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.

<table>
<thead>
<tr>
<th>Subtraction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year 1 (Aut B2, Spr B1)</strong></td>
</tr>
<tr>
<td>• How many left? (1)</td>
</tr>
<tr>
<td>• How many left? (2)</td>
</tr>
<tr>
<td>• Counting back</td>
</tr>
<tr>
<td>• Subtraction - not crossing 10</td>
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<tr>
<td>• Subtraction - crossing 10 (1)</td>
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<tr>
<td>• Subtraction - crossing 10 (2)</td>
</tr>
<tr>
<td><strong>Year 2 (Aut B2, B3)</strong></td>
</tr>
<tr>
<td>• Subtract 1-digit from 2-digits</td>
</tr>
<tr>
<td>• Subtract with 2-digits (1)</td>
</tr>
<tr>
<td>• Subtract with 2-digits (2)</td>
</tr>
<tr>
<td>• Find change - money</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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</thead>
<tbody>
<tr>
<td><strong>Autumn</strong></td>
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<tr>
<td>Number: Place Value</td>
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<td>Number: Addition and</td>
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<td></td>
<td>Number: Year 1: Place</td>
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<tr>
<td>Y1 – Numbers to 20</td>
<td></td>
<td></td>
<td>Subtraction</td>
<td></td>
<td></td>
<td></td>
<td>Value to 50 and</td>
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<tr>
<td>Y2 – Numbers to 100</td>
<td></td>
<td></td>
<td>Year 1- Numbers within 20 (including recognising money)</td>
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<td></td>
<td>Multiplication Year 2: Multiplication</td>
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<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
<td>Geometry: Year 1: Shape and Consolidation</td>
<td></td>
<td></td>
<td></td>
<td>Year 2: Fractions</td>
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<tr>
<td>Number: Year 1:</td>
<td></td>
<td></td>
<td>Measurement: Length</td>
<td></td>
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<td>Year 2: Fractions</td>
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<tr>
<td>Division &amp;</td>
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<td>and Height</td>
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<td>Year 2: Properties</td>
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<td>Year 2: Division</td>
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<td><strong>Summer</strong></td>
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<td>Year 1: Place Value</td>
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<td>Year 1: Four</td>
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<tr>
<td>Geometry: Position</td>
<td></td>
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<td>recap</td>
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<td>Operations recap</td>
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<td>and Direction</td>
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<td></td>
<td>Year 2: Problem</td>
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<td></td>
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<td>Year 2: Consolidation</td>
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<tr>
<td>Measurement: Time</td>
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<td>solving</td>
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<td>and Investigations</td>
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<tr>
<td>Measurement:</td>
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<td></td>
<td>Year 1: Place Value</td>
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<td>Value recap</td>
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<td></td>
<td>Year 1: Weight and</td>
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<td></td>
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<tr>
<td>Year 2: Problem</td>
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<td>Volume</td>
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<td></td>
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<tr>
<td>solving</td>
<td></td>
<td></td>
<td>Year 2: Mass, Capacity</td>
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</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.
Place Value and Statistics

Common Content

There is no common content in these 2 weeks due to Statistics not being taught in Year 1. Teachers may split lessons and teach year groups separately.

Year 1 focus on Place Value to 100. Teachers may take this opportunity to revise numbers up to 100 with Year 2 in starters.

Year 2 are introduced to Statistics. They apply counting in multiples to interpret and draw graphs with different scales.

Place Value to 100
Year 1 (Sum B4)
• Counting to 100
• Partitioning numbers
• Comparing numbers (1)
• Comparing numbers (2)
• Ordering numbers
• One more, one less

Statistics
Year 2 (Spr B2)
• Make tally charts
• Draw pictograms (1-1)
• Interpret pictograms (1-1)
• Draw pictograms (2, 5 and 10)
• Interpret pictograms (2, 5 and 10)
• Block diagrams
Children build on their previous learning of numbers to 50. They continue grouping in 10s to make counting quicker and more efficient.

Children are introduced to the hundred square and use it to count forwards and backwards within 100.

Using dot-to-dot activities, both forwards and backwards, with a range of numbers is a fun way to explore counting to 100.

