Spring Scheme of Learning

Year 1/2

#MathsEveryoneCan

2019-20
How to use the mixed-age SOL

In this document, you will find suggestions of how you may structure a progression in learning for a mixed-age class.

Firstly, we have created a yearly overview.

For each block of learning, we have grouped the small steps into themes that have similar content. Within these themes, we list the corresponding small steps from one or both year groups. Teachers can then use the single-age schemes to access the guidance on each small step listed within each theme.

The themes are organised into common content (above the line) and year specific content (below the line). Moving from left to right, the arrows on the line suggest the order to teach the themes.

Each term has 12 weeks of learning. We are aware that some terms are longer and shorter than others, so teachers may adapt the overview to fit their term dates.

The overview shows how the content has been matched up over the year to support teachers in teaching similar concepts to both year groups. Where this is not possible, it is clearly indicated on the overview with 2 separate blocks.
How to use the mixed-age SOL

Here is an example of one of the themes from the Year 1/2 mixed-age guidance.

**Subtraction**

<table>
<thead>
<tr>
<th>Year 1 (Aut B2, Spr B1)</th>
<th>Year 2 (Aut B2, B3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>How many left? (1)</td>
<td>Subtract 1-digit from 2-digits</td>
</tr>
<tr>
<td>How many left? (2)</td>
<td>Subtract with 2-digits (1)</td>
</tr>
<tr>
<td>Counting back</td>
<td>Subtract with 2-digits (2)</td>
</tr>
<tr>
<td>Subtraction - not crossing 10</td>
<td>Find change - money</td>
</tr>
<tr>
<td>Subtraction - crossing 10 (1)</td>
<td></td>
</tr>
<tr>
<td>Subtraction - crossing 10 (2)</td>
<td></td>
</tr>
</tbody>
</table>

In order to create a more coherent journey for mixed-age classes, we have re-ordered some of the single-age steps and combined some blocks of learning e.g. Money is covered within Addition and Subtraction.

The bullet points are the names of the small steps from the single-age SOL. We have referenced where the steps are from at the top of each theme e.g. Aut B2 means Autumn term, Block 2. Teachers will need to access both of the single-age SOLs from our website together with this mixed-age guidance in order to plan their learning.

**Points to consider**

- Use the mixed-age schemes to see where similar skills from both year groups can be taught together. Learning can then be differentiated through the questions on the single-age small steps so both year groups are focusing on their year group content.
- When there is year group specific content, consider teaching in split inputs to classes. This will depend on support in class and may need to be done through focus groups.
- On each of the block overview pages, we have described the key learning in each block and have given suggestions as to how the themes could be approached for each year group.
- We are fully aware that every class is different and the logistics of mixed-age classes can be tricky. We hope that our mixed-age SOL can help teachers to start to draw learning together.
<table>
<thead>
<tr>
<th>Week 1</th>
<th>Week 2</th>
<th>Week 3</th>
<th>Week 4</th>
<th>Week 5</th>
<th>Week 6</th>
<th>Week 7</th>
<th>Week 8</th>
<th>Week 9</th>
<th>Week 10</th>
<th>Week 11</th>
<th>Week 12</th>
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<tbody>
<tr>
<td><strong>Autumn</strong></td>
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<tr>
<td>Number: Place Value</td>
<td>Number: Addition and Subtraction</td>
<td>Number: Addition and Subtraction</td>
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<tr>
<td>Y1 – Numbers to 20</td>
<td>Year 1- Numbers within 20 (including recognising money)</td>
<td>Year 1: Place Value to 50 and Multiplication Year 2: Multiplication</td>
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<td>Y2 – Numbers to 100</td>
<td>Year 2- Numbers within 100 (including money)</td>
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<tr>
<td>Number: Year 1: Division &amp; consolidation Year 2: Division</td>
<td>Year 1: Place Value to 100</td>
<td>Year 2: Statistics</td>
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<td></td>
<td>Measurement: Length and Height</td>
<td>Geometry: Year 1: Shape and Consolidation Year 2: Properties of Shape</td>
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<td>Number: Year 1: Fractions and Consolidation Year 2: Fractions</td>
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<tr>
<td>Geometry: Position and Direction</td>
<td>Measurement: Time</td>
<td>Year 1: Place Value recap</td>
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<td></td>
<td>Measurement: Time</td>
<td>Year 1: Place Value recap</td>
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<td></td>
<td>Year 2: Problem solving</td>
<td>Year 1: Four Operations recap</td>
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<td>Year 2: Consolidation and Investigations</td>
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</table>
In this section, content from single-age blocks are matched together to show teachers where there are clear links across the year groups. Teachers may decide to teach the lower year’s content to the whole class before moving the higher year on to their age-related expectations. The lower year group is not expected to cover the higher year group’s content as they should focus on their own age-related expectations.

