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.
Notes and Guidance

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>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Autumn</strong></td>
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<td></td>
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</tr>
<tr>
<td>Number: Place Value Y2 – Numbers to 100</td>
<td>Number: Addition and Subtraction Year 2 – Numbers within 100 (including money)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Number: Multiplication</td>
</tr>
<tr>
<td>Y3 – Numbers to 1,000</td>
<td>Year 3– Numbers within 1,000 (including money)</td>
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<td><strong>Spring</strong></td>
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<tr>
<td>Number: Division</td>
<td>Statistics</td>
<td>Measurement: Length and Height</td>
<td>Geometry: Year 2: Shape, Position and Direction Year 3: Shape and Perimeter</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td>Number: Year 2: Fractions &amp; Consolidation Year 3: Fractions</td>
</tr>
<tr>
<td><strong>Summer</strong></td>
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<td>Problem solving</td>
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<td></td>
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<td></td>
<td>Consolidation and Investigations</td>
</tr>
</tbody>
</table>

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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.

Year Specific

Year 2 content

Year 3 content
# Length and Height

## Common Content

### Measure Length
- Year 2 (Spr B5)
  - Measure length (cm)
  - Measure length (m)
- Year 3 (Spr B4)
  - Measure length
  - Equivalent lengths – m & cm
  - Equivalent lengths – mm & cm

### Compare & Order Lengths
- Year 2 (Spr B5)
  - Compare lengths
  - Order lengths
- Year 3 (Spr B4)
  - Compare lengths

### Four Operations
- Year 2 (Spr B5)
  - Four operations with lengths
- Year 3 (Spr B4)
  - Add lengths
  - Subtract lengths

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In this block, both year groups measure, compare, add and subtract lengths.

Year 2 focus on measuring in centimetres as well as considering whether objects are longer or shorter than a metre. They measure longer distances in metres using different equipment.

Year 3 begin to look at the equivalence between different measurements. Teachers may decide to introduce simple equivalences of centimetres and metres to Year 2 as this will strengthen their understanding when measuring in the different units.
Block 3 – Length & Height

Theme 1 – Measure length
Measure Length (cm)

Notes and Guidance

Children measure to the nearest centimetre using a ruler or tape measure.

They measure both length and height and focus on the importance of measuring from 0 rather than the end of the ruler or tape measure.

Mathematical Talk

What is the length?

How can the numbers on the ruler help us?

How do you know you have drawn a line that is 5cm long? How can you check?

Why is it important to start measuring from 0 on the ruler?

Varied Fluency

Choose a variety of objects and practice measuring them using a centimetre ruler. Remember to line up the object to the 0 mark on the ruler.

e.g. How long is the pencil to the nearest centimetre?

How tall is the glass?

What other objects can you find to measure the height of?

Draw a line that is:

- 5 cm long
- 8 cm long
- Longer than 4 cm but shorter than 7 cm.
Measure Length (cm)

Reasoning and Problem Solving

How long is this piece of string? How could you find out?

Does the length change if you change the orientation?

The length will not change if you change the orientation so it will be easier to measure if you put it in a straight line.

Mo has used the ruler to measure the length of the car.

Mo says the car is 8 centimetres long. Do you agree? Explain your answer.

Mo is incorrect because he has not lined the car up with the 0 marker. If he had measured from 0 he would see that the car is 7 cm long.
Children begin to measure larger objects using metres. They think about whether it is better to measure items in centimetres or metres and discuss the reasons why.

Children do not yet convert from metres to centimetres; however they may see that 100 centimetres is the same as 1 metre and measurements can be written as mixed units e.g. the child is 1 metre and 25 centimetres tall.

When would it be appropriate to use metres?

Why is more efficient to use metres instead of centimetres for longer objects/distances?

What equipment would you use to measure longer objects/distances?

Varied Fluency

Use a metre stick to measure objects in your classroom and place them into the groups.

