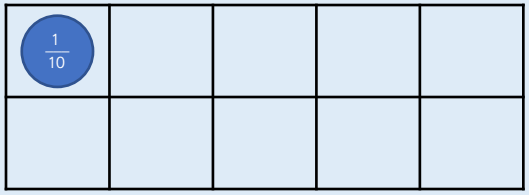
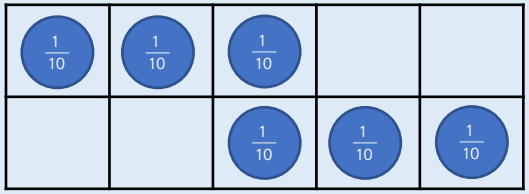
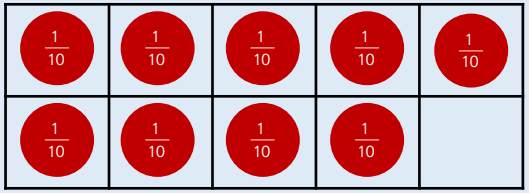
Activity 1 Tenths as Decimals

Complete the table.

Image	Words	Fraction	Decimal
	One tenth	$\frac{1}{10}$	0.1
			
	Nine tenths		

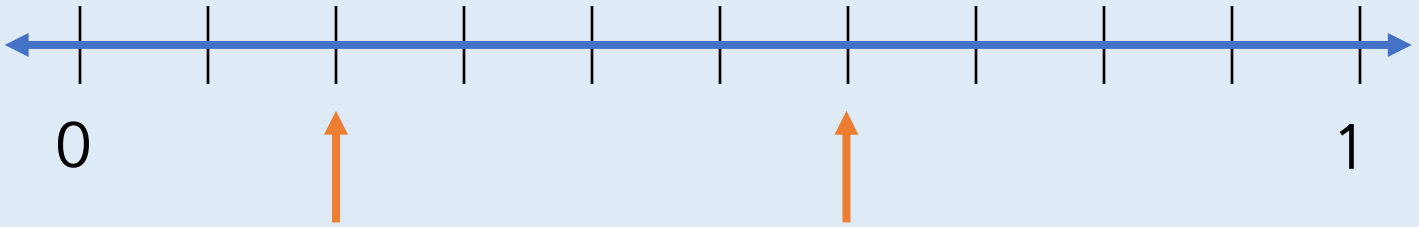
Activity 1 Tenths as Decimals

Complete the table.

Image	Words	Fraction	Decimal
	One tenth	$\frac{1}{10}$	0.1
	Six tenths	$\frac{6}{10}$	0.6
	Nine tenths	$\frac{9}{10}$	0.9

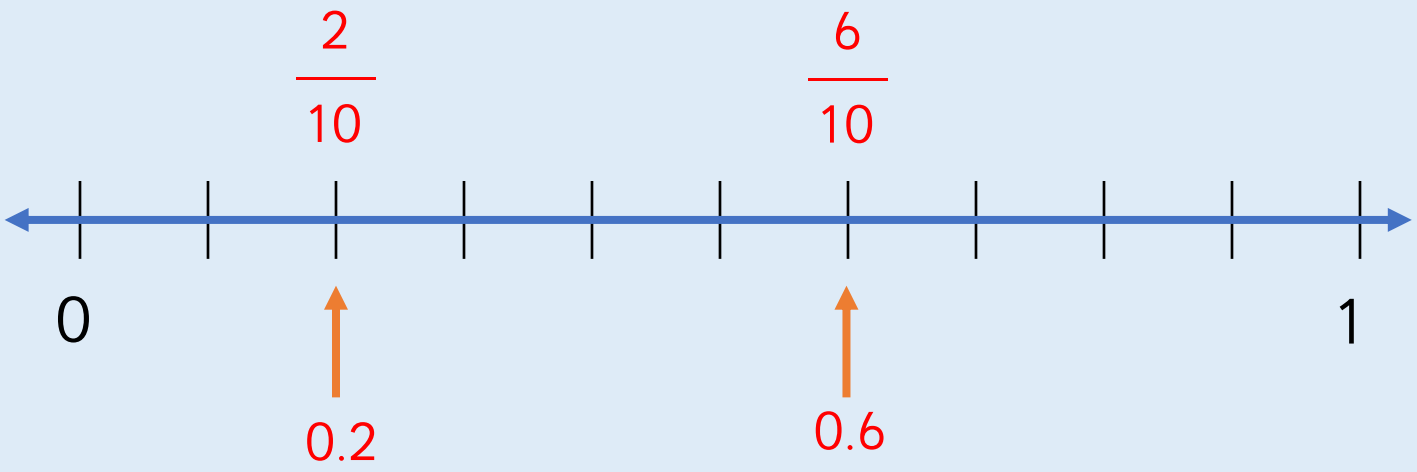
Activity 2 Tenths as Decimals

Write the fractions and decimals shown.



Activity 2 Tenths as Decimals

Write the fractions and decimals shown.

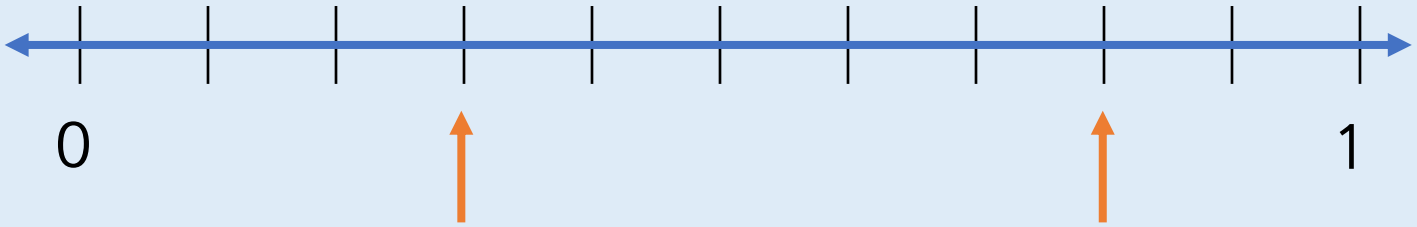


4/10 5/10 6/10

0.4 0.5 0.6

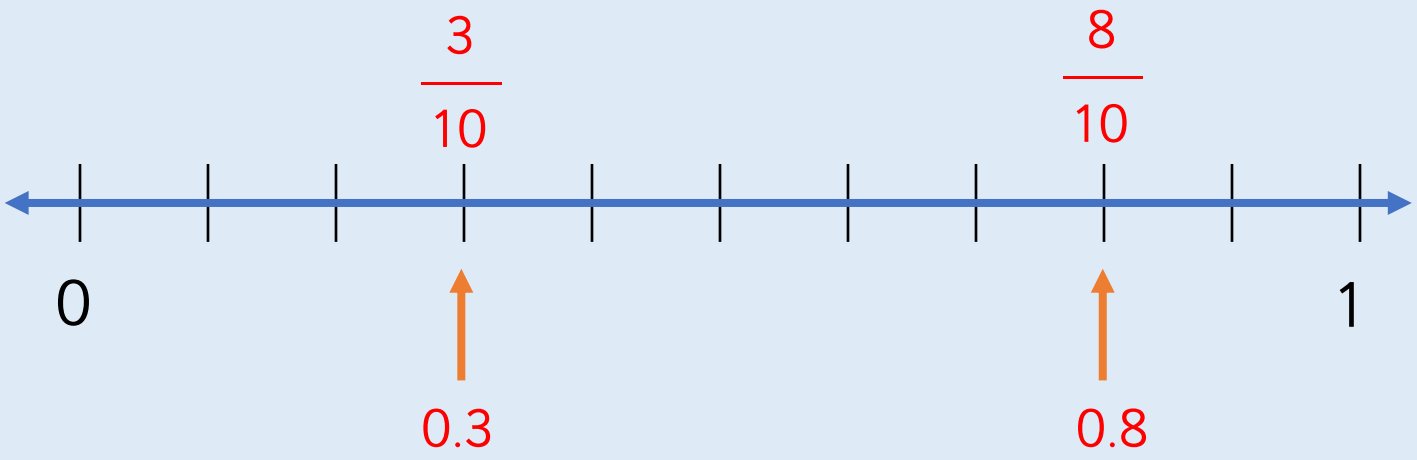
Activity 2 Tenths as Decimals

Write the fractions and decimals shown.



Activity 2 Tenths as Decimals

Write the fractions and decimals shown.



$\frac{1}{10}$ $\frac{2}{10}$ $\frac{3}{10}$

0.1 0.2 0.3

Activity 3 Tenths as Decimals

Here is a decimal written in a place value grid.

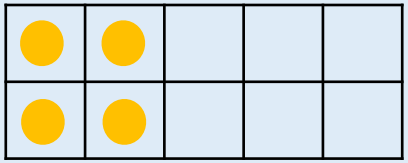
Ones	Tenths
0	4

Can you represent this decimal pictorially?
Can you write the decimal as a fraction?

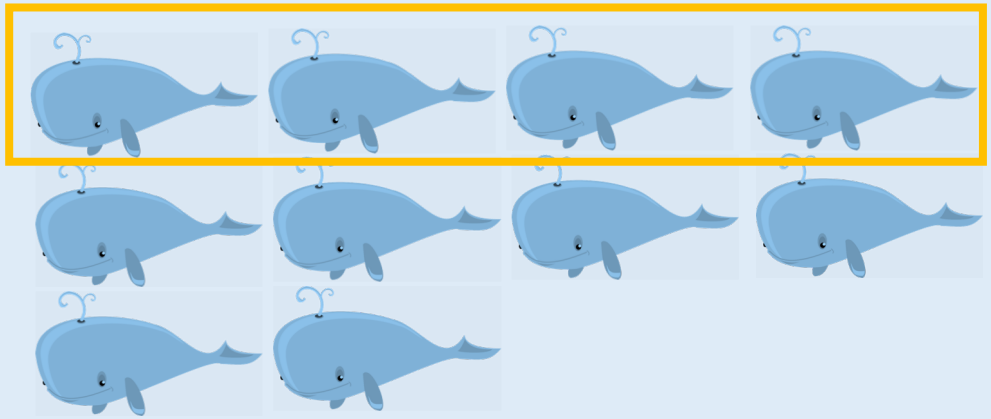
Activity 3 Tenths as Decimals

Here is a decimal written in a place value grid.

Ones	Tenths
0	4



$$\frac{4}{10}$$



Activity 3 Tenths as Decimals

Here is a decimal written in a place value grid.

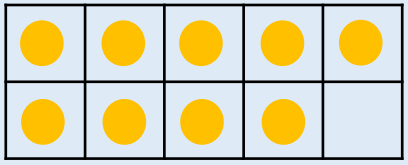
Ones	Tenths
0	9

Can you represent this decimal pictorially?
Can you write the decimal as a fraction?

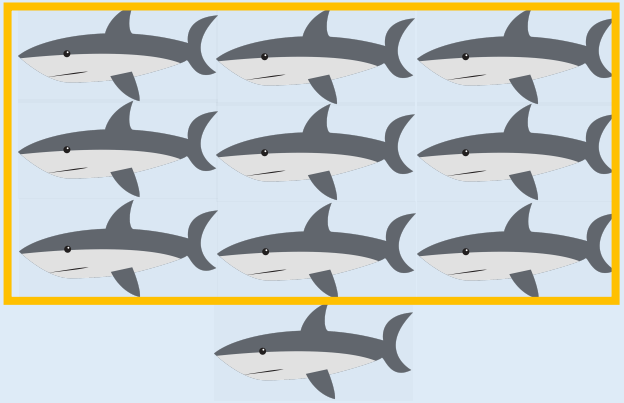
Activity 3 Tenths as Decimals

Here is a decimal written in a place value grid.

Ones	Tenths
0	9



$\frac{9}{10}$



Reasoning 1 Tenths as Decimals

True or False?

Tia

10 cm is 0.1 metres.

10 cm is one tenth of 1 metre.

Rosie

Explain your answer.

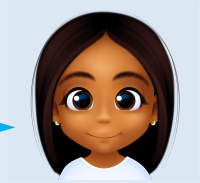
Tenths as Decimals

True or False?

Tia

10 cm is 0.1 metres.

10 cm is one tenth of 1 metre.

 Rosie

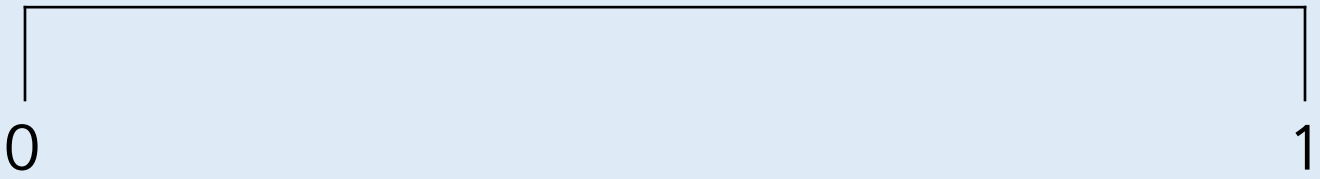
They are both correct.

$$10 \text{ cm} = \frac{1}{10} \text{ m} = 0.1 \text{ m}$$

Reasoning 2 Tenths as Decimals

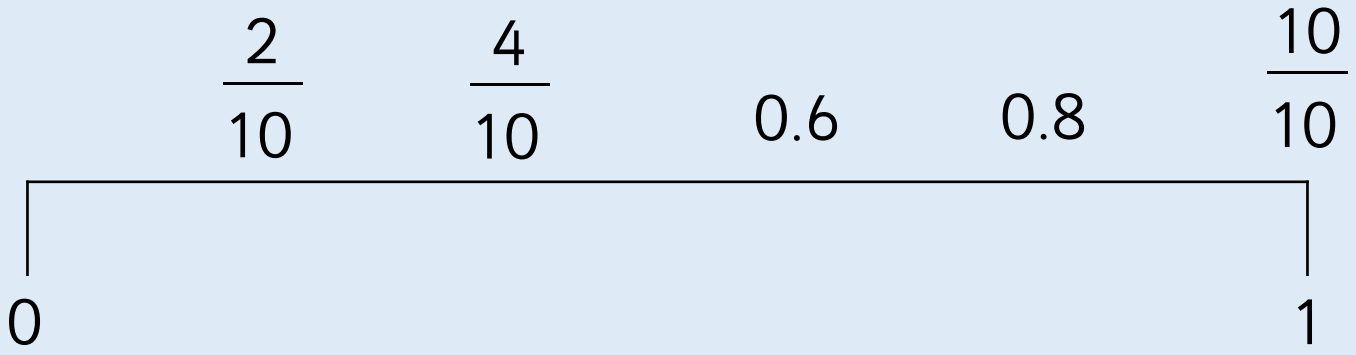
Place the decimals and fractions on the number line.

