Summer Block 1

Fractions

Small steps

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Step 2	Equal and unequal parts
Step 3	Recognise a half
Step 4	Find a half
Step 5	Recognise a quarter
Step 6	Find a quarter
Step 7	Recognise a third
Step 8	Find a third

Small steps

Step 9	Find the whole
Step 10	Unit fractions
Step 11	Non-unit fractions
Step 12	Recognise the equivalence of a half and two-quarters
Step 13	Recognise three-quarters
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Step 15	Count in fractions up to a whole

Introduction to parts and whole

Notes and guidance

This small step is the first time that children encounter fractions this year. They begin by learning about parts and wholes.

Children are introduced to a variety of examples showing parts and wholes. It is important that they are secure in identifying the whole and parts of the whole. They can use everyday objects such as bicycles and flowers to identify the whole and parts of the whole. Using an interactive map is a good tool to identify the parts and whole, then zooming in to redefine the parts and whole before comparing.

Children should also consider how many ways they can identify parts and wholes from pictures. They should begin to consider if the part is a large or small part of the whole. This learning will be built upon over the block, as children identify equal parts and begin to formally recognise and find fractions.

Key questions

- What is a part? What is a whole?
- What is the difference between a "hole" and a "whole"?
- Which is larger, the part or the whole?
- If ______ is the whole, what could be part of the whole?
- Is this part a large or a small part of the whole? How do you know?
- How many parts of the whole can you find?

Possible sentence stems

- If the ______ is the whole, ______ is part of the whole.
- If ______ is the whole, ______ is not part of the whole.

Things to look out for

- Children may mix up a part and the whole.
- Children may not realise that a whole can be made up of many parts.

National Curriculum links

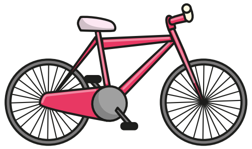
- Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity

Introduction to parts and whole

Key learning

Tell children to make a simple model using bricks. Ask them to identify the parts and the whole.

- Complete the sentence for each picture.



If the ______ is the whole, ______ is part of the whole.

As a class, use Google Earth to look at an image of Earth. Identify the whole, then identify different parts of the whole. Zoom in and redefine the whole. Ask children to name parts of the whole now.

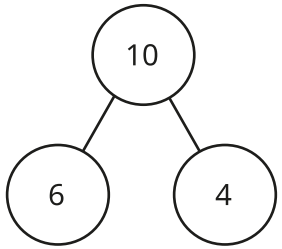
Continue zooming in and redefining the whole and parts of the whole.

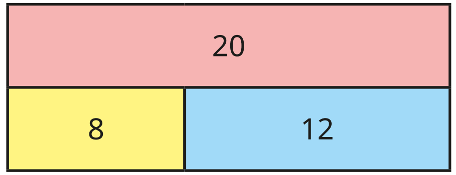
Discuss the relative sizes of the parts and the whole and whether they change as you zoom in.

- Look at each picture.

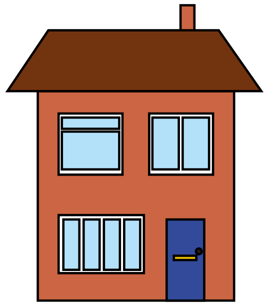
  What is the whole?

  What are the parts?





- Here is a picture.
  - What is the whole?
  - What is a part of the whole?
  - Find a large part of the whole.
  - Find a small part of the whole.



Complete the sentence.

If ______ is the whole, ______ is **not** part of the whole.

How many ways can you complete the sentence?

Introduction to parts and whole

Reasoning and problem solving

Are the statements always true, sometimes true or never true?

Small things are always a part of a whole.

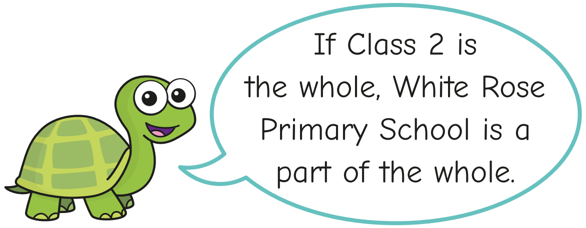
Big things are always a whole.

sometimes true

sometimes true

Discuss examples as a class.

Tiny is thinking about parts and wholes.

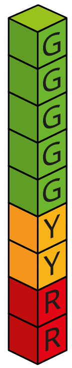


Explain Tiny's mistake.

Make up some statements about wholes and parts in your school.

Tiny has mixed up parts and wholes.

Here is a tower made of red, yellow and green cubes.



How many different ways can you describe the parts?

The ______ cubes are a small part of the whole.

The ______ cubes are a large part of the whole.

Build your own tower and describe the parts.

red or yellow

green

Equal and unequal parts

Notes and guidance

In this small step, children explore equal and unequal parts.

It is important that children have a secure understanding of the whole and parts before moving on to this step. They will already have used many skills required for this step in the multiplication and division block when identifying equal and unequal groups, so it may be useful to recap this.

Children identify whether a shape has been split into equal or unequal parts. This is crucial learning, as it is used throughout the block to identify fractions. They first look at shapes where the equal parts look the same, but are then challenged to prove a shape has been split into equal parts where the parts do not look the same. At this stage, children do not need to describe the parts as fractions of the whole.

Things to look out for

- Children may not know what equal groups/parts mean.
- Children may know how to split a shape into equal parts, but may find it difficult to draw accurately.
- Children may think that all equal parts must be identical.
- Children may think that they can only make equal parts using straight lines.

Key questions

- What does "equal" mean? What does "unequal" mean?
- Which picture shows equal groups? How is this similar to equal parts?
- How do you know that the shape has been split into equal parts?
- How could you split the shape into equal parts?
- Is there more than one way to show equal parts? How do you know?
- Do equal parts always need to look the same?
- Is it possible to make equal parts using curved lines?

Possible sentence stems

- There are ______ equal parts.
- I know the shape has been split into equal/unequal parts because …

National Curriculum links

- Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity

Equal and unequal parts

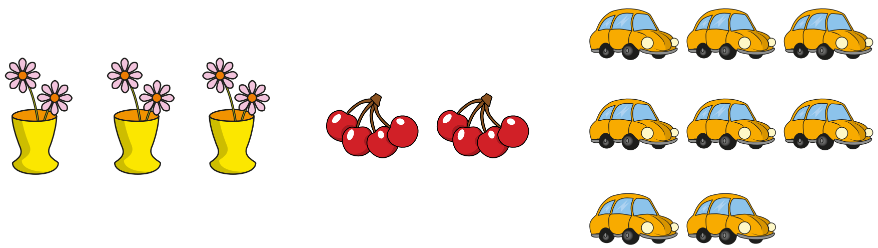
Key learning

As a class, create definitions of equal and unequal.

Ask children to draw examples of things that are equal and things that are unequal.

- Which pictures show equal groups?

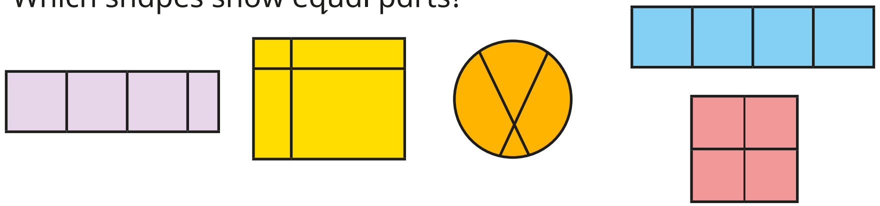
  Which picture shows an unequal group?



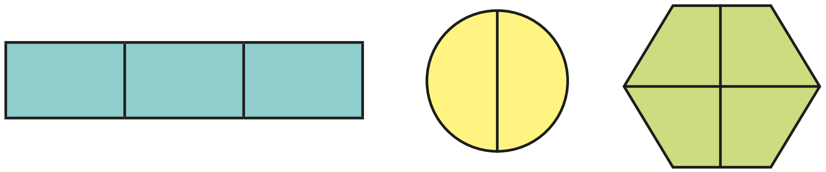
Give children a paper shape. Ask them to cut it into four parts and then put it back together again. What do they notice? Are the parts equal or unequal?

Compare shapes as a class and challenge children to sort shapes into those that have equal or unequal parts.

- Which shapes show equal parts?



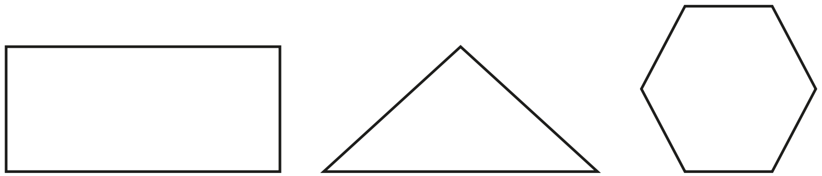
- Complete the sentence for each shape.



There are ______ equal parts.

How can you tell that they are equal parts?

- Split the shapes so that they show equal parts.

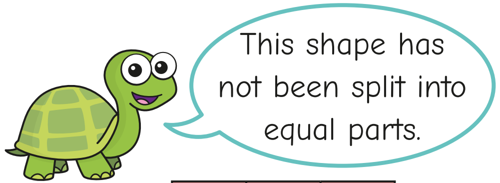


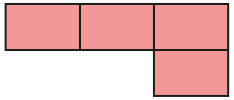
Split the shapes so that they show unequal parts.

Equal and unequal parts

Reasoning and problem solving

Tiny is finding equal and unequal parts.



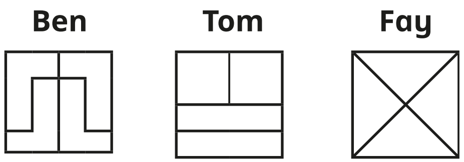


Do you agree with Tiny?

Explain your answer.

No

Ben, Tom and Fay each split a square into parts.



Who has split the square into equal parts?

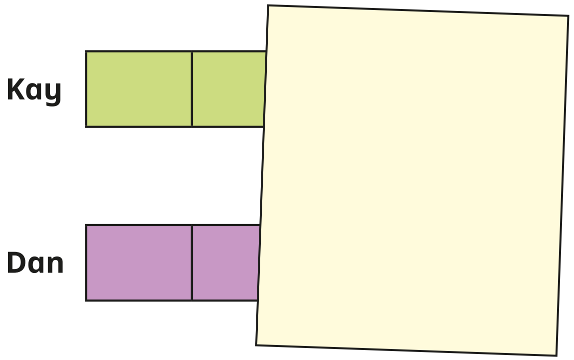
Explain your answer.