What is the most efficient way to count the objects?
How many are in each group?
How many more groups would you need to make 100?
What do you notice about the layout of the hundred square?
Can you tell your friend an efficient way to find the number 57?
Will I count the number ____ if I am counting from ____ to ____?

How many flowers are there altogether?
Can you represent the flowers using ten frames and counters?

How many straws are there?
Bundle the straws into tens to make them easier to count.

Use the hundred square to:
• Count forwards from 80 to 92
• Count backwards from 73 to 65
• Write down the numbers between 75 and 81
• Find what number comes between 46 and 48
Teddy has made a number using the number shapes.

He says

\[ 6 + 3 = 9 \]

What mistake has Teddy made?

Teddy has counted the six 10s as 1s and added it to the 3.

Correct the mistake in each sequence.

- 34, 35, 36, 38, 39
- 98, 97, 96, 95, 93
- 78, 79, 81, 82

- 34, 35, 36, 37, 38, 39
- 98, 97, 96, 95, 94, 93
- 78, 79, 80, 81, 82
Year 1 | Spring Term | Week 3 to 4 – Number: Place Value

Partitioning Numbers

Notes and Guidance

Children continue grouping in 10s to identify how many tens and ones are within a number. Flexible partitioning is not expected at this stage, however children may notice other ways of partitioning numbers by themselves. Children will use concrete resources to group objects into tens and ones. Place value charts can be introduced to read and record tens and ones within a number.

Mathematical Talk

Can you make groups? How many could we put in each group?

What happens when we have 10 ones?

How many groups of 10 are there?

How many ones are there?

Varied Fluency

Use Base 10 to make these numbers. Complete the stem sentences.

70  36  64  81  22  66  49

70 has 7 tens and 0 ones.

Complete the part-whole models.

Show these numbers using a place value chart, Base 10 or straws.

<table>
<thead>
<tr>
<th>Tens</th>
<th>Ones</th>
</tr>
</thead>
<tbody>
<tr>
<td>73</td>
<td>91</td>
</tr>
<tr>
<td>50</td>
<td>85</td>
</tr>
<tr>
<td>88</td>
<td>62</td>
</tr>
<tr>
<td>79</td>
<td>93</td>
</tr>
</tbody>
</table>
### Partitioning Numbers

#### Reasoning and Problem Solving

<table>
<thead>
<tr>
<th>I have 9 ones.</th>
<th>Jack is incorrect.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mo</td>
<td>Jack’s ten is equal to ten ones.</td>
</tr>
<tr>
<td>Only have 1 ten so your number is bigger than mine.</td>
<td>Mo only has 9 ones.</td>
</tr>
</tbody>
</table>

**Is Jack correct? Prove it.**

- **Jack:** I only have 1 ten so your number is bigger than mine.
- **Mo:** I have 9 ones.

**Use Base 10 to make a number:**
- Greater than 84
- Less than 70
- Greater than 75 but less than 87

**Use Base 10 to make a number.**

The number has 5 tens and fewer than 8 ones

**How many possible numbers are there?**

Children may make a range of numbers to fit the given criteria. Ensure children are not mixing up the tens and ones.

They could make 50, 51, 52, 53, 54, 55, 56 or 57. So there are eight possibilities.
Children use their partitioning knowledge to begin comparing numbers within 100.

It is important for children to work with a range of equipment, both natural and man-made to make comparisons more visual.

Children use the language ‘more than’, ‘less than’ and ‘equal to’ alongside the inequality symbols.

Which number has the most/fewest tens? Which number has the most/fewest ones?

Why is it important to look at the tens before the ones?

If the number is greater/less which direction will we move on the number line?

How can we count efficiently?

Use Base 10 to make these numbers on place value charts. Write how many tens and ones are in each number.

<table>
<thead>
<tr>
<th>Tens</th>
<th>Ones</th>
</tr>
</thead>
<tbody>
<tr>
<td>78</td>
<td>61</td>
</tr>
<tr>
<td>90</td>
<td>89</td>
</tr>
<tr>
<td>64</td>
<td>92</td>
</tr>
</tbody>
</table>

Which number from each pair is the largest? Discuss how you know.