Can you find anything that is exactly one metre?

Use a metre stick to count up in 10 cm blocks. What do you notice about 100 cm?
Possible responses: it is the same as a metre, 1 m is written, it is the end of the stick.

Measure the length of the school hall. Record the length in metres and centimetres, e.g. 15 metres and 13 centimetres.
Measure Length (m)

Reasoning and Problem Solving

Usain Bolt can run 100 m in 9.58 seconds (just under 10 seconds).

How far do you think you can run in 10 seconds? Do you think it will be more or less than 100 m?

Measure how far you and your friends can run in 10 seconds. Record your answers in metres and centimetres.

Circle the objects that you would measure in metres. Tick the objects that you would measure in centimetres.

Circle elephant, school and tree

Children will have a variety of answers. They could measure using different equipment including metre sticks and trundle wheels.

Amir has a metre stick.

He wants to measure the length of his classroom.

I can't measure the length of the classroom because my metre stick isn't long enough.

Explain to Amir how he could measure the length of his classroom.

Amir can measure the length of the classroom by putting a marker at the end of the metre stick and then starting again at that point, moving his metre stick as he measures.
Measure Length

Children are introduced to millimetres for the first time and build on their understanding of centimetres and metres.

Children use different measuring equipment including rulers, tape measures, metre sticks and trundle wheels. They discuss which equipment is the most appropriate depending on the object they are measuring.

Notes and Guidance

Mathematical Talk

What would be the best equipment to measure _____ with? (e.g. tape measure, ruler, metre stick)

What do we have to remember when using a ruler to measure? Which unit of measurement are we going to use to measure? Centimetres or millimetres?

What unit of measure would be best to measure _____ ?

Varied Fluency

Measure the lines to the nearest centimetre. Can you measure the lines in millimetres?

What unit of measurement would you use to measure these real life objects? Millimetres, centimetres or metres?

What is the length of each pencil?
Whitney’s ruler is broken. How could she use it to still measure items?

Possible answer: She could start from a different number and count on.

Tommy thinks that this chocolate bar is 4 cm long. Is he correct?

He is incorrect because he has not placed the chocolate bar at 0, he has put it at the end of the ruler.

Three children measured the same toy car.

Eva says that the car is 6 cm and 5 mm

Dexter says the car is 5 cm

Annie says the car is 4 cm 5 mm

Who is correct? Who is incorrect? Explain why.

Dexter is correct. The other two children have not lined up the ruler correctly: Eva has started at 1 cm and 5 mm instead of 0 and Annie has started at the end of the ruler.
If a = 10 cm, calculate the missing measurements.

b = ____ cm  
c = ____ cm  
1 metre = ____ cm

Can you match the equivalent measurements?

Eva uses this diagram to convert between centimetres and metres.
Use Eva’s method to convert:
• 130 cm
• 230 cm
• 235 cm
• 535 cm
• 547 cm

If there are 100 cm in 1 metre, how many centimetres are in 2 metres? How many centimetres are in 3 metres?

Do we need to partition 235 cm into hundreds, tens and ones to convert it to metres? Is it more efficient to partition it into two parts? What would the two parts be?

If 100 cm is equal to one whole metre, what fraction of a metre would 50 cm be equivalent to? Can you show me this in a bar model?
Mo and Alex each have a skipping rope.

Alex says, I have the longest skipping rope. My skipping rope is $2\frac{1}{2}$ metres long.

Mo says, My skipping rope is the longest because it is 220 cm and 220 is greater than $2\frac{1}{2}$.

Who is correct? Explain your answer.

Alex is correct because her skipping rope is 250 cm long which is 30 cm more than 220 cm.

Three children are partitioning 754 cm

Teddy says, 75 m and 4 cm

Whitney says, 7 m and 54 cm

Jack says, 54 cm and 7 m

Who is correct? Explain why.