They have all split the square into equal parts.

Kay and Dan each have a strip of paper.

Kay splits her paper into four equal parts.

Dan splits his paper into two equal parts.



Whose strip of paper is longer?

How do you know?

Kay's

Recognise a half

Notes and guidance

Children now begin to focus on specific fractions, starting with a half.

Children were taught this in Year 1 and may be familiar with the word or concept of a half from everyday life. It could be useful to discuss this and identify any misconceptions, such as "the bigger half". Once confident with their understanding of a half, they are introduced to the formal notation for fractions for the first time, in this case $\frac{1}{2}$. It is important to spend time considering what each digit represents to support understanding, not only in this step, but for understanding of fractions moving forwards. Children are also introduced to the terms "numerator" and "denominator" for the first time.

Children need to identify half of a shape, but they should also look at length and sets of objects. In the next step, they will work out half of a number.

Things to look out for

- Children may not recognise that the halves must be equal.
- Children may think that it is impossible to represent $\frac{1}{2}$ when there are more than two parts.
- Children may mix up the numerator and denominator.

Key questions

- What is a half?
- When have you used the word "half" before?
- How do you know that a half is shaded?
- Has the shape been split into equal parts? How do you know?
- How many equal parts is the shape split into?
- How else can you write one half? What does each number represent?
- What does the fraction bar represent?

Possible sentence stems

- The whole has been split into ______ equal parts.

  Each part is worth one ______

  This can be written as $\frac{\square}{\square}$

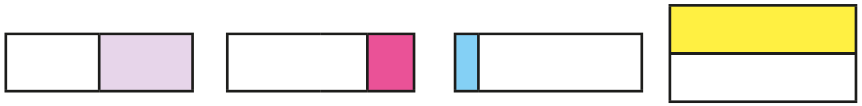
National Curriculum links

- Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity

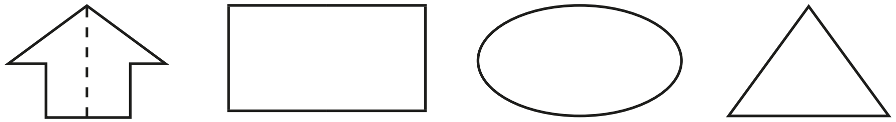
Recognise a half

Key learning

- Which shapes show a half?

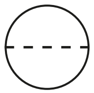
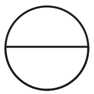
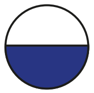


- Colour half of each shape.



Is there more than one way to show a half?

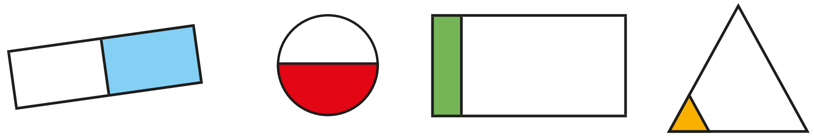
Discuss how Kay remembers how to write $\frac{1}{2}$

	The whole has been divided	Write the fraction bar.	—
	into 2 equal parts.	Write the denominator.	$\frac{\ }{2}$
	1 part is shaded.	Write the numerator.	$\frac{1}{2}$

What do children notice?

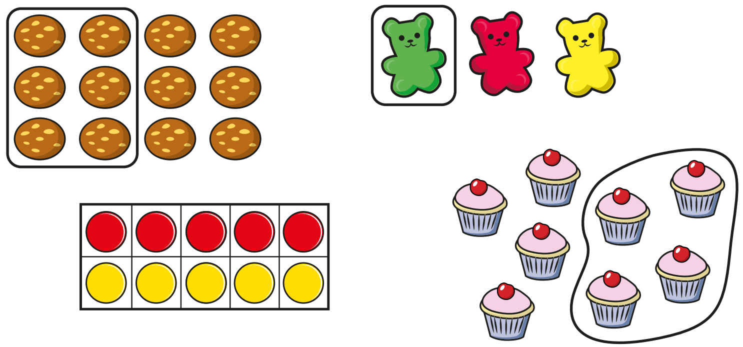
What does each number represent?

- Which pictures show $\frac{1}{2}$?

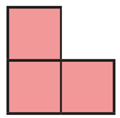


How could you change the other pictures so that they show $\frac{1}{2}$?

- Which pictures show $\frac{1}{2}$?



- Here is $\frac{1}{2}$ of a shape.



What could the whole shape be?

Recognise a half

Reasoning and problem solving

Jo tries to write one half.

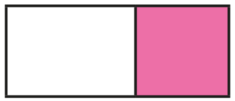
$\frac{2}{1}$

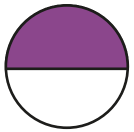
Do you agree with Jo?

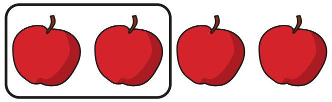
Explain your answer.

No

Which is the odd one out?







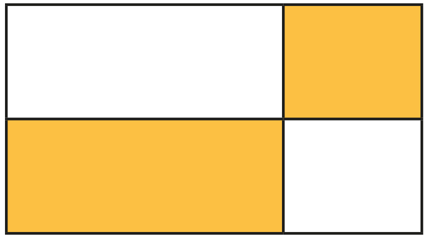
$\frac{1}{2}$

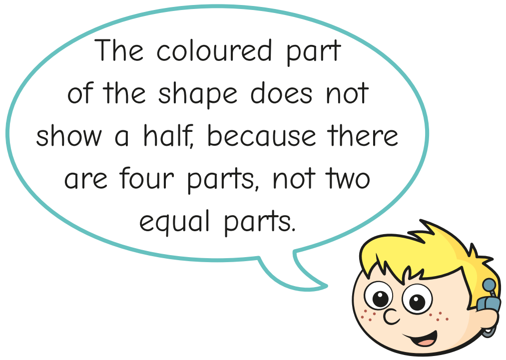
one half

Explain your answer.

rectangle

Max is finding half of a shape.





Do you agree with Max?

Explain your answer.

No

Find a half

Notes and guidance

In this small step, children use their understanding of $\frac{1}{2}$ to find half of a quantity.

This step should focus on using concrete resources and pictorial representations to support understanding. It may also be useful to recap division skills. Children could start by sharing bean bags or counters into two equal groups. Guide them to make the link that when they find $\frac{1}{2}$ of a number, they need to divide the number by 2, the denominator of the fraction. Children could also use related facts to help them find $\frac{1}{2}$ of greater numbers, for example using $\frac{1}{2}$ of 4 to work out $\frac{1}{2}$ of 40

Things to look out for

- Children may need support splitting objects into two equal groups if they cannot physically share them.
- Children may not make the link between finding $\frac{1}{2}$ and dividing by 2
- Children may not understand why they cannot find $\frac{1}{2}$ of an odd number using counters.

Key questions

- What is a half?
- How can you find half of the number?
- How can you use counters/bar models to help you?
- How is finding half of a number similar to dividing by 2? Why?
- Why can you not split an odd number of counters into two equal groups?
- If you know half of 6, how can you find half of 60?

Possible sentence stems

- The objects have been shared equally between ______ groups.
  There are ______ in each group.
  $\frac{1}{2}$ of ______ is equal to ______
- To find half of a number, I need to divide the number by ______

National Curriculum links

- Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity
- Write simple fractions, for example $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$

Find a half

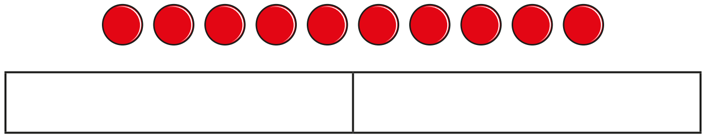
Key learning

As a class, share 20 bean bags equally between two containers. Then complete the sentences.

The whole is ______ Half of ______ is ______

Repeat with other even numbers of bean bags.

- Share 10 counters between the two groups.



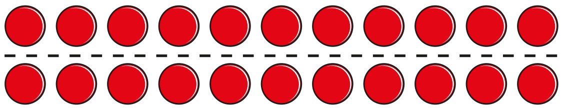
Complete the sentences.

The counters have been shared equally between ______ groups.

There are ______ in each group.

$\frac{1}{2}$ of 10 is equal to ______

- Ann uses an array to find $\frac{1}{2}$ of 22

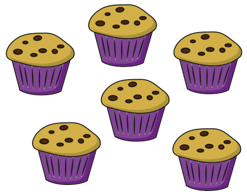


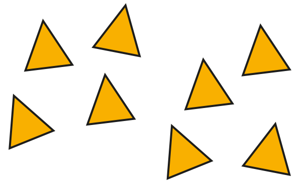
$\frac{1}{2}$ of 22 is equal to 11

Use Ann's method to find $\frac{1}{2}$ of each number.

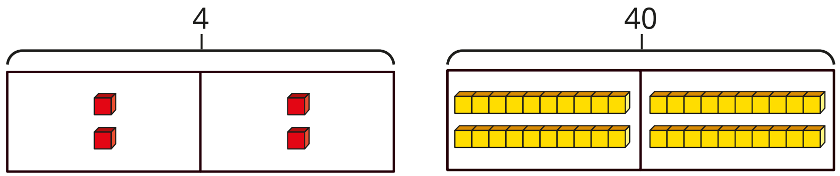
▸ 12 ▸ 18 ▸ 24

- Find $\frac{1}{2}$ of each set of objects.





- Use base 10 and bar models to work out the calculations.



▸ $\frac{1}{2}$ of 4 = ______ $\frac{1}{2}$ of 40 = ______

▸ $\frac{1}{2}$ of 6 = ______ $\frac{1}{2}$ of 60 = ______

▸ $\frac{1}{2}$ of 8 = ______ $\frac{1}{2}$ of 80 = ______

What do you notice?

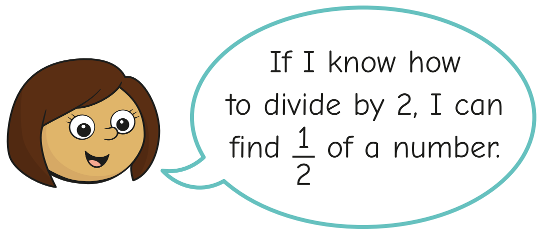
- Dan is running a 100 m race.