In this section, content that is discrete to one year group is outlined. Teachers may need to consider a split input with lessons or working with children in focus groups to ensure they have full coverage of their year’s curriculum. Guidance is given on each page to support the planning of each block.

The themes should be taught in order from left to right.
#### Common Content

**Halves**
- Year 1 (Sum B2)
  - Find a half (1)
  - Find a half (2)
- Year 2 (Spr B4)
  - Recognise a half
  - Find a half

**Quarters**
- Year 1 (Sum B2)
  - Find a quarter (1)
  - Find a quarter (2)
- Year 2 (Spr B4)
  - Recognise a quarter
  - Find a quarter

In this block, there is a lot of content which is specific to Year 2. Teachers may decide to recap other content with Year 1 as this is the final block in the Spring term.

Year 1 focus on halves and quarters alongside Year 2 before Year 2 move onto looking at thirds and non-unit fractions. In Year 2, they are introduced to writing fractions using numerators and denominators.

Ensure children have a good understanding of what a fraction is building on their understanding of equal parts.

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**Equal Parts**
- Year 2 (Spr B4)
  - Make equal parts

**Thirds**
- Year 2 (Spr B4)
  - Recognise a third
  - Find a third

**Unit & Non-Unit Fractions**
- Year 2 (Spr B4)
  - Unit fractions
  - Non-unit fractions
  - Equivalence of \( \frac{1}{2} \) and \( \frac{2}{4} \)
  - Find three quarters

**Counting**
- Year 2 (Spr B4)
  - Count in fractions
Children understand the concept of a whole as being one object or one quantity.

Children explore making and recognising equal and unequal parts. They should do this using both real life objects and pictorial representations of a variety of shapes and quantities.

What is the whole? What are the parts?

How many parts is the object/quantity split into?

Are the parts equal? How do you know?

Do equal parts always look the same?

Is there more than one way to split the object/quantity into equal parts?

Use different colours to show how this shape can be split into equal parts.

How many ways can you find?

Look at the representations. Decide which show equal parts and which show unequal parts.

Can you make some of your own representations of equal and unequal parts?

Can you split the teddies into three equal groups?

Can you split the teddies into three unequal groups?

How many ways can you split the teddies into equal parts?

Be systematic in your approach.
Make Equal Parts

Reasoning and Problem Solving

Three children are splitting a square into equal parts.

Teddy

All children have split the square into equal parts. Children may need to cut out the pieces and manipulate them to prove why.

Alex

Mo

Who has split the square into equal parts? Explain why.

How many different ways can you put these beanbags into equal groups?

Children can sort the beanbags into groups of 1, 2, 3, 4, 6 and 12.
Find a Half (1)

Notes and Guidance

Children explore finding a half for the first time using shapes and sets of objects. They will use the vocabulary ‘half’ and ‘whole’. Children will not at this stage use the fractional notation of $\frac{1}{2}$.

It is important that they know that a half means ‘one of two equal parts’ and are able to count them.

Mathematical Talk

How many parts have I split my object into?
How can you show a half of something?
How do you know if a shape is split into halves?
How many halves make a whole?
Can we count them?
How do you know if an object or shape has not been split in half?
Is there more than one way to show half of a shape or object?
Is this the same for all shapes?

Varied Fluency

Show the children real life objects and how they can be cut in half.
How can we cut these objects in half?
Can any of the objects be cut in half in more than one way?

Which circles have been split into equal halves?

Match the halves to make 5 complete shapes.
Eva and Jack are both attempting to split a rectangle in half.