On the hundred square, find a number:
- Less than 69
- Greater than 79
- Greater than 69 but less than 79
Comparing Numbers (1)

Eva and Alex have some number cards.

Eva could have 41, or 42 and Alex could have 35 or 36.

They both use two of their cards to make two-digit numbers.

Eva’s number is bigger than Alex’s number.

What could their numbers be? How many answers can you find?

How many ways can you complete the part-whole models to make the calculation correct?

Children can choose a range of numbers to complete the part-whole models, but need to ensure the first model is greater than the second. Possible answers include: 50 > 8 51 > 48 etc.
Comparing Numbers (2)

Notes and Guidance

Children compare numbers and amounts using comparison language, more than, less than, equal to as well as the symbols <, > and =

Children demonstrate their understanding of the value of the digits in a 2-digit number. They represent this using concrete manipulatives before ordering numbers. Children should be aware when comparing three or more numbers opposite inequality symbols should not be used. (e.g. □< □> □)

Mathematical Talk

Which number is the biggest/smallest? How do you know?

When ordering, which digit should you consider first?

Is there more than one number that could complete the statement?

What is the largest/smallest number that could complete the statement?

Complete the statements:

70 < □ 
□ > 70 
□ < 70

□ < 1 
0 < □ 
□ < 100

Complete the stem sentences and statements.

62 is _____ than 55 but _____ than 70
□ < □ < □ 
□ > □ > □

□ is greater than _____ but less than ___
Comparing Numbers (2)

Reasoning and Problem Solving

Tommy has marked numbers on his number lines. Has he made any mistakes?

65 is greater than 60 and therefore should come after 60 on the number line.
56 is less than 60 so should come before it on the number line.

Tommy could have read the tens and ones digit the wrong way around or mixed up the 2 numbers.

50 < 53
51 < 53
52 < 53

Placing a 6, 7, 8 or 9 in the tens column means that children can then place any number in the ones column.

How many different ways can you complete the place value charts to make the statement correct?
Children order sets of objects and numbers from smallest to largest and largest to smallest.


Children revisit and practise position and ordinal numbers (first, second, third etc.)

How are we ordering these objects/numbers? Which should we start with?

Which is the biggest/has the most?

Which is the smallest/has the least?

Which number/group comes next? How do you know?

How many more/less objects are in group A than group B?

Put these objects in the correct place in the table.

<table>
<thead>
<tr>
<th></th>
<th>Most</th>
<th>Least</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counters</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number Pieces</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eggs</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In groups of 4 roll some PE equipment. The furthest roll wins. Give a sticker and a high-five to the person who came first, second, third and fourth.

Order the numbers from smallest to largest.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>57</td>
<td>8</td>
<td>21</td>
</tr>
<tr>
<td>100</td>
<td>93</td>
<td>72</td>
</tr>
</tbody>
</table>
Mo creates a traffic jam using some toy cars on the carpet. The red car is 3rd from the front. It is also the 2nd from the back.

Use some cars or manipulatives to find out how many cars are in the traffic jam.

There are four cars in the traffic jam.

The numbers in each list are in size order. Complete the missing numbers.

Why did you choose the numbers you did? Are they the only numbers that could have completed the number tracks?

Children could choose any number > 78 but < 91
Children could choose any numbers < 72
Children can choose any numbers to make the track go from largest to smallest or smallest to largest.
Year 1 | Spring Term | Week 3 to 4 – Number: Place Value

One More, One Less

Notes and Guidance

Children find one more and one less than given numbers or amounts to 100

Children use concrete materials and physically add 1 more or take 1 away before moving to more abstract methods such as number tracks or hundred squares.

Mathematical Talk

Do we need to add more or take some away?
How can we represent this?
How many tens were there? How many tens are there now?
How many ones were there? How many ones are there now?
Which place value column changes when finding 1 more and 1 less?
What happens when I find 1 more than a number with 9 ones?
What happens when I find 1 less than a number with 1 one?

Varied Fluency

Use manipulatives and ask children to show one more and one less than the given amounts.

Complete the missing numbers.