0.6 $\frac{2}{10}$ $\frac{4}{10}$ 0.8 $\frac{10}{10}$



Reasoning 2 Tenths as Decimals

Place the decimals and fractions on the number line.



Discussion

Tenths as Decimals

What is a tenth?

How many different ways can we write a tenth?

What does ‘equivalent’ mean?

What is the same and what is different about decimals and fractions?

Fractions on a Number Line

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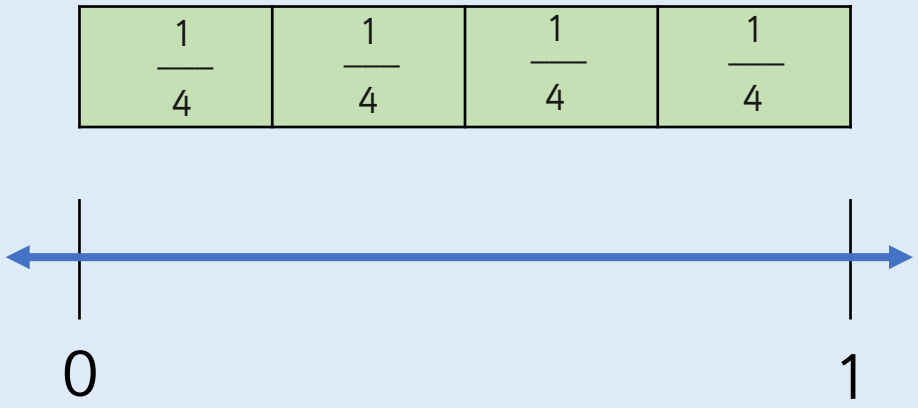
Activity 1 Fractions on a Number Line

Show $\frac{1}{4}$ on the number line.

Use the bar model to help you.



Activity 1 Fractions on a Number Line

Show $\frac{1}{4}$ on the number line.

Use the bar model to help you.

Activity 1 Fractions on a Number Line

Show $\frac{1}{5}$ on the number line.

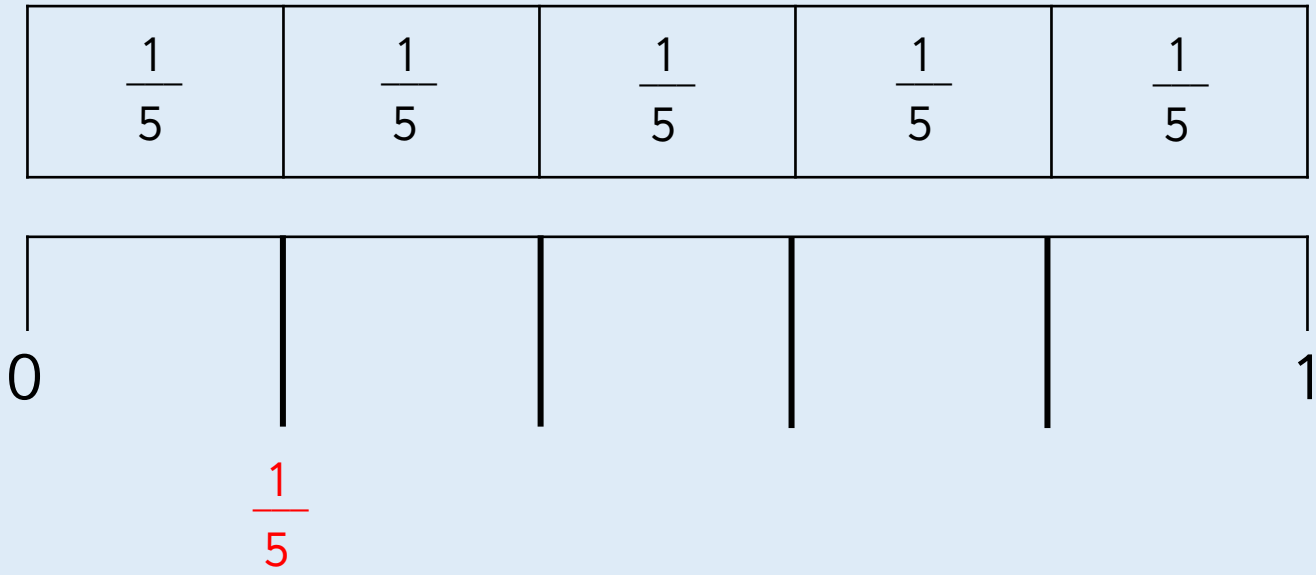
Use the bar model to help you.

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

Activity 1 Fractions on a Number Line

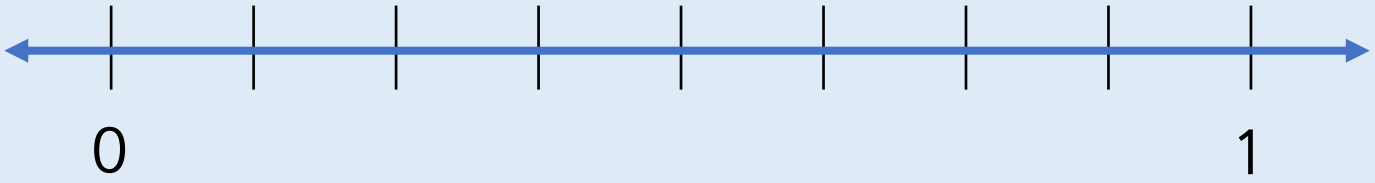
Show $\frac{1}{5}$ on the number line.

Use the bar model to help you.



Activity 2 Fractions on a Number Line

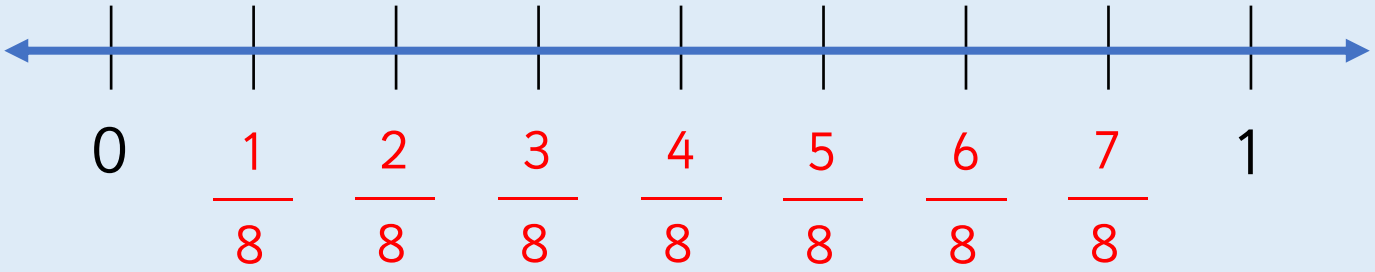
The number line has been divided into equal parts.
Label each part correctly.



What fraction does 1 stand for?

Activity 2 Fractions on a Number Line

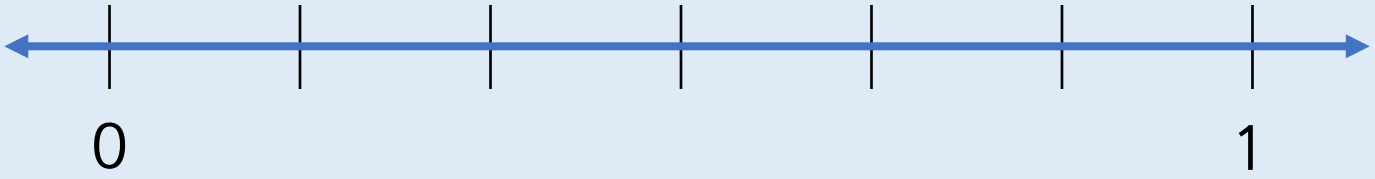
The number line has been divided into equal parts. Label each part correctly.



Since this is an eight-part whole, the whole number 1 can be represented as the fraction $\frac{8}{8}$.

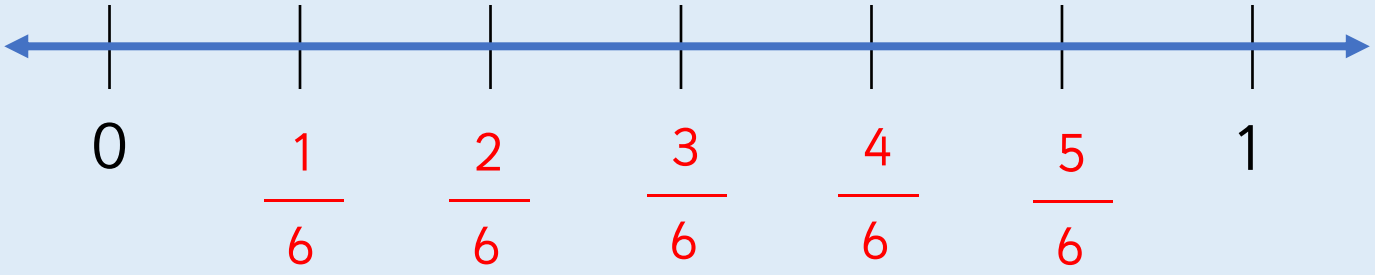
Activity 2 Fractions on a Number Line

The number line has been divided into equal parts. Label each part correctly.



Activity 2 Fractions on a Number Line

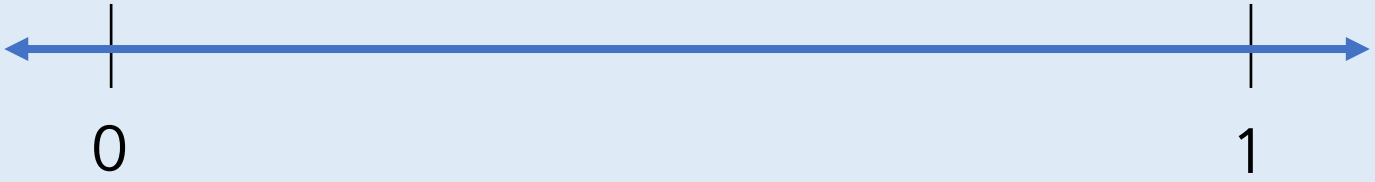
The number line has been divided into equal parts. Label each part correctly.



Since this is a six-part whole, the whole number 1 can be represented as the fraction $\frac{6}{6}$.

Activity 3 Fractions on a Number Line

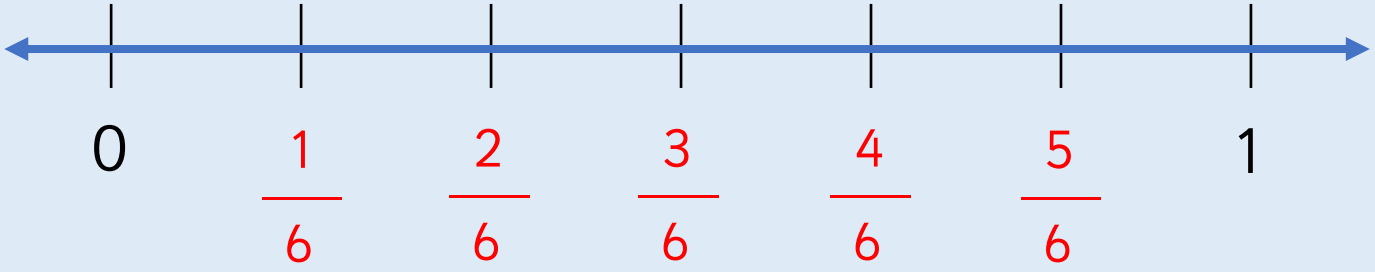
Divide the number line into sixths.



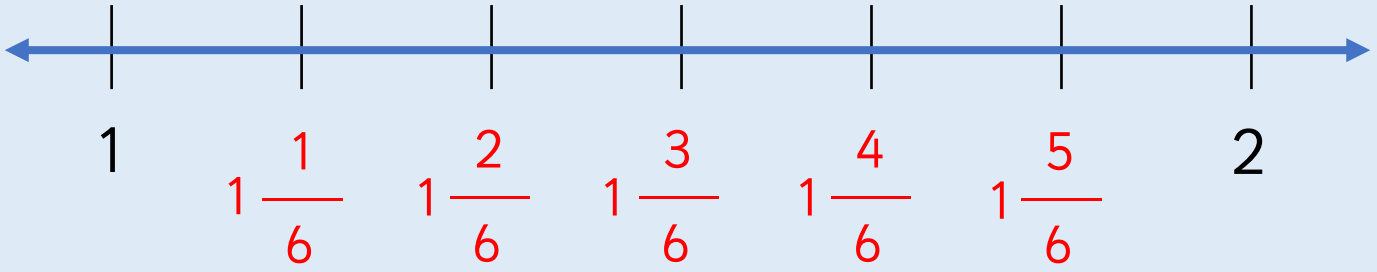
Can you continue the number line up to 2?

Activity 3 Fractions on a Number Line

Divide the number line into sixths.