Eva

Jack thinks he can find three more ways.

Jack

Find Jack's three examples.

Possible answers:

Sort the shapes into the table.

<table>
<thead>
<tr>
<th>Shapes that are split in half</th>
<th>Shapes that are not split in half</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

Can you add any more shapes to the table?

Possible answer:

There are a number of different answers for other shapes children could add to the table.
Find a Half (2)

Notes and Guidance

Children use their understanding of finding half of an object or shape and apply this to finding half of a small quantity. It is important that children find the total amount and can then show how this number can be shared equally into two. The use of concrete manipulatives such as counters can help children to find a half.

Mathematical Talk

How can we find half of an amount?

How many groups do we need to share our beads between?

How can you check that you have found half?

How many equal parts should you have when you have split the objects in half?

Varied Fluency

Find half of each amount.

Find half of the amounts and complete the stem sentences.

There are ___ beads.
Half of ___ is ___

There are ___ marbles.
Half of ___ is ___

There are ___ sheep.
Half of ___ is ___
How many different ways can you shade one half of the shapes?

Any combination that has three whole squares shaded out of the 6

Mo is finding halves.

It is hard to find half of an odd number.

Do you agree with Mo? Explain your answer.

Possible answer: I agree with Mo because an odd number cannot be shared equally between 2. It would not give a whole number answer.
Recognise a Half

Notes and Guidance

Children understand that halving is splitting a whole into two equal parts. They are introduced to the notation $\frac{1}{2}$ for the first time and will use this alongside sentence stems and ‘half’ or ‘halves’. They should be introduced to the language of numerator, denominator and what these represent. Children must explore halves in different contexts, for example, half of a length, shape or set object.

Mathematical Talk

How many equal parts has the shape/object/length been split into?

What fraction is this part worth?

In the notation $\frac{1}{2}$, what does the 1 represent? What does the 2 represent?

Varied Fluency

- The whole gummy bear is split into ____ equal parts.
- Each part is worth a ________.
- This can be written as ________.
- Which pictures show $\frac{1}{2}$?
- Which pictures show $\frac{1}{2}$?
Children need to link their explanation to the shape not having two equal parts.

Rosie says the shaded part of the shape does not show a half because there are four parts, not two equal parts.

Possible answer: I disagree because you can swap the red and white squares/rectangles and you would have two equal parts with one part shaded.
In this small step children find a half of a set of objects or quantity.

Links should be made here to dividing by 2. Children may need to use the concept of sharing to find a half. Paper plates, hoops and containers can be used to share objects into 2 equal groups.

Share 20 beanbags equally between two containers, then complete the stem sentences.

The whole is ____. Half of ____ is ____.

Circle half the cakes. Circle half the triangles.

Fill in the blanks. Use counters to help you if needed.

\[
\frac{1}{2} \text{ of } 4 = \quad \frac{1}{2} \text{ of } 40 = \\
\frac{1}{2} \text{ of } 6 = \quad \frac{1}{2} \text{ of } 60 = \\
\frac{1}{2} \text{ of } 8 = \quad \frac{1}{2} \text{ of } 80 = 
\]
Yes because there are 12 squares altogether and 6 squares are shaded. 12 is the whole, half of 12 is 6.

I am thinking of a number. Half of my number is more than 10 but less than 15. What could my number be? 22, 24, 26, 28

Annie has some gummy bears. She circles half of them. How many gummy bears did she have at the start? Annie started with 16 gummy bears.
Find a Quarter (1)

Notes and Guidance

Children explore quarters for the first time. They will develop their understanding of equal parts and non-equal parts and relate this to a shape or object being split up into four equal parts.

Children will use the words quarters and parts at this stage but will not use the fractional notation of \( \frac{1}{4} \).

Mathematical Talk

How many parts does my whole have? Are my parts equal or not equal? How many equal parts can we see/count?

Can we make a quarter in a different way?

Which shapes show equal parts? Which shapes show four equal parts? Which shapes show quarters?