Whitney and Jack are both correct. Teddy has incorrectly converted from cm to m when partitioning.
Equivalent Lengths – mm & cm

Notes and Guidance

Children recognise that 10 mm is equivalent to 1 cm. They use this knowledge to convert other multiples of 10 mm into centimetres and vice versa.

When looking at lengths that are not multiples of 10, they partition the measurement and convert into centimetres and millimetres. At this stage, children do not use decimals. This is introduced in Year 4.

Mathematical Talk

What items might we measure using millimetres rather than centimetres?

If there are 10 mm in 1 cm, how many mm would there be in 2 cm?

How many millimetres are in \( \frac{1}{2} \) cm?

How many different ways can you partition 54 cm?

Varied Fluency

Fill in the blanks.

There are ___ mm in 1 cm.

a = ___ cm ___ mm
b = ___ cm ___ mm
c = ___ cm ___ mm
d = ___ cm ___ mm

Measure different items around your classroom.
Record your measurements in a table in cm and mm, and just mm.

Complete the part whole models.
Rosie is measuring a sunflower using a 30 cm ruler. Rosie says, The sunflower is 150 cm tall. Rosie is incorrect. She has used the wrong unit on the ruler. The sunflower is 15 cm tall or 150 mm tall.

Ron is thinking of a measurement. Use his clues to work out which measurement he is thinking of.

- In mm, my measurement is a multiple of 2
- It has 8 cm and some mm
- It’s less than 85 mm
- In mm, the digit sum is 12

Ron is thinking of 84 mm (8 cm and 4 mm)
Children compare lengths of objects using comparison language and symbols. They use language such as longer than, shorter than, taller than, longest, shortest and tallest.

Children only compare using the same unit of length in a question. However, the same number but different unit of measure could also be used to check that children understand metres are bigger than centimetres.

Which is longer: 10 centimetres or 10 metres?

Which symbols can we use to compare lengths?

What is the difference between using taller than and longer than? When would we use taller than instead of longer than?

Choose 2 objects from your classroom. Estimate the length of each object. Then measure both objects and compare the lengths using <, > or =

Try this again, but this time measuring your friends’ heights.
Compare Lengths

Comparing Lengths

Reasoning and Problem Solving

Compare the measurements using <, > or =

<table>
<thead>
<tr>
<th>Left Measurement</th>
<th>Right Measurement</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>55 cm + 10 cm</td>
<td>55 cm − 10 cm</td>
<td>&gt;</td>
</tr>
<tr>
<td>42 m + 6 m</td>
<td>42 m + 7 m</td>
<td>&lt;</td>
</tr>
<tr>
<td>6 cm − 5 cm</td>
<td>6 m − 5 m</td>
<td>&lt;</td>
</tr>
<tr>
<td>80 m − 5 m</td>
<td>70 m + 5 m</td>
<td>=</td>
</tr>
</tbody>
</table>

A green pencil is twice as long as a blue pencil.

Using this, complete the statements using longer than, shorter than or equal to.

3 green pencils are _______ 2 blue pencils

2 green pencils are _______ 5 blue pencils

4 green pencils are _______ 8 blue pencils

3 green pencils are longer than two blue pencils.
2 green pencils are shorter than 5 blue pencils.
4 green pencils are equal to 8 blue pencils.
Order Lengths

Notes and Guidance

Children order more than two lengths from shortest to longest and vice versa. This will help them recap their understanding of ordering numbers to 100.

Children will order given lengths as well as ordering objects by measuring each length themselves.

They will use the language of shorter, shortest, longer and longest to describe the order.

Mathematical Talk

How is ordering lengths similar to ordering numbers on a number line? Can we use a number line to help us?

Can we estimate which object is the longest before measuring?

Varied Fluency

Eva, Jack and Rosie are comparing the length of ribbons. Complete the sentences.