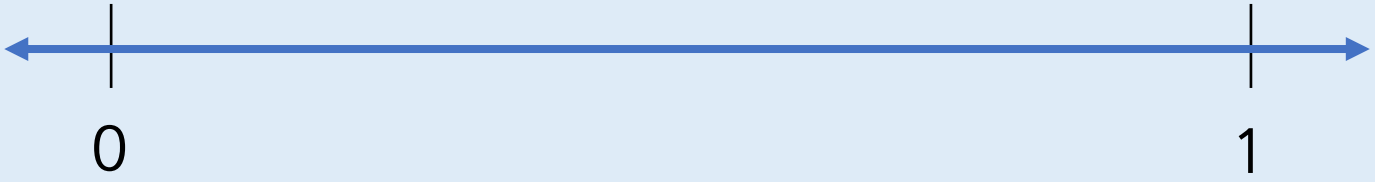


Can you continue the number line up to 2?



Activity 3 Fractions on a Number Line

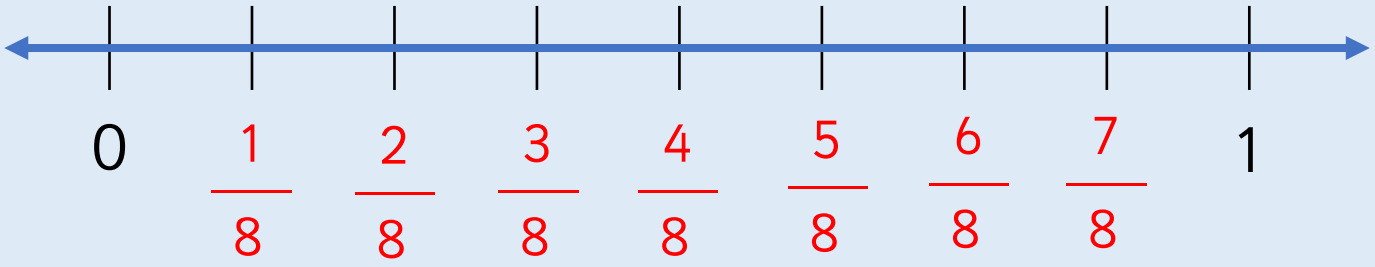
Divide the number line into eighths.



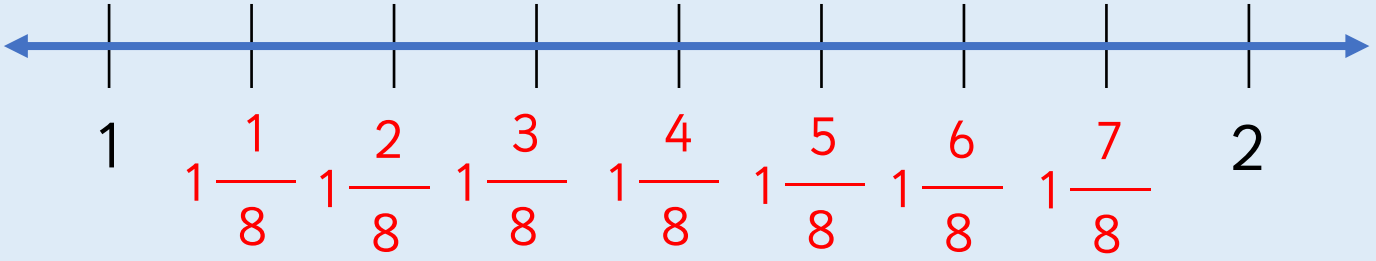
Can you continue the number line up to 2?

Activity 3 Fractions on a Number Line

Divide the number line into eighths.

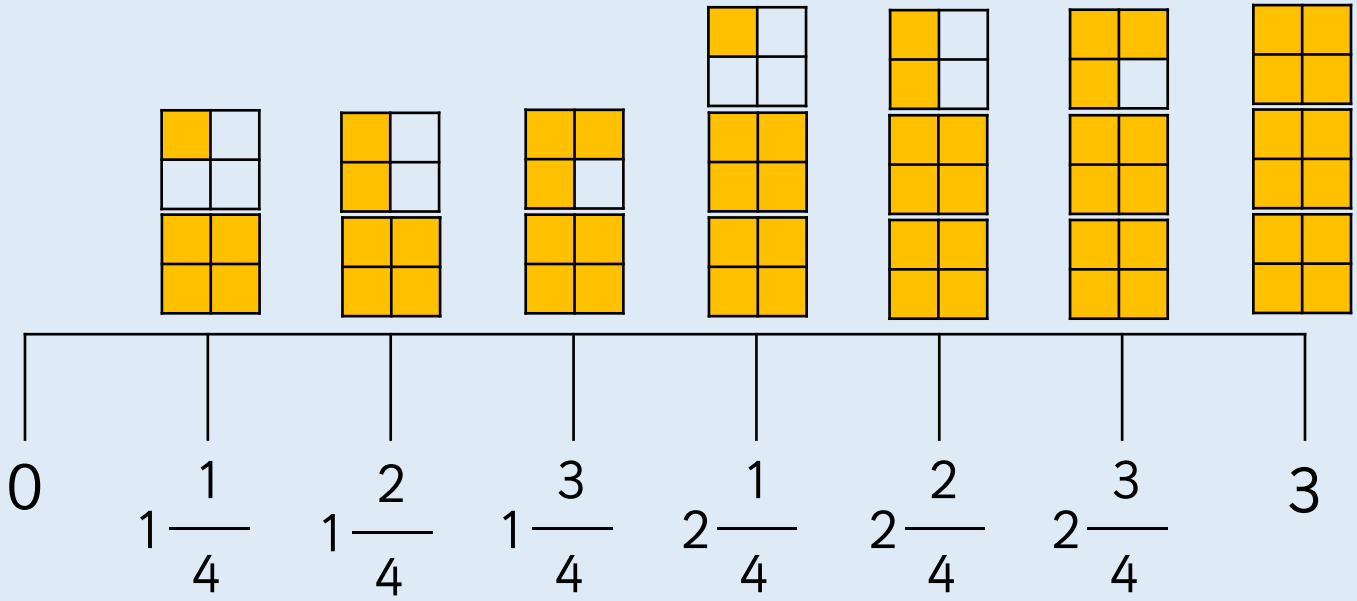


Can you continue the number line up to 2?



Reasoning 1 Fractions on a Number Line

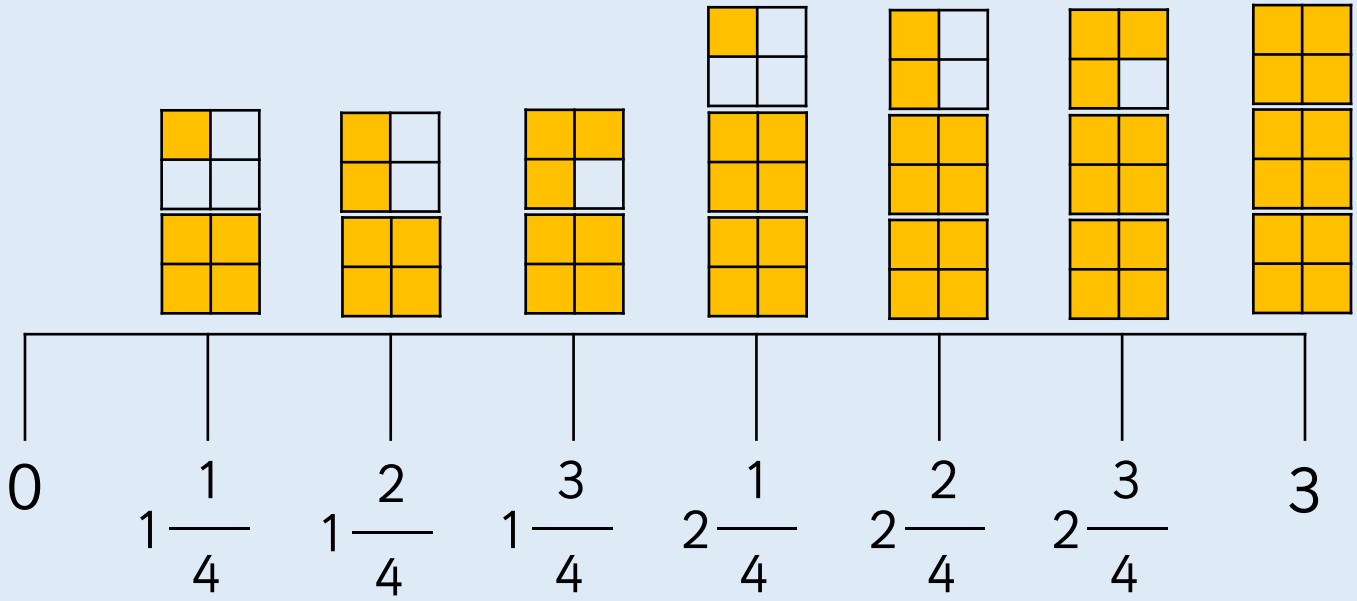
Leanna has drawn a number line.



Zach says it is incorrect.
Do you agree with Zach? Explain why.
Can you draw the next three fractions?

Reasoning 1 Fractions on a Number Line

Leanna has drawn a number line.



Zach is correct because Leanna has missed out 1 and 2 wholes.

Reasoning 2 Fractions on a Number Line

Rosie and Tia are counting up and down in twos.

Rosie starts at $5\frac{1}{2}$ and counts backwards.

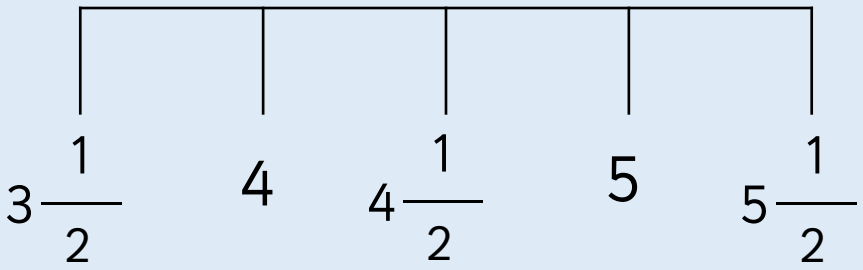
Tia starts at $3\frac{1}{2}$ and counts forwards.

What fraction will they get to at the same time?

Reasoning 2 Fractions on a Number Line

Rosie and Tia are counting up and down in twos.

They will reach $4\frac{1}{2}$.



Discussion

Fractions on a Number Line

How many equal parts has the number line been divided into?

What does each interval represent?

How are the bar model and the number line the same? How are they different?

How do we know where to place $\frac{1}{5}$ on the number line?

How do we label fractions larger than one whole?

Fraction of an Amount (1)

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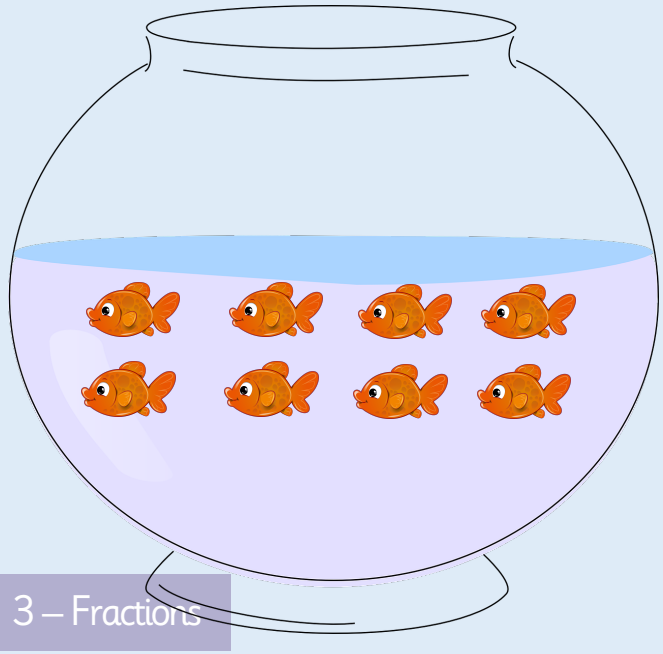
Activity 1 Fraction of an Amount (1)

Find $\frac{1}{4}$ of Malachi's goldfish.

I have divided the goldfish into ☐ equal groups.

There are ☐ goldfish in each group.

$\frac{1}{4}$ of the goldfish is ☐.



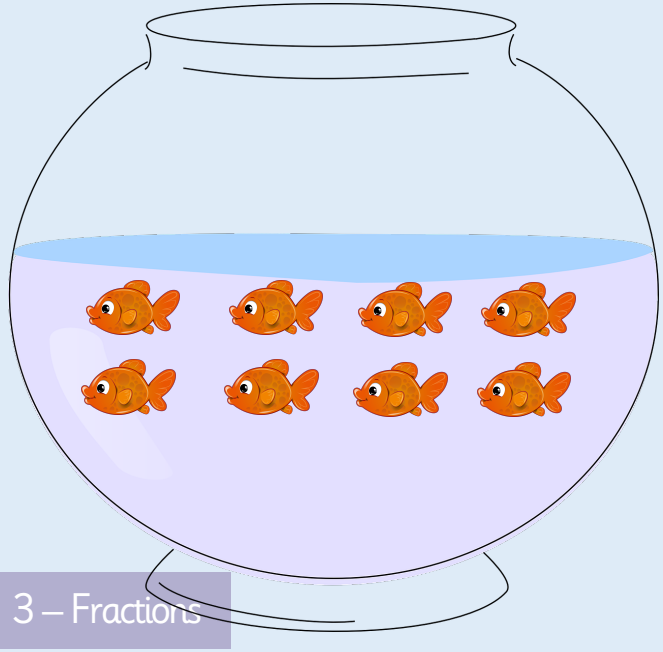
Activity 1 Fraction of an Amount (1)

Find $\frac{1}{4}$ of Malachi's goldfish.

I have divided the goldfish into [4] equal groups.