Varied Fluency

- Take two square pieces of paper, two circular pieces of paper and two rectangular pieces of paper.
- Model folding one of each into four equal parts and the other into four non-equal parts.
  - Which shapes show equal parts? Which do not?
  - How many equal parts can we see?
    - Can we fold any of the shapes in a different way and still get equal parts?
- Count the equal parts and then model counting them in quarters.
- Colour a quarter of each shape. Can you colour it in different ways?
- Tick the shapes that show quarters.
Find a Quarter (1)

Reasoning and Problem Solving

Alex and Jack are talking about quarters.

Are they correct?
Explain your answer.

Alex is correct because quarters must be four equal parts. Jack has split his square into four unequal parts so they are not quarters.

Use the squares to show:

• Less than a quarter shaded.
• Exactly a quarter shaded.
• More than a quarter shaded.

There are multiple solutions for each one.
Children find a quarter of a small quantity through equal sharing. It is important they can show the groups clearly by drawing around quantities or by physically sharing into something. Children will use the word quarters and parts at this stage but will not use the fractional notation of $\frac{1}{4}$. They also begin to describe capacity using the terminology ‘a quarter full’.

**Mathematical Talk**

How many sweets do I have? How can I share them equally into four groups? What is one quarter worth?

Are my containers the same or different? Can you show me a quarter full in each container.

How can I quarter this amount? If I have 2, and it is a quarter, what will the whole look like? What will the whole be worth?

**Notes and Guidance**

Find a Quarter (2)

**Varied Fluency**

- Share each quantity into four equal groups.  
  - There are ___ cakes.  
  - There is ___ cake in each quarter.  
  - A quarter of ___ is ___

- There are ___ sweets.  
  - There are ___ sweets in each quarter.  
  - A quarter of ___ is ___

- There are ___ peaches.  
  - There are ___ peaches in each quarter.  
  - A quarter of ___ is ___

- Use a range of containers and rice/water. Can you show me a quarter full in each container? Do they look the same or different?

- Use counters to complete the sentences.
  - A quarter of 4 is ___  
  - A quarter of 8 is ___  
  - 1 is one quarter of ___  
  - 3 is one quarter of ___
Find a Quarter (2)

Reasoning and Problem Solving

One cube is a quarter, what could the whole look like?

Possible answers:
Any arrangement of 4 cubes.

Two cubes are a quarter, what could the whole look like?

Any arrangement of 8 cubes.

Three cubes are a quarter, what could the whole look like?

Any arrangement of 12 cubes.

How many different possibilities can you make?

There are many different possibilities which the children will find through their exploration with the multilink.

Mr. White has asked his class to put one quarter of the balls into the hoop.

Whitney is correct because one quarter of 12 is 3

Teddy has misinterpreted one quarter to just mean one.

Tommy knows that quarters are linked to fours but hasn’t split the balls into four equal groups.

I’m going to put one ball in the hoop.

I’m going to put three balls in the hoop.

I’m going to put four balls into the hoop.

Who is correct? Can you explain any mistakes made?
Children extend their knowledge of the whole and halves to recognise quarters of shapes, objects and quantities.

They continue to work concretely and pictorially, understanding that they are splitting the whole into 4 equal parts and that each part is one quarter.

How many equal parts have you split the whole into if you have split it into quarters?

In \( \frac{1}{4} \) what does the 1 represent? What does the 4 represent?

Can you shade one quarter in different ways? How do you know that you have shaded one quarter?

How many quarters make a whole?

Four friends are sharing a cake. The cake is split into _____ equal parts.

Each part is worth a _______.

This can be written as __________.

Shade \( \frac{1}{4} \) of each shape.

Circle the shapes that have a quarter shaded.

Which shapes do not have a quarter shaded? How do you know?

Draw the shapes again and split them into quarters correctly?
Recognise a Quarter

Reasoning and Problem Solving

Alex is folding two identical paper strips.

Possible answer: When the whole is the same, one quarter will be smaller because it is one of four equal parts compared to a half which is one of two equal parts.

True or False?

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

Explain your answer.

Children will need to split the shape into four equal parts in order to show that this is true.

Giving children paper to fold will help them understand this concept.