How far will he have run when he has completed $\frac{1}{2}$ of the race?

Find a half

Reasoning and problem solving

Kim is finding $\frac{1}{2}$ of different numbers.

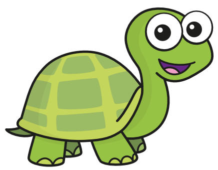


Do you agree with Kim?

Explain your answer.

Yes

Tiny is finding $\frac{1}{2}$ of 10



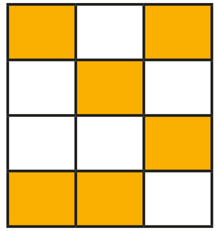
$\frac{1}{2}$ of 10 = 8

Explain Tiny's mistake.

Tiny has subtracted 2 from 10, instead of dividing 10 by 2

Ben is asked to colour half of a shape.

This is his answer.



Is Ben correct?

Explain your answer.

Yes

Fay is thinking of a number.

Half of her number is more than 10 but less than 15

What could her number be?

How many answers can you find?

22, 24, 26, 28

Recognise a quarter

Notes and guidance

Building on their learning in Year 1, children spend the next two steps deepening their understanding of a quarter. In this small step, they recognise a quarter, focusing mainly on shapes but also considering length and sets of objects.

Children should be able to identify if a shape has been split into equal parts and if each part represents a quarter. They can compare the written notation for $\frac{1}{2}$ and $\frac{1}{4}$ and identify what the digits represent.

Children should see $\frac{1}{4}$ represented in multiple ways and not be limited to just standard examples. They may also begin to compare $\frac{1}{2}$ and $\frac{1}{4}$ in relation to the same object or amount and think about which is greater.

Things to look out for

- Children may think that they must colour the "first" box, not recognising that all parts are worth $\frac{1}{4}$
- Children may think that $\frac{1}{4}$ should be represented by one part shaded/selected and four parts unshaded/unselected.

Key questions

- What is a quarter?
- How do you know that a quarter is shown?
- Has the shape been split into equal parts?
- What is the denominator? How do you know?
- How is the denominator of $\frac{1}{4}$ different from the denominator of $\frac{1}{2}$? Why?
- Does it matter which part you colour/circle?
- What does each digit in the fraction represent? What does the fraction bar represent?

Possible sentence stems

- The whole has been split into ______ equal parts.
  One of the ______ equal parts is called a ______
  This can be written as $\frac{\square}{\square}$

National Curriculum links

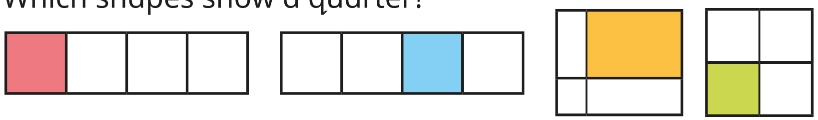
- Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity

Recognise a quarter

Key learning

- Use a rectangular piece of paper.
  - Fold the piece of paper in half.
    What fraction is shown?
  - Fold the piece of paper in half again.
    How many equal parts do you have now?
    What fraction can you see?

- Which shapes show a quarter?



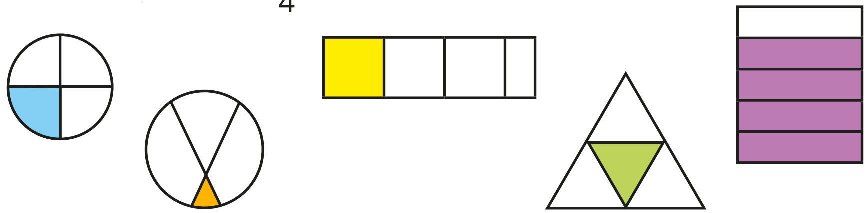
Discuss how Tom remembers how to write $\frac{1}{4}$

	The circle has been divided	Write the fraction bar.	—
	into 4 equal parts.	Write the denominator.	$\frac{}{4}$
	1 part is shaded.	Write the numerator.	$\frac{1}{4}$

What do children notice?

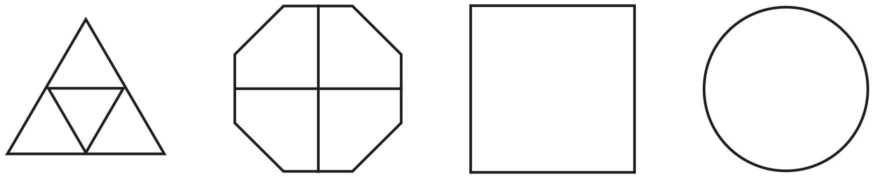
What does each number represent?

- Which shapes show $\frac{1}{4}$?



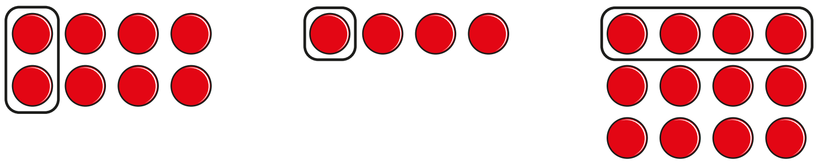
Explain why the others do not show $\frac{1}{4}$

- Colour $\frac{1}{4}$ of each shape.



Is there more than one way to colour $\frac{1}{4}$?

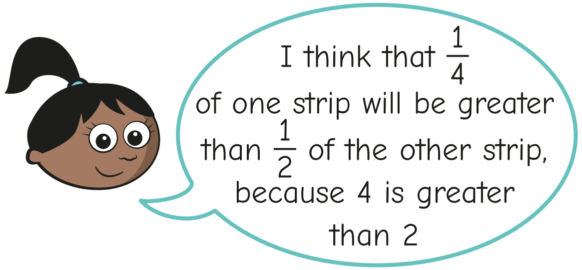
- Which pictures show $\frac{1}{4}$?



Recognise a quarter

Reasoning and problem solving

Sam folds two identical paper strips.

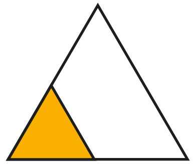


Do you agree with Sam?

Explain your answer.

No

Here is a triangle with a fraction shaded.



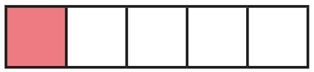
Is the statement true or false?

$\frac{1}{4}$ of the shape is shaded.

Explain your answer.

True

Ron draws a bar model to show $\frac{1}{4}$

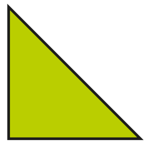


Do you agree with Ron?

Explain your answer.

No

Here is $\frac{1}{4}$ of a shape.



What could the whole shape be?

Compare answers as a class.

Find a quarter

Notes and guidance

In this small step, children use their understanding of a quarter to find $\frac{1}{4}$ of an amount.

As with Step 4, the focus here should be on using concrete and pictorial resources to support understanding. One of the difficulties with this step is that children are not yet familiar with dividing by 4, so modelling of sharing into four equal groups will be required. They could also approach finding a quarter by recognising that it is half of a half or divide by 2 twice. Encourage children to attempt both strategies and decide which they find more efficient.

Things to look out for

- Children may find it difficult to split pictures into four equal groups.
- Children may not recognise the relationship between finding $\frac{1}{2}$ and $\frac{1}{4}$ of a number.
- Children may confuse finding a quarter of a set of objects with finding four of the objects.

Key questions

- How do you find half of a number? How do you find a quarter of a number? What is the same? What is different?
- How can you use counters/bar models to help?
- How many equal groups do you need to make?
- How many ways can you find a quarter?
- How many quarters are there in a half?
- If you know half of an amount, how can you find a quarter?

Possible sentence stems

- The objects have been shared equally between ______ groups.

  There are ______ in each group.

  $\frac{1}{4}$ of ______ is equal to ______

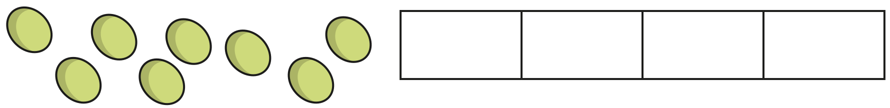
National Curriculum links

- Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity
- Write simple fractions, for example $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$

Find a quarter

Key learning

- Use the bar model to help share the 8 grapes equally between four people.

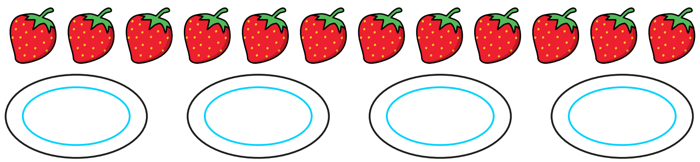


The grapes are split into ______ equal parts.

Each part is worth a ______

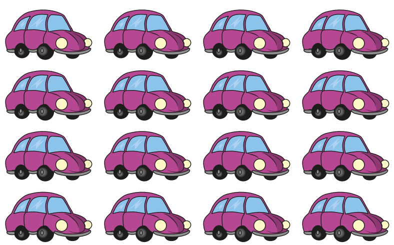
$\frac{1}{4}$ of 8 is equal to ______

- Share the 12 strawberries into four equal groups.



$\frac{1}{4}$ of 12 = ______

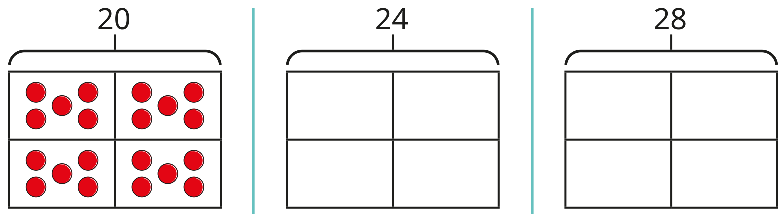
- Circle $\frac{1}{4}$ of the cars.



One quarter of ______ is ______

______ is $\frac{1}{4}$ of ______

- Use bar models to find $\frac{1}{4}$ of each number.



$\frac{1}{4}$ of 20 = ______ | $\frac{1}{4}$ of 24 = ______ | $\frac{1}{4}$ of 28 = ______

What do you notice?