_________ has the longest ribbon.

_________ has the shortest ribbon.

_________ ‘s ribbon is shorter than _______’s.

_________’s ribbon is longer than _______’s.

Choose five objects in your classroom. Measure them using a ruler. Order the objects from longest to shortest. Write at least three sentences to describe the objects using the words longer, longest, shorter and shortest.
Order Lengths

Reasoning and Problem Solving

Four children are measuring their heights.

Eva is taller than Rosie, but not as tall as Mo.

Dexter is taller than Mo.

Write down their names in order of their heights, starting with the shortest.

| Shortest: Rosie
| Eva
| Mo
| Tallest: Dexter

Dora says,

The taller you are, the longer your shoes are.

Measure the height of people in your class and measure the length of their shoes.

Is Dora correct?

Children will find different results depending on their class.
Complete the sentences.

<table>
<thead>
<tr>
<th>Child</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rosie</td>
<td>109 cm</td>
</tr>
<tr>
<td>Amir</td>
<td>1 m 5 cm</td>
</tr>
<tr>
<td>Jack</td>
<td>135 cm</td>
</tr>
<tr>
<td>Dora</td>
<td>1 m 45 mm</td>
</tr>
</tbody>
</table>

Rosie is _______ than Jack.
Jack is _______ than Dora.
Amir is _______ than Rosie.
Dora is _______ than Amir.

Four friends are building towers.
Eva's tower is 22 cm and 7 mm tall.
Teddy's tower is 22 cm tall.
Annie's tower is 215 mm tall.
Dexter’s tower is 260 mm tall.
Order the children’s towers in descending order.

Using a ruler, measure the width of 5 different books to the nearest mm. Record your results in a table, then compare and order them.
Always, Sometimes, Never?

mm lengths are smaller than cm lengths.

Possible answer:

Sometimes. E.g. 1 mm is smaller than 1 cm but 70 mm is larger than 3 cm.

Sort the lengths into the table.

<table>
<thead>
<tr>
<th>Longer than a metre</th>
<th>Shorter than a metre</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 m 65 cm</td>
<td>165 mm</td>
</tr>
<tr>
<td></td>
<td>165 cm</td>
</tr>
<tr>
<td>165 mm</td>
<td>1 cm 65 mm</td>
</tr>
<tr>
<td>1 cm 65 mm</td>
<td></td>
</tr>
</tbody>
</table>

Are any of the lengths equivalent?

1 m 65 cm, 165 cm and 165 m are longer than a metre.
165 mm, 16 cm 5 mm and 1 cm 65 mm are shorter than a metre.

1 m 65 cm is equivalent to 165 cm.
165 mm is equivalent to 16 cm 5 mm.
Children draw on their skills of the four operations and apply their understanding to length.

They solve one-step and two-step problems relating to length and use concrete and pictorial representations to calculate efficiently.

Can you draw a bar model to help to decide which operations to use?

What are the key words in the question?

Can you ask and answer any different questions using the objects and information given?

Eva, Jack and Rosie each have a piece of ribbon.

- How much longer is Jack’s ribbon than Eva’s?
- Jack and Rosie put their ribbons together. How long are they altogether?
- Eva cuts three more ribbons of the same length as hers. What is the total length of all four ribbons?
- Eva cuts her ribbon in half. What is the length of each piece?

Teddy has a toy train and a toy plane.
- The train is 28 cm long. The plane is 16 cm longer. How long is the plane?
- The toy train is double the length of a toy car. How long is the toy car?

Draw bar models to help you.
Four Operations with Lengths

Reasoning and Problem Solving

Here is a strip of orange paper.

The orange strip is 10 cm long and a blue strip is 40 cm long.

A blue strip is four times longer than an orange strip.

The strips are joined end to end.

How long is the orange strip?

How long is the blue strip?

There are 3 teddies in a box.

The brown teddy is 15 cm taller than the yellow teddy.

The yellow teddy is 3 cm shorter than the pink teddy.

The pink teddy is 42 cm tall.