I think \( \frac{1}{4} \) of the strip will be bigger than \( \frac{1}{2} \) of the strip because 4 is bigger than 2

Use paper strips to prove Alex is incorrect.
Children find quarters of shapes, objects and quantities. They begin by physically sharing amounts into four equal groups, or drawing around quantities then move towards working in the abstract. The link between the concrete, pictorial and abstract representations should be made explicit.

Support children in seeing the relationship between half of an amount and a quarter of an amount.

**Mathematical Talk**

What is the whole? What is a half? What is a quarter?

Can you circle a quarter in a different way?

How do you know you have found $\frac{1}{4}$?

What do you notice about half of 12 and one quarter of 12?

Can you explain what has happened?

If a quarter is _____ then the whole is _____

**Varied Fluency**

- Share the smarties equally between 4 people. The smarties are split into ____ equal parts.
  - Each part is worth a ________.
  - This can be written as __________

- Circle one quarter of the cars.
  - One quarter of ____ is ____
  - ____ is $\frac{1}{4}$ of ____

- Complete:
  - $\frac{1}{2}$ of 12 = ______
  - $\frac{1}{4}$ of 12 = ______
  - $\frac{1}{2}$ of 20 = ______
  - $\frac{1}{4}$ of 20 = ______
  - $\frac{1}{2}$ of 8 = ______
  - $\frac{1}{4}$ of 8 = ______
Mo has two ribbons. He cuts \( \frac{1}{4} \) from each ribbon.

<table>
<thead>
<tr>
<th>Who has more? Explain why.</th>
<th>Whitney has more because half of £6 is £3, whereas a quarter of £8 is only £2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rosie</td>
<td>Whitney</td>
</tr>
<tr>
<td>I have ( \frac{1}{2} ) of £6</td>
<td>I have ( \frac{1}{4} ) of £8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Eva says,</th>
<th>This is incorrect, one quarter means 4 equal groups not just 4. One quarter of the marbles would be 5</th>
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</thead>
<tbody>
<tr>
<td>I have ( \frac{1}{4} ) because I have 4 marbles.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mo has two ribbons. He cuts ( \frac{1}{4} ) from each ribbon.</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \frac{1}{4} ) of ribbon A</td>
</tr>
<tr>
<td>( \frac{1}{4} ) of ribbon B</td>
</tr>
<tr>
<td>5 cm</td>
</tr>
<tr>
<td>4 cm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How long were Mo’s whole pieces of ribbon?</th>
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</thead>
<tbody>
<tr>
<td>Which ribbon was the longest? How much longer?</td>
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</tbody>
</table>

| Ribbon A was 20 cm                                           |
| Ribbon B was 16 cm                                           |
| Ribbon A was 4 cm longer.                                     |
Children apply understanding of fractions to finding thirds. They continue to use the language of ‘whole’ and ‘equal parts’ and understand that one third is equal to one part out of three equal parts.

They write one third as a fraction and explain what each of the digits represents in the fractional notation.

How many equal parts have you split the whole in to if you have split it into thirds?

In \( \frac{1}{3} \) what does the digit 1 represent? What does the digit 3 represent?

Can you shade \( \frac{1}{3} \) in a different way? How do you know that you have shaded \( \frac{1}{3} \)?

How many thirds make a whole?
Dora says,

I have one third of a pizza because I have one slice and there are three slices left.

Do you agree? Explain your reasoning.

Dora is incorrect. She has one quarter of a pizza because there were four slices altogether and she has one of them. There would need to only be three slices altogether for her to have one third.

Alex, Annie and Whitney each show a piece of ribbon.

Whitney shows \( \frac{1}{2} \) of her whole ribbon.

Alex shows \( \frac{1}{4} \) of her whole ribbon.

Annie shows \( \frac{1}{3} \) of her whole ribbon.

Whose whole piece is the longest? Whose is the shortest? Explain why.

Alex’s piece will be the longest because she will have four parts altogether. Whitney’s piece will be the shortest because she will only have two parts.
Find a Third

Notes and Guidance

Children build on their understanding of a third and three equal parts to find a third of a quantity.

They use their knowledge of division and sharing in order to find a third of different quantities using concrete and pictorial representations to support their understanding.

Mathematical Talk

How many objects make the whole?
Can we split the whole amount into three equal groups?
What is a third of ____?
What is staying the same? What is changing?
How does changing the whole amount change the answer?
Is the answer still worth a third? Explain why?