- Complete the number sentences.
  - $\frac{1}{2}$ of 8 = ______
  - $\frac{1}{4}$ of 8 = ______
  - $\frac{1}{2}$ of 16 = ______
  - $\frac{1}{4}$ of 16 = ______
  - $\frac{1}{2}$ of 20 = ______
  - $\frac{1}{4}$ of 20 = ______

What do you notice?

- Kay knows that half of 44 is 22

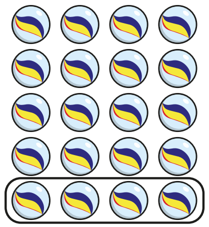
How can Kay use this fact to work out $\frac{1}{4}$ of 44?

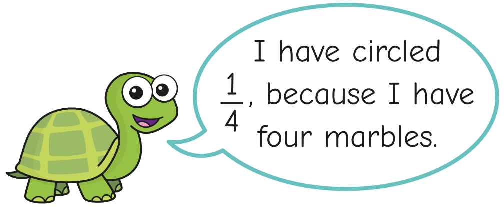
What is $\frac{1}{4}$ of 44?

Find a quarter

Reasoning and problem solving

Tiny is finding a quarter.





Do you agree with Tiny?

Explain your answer.

No

Jo has $\frac{1}{4}$ of £40

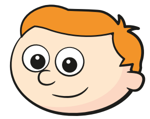
Max has $\frac{1}{2}$ of £20

Who has the most money?

They have the same amount.

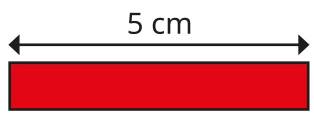
Ron has two ribbons.

He cuts $\frac{1}{4}$ from each ribbon.

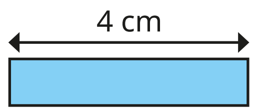


Here are the pieces of ribbon that Ron has cut.

$\frac{1}{4}$ of ribbon A



$\frac{1}{4}$ of ribbon B



How long were Ron's whole pieces of ribbon?

Which ribbon was longer?

How much longer was it?

A 20 cm

B 16 cm

A

4 cm longer

Recognise a third

Notes and guidance

In this small step, children are introduced to the fraction $\frac{1}{3}$ for the first time.

It is important that time is taken to consider what is the same and what is different about $\frac{1}{3}$ and the other fractions children have learnt. They should recognise that 1 is still the numerator (the importance of which will be covered in more detail in Step 10), but the denominator is 3, so the whole is split into three equal parts. Again, children should consider what each digit represents in the written notation to support understanding.

Children identify a third of a shape, a length and a set of objects and need to consider if they have been split into three equal parts. At this stage, they could also begin to compare $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{3}$ to support and deepen understanding.

Things to look out for

- Children may think that a shape split into three unequal parts shows $\frac{1}{3}$
- Children may think that they can only find $\frac{1}{3}$ when they have exactly three parts.

Key questions

- Has the shape been split into equal parts?
- How many equal parts has the shape been split into?
- What is a third? How is it similar to a half and a quarter? How is it different?
- What does the numerator/denominator represent?
- How can you show $\frac{1}{3}$?
- Why do these shapes not show $\frac{1}{3}$?

Possible sentence stems

- The whole has been split into ______ equal parts.

  Each part is worth a ______

  This is the same as $\frac{\square}{\square}$

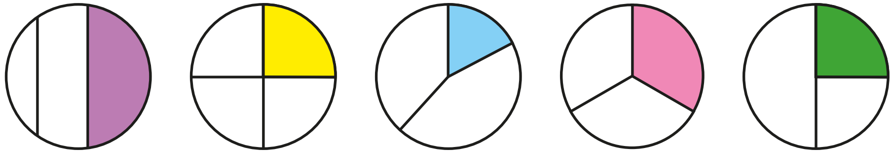
National Curriculum links

- Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity

Recognise a third

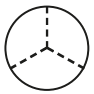
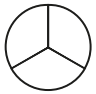
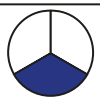
Key learning

- Which circle shows a third?



Explain why the other circles do not show a third.

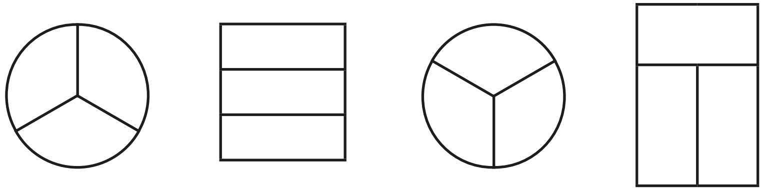
Discuss how Fay remembers how to write $\frac{1}{3}$

	The circle has been divided	Write the fraction bar.	$\frac{}{}$
	into 3 equal parts.	Write the denominator.	$\frac{}{3}$
	1 part is shaded	Write the numerator.	$\frac{1}{3}$

What do children notice?

What does each number represent?

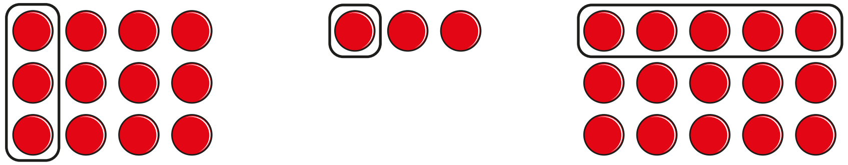
- Colour $\frac{1}{3}$ of each shape.



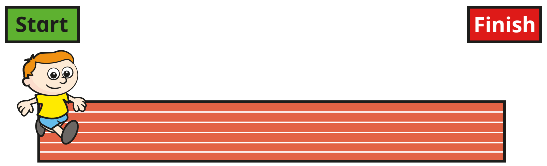
Compare answers with a partner.

Do your shapes look the same?

- Which pictures show $\frac{1}{3}$?



- Estimate where Ron will be when he has run $\frac{1}{3}$ of the race.

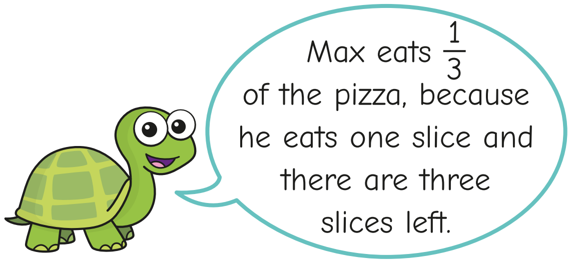


Which is easiest to estimate, $\frac{1}{2}$, $\frac{1}{4}$ or $\frac{1}{3}$? Why?

Recognise a third

Reasoning and problem solving

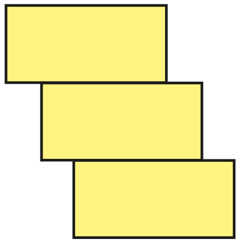
Max is eating pizza.



Do you agree with Tiny?

Explain your answer.

No



Has the shape been split into thirds?

Explain your answer.

Yes

Tom, Sam and Ben each show a piece of ribbon.

Tom shows $\frac{1}{2}$ of his whole ribbon.

Sam shows $\frac{1}{4}$ of her whole ribbon.

Ben shows $\frac{1}{3}$ of his whole ribbon.

Whose whole piece of ribbon is the longest?

Whose is the shortest?

Explain your answers.

Sam's

Tom's

Find a third

Notes and guidance

In this small step, children use their understanding of a third to find $\frac{1}{3}$ of an amount.

As with previous steps, the focus should be on the use of concrete and pictorial representations to support understanding alongside the abstract calculations. Children should use their understanding of the denominator to realise that they need to share the objects into three equal groups and eventually understand that they need to divide by 3

Children begin to think about the similarities and differences between finding $\frac{1}{2}$, $\frac{1}{3}$ and $\frac{1}{4}$ of a number. They may recognise that finding $\frac{1}{3}$ of a number will result in a greater amount than $\frac{1}{4}$, but a smaller amount than $\frac{1}{2}$

Things to look out for

- Children may think that they can use $\frac{1}{2}$ of a number to find $\frac{1}{3}$ of the number, as they could when finding $\frac{1}{4}$ of a number.
- Children may think that a third of a number is always 3

Key questions

- How do you find $\frac{1}{2}$/$\frac{1}{4}$ of a number? How do you find $\frac{1}{3}$ of a number? What is the same? What is different?
- How can you use counters/bar models to help?
- How many equal groups do you need to make?
- Why do you need to make three equal groups?
- Is $\frac{1}{3}$ greater than or less than $\frac{1}{2}$/$\frac{1}{4}$? Why?

Possible sentence stems

- The whole has been split into ______ equal groups.

  There are ______ in each group.

  $\frac{1}{3}$ of ______ is equal to ______

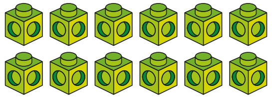
National Curriculum links

- Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity
- Write simple fractions, for example $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$

Find a third

Key learning

- Use the cubes to make three equal groups.



There are ______ cubes altogether.

A third of ______ is ______

$\frac{\square}{\square}$ of ______ is ______

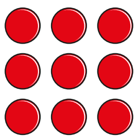
- Kay, Jo and Ron share six sweets equally.

Draw circles to show how they share them.

The whole has been split into ______ equal groups.

There are ______ in each group. $\frac{1}{3}$ of 6 = ______

- Circle $\frac{1}{3}$ of the counters.

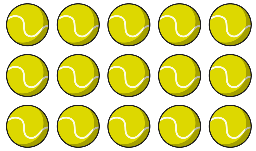


$\frac{1}{3}$ of 9 = ______

Is there more than one way to circle $\frac{1}{3}$?

Why? Will this always work?

- Find $\frac{1}{3}$ of each set of objects.



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

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

$\frac{1}{3}$ of 21 = ______

What do you notice about your answers?

- Use bar models to help you complete the number sentences.

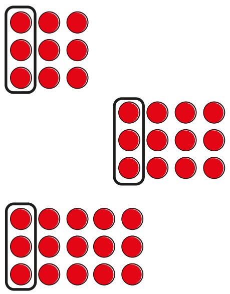
  - $\frac{1}{3}$ of 30 = ______
  - $\frac{1}{3}$ of 27 = ______
  - $\frac{1}{3}$ of 33 = ______
  - $\frac{1}{3}$ of 36 = ______

Find a third

Reasoning and problem solving

Tiny uses counters to find a third of some numbers.

Here are Tiny's workings.



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

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

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

Explain Tiny's mistake.

Work out the correct answers.

