

Dereham Church OF England Infant and Nursery Academy- Mathematics

	Year group: 2	Area/topic: Mathematics- fractions
	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 $\frac{1}{2}$	

Prior learning	Future learning
Children completed a block on fractions in year one. They focussed on	Children shall further this learning in Year 3. They will study fractions on a number line, count in fractions and compare and order unit fractions

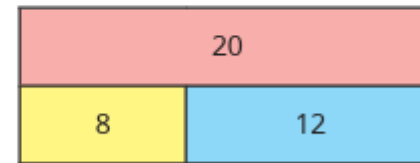
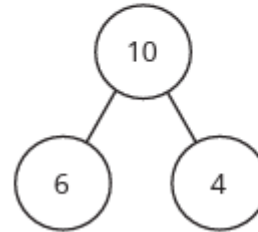
What pupils need to know or do to be secure	
Key knowledge and skills	Possible evidence
Introduction to parts and whole	As a class, use Google Earth to look at an image of Earth. Identify the whole, then identify different parts of the whole. Zoom in and redefine the whole. Ask children to name parts 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.

Equal and unequal parts

Look at each picture.

What is the whole?

What are the parts?



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

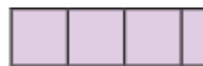


Small things are always
a part of a whole.

Big things are always a whole.

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 shapes show equal parts?



Recognise a half

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.

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



Ben



Tom



Fay

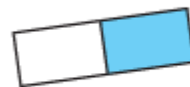


Who has split the square into equal parts?

Explain your answer.



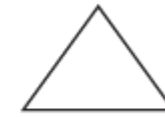
- Which pictures show $\frac{1}{2}$?



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

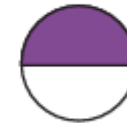
Find a half

- Colour half of each shape.



Is there more than one way to show a half?

Which is the odd one out?



$\frac{1}{2}$

one half

Explain your answer.



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.

Recognise a quarter

- 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 = _____

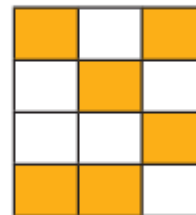
► $\frac{1}{2}$ of 8 = _____

$\frac{1}{2}$ of 80 = _____

What do you notice?

Ben is asked to colour half of a shape.

This is his answer.

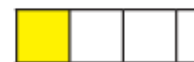


Is Ben correct?

Explain your answer.

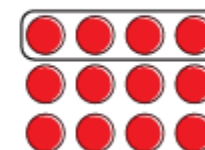
Use a rectangular piece of paper. Fold the piece of paper in half. What fraction is shown? Fold the piece of paper in half again. How many equal parts do you have now? What fraction can you see?

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



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

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



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



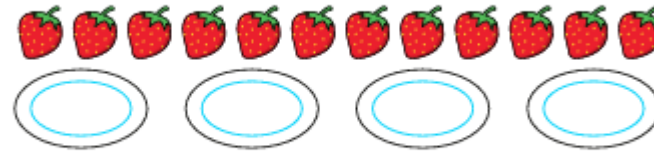
Do you agree with Ron?

Explain your answer.



Find a quarter

Share the 12 strawberries into four equal groups.



$$\frac{1}{4} \text{ of } 12 = \underline{\hspace{2cm}}$$

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 _____

$$\frac{1}{4} \text{ of } 8 \text{ is equal to } \underline{\hspace{2cm}}$$

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?

Jo has $\frac{1}{4}$ of £40

Max has $\frac{1}{2}$ of £20

Who has the most money?

Recognise a third



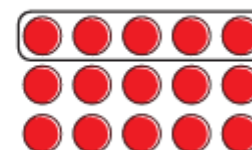
Discuss how Fay remembers how to write $\frac{1}{3}$

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

What do children notice?

What does each number represent?

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



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.

- 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

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



$$\frac{1}{3} \text{ of } 15 = \underline{\hspace{2cm}}$$



$$\frac{1}{3} \text{ of } 18 = \underline{\hspace{2cm}}$$



$$\frac{1}{3} \text{ of } 21 = \underline{\hspace{2cm}}$$

What do you notice about your answers?

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?