How tall are the brown and yellow teddies?

How much taller is the brown teddy than the pink teddy?

The yellow teddy is 39 cm tall.

The brown teddy is 54 cm tall.

The brown teddy is 12 cm taller.
Add Lengths

Notes and Guidance

Children add lengths given in different units of measurement. They convert measurements to the same unit of length to add more efficiently. Children should be encouraged to look for the most efficient way to calculate and develop their mental addition strategies.

This step helps prepare children for adding lengths when they calculate the perimeter.

Mathematical Talk

How did you calculate the height of the tower?

Estimate which route is the shortest from Tommy’s house to his friend’s house.

Which route is the longest?

Why does converting the measurements to the same unit of length make it easier to add them?

Varied Fluency

Ron builds a tower that is 14 cm tall. Jack builds a tower than is 27 cm tall. Ron puts his tower on top of Jack’s tower. How tall is the tower altogether?

Tommy needs to travel to his friend’s house. He wants to take the shortest possible route. Which way should Tommy go?

Miss Nicholson measured the height of four children in her class. What is their total height?

95 cm  1 m and 11 cm  1 m and 50 mm  89 cm
Eva is building a tower using these blocks.

100 mm  80 mm  50 mm

How many different ways can she build a tower measuring 56 cm? Can you write your calculations in mm and cm?

Possible answer:
Four 100 mm blocks and two 80 mm blocks.

There are many other solutions.

Eva and her brother Jack measured the height of their family.

Jack is correct. Eva has not included her own height.

Eva thinks their total height is 4 m and 55 cm

Jack thinks their total height is 5 m and 89 cm

Who is correct? Prove it.
Subtract Lengths

Notes and Guidance

Children use take-away and finding the difference to subtract lengths. Children should be encouraged to look for the most efficient way to calculate and develop their mental subtraction strategies.

This step will prepare children for finding missing lengths within perimeter.

Mathematical Talk

What is the difference between the length of the two objects? How would you work it out?

How are Alex’s models different? How are they the same?

Which model do you prefer? Why?

What is the most efficient way to subtract mixed units?

Varied Fluency

Find the difference in length between the chew bar and the pencil.

The chew bar is ___ cm long.
The pencil is ___ cm long.
The chew bar is ___ cm longer than the pencil.

Alex has 5 m of rope. She uses 1 m and 54 cm to make a skipping rope. She works out how much rope she has left using two different models.

Use the models to solve:

• Mrs Brook’s ball of wool is 10 m long. She uses 4 m and 28 cm to knit a scarf. How much does she have left?
• A roll of tape is 3 m long. If I use 68 cm of it wrapping presents, how much will I have left?
### Subtract Lengths

#### Reasoning and Problem Solving

<table>
<thead>
<tr>
<th><strong>A bike race is 950 m long. Teddy cycles 243 m and stops for a break. He cycles another 459 m and stops for another break. How much further does he need to cycle to complete the race?</strong></th>
<th><strong>Teddy needs to cycle 248 metres further.</strong></th>
<th><strong>Annie has a 3 m roll of ribbon. She is cutting it up into 10 cm lengths. How many lengths can she cut?</strong></th>
<th><strong>Annie can cut it in to 30 lengths.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>A train is 20 metres long. A car is 15 metres shorter than the train. A bike is 350 cm shorter than the car. Calculate the length of the car. Calculate the length of the bike. How much longer is the train than the bike?</td>
<td>The car is 5 m and the bike is 150 cm or 1 m 50 cm. The train is 18 metres and 50 cm longer than the bike.</td>
<td>Annie gives 240 cm of ribbon to Rosie. How much ribbon does she have left? How many 10 cm lengths does she have left?</td>
<td>Annie has 60 cm left. She has 6 lengths left.</td>
</tr>
</tbody>
</table>

Annie has a 3 m roll of ribbon. Annie can cut it into 30 lengths.