3

4

5

Tom is thinking of a number.

$\frac{1}{3}$ of his number is greater than 8, but less than 12

What could Tom's number be?

27, 30, 33

Dan, Max and Ann each have a fraction of £12

- Dan has $\frac{1}{2}$ of £12
- Max has $\frac{1}{4}$ of £12
- Ann has $\frac{1}{3}$ of £12

Who has the most money?

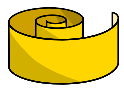
Who has the least money?

Explain your answer.

Dan

Max

Kim has a piece of ribbon.



She cuts it into three equal parts.

$\frac{1}{3}$ of the ribbon is 6 cm long.

How long is $\frac{1}{2}$ of the ribbon?

9 cm

Find the whole

Notes and guidance

In this small step, children use the skills that they have learnt in previous steps to use a fraction of an amount to find the whole. Although this has been explored briefly in previous steps, children now formalise this understanding and start to make comparisons between fractions.

Children may find this difficult to visualise at first, so encourage them to use diagrams and practical resources to ensure accuracy and understanding. Bar models are particularly useful. Encourage children to identify the part and to use the fact that all the parts must be equal to find the whole.

Give children opportunities to use this skill in a range of contexts, including length.

Things to look out for

- Children may find a fraction of the given amount rather than finding the whole.
- Children may not be able to visualise the whole without drawing a diagram.
- Children may know what one part of the diagram should be, but be unsure of the other parts.

Key questions

- Do you know a part or the whole?
- How many equal parts are there?
- If there are ______ in one of the parts, how many need to be in the other parts?
- How can you find the whole?
- If you know what $\frac{1}{2}$/$\frac{1}{3}$/$\frac{1}{4}$ is, how can you find the whole?

Possible sentence stems

- The whole has been split into ______ equal parts.

  One part is ______, so the other parts must also be ______

  The whole is ______

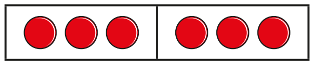
National Curriculum links

- Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity
- Write simple fractions, for example $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$

Find the whole

Key learning

- Use the bar model to help you complete the sentences.

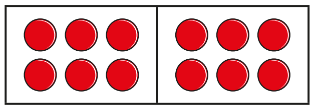


▸ $\frac{1}{2}$ of 6 = ______ ▸ $\frac{1}{2}$ of ______ = 3

What do you notice?

Which did you find easier to work out?

- Complete the sentences for each bar model.



2	2	2	2

The whole has been split into ______ equal parts.

One part is ______, so the other part(s) must be ______

The whole is ______

- Complete the bar model to find the whole.

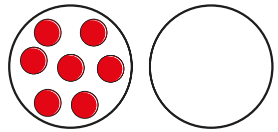
$\frac{1}{3}$ of ______ = 3

Use this method to find each whole.

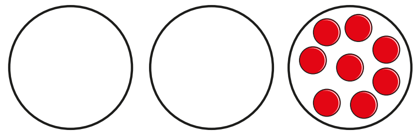
▸ $\frac{1}{3}$ of ______ = 6 ▸ $\frac{1}{2}$ of ______ = 6 ▸ $\frac{1}{4}$ of ______ = 6

- Find the whole for each picture.

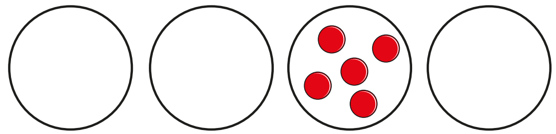
Here is $\frac{1}{2}$ of a number.



Here is $\frac{1}{3}$ of a number.



Here is $\frac{1}{4}$ of a number.



- Find the wholes.

▸ $\frac{1}{2}$ of ______ = 5 ▸ $\frac{1}{3}$ of ______ = 5 ▸ $\frac{1}{4}$ of ______ = 5

▸ $\frac{1}{2}$ of ______ = 10 ▸ $\frac{1}{3}$ of ______ = 10 ▸ $\frac{1}{4}$ of ______ = 10

What patterns can you spot?

- Kay has run 20 m in a race.

She is $\frac{1}{4}$ of the way through the race.

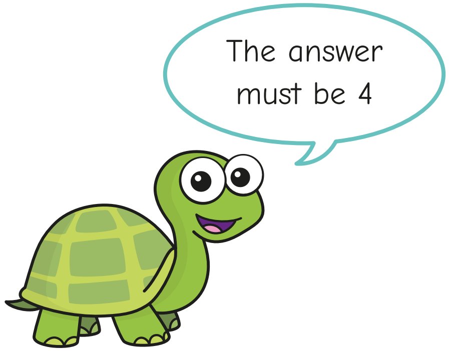
How long is the race?

Find the whole

Reasoning and problem solving

Tiny is trying to find the whole.

$\frac{1}{2}$ of $\boxed{}$ = 8



Do you agree with Tiny?

Explain your answer.

No

Which is the greatest total amount of money?

A $\frac{1}{4}$ of ______ = £7

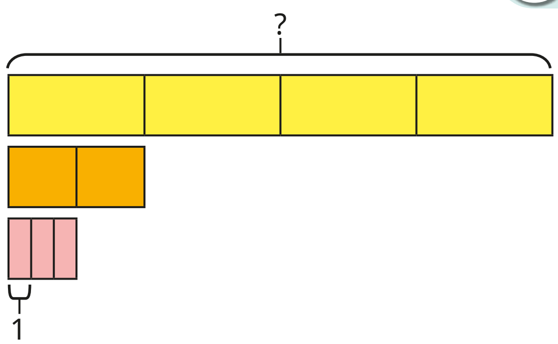
B $\frac{1}{2}$ of ______ = £7

C $\frac{1}{3}$ of ______ = £7

Did you need to work out each whole to decide?

A

Work out the missing number.



24

Unit fractions

Notes and guidance

In this small step, children bring together the learning so far in this block to understand the concept of unit fractions. They are already familiar with the fractions $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{3}$ and will now use the term "unit fraction" to describe them.

Children should recognise that a unit fraction is one in which the whole has been split into equal parts and one of those parts is shaded or highlighted. They should consider how unit fractions are written in fraction notation, and this will clarify the role of the numerator and denominator. They can begin to generalise that a unit fraction is any fraction with a numerator of 1

Children begin by looking at unit fractions where one equal part of a shape or object is shaded/circled, before exploring unit fractions of a set of objects.

Things to look out for

- Children may think that a unit fraction is always represented by the first box or top left box being shaded.
- Children may struggle to see how a unit fraction can also apply to a set of objects rather than a single object.

Key questions

- What is the same and what is different about the fractions $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{3}$?
- What is a unit fraction?
- What do all unit fractions have in common?
- Has the shape been split into equal parts? How many parts are shaded?
- How can you colour this shape to show a unit fraction?
- Is it possible to show a unit fraction if more than one object is circled?

Possible sentence stems

- There are ______ equal parts.

  There is ______ part shaded.

  $\frac{\square}{\square}$ is shaded.

  This is a ______ fraction.

National Curriculum links

- Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity

Unit fractions

Key learning

- Complete the sentences for each bar model.

There are ______ equal parts.

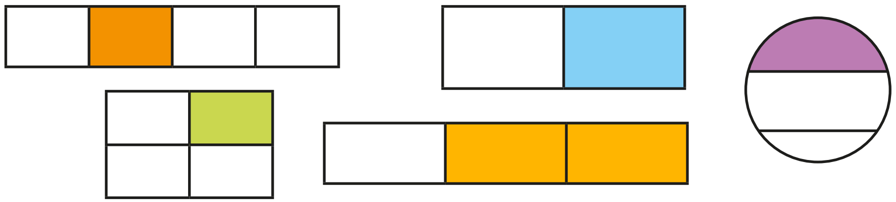
There is ______ part shaded.

$\frac{\square}{\square}$ is shaded.

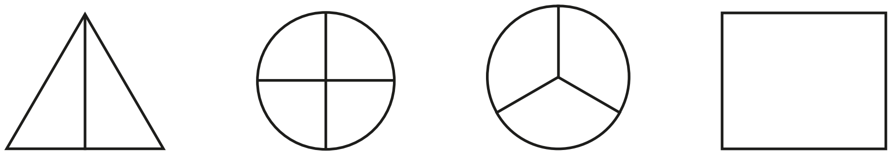
What is the same and what is different about the bar models?

- A unit fraction is always one equal part of a whole.

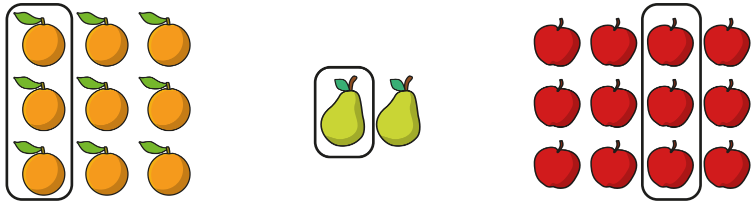
Which shapes show unit fractions?



- Colour the shapes so that they show unit fractions.

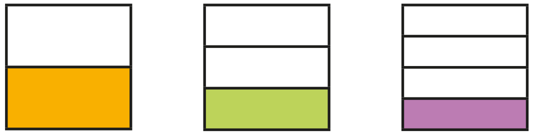


- Match the pictures to the unit fractions.



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

- What fractions are shown?

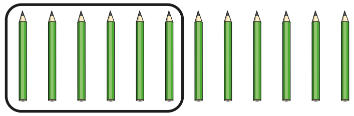


Which fraction is the greatest?

Which fraction is the smallest?

What do you notice about their denominators?

- Ron has circled some pencils to show a unit fraction.



What unit fraction has Ron shown?

What other unit fractions could you show using Ron's pencils?

Unit fractions

Reasoning and problem solving

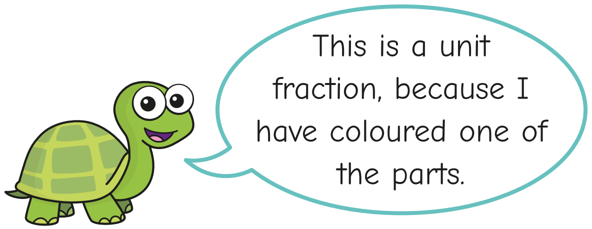
Is the statement always true, sometimes true or never true?