Use the number cards to make 2 digit numbers.
Now write down one more and one less than the numbers you have made.
Use equipment if needed.
**One More, One Less**

**Reasoning and Problem Solving**

Can you move two of the counters so Rosie has 1 more than Alex and Whitney has 1 less than Alex?

- **Alex**
  - Dora started with this number.
  - Dora is not correct. Dora has shown 10 more by adding another rod instead of 1 more and adding another cube.

- **Rosie**
  - I am going to find one more.

- **Whitney**

**Always, Sometimes or Never True?**

When finding 1 less than a number, the tens digit of the number stays the same.

**Sometimes.**

If the number has 0 ones, the tens digit will change.

Has Dora shown the correct amount?

Explain how you know.
Children are introduced to tally charts as a systematic method of recording data.

They should already be able to count in 5s and understand the vocabulary of total, altogether, more, less and difference.

What do you notice about the groups? How would we count these?

How would you show 6, 11, 18 as a tally?

Why do we draw tallys like this?

When do we use tallys?

Make a tally chart about one of the following topics:
- Equipment in class (scissors, glue etc.)
- Favourite sport
- Favourite fruit
- Ways of getting to school (walk, car, cycle etc.)
- A choice of your own
Dexter makes a tally chart of the animals he saw at the zoo.

Tick one box below that shows all of the animals Dexter saw and explain why the others are incorrect.

<table>
<thead>
<tr>
<th>Animal</th>
<th>Tally</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turtles</td>
<td>⌂ ⌂</td>
</tr>
<tr>
<td>Giraffes</td>
<td>⌂</td>
</tr>
<tr>
<td>Pandas</td>
<td>⌂ ⌂</td>
</tr>
<tr>
<td>Elephants</td>
<td>⌂ ⌂ ⌂</td>
</tr>
</tbody>
</table>

Box 1 is incorrect because there are not enough elephants to match the tally chart.
Box 2 is incorrect because there are not enough pandas to match the tally chart.
Box 3 is incorrect because there are too many turtles.

Class 1 and Class 2 were each asked their favourite ice-cream flavours. Their results are shown in the tally charts.

The same: Both classes have 20 votes for chocolate. Both tally charts show that chocolate is the favourite flavour and mint is the least favourite flavour. The order of preference for all four flavours is the same.
Different: In Class 1, three more children like Vanilla. There are more children in Class 1 than Class 2. 2 more children chose mint in class 2.

The same: Both classes have 20 votes for chocolate. Both tally charts show that chocolate is the favourite flavour and mint is the least favourite flavour. The order of preference for all four flavours is the same.
Different: In Class 1, three more children like Vanilla. There are more children in Class 1 than Class 2. 2 more children chose mint in class 2.
Children use tally charts to produce pictograms. They build pictograms using concrete apparatus such as counters or cubes then move to drawing their own pictures. They need to be able to complete missing column or rows. They should use the same picture to represent all the data in the pictogram and line this up carefully.

It is important that children see pictograms both horizontally and vertically.

**Mathematical Talk**

How do you know how many images to draw?

What is the same and what is different about these two pictograms? (same data but shown horizontally and vertically) Which pictogram is easier to read? Why?

What simple symbol could we draw to represent the data? Why did you choose this?
Draw Pictograms (1-1)

Reasoning and Problem Solving

Here is a pictogram showing the number of counters each child has.

<table>
<thead>
<tr>
<th>Name</th>
<th>Caramel</th>
<th>Bubblegum</th>
<th>Strawberry</th>
<th>Mint</th>
<th>Chocolate</th>
<th>Vanilla</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dexter</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alex</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mo</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rosie</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

How could you improve the pictogram?

Possible answer
Children show understanding that the pictogram is hard to read as the symbols are overlapping each other. The pictures must be lined up and evenly spaced. There are also different sized circles representing the data. The pictures need to be the same size. There isn’t a key.

Use the clues below to help you complete the pictogram.
- More Caramel was sold than Bubblegum flavour, but less than Strawberry flavour.
- Mint was the most popular flavour.
- Vanilla was the least popular.