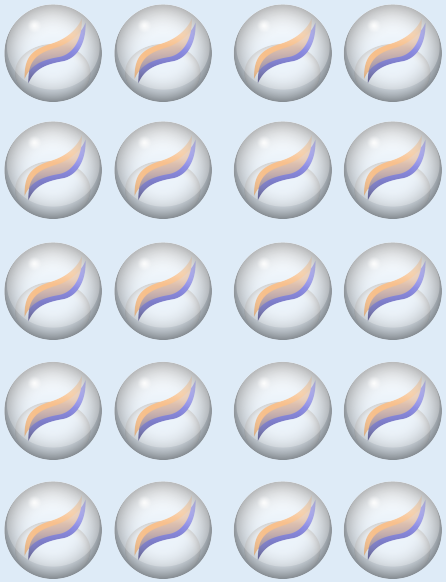
There are [2] goldfish in each group.

$\frac{1}{4}$ of the goldfish is [2].



Activity 1 Fraction of an Amount (1)

Find $\frac{1}{5}$ of Leanna's marbles.



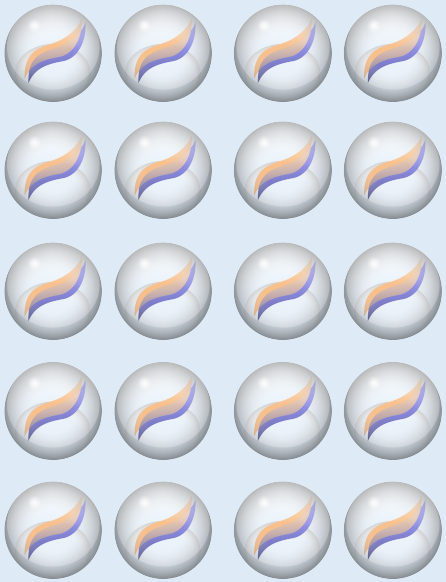
I have divided the marbles into ☐ equal groups.

There are ☐ marbles in each group.

$\frac{1}{5}$ of the marbles is ☐.

Activity 1 Fraction of an Amount (1)

Find $\frac{1}{5}$ of Leanna's marbles.



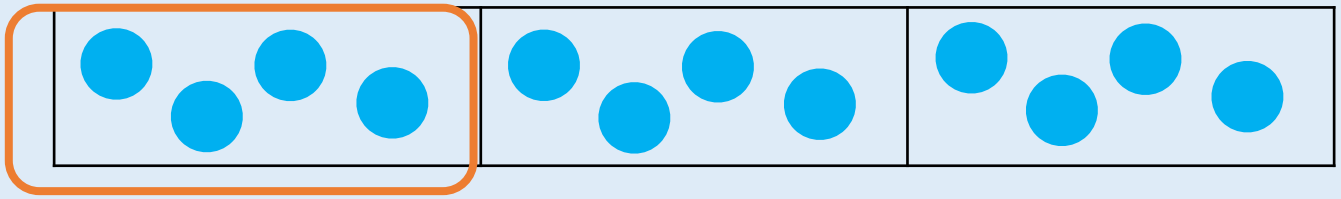
I have divided the marbles into [5] equal groups.

There are [4] marbles in each group.

$\frac{1}{5}$ of the marbles is [4].

Activity 2 Fraction of an Amount (1)

Rosie has used a bar model with counters to find the answer to $\frac{1}{3}$ of 12.



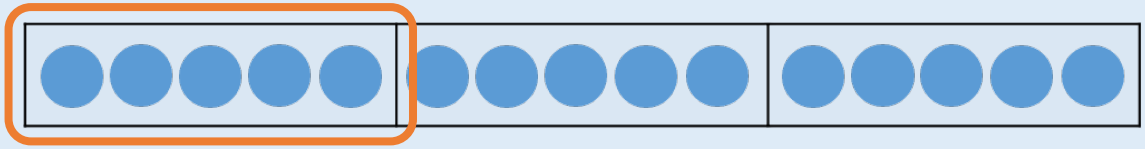
Use the same method to calculate the following:

$\frac{1}{3}$ of 15 $\frac{1}{6}$ of 18 $\frac{1}{5}$ of 10 $\frac{1}{2}$ of 10

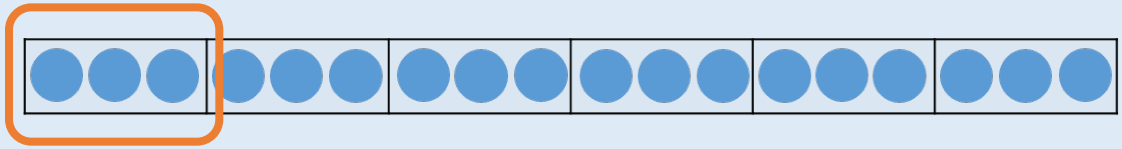
Activity 2

Fraction of an Amount (1)

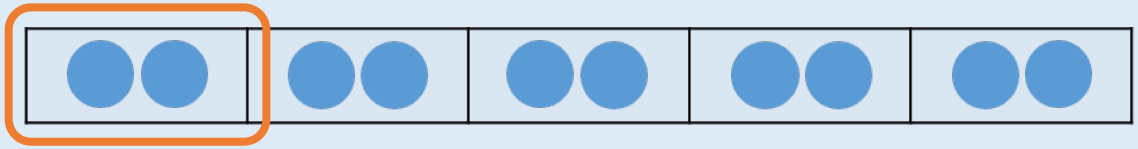
$\frac{1}{3}$ of 15



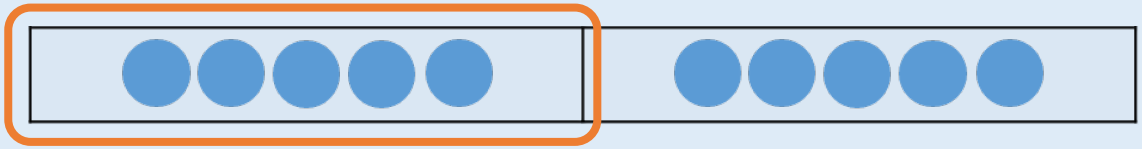
$\frac{1}{6}$ of 18



$\frac{1}{5}$ of 10

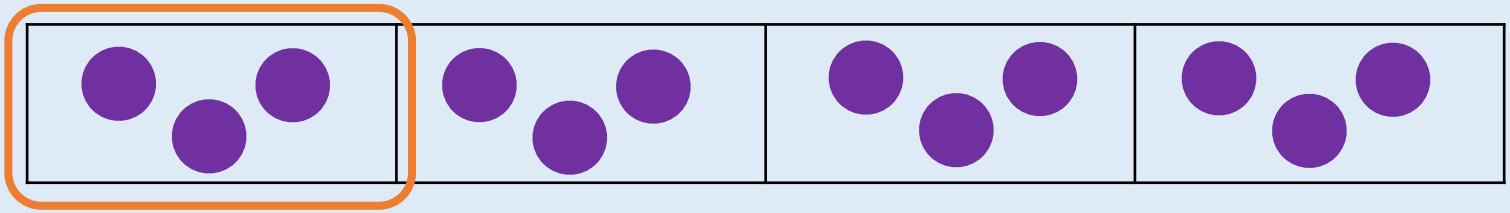


$\frac{1}{2}$ of 10



Activity 2 Fraction of an Amount (1)

Malachi has used a bar model with counters to find the answer to $\frac{1}{4}$ of 12.

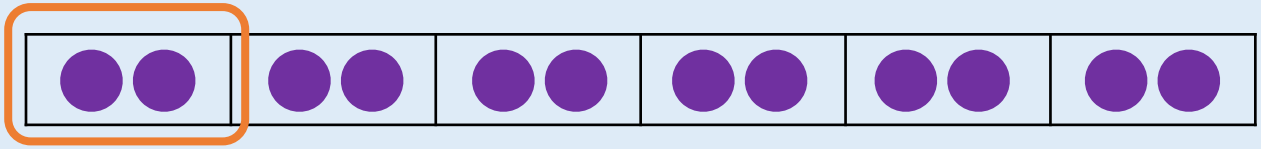


Use the same method to calculate the following:

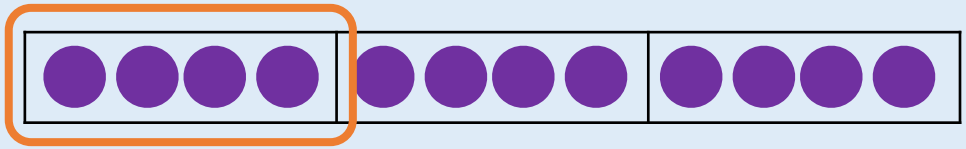
$\frac{1}{6}$ of 12 $\frac{1}{3}$ of 12 $\frac{1}{3}$ of 18 $\frac{1}{9}$ of 18

Activity 2 Fraction of an Amount (1)

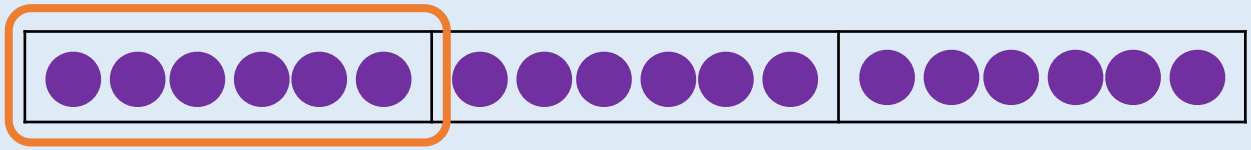
$\frac{1}{6}$ of 12



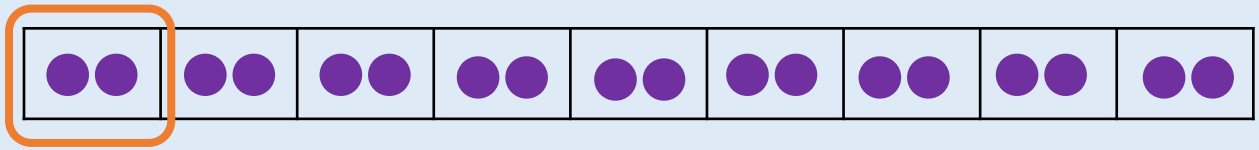
$\frac{1}{3}$ of 12



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



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



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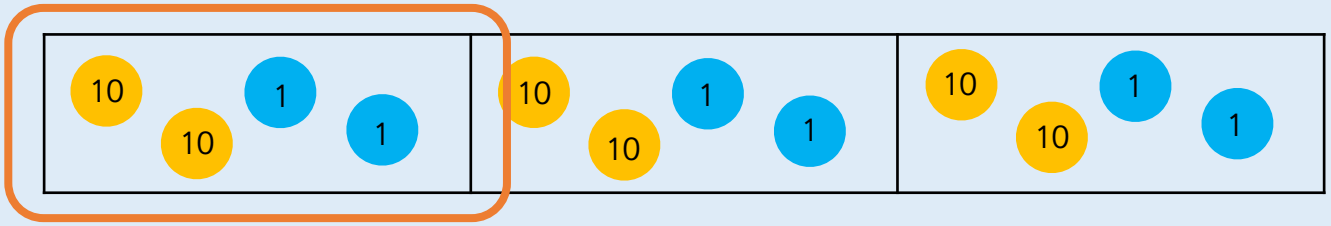
Activity 3 Fraction of an Amount (1)

Esin has used a bar model with place value counters to find the answer to $\frac{1}{3}$ of 66.



Use the same method to calculate the following:

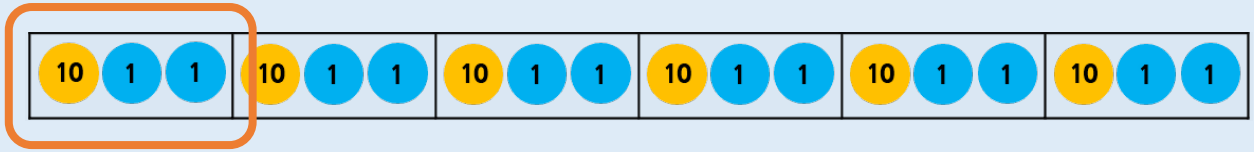
$\frac{1}{5}$ of 55 $\frac{1}{6}$ of 72 $\frac{1}{5}$ of 95 $\frac{1}{2}$ of 100

Activity 3

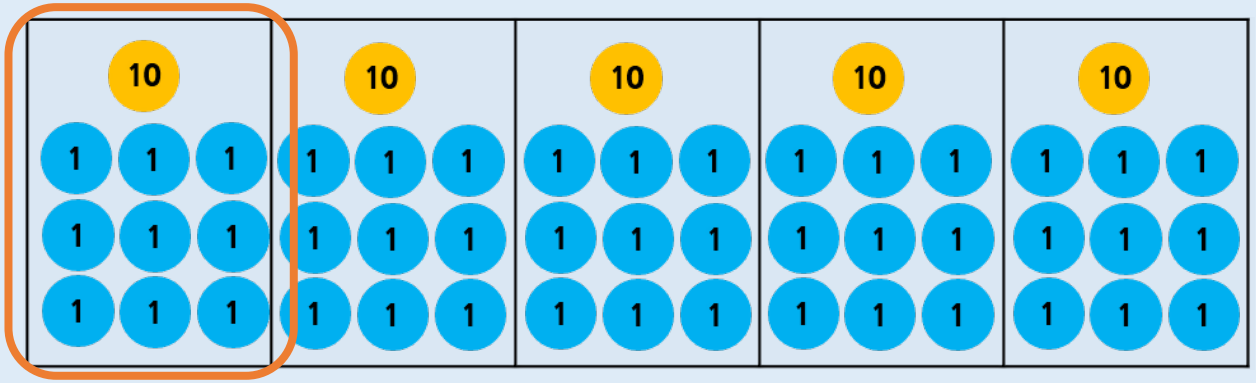
Fraction of an Amount (1)

$\frac{1}{5}$ of 55

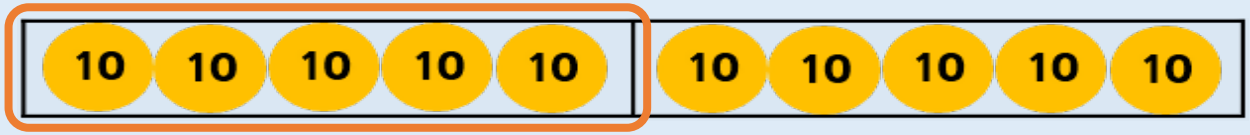
$\frac{1}{6}$ of 72



$\frac{1}{5}$ of 95

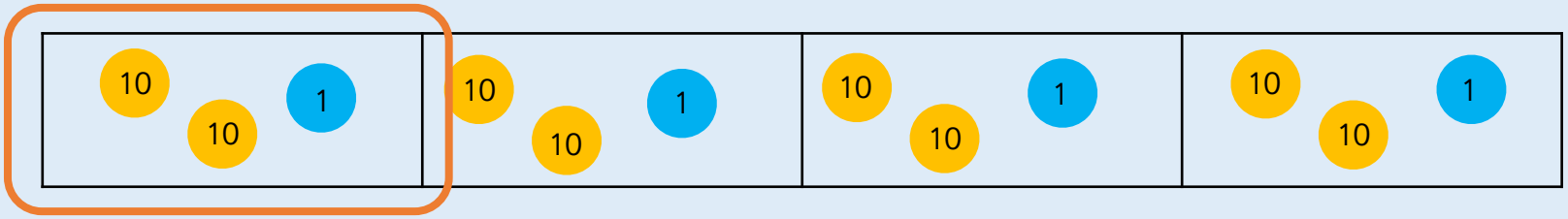


$\frac{1}{2}$ of 100



Activity 3 Fraction of an Amount (1)

Rosie has used a bar model with place value counters to find the answer to $\frac{1}{4}$ of 84.