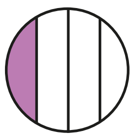
To show a unit fraction, you need to colour one part.

Explain your answer.

sometimes true

Tiny shows a unit fraction.



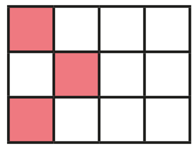


Do you agree with Tiny?

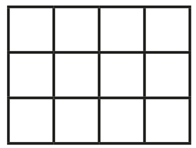
Explain your answer.

No

This shows $\frac{1}{4}$



Colour some squares to show $\frac{1}{3}$



Is there more than one answer?

any four squares coloured

Fay thinks of a number.

$\frac{1}{3}$ of her number is 8

Which will be greater, $\frac{1}{2}$ or $\frac{1}{4}$ of Fay's number?

Explain your answer.

$\frac{1}{2}$

Non-unit fractions

Notes and guidance

In this small step, children learn about non-unit fractions.

Reference should be made to the previous step, and unit fractions should be constantly used within questioning to ensure that children can differentiate between the two types of fraction. They recognise that a non-unit fraction is a fraction where the numerator is greater than 1. They identify $\frac{2}{3}$, $\frac{2}{4}$ and $\frac{3}{4}$ and also begin to look at fractions equivalent to 1 whole. It may be useful to identify non-unit fractions as an amount of unit fractions, for example $\frac{2}{3}$ = 2 lots of $\frac{1}{3}$

Children begin to compare unit and non-unit fractions by using diagrams or contexts and are introduced to the concept of equivalence through fractions that are equivalent to a whole.

Things to look out for

- Children may not realise that $\frac{3}{4}$ is made up of 3 lots of $\frac{1}{4}$
- Children may not recognise when a fraction is equal to 1 whole.
- Children may not recognise the equivalence of $\frac{2}{2}$, $\frac{3}{3}$, $\frac{4}{4}$

Key questions

- What is a unit fraction? What is a non-unit fraction?
- What is the difference between a unit fraction and a non-unit fraction?
- How many ______s are there in ______? (for example, $\frac{1}{4}$s in $\frac{3}{4}$)
  How many ______s are there in 1 whole?
- How can you tell if this fraction is the same as 1 whole?
- Will a unit fraction always be smaller than a non-unit fraction? Why?

Possible sentence stems

- There are ______ equal parts.
  There are ______ parts shaded.
  $\frac{\square}{\square}$ is shaded.
- The numerator is greater than ______, so this is a ______ fraction.

National Curriculum links

- Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity

Non-unit fractions

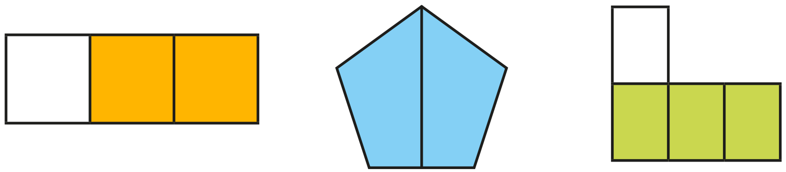
Key learning

- Here are two bar models showing fractions.

What is the same? What is different?

Which bar model shows a unit fraction? How do you know?

- Complete the sentences for each picture.



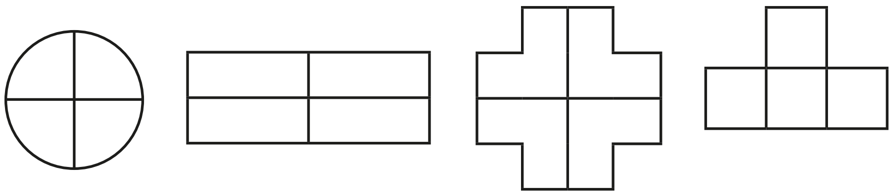
There are ______ equal parts.

There are ______ parts shaded.

$\frac{\square}{\square}$ is shaded.

Are these unit fractions or non-unit fractions?

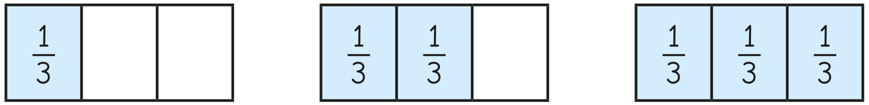
- Shade a non-unit fraction of each shape.



- Sort the fractions into unit fractions and non-unit fractions.

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

- Dan labels each part to help find the fractions.

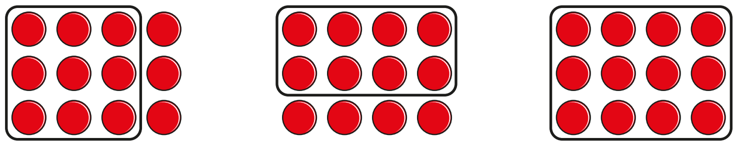


$\frac{1}{3}$ 2 lots of $\frac{1}{3} = \frac{2}{3}$ 3 lots of $\frac{1}{3} = \frac{3}{3}$

Use Dan's method to find the fractions.

What do you notice?

- Match the pictures to the non-unit fractions.

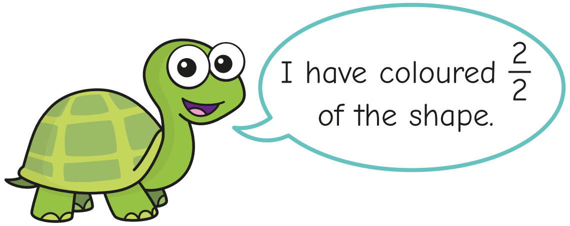


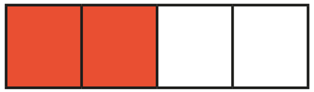
$\frac{2}{3}$ $\frac{4}{4}$ $\frac{3}{4}$

Non-unit fractions

Reasoning and problem solving

Tiny is colouring non-unit fractions.





Do you agree with Tiny?

Explain your answer.

No

Which is greater, $\frac{1}{4}$ or $\frac{3}{4}$?

Explain your answer.

$\frac{3}{4}$

Sort the fractions into the table.

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

	Fractions equal to 1 whole	Fractions less than 1 whole
Unit fractions		
Non-unit fractions		

What do you notice?

Are any boxes in the table empty?

Can you add another fraction to each part of the table?

top right: $\frac{1}{3}, \frac{1}{4}, \frac{1}{2}$

bottom left: $\frac{2}{2}, \frac{4}{4}, \frac{3}{3}$

bottom right: $\frac{3}{4}, \frac{2}{3}$

top left: $\frac{1}{1}$

Recognise the equivalence of a half and two-quarters

Notes and guidance

Children may have thought about equivalence in the previous step, but they now look in detail at $\frac{1}{2}$ and $\frac{2}{4}$ and recognise their equivalence. It is important to discuss the language of equivalence.

Children need to approach this step with practical and pictorial resources to support understanding. When finding a fraction of a shape, they should see that $\frac{1}{2}$ and $\frac{2}{4}$ take up the same amount of space, as long as the wholes are equal in size.

Although finding non-unit fractions of amounts has not been covered yet, this may be explored with support as another way to show the equivalence between $\frac{1}{2}$ and $\frac{2}{4}$

Things to look out for

- Children may find the word "equivalent" difficult.
- Children may not realise that they can use $\frac{1}{2}$ and $\frac{2}{4}$ interchangeably to suit the question.
- If diagrams are not equal in size, children may not be able to see that $\frac{1}{2}$ and $\frac{2}{4}$ are equivalent.

Key questions

- What does "equivalent" mean?
- What do you notice when you colour $\frac{1}{2}$ and $\frac{2}{4}$ of the same shape?
- How can you show that $\frac{1}{2}$ and $\frac{2}{4}$ are equivalent?
- Why do you think some people might think that $\frac{1}{2}$ and $\frac{2}{4}$ are not equivalent?
- How can you colour $\frac{2}{4}$ of a shape if you cannot easily split it into four equal parts?

Possible sentence stems

- $\frac{1}{2}$ is ______ to $\frac{2}{4}$
- $\frac{1}{2} = \frac{\square}{4}$ $\quad \frac{1}{\square} = \frac{2}{4}$

National Curriculum links

- Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity
- Write simple fractions, for example $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$

Recognise the equivalence of a half and two-quarters

Key learning

- Take two identical strips of paper.

  Fold one strip into two equal pieces.

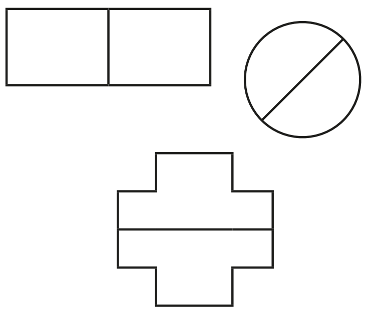
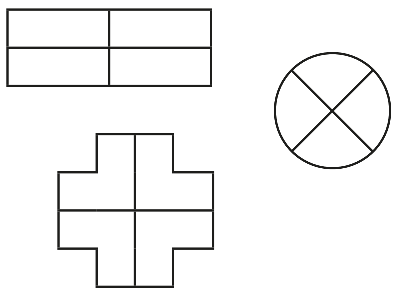
  Fold the other strip into four equal pieces.

  Compare one of the two equal pieces with two of the four equal pieces.

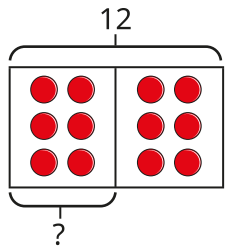
  What do you notice?

- Colour $\frac{1}{2}$ and $\frac{2}{4}$ of each shape.

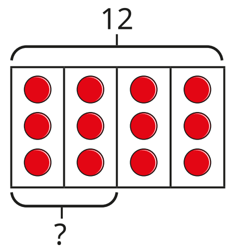
$\frac{1}{2}$	$\frac{2}{4}$
	

  What do you notice about the coloured parts of similar shapes?

- Use the bar models to find $\frac{1}{2}$ of 12 and $\frac{2}{4}$ of 12

  $\frac{1}{2}$ of 12 = ______

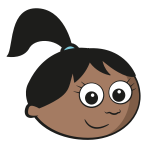
  

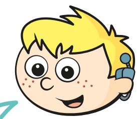
  $\frac{2}{4}$ of 12 = ______

  Complete the sentence.