<table>
<thead>
<tr>
<th>Flavour</th>
<th>= 1 ice cream</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strawberry</td>
<td>🍦🍦🍦🍦🍦</td>
<td></td>
</tr>
<tr>
<td>Vanilla</td>
<td>🍦🍦🍦</td>
<td>1</td>
</tr>
<tr>
<td>Chocolate</td>
<td>🍦🍦</td>
<td>4</td>
</tr>
<tr>
<td>Mint</td>
<td>🍦</td>
<td>9</td>
</tr>
<tr>
<td>Caramel</td>
<td>🍦🍦</td>
<td>6</td>
</tr>
<tr>
<td>Bubblegum</td>
<td>🍦</td>
<td>4</td>
</tr>
</tbody>
</table>

Can you find more than one way to complete the pictogram?

Various answers, e.g.
- Strawberry – 8
- Vanilla – 1
- Chocolate – 4
- Mint – 9
- Caramel – 6
- Bubblegum – 4
Interpret Pictograms (1-1)

Notes and Guidance

Children use their knowledge of one-to-one correspondence to help them interpret and answer questions about the data presented in pictograms.

It is important that children are able to compare data within the pictograms.

Mathematical Talk

What is the pictogram showing us?

What can you find out from this pictogram?

Can you think of your own questions to ask a partner?

Varied Fluency

Here is a pictogram to show Class 5s favourite t-shirts.

<table>
<thead>
<tr>
<th>Colour</th>
<th>T-shirt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue</td>
<td><img src="image" alt="Blue T-shirts" /></td>
</tr>
<tr>
<td>Green</td>
<td><img src="image" alt="Green T-shirts" /></td>
</tr>
<tr>
<td>Red</td>
<td><img src="image" alt="Red T-shirts" /></td>
</tr>
<tr>
<td>Purple</td>
<td><img src="image" alt="Purple T-shirts" /></td>
</tr>
</tbody>
</table>

What is the most popular colour t-shirt?
What colour is the least popular t-shirt?
How many more children chose blue t-shirts than red?
How many children are in Class 5?

Here is a pictogram to show minibeasts collected by Class 5.

<table>
<thead>
<tr>
<th>Minibeast</th>
<th>Minibeast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woodhouse</td>
<td><img src="image" alt="Woodhouse" /></td>
</tr>
<tr>
<td>Ladybird</td>
<td><img src="image" alt="Ladybird" /></td>
</tr>
<tr>
<td>Centipede</td>
<td><img src="image" alt="Centipede" /></td>
</tr>
<tr>
<td>Worm</td>
<td><img src="image" alt="Worm" /></td>
</tr>
<tr>
<td>Spider</td>
<td><img src="image" alt="Spider" /></td>
</tr>
</tbody>
</table>

There are ____ ladybirds.
There are ____ centipedes and worms altogether.
There are ____ more worms than centipedes.
What else does the pictogram tell us?
Teddy writes these statements about his pictogram:

- There were more cows than sheep.
- There were the same number of sheep and horses.
- There were more chickens than any other animal.
- There were less cows than goats.
- There were 8 goats.

Can you draw a pictogram so that Teddy’s statements are correct? What title would you give it?

Possible answer

<table>
<thead>
<tr>
<th>Animals</th>
<th>Cows</th>
<th>Sheep</th>
<th>Goats</th>
<th>Horses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicken</td>
<td>🔴</td>
<td>🔱</td>
<td>🔱</td>
<td>🔱</td>
</tr>
<tr>
<td>Cow</td>
<td>🔱</td>
<td>🔱</td>
<td>🔱</td>
<td></td>
</tr>
<tr>
<td>Sheep</td>
<td>🔱</td>
<td>🔱</td>
<td>🔱</td>
<td>🔱</td>
</tr>
<tr>
<td>Goat</td>
<td>🔱</td>
<td>🔱</td>
<td>🔱</td>
<td></td>
</tr>
<tr>
<td>Horse</td>
<td>🔱</td>
<td></td>
<td>🔱</td>
<td></td>
</tr>
</tbody>
</table>

Children may have different numbers from this and still be correct.

Here is a pictogram.

Blue: 🔵 | Red: 🔴 | Yellow: 🔱 | Green: 🔱

The most popular colour sweet is green.