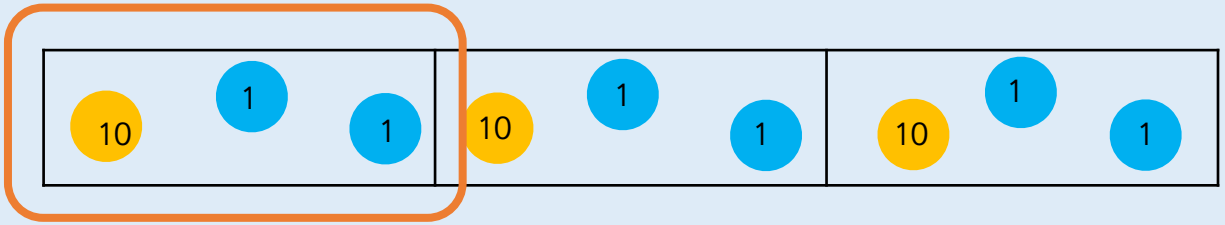


Use the same method to calculate the following:

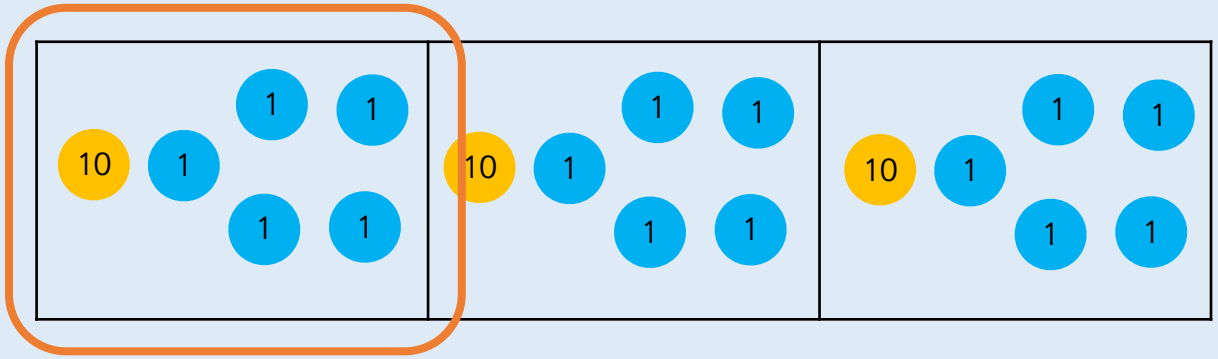
$\frac{1}{3}$ of 36 $\frac{1}{3}$ of 45 $\frac{1}{5}$ of 65

Activity 3 Fraction of an Amount (1)

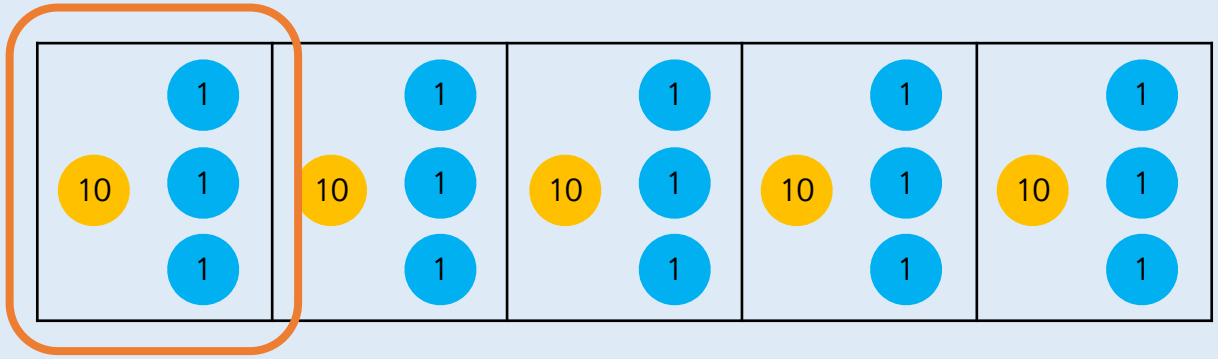
$\frac{1}{3}$ of 36



$\frac{1}{3}$ of 45



$\frac{1}{5}$ of 65



Reasoning 1 Fraction of an Amount (1)

Rosie has 16 chocolates.

On Friday, she ate $\frac{1}{4}$ of her chocolates and gave one to her mum.

On Saturday, she ate $\frac{1}{2}$ of her chocolates and gave one to her brother.

On Sunday, she ate $\frac{1}{3}$ of her remaining chocolates.

How many chocolates does Rosie have left?

Reasoning 1 Fraction of an Amount (1)

Rosie has 16 chocolates.

On Friday, she ate $\frac{1}{4}$ of her chocolates and gave one to her mum.

On Saturday, she ate $\frac{1}{2}$ of her chocolates and gave one to her brother.

On Sunday, she ate $\frac{1}{3}$ of her remaining chocolates.

Rosie has three chocolates left.

Reasoning 2 Fraction of an Amount (1)

Fill in the blanks.

$\frac{1}{3}$ of $\square$ = $\frac{1}{4}$ of 80

$\frac{1}{10}$ of 50 = $\frac{1}{?}$ of 25

Reasoning 2 Fraction of an Amount (1)

Fill in the blanks.

$\frac{1}{3}$ of $\boxed{60}$ = $\frac{1}{4}$ of 80

$\frac{1}{10}$ of 50 = $\frac{1}{5}$ of 25

Discussion

Fraction of an Amount (1)

Which operation do we use to find a fraction of an amount?

How many equal groups do we need?

Which part of the fraction tells us this?

How does the bar model help us?

Fraction of an Amount (2)

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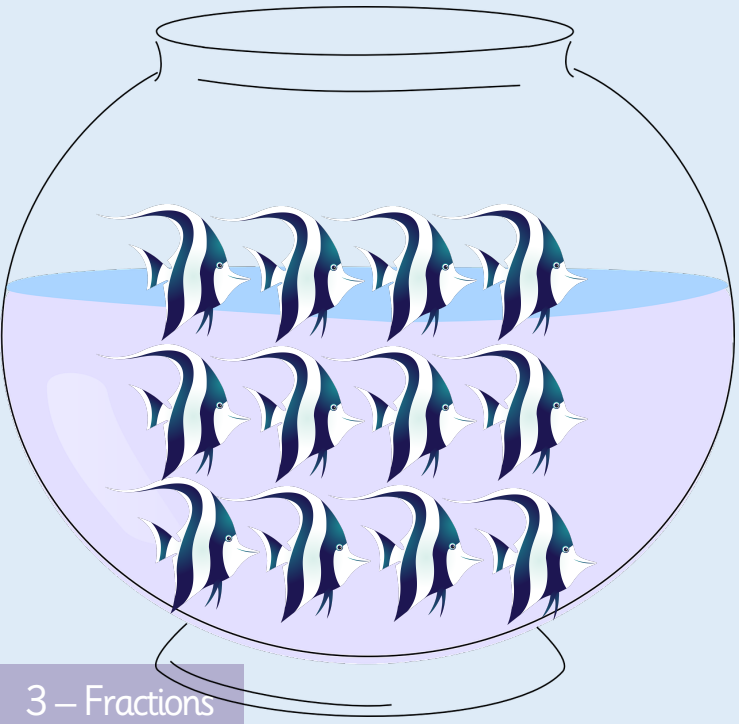
Activity 1 Fraction of an Amount (2)

Find $\frac{3}{4}$ of Leanna's angelfish.

I have divided the angelfish into ☐ equal groups.

There are ☐ angelfish in each group.

$\frac{3}{4}$ of the angelfish is ☐.



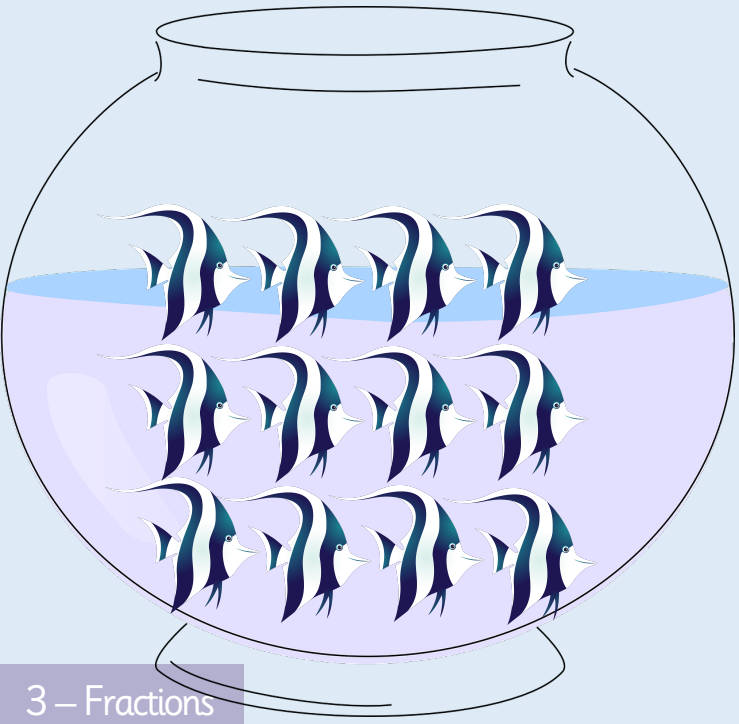
Activity 1 Fraction of an Amount (2)

Find $\frac{3}{4}$ of Leanna's angelfish.

I have divided the angelfish into [4] equal groups.

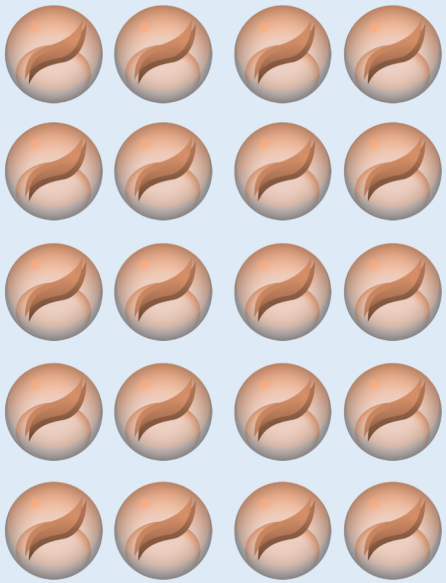
There are [3] angelfish in each group.

$\frac{3}{4}$ of the angelfish is [9].



Activity 1 Fraction of an Amount (2)

Find $\frac{2}{5}$ of Malachi's marbles.



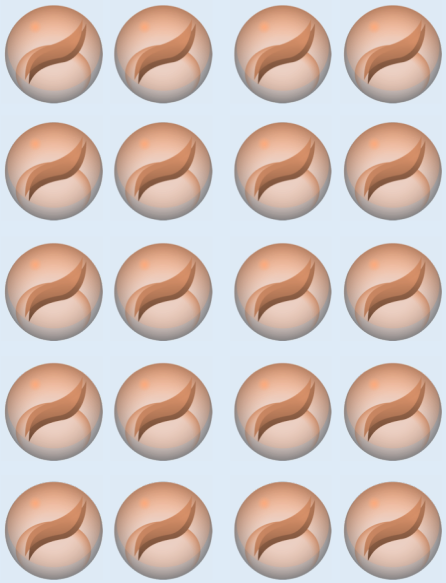
I have divided the marbles into ☐ equal groups.

There are ☐ marbles in each group.

$\frac{2}{5}$ of the marbles is ☐.

Activity 1 Fraction of an Amount (2)

Find $\frac{2}{5}$ of Malachi's marbles.



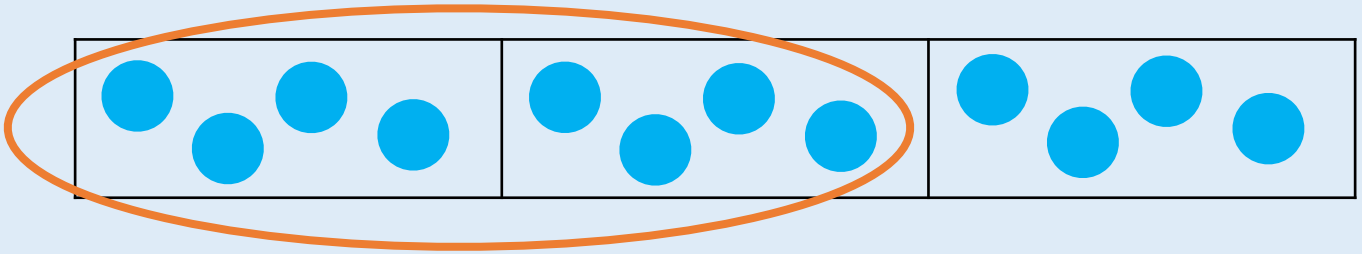
I have divided the marbles into 5 equal groups.