Varied Fluency

Use the cubes to make three equal groups.

There are ____ cubes altogether.

One third of ____ is ____

Rosie is organising her teddy bears. She donates 1/3 of them to charity. How many bears does she have left?

Complete:

1/3 of 9 =  
1/3 of 15 =  
1/3 of 12 =  
1/3 of 18 =  

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### Find a third

**Reasoning and Problem Solving**

| Annie has a piece of ribbon. | Half the ribbon would be 9cm. (6 × 3 = 18cm
Half of 18 = 9cm) | Ron is thinking of a number. |
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>She cuts it into three equal parts.</td>
<td>A bar model would be a particularly useful pictorial representation of this question.</td>
<td>One third of his number is greater than 8 but smaller than 12.</td>
</tr>
<tr>
<td>One third of the ribbon is 6 cm long.</td>
<td>How long would half the ribbon be?</td>
<td>What could his number be?</td>
</tr>
<tr>
<td>How long would half the ribbon be?</td>
<td>27, 30, 33</td>
<td></td>
</tr>
</tbody>
</table>
Unit Fractions

Notes and Guidance

Children understand the concept of a unit fraction by recognising it as one equal part of a whole. They link this to their understanding of recognising and finding thirds, quarters and halves. Children also need to understand that the denominator represents the number of parts that a shape or quantity is split into.

Mathematical Talk

How can we represent these unit fractions in different ways?

Why do we call them a unit fraction? Where can we see the unit?

Show me $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}$ of the model/counters etc. What is the same? What is different?

Which unit fraction is bigger/smaller if the whole is the same?

Varied Fluency

What is the same and what is different about each bar model?

What fraction is shaded in each diagram?

What do you notice? Complete the sentence.

The ___________ the denominator the ____________ the fraction.

Match the unit fraction to the correct picture.
### True or False?

<table>
<thead>
<tr>
<th>True. There are 12 squares altogether and 3 are shaded. One quarter of 12 is 3. Any 4 squares shaded.</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am thinking of a number. One third of my number is 12. Which will be greater, one half of my number or one quarter of my number? Use cubes or a bar model to prove your answer.</td>
</tr>
</tbody>
</table>

### The whole number is 36
- One half is 18
- One quarter is 9

One half of the number will be greater.
Children are introduced to the non-unit fractions \( \frac{2}{3} \) and \( \frac{3}{4} \) for the first time.

They also need to look at fractions where the whole is shaded and how these fractions are written. Children see that the numerator and denominator are the same when the fraction is equivalent to one whole.

**Mathematical Talk**

How many quarters make a whole? How many thirds make a whole? What do you notice?

How many quarters are there in \( \frac{3}{4} \)?

In \( \frac{3}{4} \), what does the digit 3 represent? What does the digit 4 represent?

Give me an example of a unit fraction and a non-unit fraction.

**Varied Fluency**

What fraction is shaded in each diagram?

![Diagrams of shaded fractions]

Shade \( \frac{3}{4} \) of each shape.

![Diagrams of shapes with shaded parts]

Shade in the whole of each circle. What fraction is represented in each case?

![Diagrams of circles with shaded parts]
Alex says,

I have shaded $\frac{2}{2}$ of the shape.

What mistake might Alex have made?

She has shaded two quarters of the shape. She may have thought that the numerator represents the number of parts that are shaded and the denominator represents the number of parts that aren’t. She doesn’t realise the denominator represents the whole.

Sort the fractions into the table.

<table>
<thead>
<tr>
<th>Fraction</th>
<th>Fractions equal to one whole</th>
<th>Fractions less than one whole</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit fractions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-unit fractions</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

What do you notice?

Are there any boxes in the table empty?

What fraction could you write here?

Top left: Empty
Top right: $\frac{1}{3}$, $\frac{1}{4}$ and $\frac{1}{2}$
Bottom left: $\frac{2}{3}$ and $\frac{4}{4}$
Bottom right: $\frac{3}{4}$ and $\frac{2}{3}$

There are no unit fractions that are equal to one whole.