  $\frac{\square}{\square}$ of 12 is equal to $\frac{\square}{\square}$ of 12

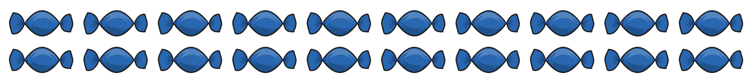
- Sam and Max are finding $\frac{2}{4}$ of 20 sweets.

  Why does each method work?

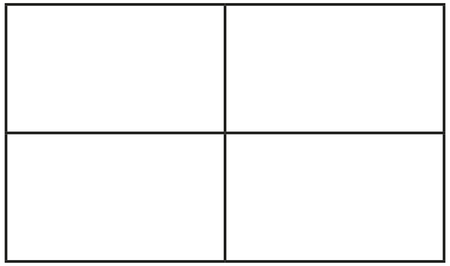
  Choose one of the methods to find $\frac{2}{4}$ of 20

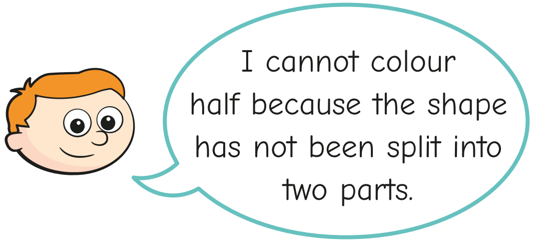
  

Recognise the equivalence of a half and two-quarters

Reasoning and problem solving

Ron wants to colour $\frac{1}{2}$ of the shape.

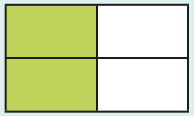




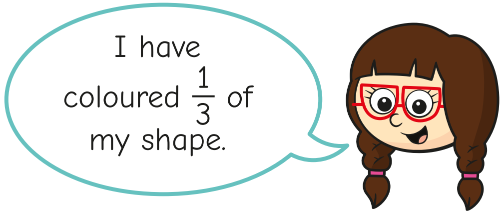
Explain why Ron can colour $\frac{1}{2}$

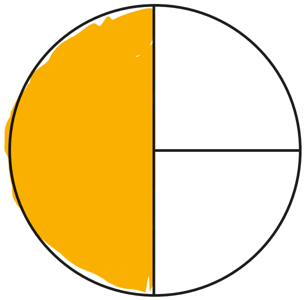
Colour half of the shape.

multiple possible answers, e.g.



Jo colours part of a shape.





What mistake has Jo made?

What fraction has she coloured?

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

Recognise three-quarters

Notes and guidance

Children have already begun to explore non-unit fractions in the last two steps, and in this small step they focus on recognising $\frac{3}{4}$

Children first look at $\frac{1}{4}$ and $\frac{3}{4}$ and identify the relationship between them, recognising that $\frac{3}{4}$ is made up of 3 lots of $\frac{1}{4}$. They should also be able to identify that $\frac{3}{4}$ represents the whole being split into four equal parts and having three of the equal parts.

Children recognise and represent $\frac{3}{4}$ in a variety of ways, including with shapes, length and sets of objects. They should also be able to recognise $\frac{3}{4}$ when there are more than four equal parts (for example, a set of 20 pencils), using sharing to support this.

Things to look out for

- Children may mix up the role of the numerator and the denominator.
- Children may find it more difficult to recognise $\frac{3}{4}$ when looking at a set of objects, rather than just part of a shape.
- Children may need support to identify the relationship between $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$

Key questions

- How are $\frac{1}{4}$ and $\frac{3}{4}$ similar? How are they different?
- How many quarters are there in three-quarters?
- How can you show three-quarters of this shape?
- How can you show $\frac{3}{4}$ if there are more than four equal parts?
- How do you know that this does not show three-quarters? What would you change?
- Is $\frac{3}{4}$ always greater than $\frac{1}{4}$?

Possible sentence stems

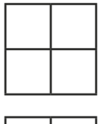
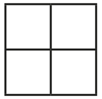
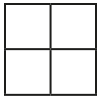
- There are ______ equal parts.
  ______ of the equal parts are shaded.
  This can be written as $\frac{\square}{\square}$
- There are ______ lots of $\frac{1}{4}$ in $\frac{3}{4}$

National Curriculum links

- Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity

Recognise three-quarters

Key learning

- Colour the shapes to match the sentences.
  - There are four equal parts.
    One of the parts is shaded.
    
  - There are four equal parts.
    Two of the parts are shaded.
    
  - There are four equal parts.
    Three of the parts are shaded.
    

  Write each of these as a fraction.

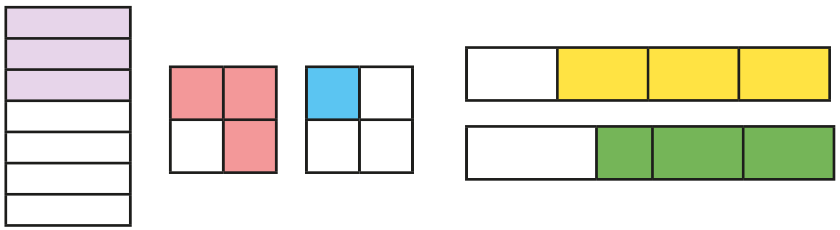
- Here is a fraction.

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

  What does the 3 represent?

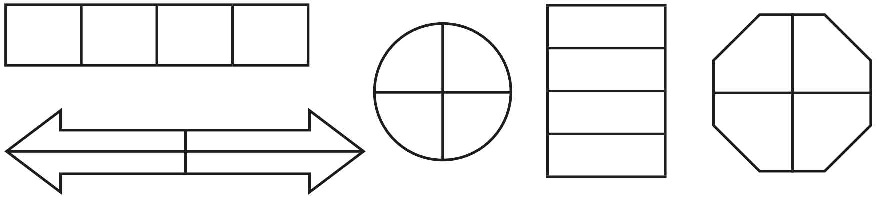
  What does the 4 represent?

- Which shapes show $\frac{3}{4}$?

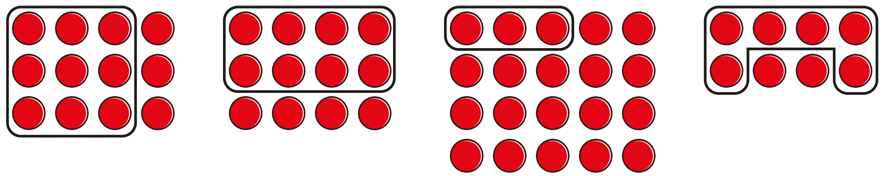
  

  Explain why some of the shapes do **not** show $\frac{3}{4}$

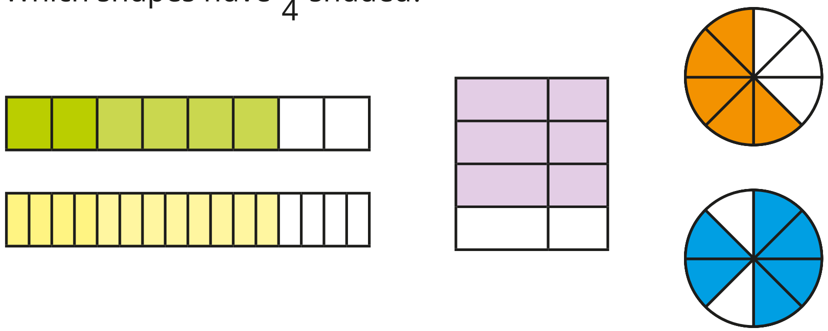
- Colour the shapes to show $\frac{3}{4}$

- Which pictures show $\frac{3}{4}$?

- Which shapes have $\frac{3}{4}$ shaded?

Recognise three-quarters

Reasoning and problem solving

Tiny is learning about $\frac{3}{4}$

Is Tiny correct?

Explain your answer.

sometimes correct

Is the statement always true, sometimes true or never true?

$\frac{3}{4}$ is greater than $\frac{1}{4}$

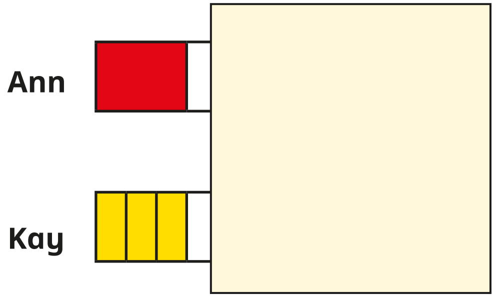
Explain your answer.

sometimes true

Ann and Kay each have a piece of ribbon.

Part of each ribbon is hidden.

- $\frac{1}{4}$ of Ann's ribbon is shown.
- $\frac{3}{4}$ of Kay's ribbon is shown.



Who has the longer piece of ribbon?

How do you know?

Draw estimates of the full ribbons.

Ann

Find three-quarters

Notes and guidance

In this small step, children find three-quarters of a set of objects or a number.

Children may find this step challenging, as it can involve dividing by 4 and will generally involve more than one step. Use concrete and pictorial resources to support understanding and develop confidence. Some children may need to use these resources throughout the step.

Children start by finding $\frac{1}{4}$ of a set of objects, then explore and discuss methods to find $\frac{3}{4}$. They could consider the suitability and efficiency of these methods. Guide children to identify patterns when finding $\frac{1}{4}$, $\frac{2}{4}$, $\frac{3}{4}$ and $\frac{4}{4}$ of a number. Encourage them to consider which is greater, $\frac{1}{2}$ or $\frac{3}{4}$ of the same number.

Things to look out for

- Children may find it difficult to split pictures into four equal parts.
- Children may find $\frac{1}{4}$ rather than $\frac{3}{4}$
- Children may think that $\frac{3}{4}$ of a number is always 3

Key questions

- How do you find $\frac{1}{4}$ of a number? How could you use this to find $\frac{3}{4}$ of a number?
- How can you use counters/bar models to help?
- How many equal groups do you need to make?
- How many of the equal groups do you need to count to find $\frac{3}{4}$?
- How many ways can you find $\frac{3}{4}$?
- If you know $\frac{1}{4}$ of a number, how can you find $\frac{3}{4}$ of the number?