There are 4 marbles in each group.

$\frac{2}{5}$ of the marbles is 8.

Activity 2 Fraction of an Amount (2)

Tia has used a bar model with counters to find the answer to $\frac{2}{3}$ of 12.



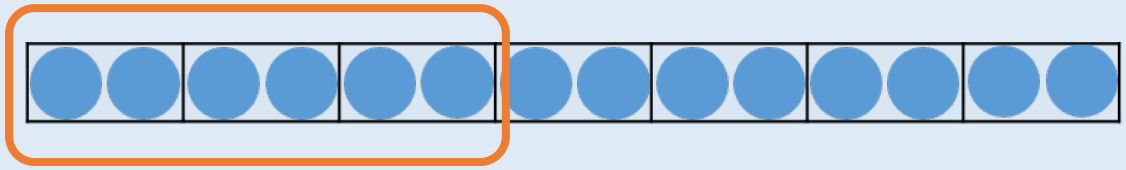
Use the same method to calculate the following:

$\frac{3}{7}$ of 14 $\frac{4}{6}$ of 18 $\frac{3}{5}$ of 10 $\frac{7}{10}$ of 20

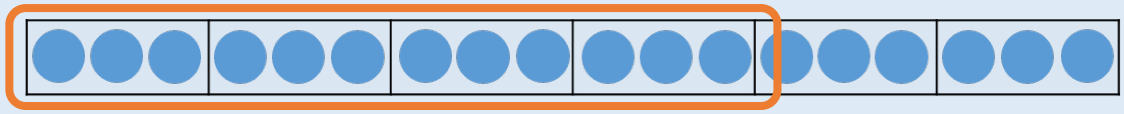
Activity 2

Fraction of an Amount (2)

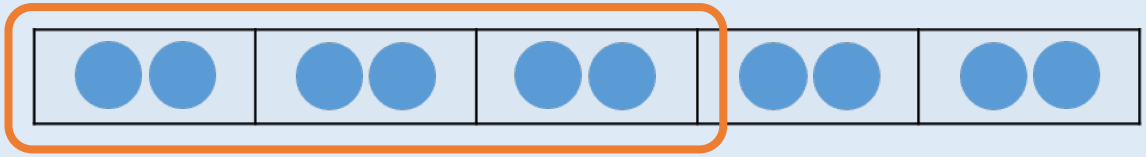
$\frac{3}{7}$ of 14



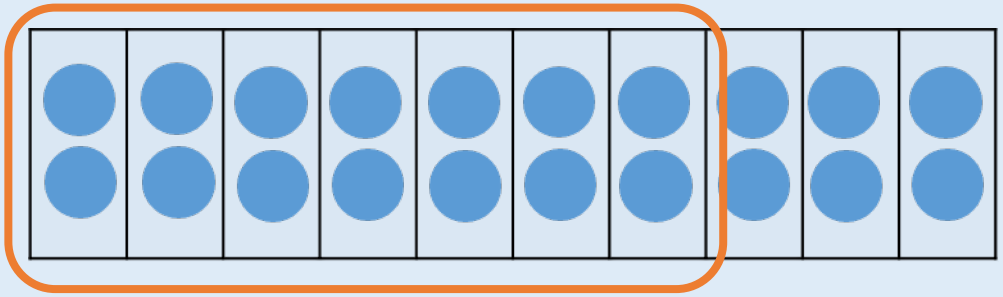
$\frac{4}{6}$ of 18



$\frac{3}{5}$ of 10



$\frac{7}{10}$ of 20



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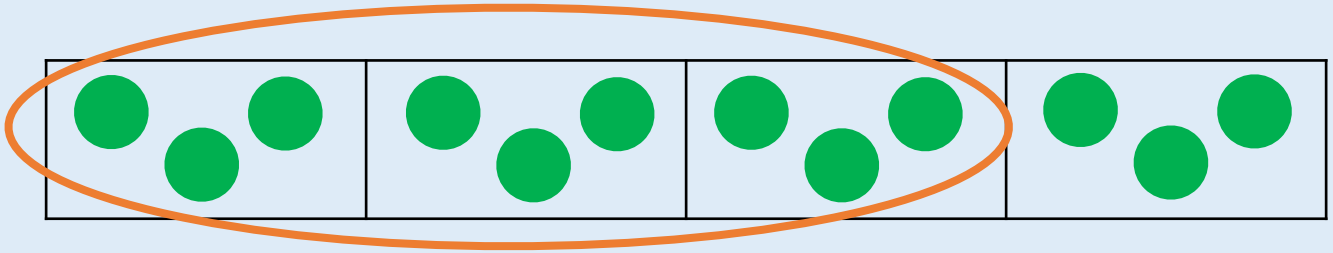
Activity 2 Fraction of an Amount (2)

Zach has used a bar model with counters to find the answer to $\frac{3}{4}$ of 12.



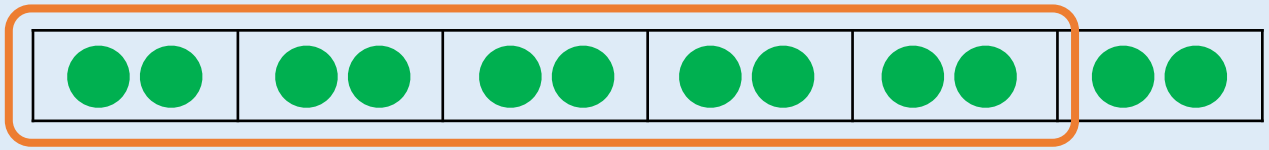
Use the same method to calculate the following:

$\frac{5}{6}$ of 12 $\frac{2}{3}$ of 12 $\frac{2}{3}$ of 18 $\frac{7}{9}$ of 18

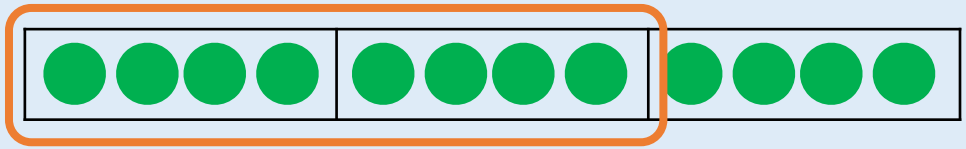
Activity 2

Fraction of an Amount (2)

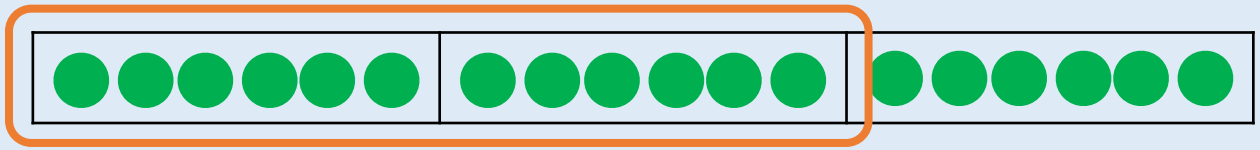
$\frac{5}{6}$ of 12



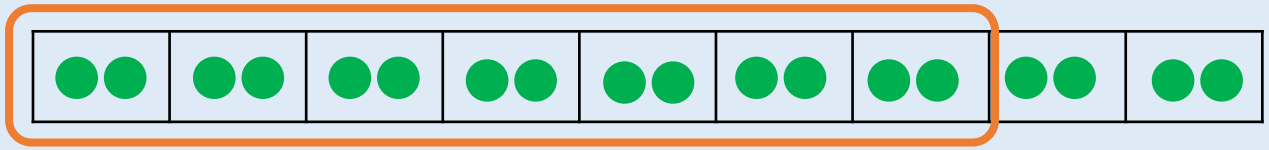
$\frac{2}{3}$ of 12



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

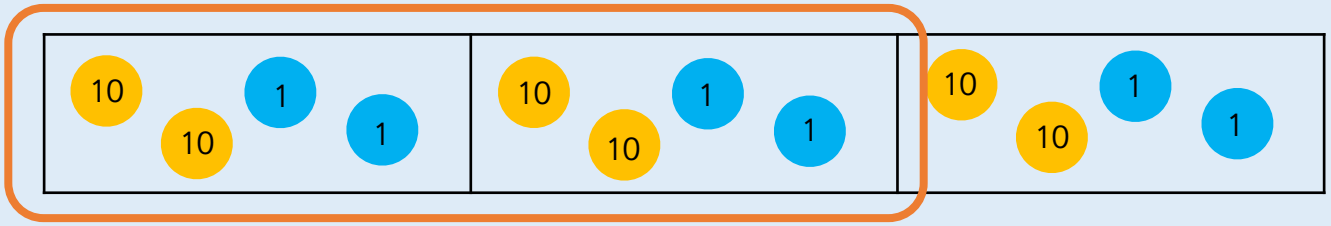


$\frac{7}{9}$ of 18



Activity 3 Fraction of an Amount (2)

Tia has used a bar model with place value counters to find the answer to $\frac{2}{3}$ of 66.



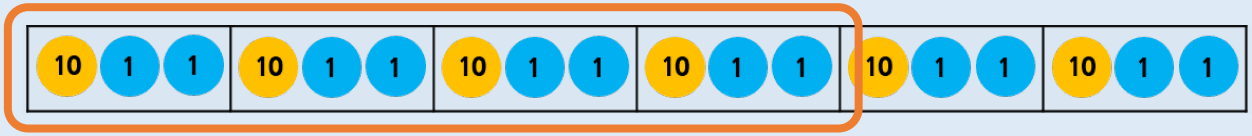
Use the same method to calculate the following:

$\frac{2}{5}$ of 55 $\frac{4}{6}$ of 72 $\frac{3}{5}$ of 95 $\frac{4}{10}$ of 100

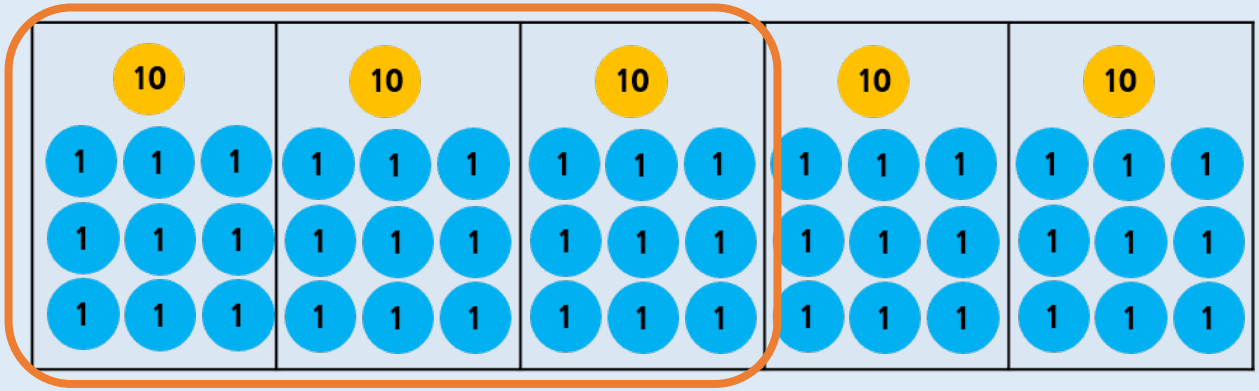
Activity 3 Fraction of an Amount (2)

$\frac{2}{5}$ of 55

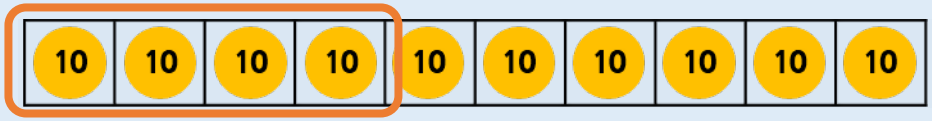
$\frac{4}{6}$ of 72



$\frac{3}{5}$ of 95

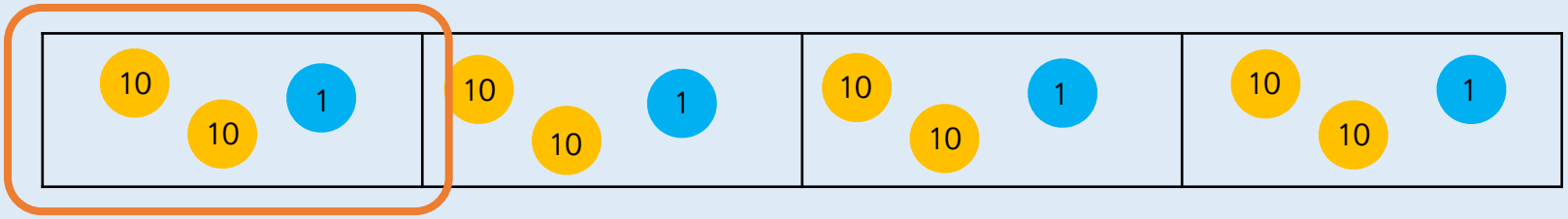


$\frac{4}{10}$ of 100



Activity 3 Fraction of an Amount (2)

Esin has used a bar model with place value counters to find the answer to $\frac{1}{4}$ of 84.