$\frac{1}{1}$ would fit here.
Year 2 | Spring Term | Week 9 to 11 – Number: Fractions

Equivalence of $\frac{1}{2}$ and $\frac{2}{4}$

Notes and Guidance

Children explore the equivalence of two quarters and one half of the same whole and understand that they are the same.

Children tackle this practically, using strips of paper and concrete apparatus (e.g. counters, Cuisenaire rods, number pieces).

Mathematical Talk

What does equivalent mean? What symbol do we use?

Are these two fractions equal? (half and two quarters)

Are the numerators the same? Are the denominators the same?

How many quarters are equivalent to a half?

Varied Fluency

- Using two identical strips of paper, explore what happens when you fold the strips into two equal pieces and four equal pieces. Compare one of the two equal pieces with two of the four equal pieces. What do you notice?

- Shade one half and two quarters of each shape.

- Give children an amount of counters or concrete objects, can you find one half of them? Can you find two quarters of them? What do you notice?
Tommy has a jar of 12 cookies. He gives half of them to Alex, and \(\frac{2}{4}\) of them to Mo.

**Who gets the most cookies?**

They both get the same amount. They will each get 6 cookies.

**Whitney says:**

I have shaded a third of my shape.

**Do you agree? Explain why.**

Why do you think Whitney thinks this?

Whitney has shaded half or 2 quarters of her shape.

She thinks that she has shaded one third because one part out of three is shaded, but the parts are not equal.

Using red and blue cubes, build two towers to convince me that \(\frac{1}{2}\) and \(\frac{2}{4}\) are equal.

Answers vary depending on the amount of cubes used. Key point is that the towers should be the same height.
Children use their understanding of quarters to find three quarters of a quantity.

They work concretely and pictorially to make connections to the abstract.

Children should be encouraged to spot patterns and relationships between quarters of amounts.

How many quarters make a whole?
Can you represent this in a bar model?
How many equal parts is $\frac{3}{4}$? 
Can you spot any patterns?
What has stayed the same? What has changed? What do you notice?

Amir shares 12 beanbags into 4 equal groups. Use the image to complete the sentences.

One quarter of 12 is equal to ____
Two quarters of 12 is equal to ____
Three quarter of 12 is equal to ____
Four quarters of 12 is equal to ____

Use counters and a bar model to help you find $\frac{3}{4}$ of 8 and $\frac{3}{4}$ of 16. What do you notice?

Use counters, cubes, or bar models to help you fill in the blanks:
Amir is using beanbags and hoops to find three quarters of 20

Can you spot his mistake?

Amir hasn’t created equal groups. 20 should be shared into 4 equal parts. There should be 5 beanbags in each hoop so three quarters of 20 is 15 not 14

Eva eats three-quarters of her sweets. She eats these sweets.

How many sweets does Eva have left?

Eva has 2 sweets left.
Encourage children to do this practically.
Using their knowledge of halves, thirds and quarters, children count in fractions from any number up to 10.

They begin to understand that fractions can be larger than one whole.

Teachers can use a number line, counting stick or hoop to support them in counting in fractions.

What would the next image in the sequence look like?

What do you notice about the fraction of yellow cubes? Can you count the fractions represented?

In groups of 4, give each child an identical strip of paper. Fold each of them into 2 equal parts. Count how many halves there are on two strips of paper, on three strips, on 4 strips. Predict: how many halves will there be on six, seven, eight strips?

Shade the correct number of parts for each fraction.

Complete each number line. What’s the same, what’s different?
Count in Fractions

Reasoning and Problem Solving

Look at this pattern.

What would come next?
Write the next fraction and draw the representation.

What would be the 8th fraction in the pattern?

Five thirds, \( \frac{5}{3} \)
Children may think that the later models are in sixths, it is important to stress that the whole one is still made up of three and so we are still counting in thirds.

The 8th fraction would be \( \frac{8}{3} \) or \( 2 \frac{2}{3} \)

Alex and Whitney are counting in quarters.

One quarter, two quarters, three quarters, four quarters...

Alex

One quarter, one half, three quarters, one whole...

Whitney

Who is correct? Explain your answer.

They are both correct. Two quarters is equivalent to one half and four quarters is equivalent to one whole.