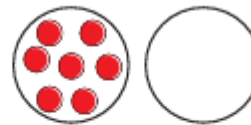
Find the whole

- Kay has run 20 m in a race.
She is $\frac{1}{4}$ of the way through the race.
How long is the race?

Unit fractions

- Find the whole for each picture.

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



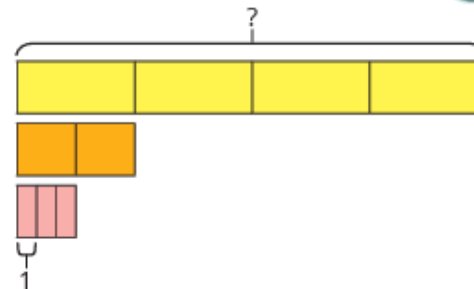
Here is $\frac{1}{3}$ of a number.



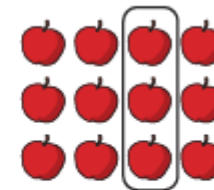
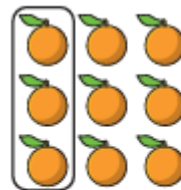
Here is $\frac{1}{4}$ of a number.



Work out the missing number.



Match the pictures to the unit fractions.



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

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

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

Non-unit fractions

- 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?

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



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

Explain your answer.



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

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

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

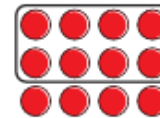
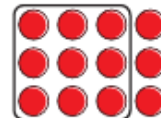
$$\frac{1}{4}$$

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

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

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

- Match the pictures to the non-unit fractions.



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

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

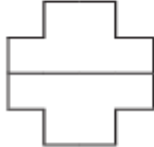
$$\frac{3}{4}$$

Recognise the equivalence of a half and two-quarters

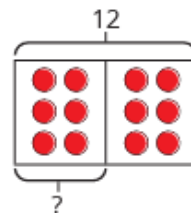
Which is greater, $\frac{1}{4}$ or $\frac{3}{4}$?

Explain your answer.

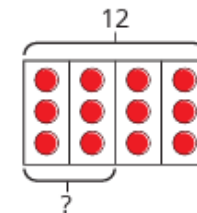
Colour $\frac{1}{2}$ and $\frac{2}{4}$ of each shape.

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

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



$$\frac{1}{2} \text{ of } 12 = \underline{\quad}$$



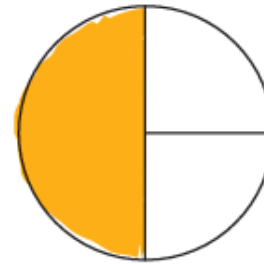
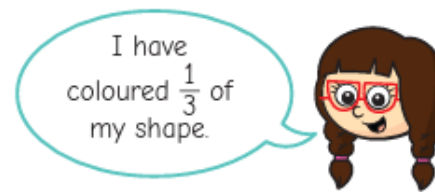
$$\frac{2}{4} \text{ of } 12 = \underline{\quad}$$

Complete the sentence.

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

Recognise three quarters

Jo colours part of a shape.



What mistake has Jo made?

What fraction has she coloured?

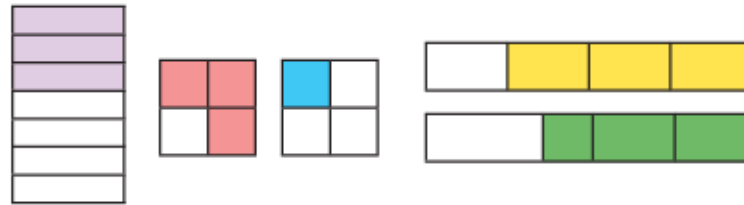
Is the statement always true, sometimes true or never true?

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

Explain your answer.

Find three quarters

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



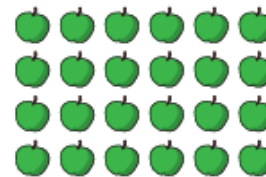
Explain why some of the shapes do **not** show $\frac{3}{4}$

- 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.



$$\frac{3}{4} \text{ of } 24 = \underline{\hspace{2cm}}$$



$$\frac{3}{4} \text{ of } 28 = \underline{\hspace{2cm}}$$

Count in fractions up to a whole

Tom eats three-quarters of his sweets.