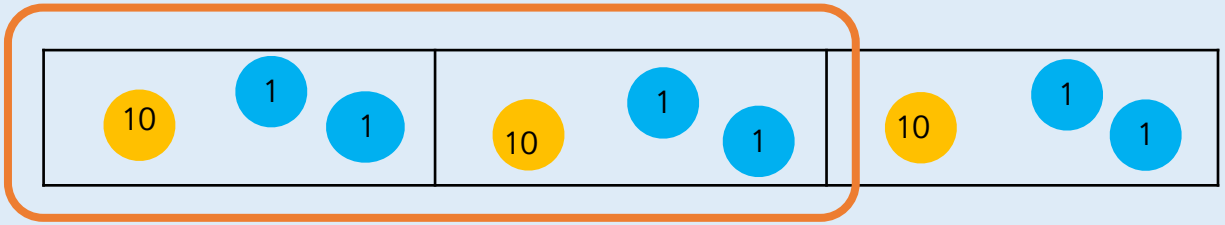
Use the same method to calculate the following:

$\frac{2}{3}$ of 36 $\frac{2}{3}$ of 45 $\frac{3}{5}$ of 65

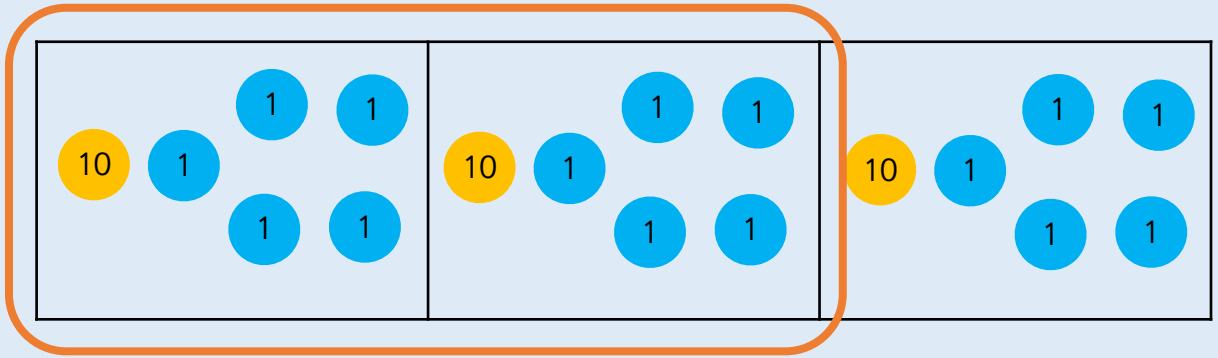
Activity 3

Fraction of an Amount (2)

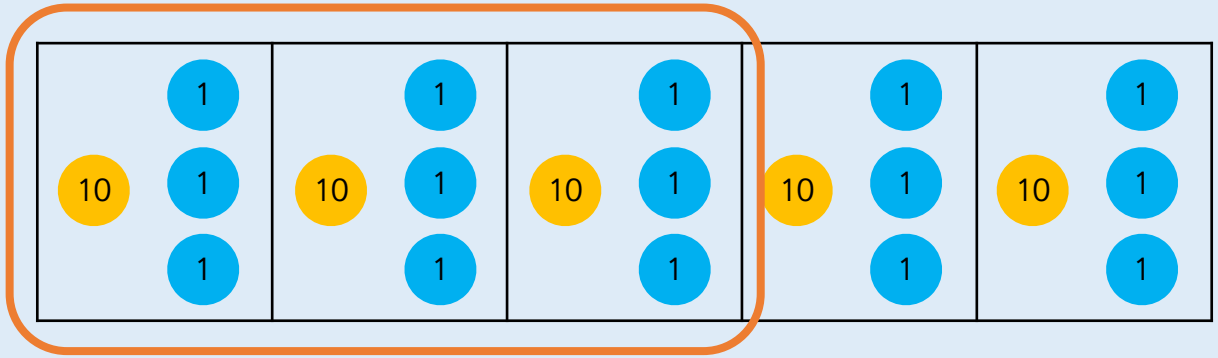
$\frac{2}{3}$ of 36



$\frac{2}{3}$ of 45



$\frac{3}{5}$ of 65



Reasoning 1 Fraction of an Amount (2)

This is $\frac{1}{4}$ of a set of beanbags.

How many were in the whole set?

Reasoning 1

Fraction of an Amount (2)

This is $\frac{1}{4}$ of a set of beanbags.

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Reasoning 2 Fraction of an Amount (2)

Zach has £25.

On Friday, he spent $\frac{1}{4}$ of his money.

On Saturday, he spent $\frac{2}{3}$ of his remaining money and gave £1 to his sister.

On Sunday, he spent $\frac{1}{5}$ of his remaining money.

How much money does Zach have left?
What fraction of his original amount is this?

Reasoning 2 Fraction of an Amount (2)

Zach has £25.

On Friday, he spent $\frac{1}{4}$ of his money.

On Saturday, he spent $\frac{2}{3}$ of his remaining money and gave £1 to his sister.

On Sunday, he spent $\frac{1}{5}$ of his remaining money.

Zach has £4.20 left.

This is $\frac{21}{125}$ of his original amount.

Discussion

Fraction of an Amount (2)

What does the denominator tell us?

What does the numerator tell us?

What is the same and what is different about two thirds and two fifths?

How many parts is the whole divided into and why?

Fraction of an Amount (3)

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Activity 1

Fraction of an Amount (3)

Tia has £3 and 50p.
She wants to give half of her money to her sister.
How much would her sister receive?

Activity 1 Fraction of an Amount (3)

Tia has £3 and 50p.
She wants to give half of her money to her sister.
How much would her sister receive?

There are many different ways to work this out.
You may know what half of each amount is.

half is 50p half is 50p half is 50p half is 25p

The total is 175p or £1 and 75p

Activity 1

Fraction of an Amount (3)

Zach has £2 and 20p.
She wants to give half of her money to her sister.
How much would her sister receive?

Activity 1 Fraction of an Amount (3)

Zach has £2 and 20p.
She wants to give half of her money to her sister.
How much would her sister receive?

There are many different ways to work this out.
You may know what half of each amount is.

half is 50p half is 50p half is 10p

The total is 110p or £1 and 10p

Activity 2 Fraction of an Amount (3)

Children work in groups of four to make some cranberry jam.

The jar weighs 800 g.
Each child gets ¼ of the jam to take home.

What weight of jam will each child get?

Activity 2 Fraction of an Amount (3)

Children work in groups of four to make some cranberry jam.

¼ of 8 g = 2 g
¼ of 800 g is 200 g

Each child will get 200 g.

Activity 2 Fraction of an Amount (3)

A bag of sweets weighs 240 g.

There are four children going to the cinema.
Each child gets ¼ of a bag.

What weight of sweets will each child receive?

Activity 2 Fraction of an Amount (3)

A bag of sweets weighs 240 g.

There are four children going to the cinema.
Each child gets ¼ of a bag.

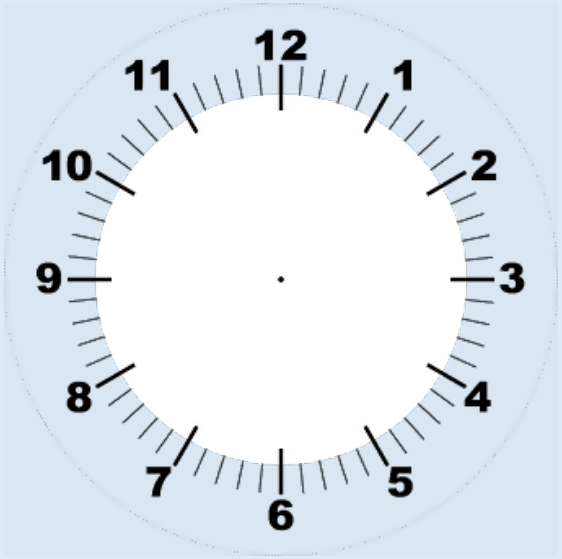
What weight of sweets will each child receive?

¼ of 24 g = 6 g
¼ of 240 g is 60 g

Each child will get 60 g.

Activity 3 Fraction of an Amount (3)

Find $\frac{2}{3}$ of 1 hour. Use the clock face to help you.



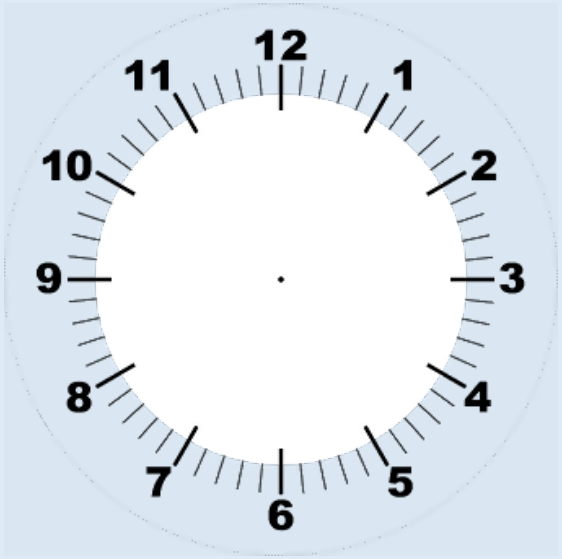
1 hour = _____ minutes

$\frac{1}{3}$ of _____ minutes = _____

$\frac{2}{3}$ of _____ minutes = _____

Activity 3 Fraction of an Amount (3)

Find $\frac{2}{3}$ of 1 hour. Use the clock face to help you.



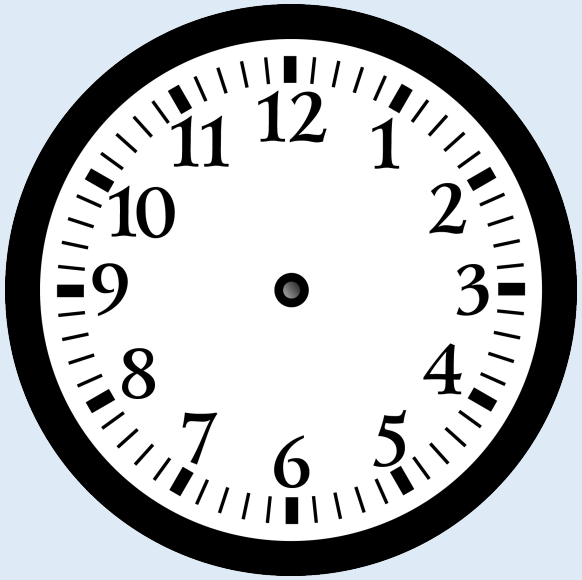
1 hour = 60 minutes

$\frac{1}{3}$ of 60 minutes = 20 minutes

$\frac{2}{3}$ of 60 minutes = 40 minutes

Activity 3 Fraction of an Amount (3)

Find $\frac{2}{4}$ of 1 hour. Use the clock face to help you.



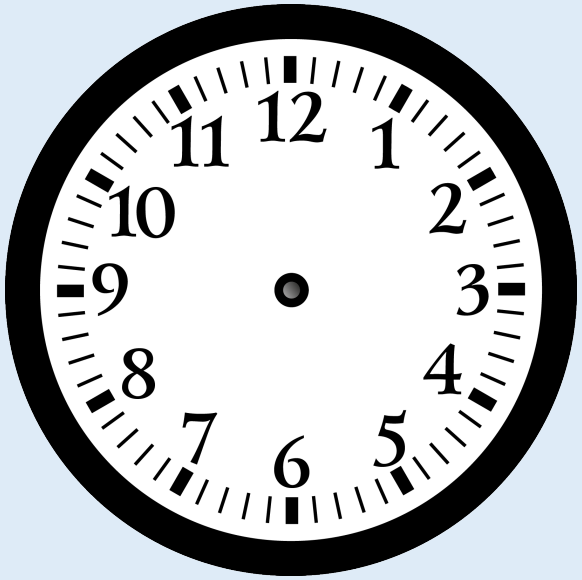
1 hour = _____ minutes

$\frac{1}{4}$ of _____ minutes = _____

$\frac{2}{4}$ of _____ minutes = _____

Activity 3 Fraction of an Amount (3)

Find $\frac{2}{4}$ of 1 hour. Use the clock face to help you.



1 hour = 60 minutes

$\frac{1}{4}$ of 60 minutes = 15 minutes

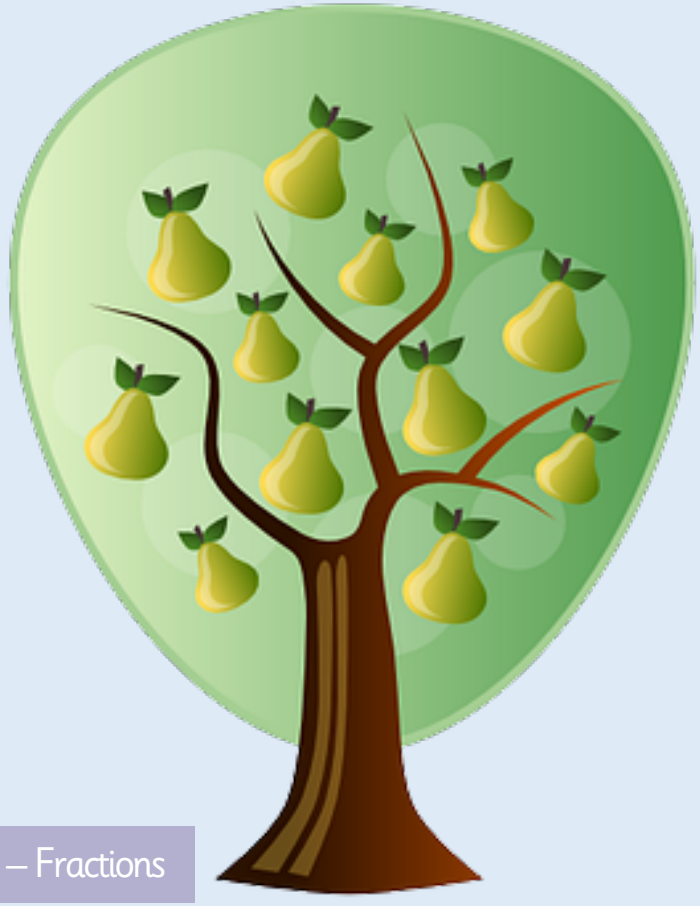
$\frac{2}{4}$ of 60 minutes = 30 minutes

Activity 4

Fraction of an Amount (3)

Two giraffes are eating pears off a tree. There are 12 pears. The taller giraffe ate $\frac{2}{3}$ of the pears.

How many pears were left for the shorter giraffe to eat?