Possible sentence stems

- The whole is ______

  $\frac{1}{4}$ of ______ is ______

  $\frac{3}{4}$ of ______ is ______

National Curriculum links

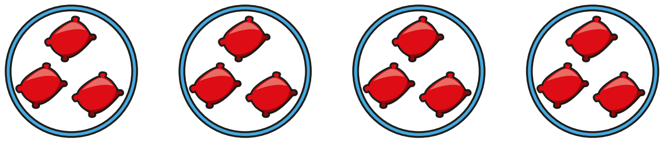
- Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity
- Write simple fractions, for example $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$

Find three-quarters

Key learning

- Dan shares 12 bean bags into 4 equal groups.

  Use the picture to complete the sentences.



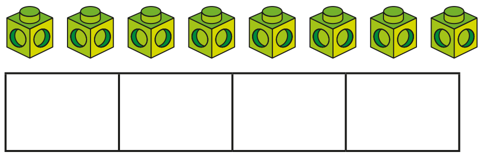
  One-quarter of 12 is equal to ______

  Two-quarters of 12 is equal to ______

  Three-quarters of 12 is equal to ______

  Four-quarters of 12 is equal to ______

- There are 8 cubes.
  - Use the bar model to share the cubes into 4 equal groups.



  - Complete the sentences.

    There are ______ in each group.

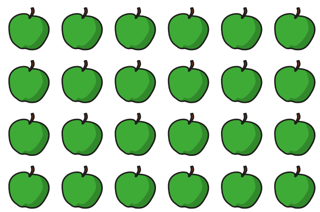
    To find $\frac{3}{4}$ I need to count ______ groups.

    $\frac{3}{4}$ of 8 is ______
  - Use the same method to help you find $\frac{3}{4}$ of 16 and $\frac{3}{4}$ of 20

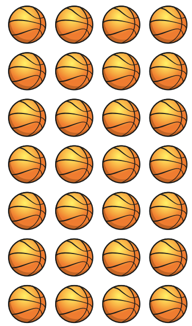
- Circle $\frac{1}{4}$ of the marbles. Use a different colour to circle $\frac{3}{4}$

  What is the same? What is different?

- Circle $\frac{3}{4}$ of each set of objects.



  $\frac{3}{4}$ of 24 = ______



  $\frac{3}{4}$ of 28 = ______

- Use counters, cubes or bar models to help you find the fractions.
  - $\frac{1}{4}$ of 32 = ______

    $\frac{2}{4}$ of 32 = ______

    $\frac{3}{4}$ of 32 = ______

    $\frac{4}{4}$ of 32 = ______
  - $\frac{1}{4}$ of 36 = ______

    $\frac{2}{4}$ of 36 = ______

    $\frac{3}{4}$ of 36 = ______

    $\frac{4}{4}$ of 36 = ______
  - $\frac{1}{4}$ of 40 = ______

    $\frac{2}{4}$ of 40 = ______

    $\frac{3}{4}$ of 40 = ______

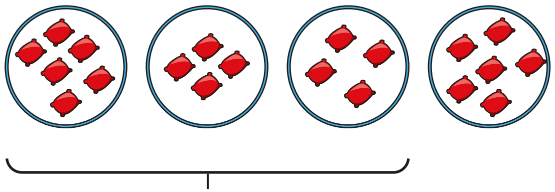
    $\frac{4}{4}$ of 40 = ______

  What do you notice?

Find three-quarters

Reasoning and problem solving

Tiny uses bean bags and hoops to find $\frac{3}{4}$ of 20



$\frac{3}{4}$ of 20 = 14

What mistake has Tiny made?

What is the correct answer?

15

Write <, > or = to compare the amounts.

$\frac{3}{4}$ of 40 ◯ $\frac{1}{4}$ of 40

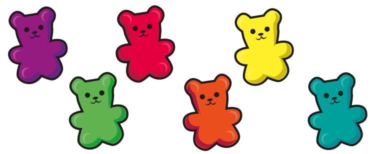
$\frac{1}{2}$ of 32 ◯ $\frac{3}{4}$ of 32

>

<

Tom eats three-quarters of his sweets.

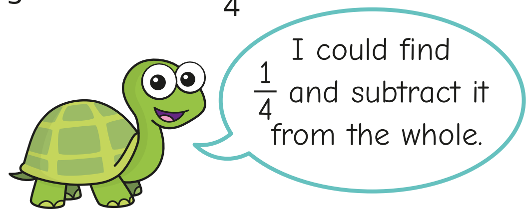
He eats these sweets.



How many sweets does Tom have left?

2

Tiny wants to find $\frac{3}{4}$ of 40



Do you agree with Tiny?

Explain your answer.

Find $\frac{3}{4}$ of 40

Yes

30

Count in fractions up to a whole

Notes and guidance

In this small step, children use their knowledge of unit fractions and non-unit fractions to count in fractions up to a whole, focusing on halves, thirds and quarters. This step is pictorially based and does not include number lines, which will be introduced in Year 3

Encourage children to recognise and represent fractions, as well as spotting patterns when counting. They should come to realise that the numerator increases, but the denominator stays the same. They should also be aware of examples in which a fraction is equivalent to 1 whole.

Children do not need to count beyond 1 at this stage, but it may be useful to discuss that fractions do not stop at 1 whole.

Things to look out for

- Children may increase the denominator instead of the numerator (for example, $\frac{1}{3}$, $\frac{1}{4}$ ...) or increase both (for example, $\frac{1}{3}$, $\frac{2}{4}$ ...).
- Children may not recognise fractions that are equivalent to 1 whole.
- Children may think that it is impossible to count beyond $\frac{4}{4}$, for example.

Key questions

- What comes next in the pattern?
- How many parts do you need to colour for the next fraction in the pattern?
- What comes after $\frac{\square}{\square}$?
- What do you notice happens to the numerator? What happens to the denominator?
- How do you know when a fraction is equivalent to 1 whole?
- How is counting in fractions similar to counting in ones? How is it different?

Possible sentence stems

- $\frac{\square}{\square}$ comes after $\frac{\square}{\square}$
- $\frac{\square}{\square}$ is equivalent to 1 whole.

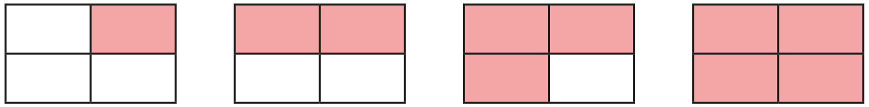
National Curriculum links

- Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity

Count in fractions up to a whole

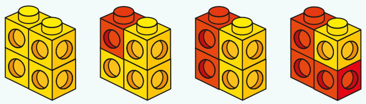
Key learning

- What fractions are shown?



What do you notice?

Show children this pattern and ask what the next lot of cubes will look like.



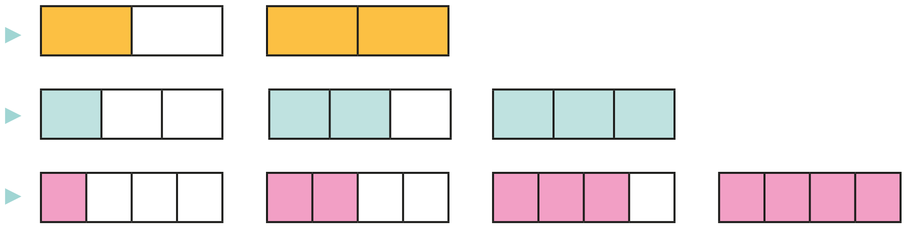
Ask children to write the fraction of red cubes in each picture. Can they tell you what the first picture represents?

Now ask them to write the fraction of yellow cubes. What is the same? What is different?

- Jo colours part of a shape.

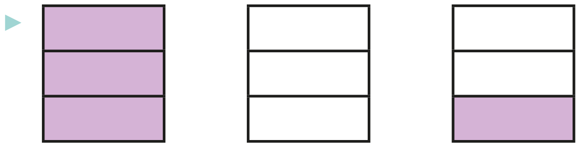
  - What fraction has Jo shown?
  - Colour another part of the shape. What fraction is shown now?
  - Colour another part of the shape. What fraction is shown now?

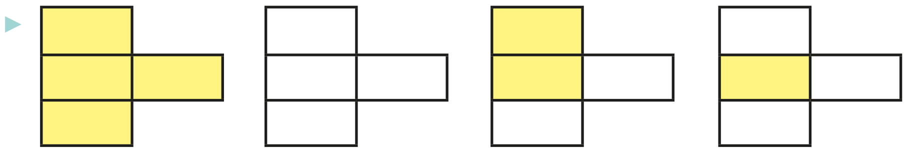
- Use the bar models to count in fractions up to 1 whole.

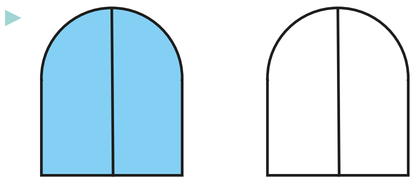


Compare the patterns. What do you notice?

- Colour the blank pictures and write the fractions to count back from 1 whole.



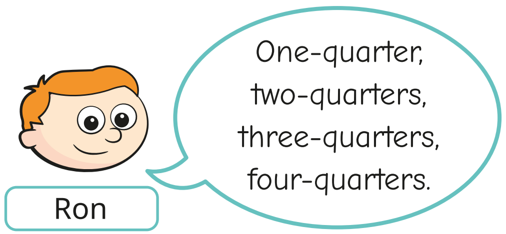


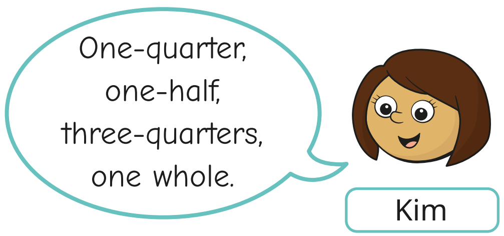


Count in fractions up to a whole

Reasoning and problem solving

Ron and Kim are counting in quarters.

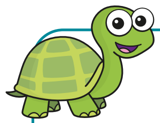




Who is correct?

Explain your answer.

Both children are correct.



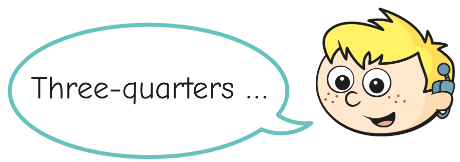
Tiny is trying to count in thirds.

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

What mistake has Tiny made?

Tiny has added 1 to the denominator as well as the numerator.

Max is counting in fractions.



Is there more than one fraction that Max could say next?

Explain your answer.

Yes