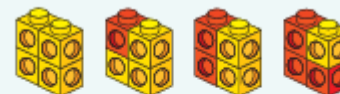


He eats these sweets.



How many sweets does Tom have left?

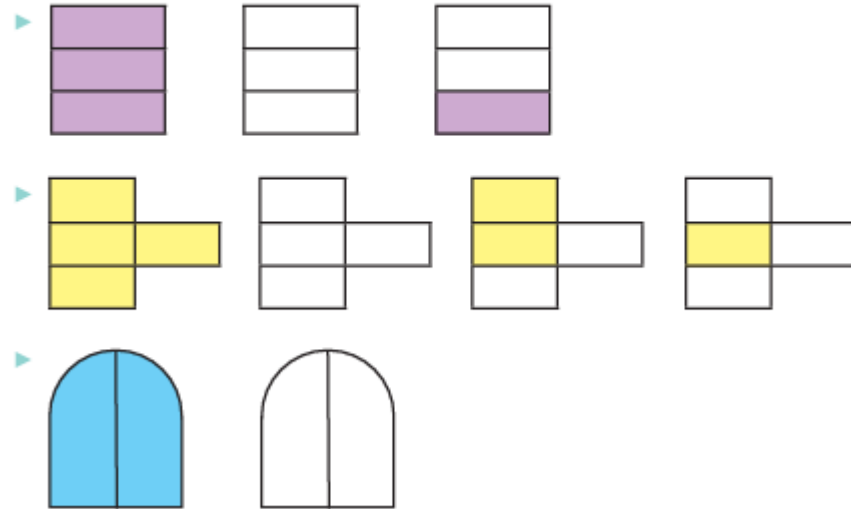
Show children this pattern and ask what the next lot of cubes will look like.



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?

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



Tiny is trying to count in thirds.



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

What mistake has Tiny made?

Key vocabulary

Part, whole, equal parts, unequal parts, half, numerator, denominator, group, divide, third, equivalence

Common misconceptions	Books linking to this area
Children may mix up a part and the whole. Children may not realise that a whole can be made up of many parts Children may know how to split a shape into equal parts, but may find it difficult to draw accurately. 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. Children may think that $\frac{1}{4}$ should be represented by one part shaded/selected and four parts unshaded/unselected. Children may not recognise the relationship between finding $\frac{1}{2}$ and $\frac{1}{4}$ of a number. Children may not recognise when a fraction is equal to 1 whole. Children may not realise that they can use $\frac{1}{2}$ and $\frac{2}{4}$ interchangeably to suit the question. Children may not recognise fractions that are equivalent to 1 whole. • Children may think that it is impossible to count beyond 4 4 , for example.	Give me half! By Stuart J Murphy
Memorable first hand experiences	Opportunities for communication
Opportunities to equally share sweets Use a range of manipulatives throughout each lesson	Share possible stem sentences and discuss Ask key questions and reflect as a class

DCINA Reasonable adjustments for pupils with SEND

<i>Communication and Interaction</i> <i>Use a range of visual aids</i> <i>Give clear instructions one at a time</i> <i>Repetition</i> <i>Provide simple instructions</i> <i>Pre teach vocabulary</i> <i>Use working wall where modelling is displayed</i> <i>Give children thinking time</i> <i>Model task</i>	<i>Cognition and Learning</i> <i>Check understanding regularly</i> <i>Allow rest breaks</i> <i>Give thinking time</i> <i>Colour code signs that could be confusing</i> <i>Work checklists</i> <i>Break down tasks into small steps</i> <i>Give opportunities for over-learning</i>
<i>Social, Emotional and Mental health</i> <i>Allow access to a quiet and calm space</i> <i>Give child a special role to increase self esteem</i> <i>Provide a visual support- what to do if you are stuck</i> <i>Provide a movement break</i> <i>Seat pupil by more confident peer</i> <i>Now and next board</i> <i>Sand timers</i> <i>Movement breaks</i> <i>Break down tasks into small steps</i>	<i>Sensory and Physical</i> <i>Consider carpet space position</i> <i>Reduce background noise</i> <i>Provide a range of manipulatives- dienes may be too small</i> <i>Appropriate seating</i> <i>Wobble boards</i> <i>Writing slope</i> <i>Enlarge text</i> <i>Variety of writing tools available</i>