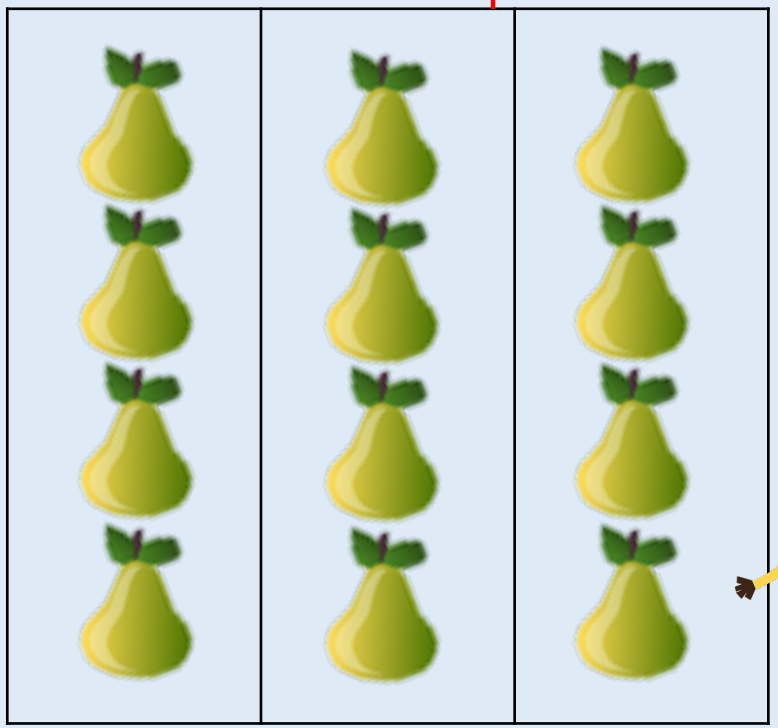


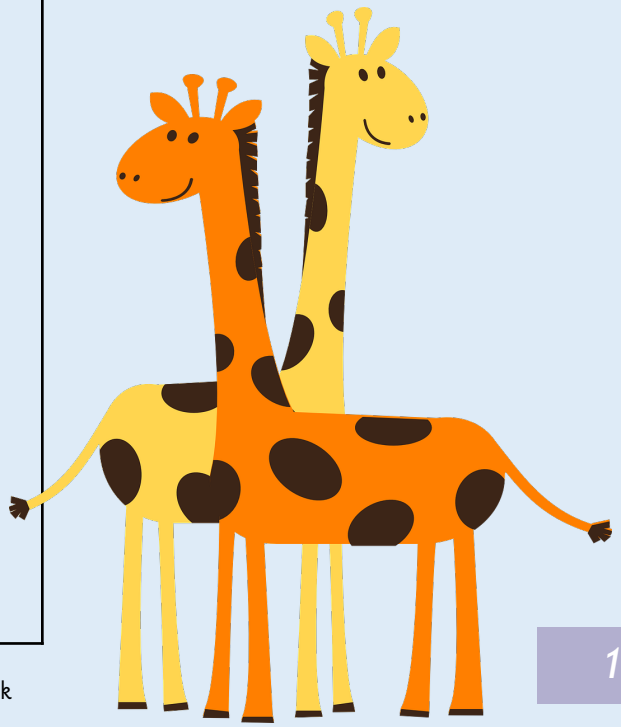
Activity 4

Fraction of an Amount (3)

Two giraffes are eating pears off a tree. There are 12 pears. The taller giraffe ate $\frac{2}{3}$ of the pears.

$\frac{1}{3}$ of the pears will be left for the orange giraffe, which is 4 pears.





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Activity 4 Fraction of an Amount (3)

Two clownfish are eating seaweed. The bigger clownfish already ate $\frac{2}{3}$ of the seaweed.

How much seaweed is left for the smaller clownfish to eat?

Activity 4 Fraction of an Amount (3)

Two clownfish are eating seaweed. The bigger clownfish already ate $\frac{2}{3}$ of the seaweed.

How much seaweed is left for the smaller clownfish to eat?

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

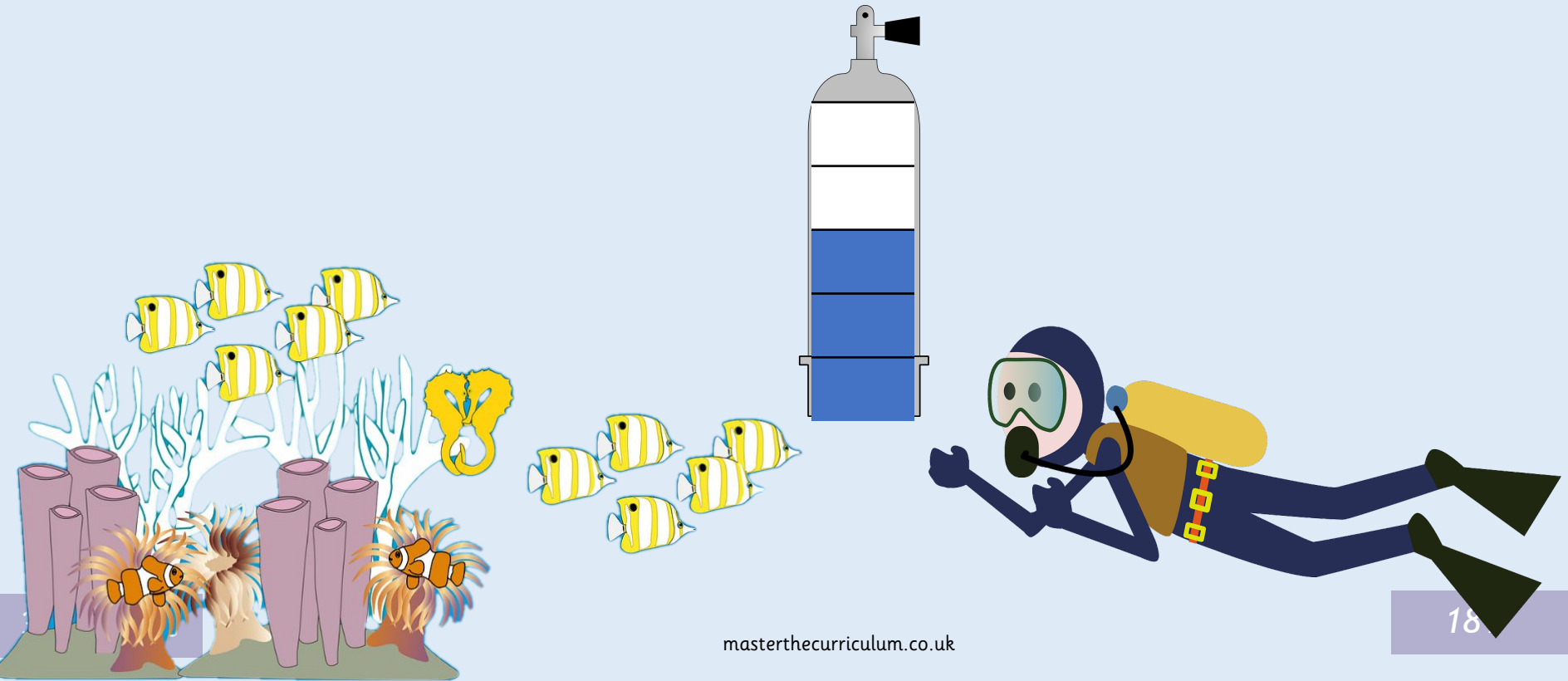
The smaller clownfish has $\frac{1}{3}$ of the seaweed left to eat.

Activity 5

Fraction of an Amount (3)

Zach went scuba diving. His oxygen tank has a capacity of 100 litres. He has already consumed $\frac{2}{5}$ of the oxygen.

How much oxygen has he consumed?
How much is left in the tank?

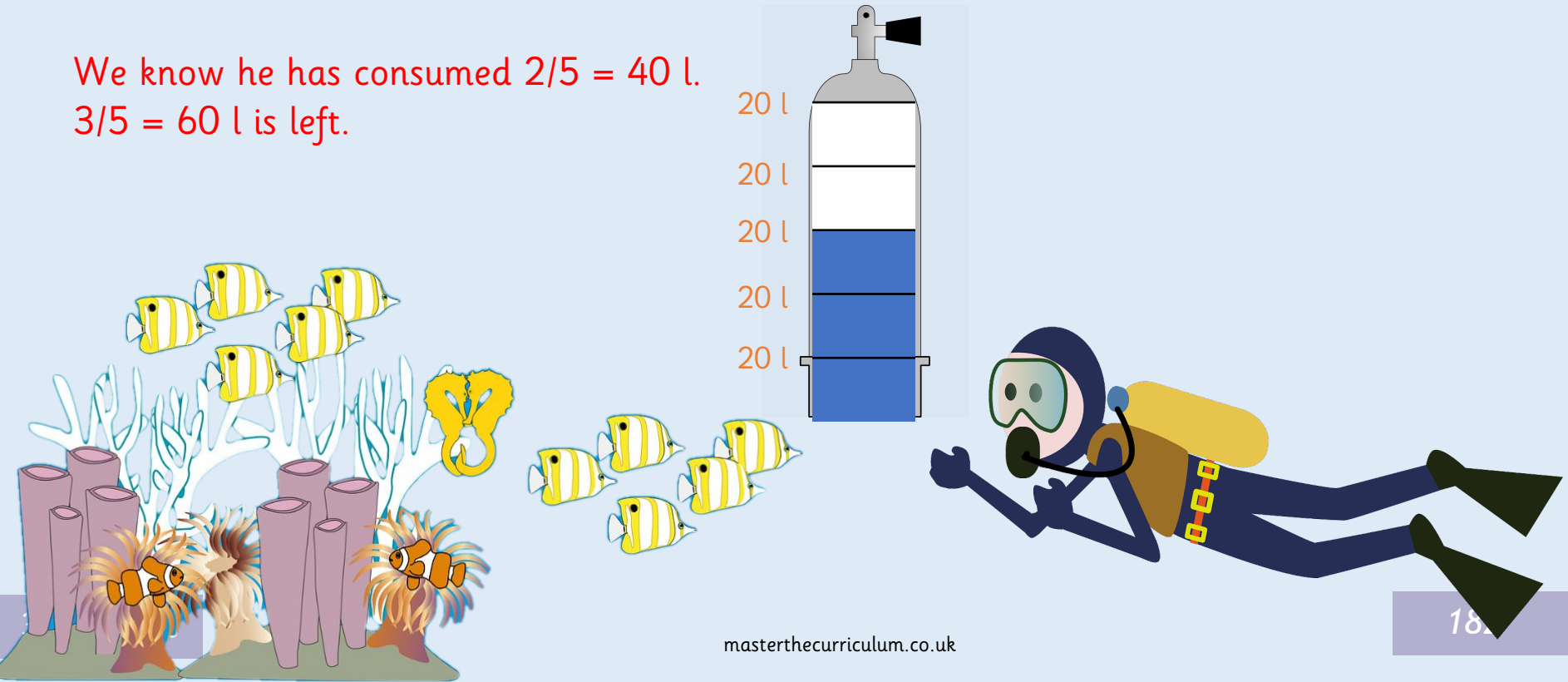


Activity 5 Fraction of an Amount (3)

Zach went scuba diving. His oxygen tank has a capacity of 100 litres. He has already consumed $\frac{2}{5}$ of the oxygen.

How much oxygen has he consumed?
How much is left in the tank?

We know he has consumed 2/5 = 40 l.
3/5 = 60 l is left.



Activity 6

Fraction of an Amount (3)

Tia has the amount below in her pocket.

She spends a third of it.
How much does she have left?

Activity 6 Fraction of an Amount (3)

Tia has the amount below in her pocket.

She spends a third of it.
How much does she have left?

One third is 20p. She has 40p left.

Reasoning 1 Fraction of an Amount (2)

Malachi makes two shirts. Each shirt uses 100 cm of material. He has a 500 cm roll of material.

How much material is left after making two shirts?
What fraction of the original roll is left over?

Reasoning 1 Fraction of an Amount (2)

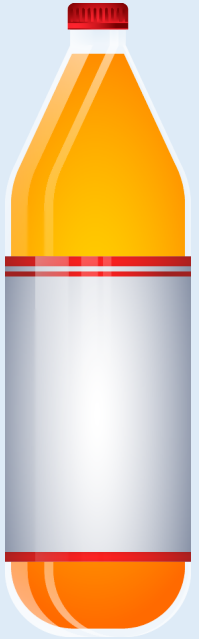
Malachi makes two shirts. Each shirt uses 100 cm of material. He has a 500 cm roll of material.

300 cm

This is $\frac{3}{5}$ of his original roll of material.

Reasoning 2 Fraction of an Amount (2)

Leanna and Esin share a bottle of juice.



Leanna drinks $\frac{2}{5}$ of the juice.

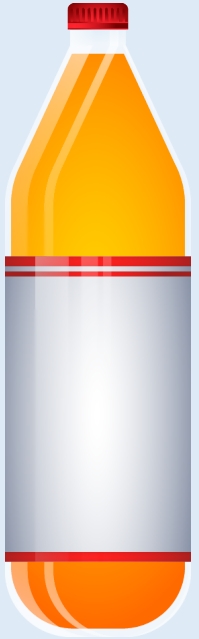
Esin drinks 200 ml of the juice.

Two fifths of the juice is left in the bottle.

How much did Leanna drink?
What fraction of the bottle did Esin drink?
What fraction of the drink is left?

Reasoning 2 Fraction of an Amount (2)

Leanna and Esin share a bottle of juice.



Leanna drinks $\frac{2}{5}$ of the juice.

Esin drinks 200 ml of the juice.

Two fifths of the juice is left in the bottle.

Leanna drank 400 ml of the juice.
Esin drank one fifth of the juice.
The fraction of juice left is two fifths of the bottle.

Discussion

Fraction of an Amount (3)

Do you need to make an exchange?

Can you represent the problem in a bar model?

When finding $\frac{5}{6}$, what will you need to do and why?

What is the whole? How can you represent the problem?