Do you agree with Eva?

Explain why and correct any mistakes.

Eva is wrong because the green sweets are not lined up correctly. There are 11 green and 12 blue.

It should look like this:
Children draw pictograms where the symbols represent 2, 5 or 10 items.

The children will need to interpret part of a symbol, for example, half of a symbol representing 10 will represent 5.

Children count in twos, fives, and tens to complete and draw their own pictograms.

If a symbol represents 2, how can you show 1 on a pictogram? How can you show 5? How can you show any odd number?

When would you use a picture to represent 10 objects?

Discuss with children that when using larger numbers, 1:1 correspondence becomes inefficient.

Year 2 sell cakes at a bake sale. The tally chart shows the data. Draw a pictogram to represent the data.

Use the tally chart to complete the pictogram.

Use the information to complete the pictogram about the number of books read in each class.

Key

= 5 books
Create a pictogram to show who was born in what season in your class.

Use what you know about pictograms to help you.

Here is an example.

<table>
<thead>
<tr>
<th>Spring</th>
<th>Summer</th>
<th>Autumn</th>
<th>Winter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Key

\[ = 2 \text{ children} \]

Teddy and Eva both draw a pictogram to show how many cars they counted driving past their school.

### Colour

- Blue
- Red
- Silver
- Black
- Green

### Number on cars

- Blue: 10 cars
- Red: 10 cars
- Silver: 10 cars
- Black: 10 cars
- Green: 10 cars

Possible answer.

Same – both pictograms show the same information. Both easy to read. Both used circle. Both are in the same order.

Different – Eva counts in 10s, Teddy counts in 5s. Teddy’s is vertical and Eva’s is horizontal.

What is the same? What is different? Whose pictogram do you prefer? Why?
**Interpret Pictograms (2, 5 & 10)**

**Notes and Guidance**

To help children to fully understand pictograms, it is important they have collected their own data previously in tally charts and constructed larger scale pictograms practically. Children also need to be able to halve 2 and 10.

It is important the children are exposed to both horizontal and vertical pictograms.

**Mathematical Talk**

How can we represent 0 on a pictogram?

What does the pictogram show? What doesn’t it show?

What is each symbol worth?

**Varied Fluency**

- **How many more sparrows are there than robins?**
  - What is the total number of birds?
  - How did you calculate this?
  - Can you think of your own questions to ask a friend?

- **Which is the most popular sport?**
  - How many children voted for football and swimming altogether?
  - What could the title of this pictogram be?

- **Use the pictogram to decide if the statements are true or false.**

<table>
<thead>
<tr>
<th>Animal</th>
<th>Number on farm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pigs</td>
<td><img src="image" alt="Star" /></td>
</tr>
<tr>
<td>Sheep</td>
<td><img src="image" alt="Star" /></td>
</tr>
<tr>
<td>Horses</td>
<td><img src="image" alt="Star" /></td>
</tr>
<tr>
<td>Chickens</td>
<td><img src="image" alt="Star" /></td>
</tr>
<tr>
<td>Cows</td>
<td><img src="image" alt="Star" /></td>
</tr>
</tbody>
</table>

- **Statement**
  - Horses were the least popular animal.
  - The number of chickens seen was half the number of cows seen.
  - The total amount of pigs and sheep is 70.
  - There were 8 cows on the farm.
  - There were 10 fewer chickens than sheep.

<table>
<thead>
<tr>
<th>Statement</th>
<th>True or False?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horses were the least popular animal.</td>
<td></td>
</tr>
<tr>
<td>The number of chickens seen was half the number of cows seen.</td>
<td></td>
</tr>
<tr>
<td>The total amount of pigs and sheep is 70.</td>
<td></td>
</tr>
<tr>
<td>There were 8 cows on the farm.</td>
<td></td>
</tr>
<tr>
<td>There were 10 fewer chickens than sheep.</td>
<td></td>
</tr>
</tbody>
</table>
Jack and Whitney have carried out a traffic survey.

<table>
<thead>
<tr>
<th>Vehicle</th>
<th>Symbols</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van</td>
<td>5</td>
</tr>
<tr>
<td>Bus</td>
<td>3</td>
</tr>
<tr>
<td>Bike</td>
<td>3</td>
</tr>
<tr>
<td>Lorry</td>
<td>5</td>
</tr>
<tr>
<td>Car</td>
<td>7</td>
</tr>
</tbody>
</table>

**Jack says:**
Is he right? Convince me.

**Whitney says:**
Is she correct? Explain your answer.

If I add the number of lorries and bikes together then it will be equal to the number of cars.

To find the total number of vehicles I need to count the symbols. There are 16 and a half vehicles.

Jack is correct because there are 20 lorries and 30 bikes. That means there are 50 lorries and bikes altogether. This is the same as the number of cars.

Whitney is incorrect because she has ignored the key. That means there will be 165 cars, not 16 and a half.

To find the total number of vehicles I need to count the symbols. There are 16 and a half vehicles.

There were 36 ice creams sold at the weekend and only 28 sold during the rest of the week.

There were not 3 ice creams sold on Tuesday, there were 6 sold. One symbol represents 2 ice creams.

The best day off would be Monday because that is the day they sold the least amount.

**Ice creams sold in a week**

**Convince me**
There are more ice-creams sold at the weekend than during the rest of the week.

**True or False (Why?)**
Three ice creams were sold on Tuesday.

**Justify**
If the staff needed to pick one day to have off during the week, which would be the best day and why?
Moving from concrete to pictorial, children build block diagrams using cubes and then move to drawing and interpreting block diagrams.

Children use their knowledge of number lines to read the scale on the chart and work out what each block represents.

Children ask and answer questions using their addition, subtraction, multiplication and division skills.

Can you draw a block diagram to represent the data? What will each block be worth?

Can you make a block diagram to show favourite colours in your class?

Can you create your own questions to ask about the block diagram?

5 classes collected their house points. Here are their results.

<table>
<thead>
<tr>
<th>Colour</th>
<th>Number of children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>5</td>
</tr>
<tr>
<td>Green</td>
<td>8</td>
</tr>
<tr>
<td>Blue</td>
<td>7</td>
</tr>
<tr>
<td>Yellow</td>
<td>2</td>
</tr>
</tbody>
</table>

Which class collected the most house points?
Which class collected the fewest house points?
How many more points did Class 2 get than Class 4?
How many fewer points did Class 3 get than Class 5?
How many points did Class 2 and Class 3 get altogether?
Here are three tables of data. Which set of data could you display using the block graph? Which could use the pictogram? Which could use the tally chart? Explain your reasoning.

Data Set 1

<table>
<thead>
<tr>
<th>Team</th>
<th>Goals scored</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>20</td>
</tr>
<tr>
<td>B</td>
<td>32</td>
</tr>
<tr>
<td>C</td>
<td>27</td>
</tr>
<tr>
<td>D</td>
<td>16</td>
</tr>
</tbody>
</table>

Data Set 2

<table>
<thead>
<tr>
<th>Player</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>65</td>
</tr>
<tr>
<td>3</td>
<td>80</td>
</tr>
<tr>
<td>4</td>
<td>45</td>
</tr>
</tbody>
</table>

Data Set 3

<table>
<thead>
<tr>
<th>Name</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ron</td>
<td>20</td>
</tr>
<tr>
<td>Eva</td>
<td>12</td>
</tr>
<tr>
<td>Amir</td>
<td>6</td>
</tr>
<tr>
<td>Mo</td>
<td>16</td>
</tr>
</tbody>
</table>

Data Set 3 would best suit the block diagram because the numbers are all under 20.

Data Set 2 would best suit the pictogram because the numbers are larger but all multiples of 5 or 10.

Data Set 3 would best suit the tally chart because some numbers are larger than 20 but not all multiples of 5 or 10.

Split into groups. Everyone needs to write their name on a sticky note. Use your sticky notes to create a block diagram to answer each question.

• How many boys and how many girls are there in your group?
• Which month has the most birthdays for your group?
• What is your favourite sport?

What other information about your group could you show?

Possible examples:

- Boys
- Girls
- Football
- Swimming
- Gymnastics