



## Year 5 Summer 2

### Starter suggestions for Number

- Read and write any integer and use decimal notation for tenths, hundredths and thousandths and know what each digit represents.
- Count forwards and backwards in steps of 0.01, 0.1, 1, 10, 100, 1000 from any positive integer or decimal.
- Count forwards and backwards in equal steps and describe any patterns in the sequence.
- Order and compare whole numbers up to 1 000 000, negative numbers and decimals with up to two decimal places.
- Know by heart facts for all multiplication tables up to 12 x 12.
- Complete and interpret information in a variety of sorting diagrams (including those used to sort properties of numbers).
- Recall and use addition and subtraction facts for 1 and 10 (with decimal numbers to one decimal place).
- Derive and use addition and subtraction facts for 1 (with decimal numbers to two decimal places).
- Derive related facts from those already known (e.g.  $4 \times 0.8$  linked to  $4 \times 8$  or  $3 + 7 = 10$  linked to  $0.3 + 0.7 = 1$ ).
- Use partitioning to double or halve any number, including decimals to two decimal places.
- Multiply and divide whole numbers and decimals with up to two decimal places mentally by 10 or 100, and integers by 1000 and use this to convert between units of measurement, e.g. cm to m, g to kg etc.
- Round whole numbers to the nearest 10, 100, 1000 or a number with up to two decimal places to the nearest integer or number of decimal places.
- Count in fraction steps and convert equivalent fractions (e.g. count in steps of  $\frac{1}{12}$  converting to  $\frac{1}{12}, \frac{1}{6}, \frac{1}{4}, \frac{1}{3}, \frac{5}{12}, \frac{1}{2}, \dots$ ).

### Starter suggestions for Measurement, Geometry and Statistics

- Convert between metric units of measure by multiplying and dividing by powers of 10.
- Know approximate metric and common imperial equivalences.
- Read, write and convert between units of time.
- Identify and describe properties of 2-D and 3-D shapes, including regular and irregular.
- Complete and interpret information in a variety of sorting diagrams (including those used to sort properties of shapes).
- Identify angles which are acute, obtuse and reflex.
- Estimate the size of angles.
- Calculate missing angles around a point.
- Compare and classify geometric shapes based on their properties.
- Read scales to an appropriate degree of accuracy.
- Read and plot coordinates in the first quadrant.
- Read and interpret information in all types of graph and table, including line graphs and timetables.

	Main learning	Rationale
<b>Week 1</b> Place value	<ul style="list-style-type: none"> <li>▪ Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit.</li> <li>▪ Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000.</li> <li>▪ <i>Describe and extend number sequences including those with multiplication and division steps and those where the step size is a decimal.</i></li> <li>▪ Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero.</li> <li>▪ <i>Continue to order temperatures including those below 0°C.</i></li> <li>▪ Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000.</li> <li>▪ Solve number problems and practical problems that involve all of the above.</li> </ul>	<p>Pupils identify the place value in large whole numbers which includes their position within the number system. They continue to use number in context, including measurement. Pupils extend and apply their understanding of the number system to the decimal numbers and fractions that they have met so far. They should recognise and describe linear number sequences, including those involving fractions, decimals and negative numbers and find the term-to-term rule. They should recognise and describe linear number sequences (a sequence in which the steps are equal) including those involving fractions and decimals, and find the term-to-term rule in words (for example, subtract 1.5 ).</p> <p>Place value work should be carried out in a variety of contexts including measurement, statistics and real life.</p>



	Main learning	Rationale
<b>Week 2</b> <b>Written calculation</b>	<ul style="list-style-type: none"> <li>▪ Add and subtract whole numbers with more than 4 digits and decimals with two decimal places, including using formal written methods (columnar addition and subtraction).</li> <li>▪ Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers.</li> <li>▪ Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context.</li> <li>▪ <i>Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method).</i></li> <li>▪ <i>Use estimation and inverse to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</i></li> <li>▪ Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign.</li> </ul>	<p>Ensure children are given opportunities to make decisions when problem solving. These decisions will be based on the children's conceptual understanding of the four operations and may include contextual or vocabulary clues.</p> <p>Children should learn which would be the most efficient way to carry out a calculation, choosing mental or written methods, depending on the size of the numbers involved.</p> <p>Written methods should be agreed by the school and shared in the progression in written calculations policy. Efficient written methods are required to be taught by the end of Key Stage 2.</p>
<b>Week 3</b> <b>Fractions (rounding and percentages and problem solving)</b>	<ul style="list-style-type: none"> <li>▪ Round decimals with two decimal places to the nearest whole number and to one decimal place.</li> <li>▪ Solve problems involving number up to three decimal places.</li> <li>▪ Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal.</li> <li>▪ Solve problems which require knowing percentage and decimal equivalents of <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{5}</math>, <math>\frac{2}{5}</math>, <math>\frac{4}{5}</math> and those fractions with a denominator of a multiple of 10 or 25.</li> </ul>	<p>Number lines are a very effective resource for teaching the ordering and rounding of decimals. The ITP Decimal Number Line allows you to zoom in on a number line and position fractions accurately. The number line allows children to understand that there are numbers between numbers. Children should experience other models of decimals, including money. Understanding of place value with decimals builds on children's general understanding of our base 10 number system and can be seen in contexts such as money and measurement. However, the learning about decimals should not be confined to these two contexts.</p>
<b>Week 4</b> <b>Measures (mass, volume, capacity and time)</b>	<ul style="list-style-type: none"> <li>▪ Solve problems involving converting between units of time.</li> <li>▪ Use all four operations to solve problems involving measure (for example, mass, capacity and volume) using decimal notation, including scaling.</li> <li>▪ <i>Understand the difference between liquid volume, including capacity and solid volume.</i></li> <li>▪ Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.</li> </ul>	<p>Pupils use their knowledge of place value and multiplication and division to convert between standard units. When converting between metric and common imperial units, children apply their knowledge of multiplication by scaling or previous work using conversion line graphs.</p> <p>Pupils use all four operations in problems involving time, including conversions (e.g. minutes to hours and minutes).</p> <p>Problems involving time require children to understand that they are no longer working in base 10. This may involve learning number bonds to 60 and using number lines to show the passage of time.</p>
<b>Week 5</b> <b>Area and volume of shapes</b>	<ul style="list-style-type: none"> <li>▪ Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm<sup>2</sup>) and square metres (m<sup>2</sup>) and estimate the area of irregular shapes.</li> <li>▪ <i>Understand the difference between liquid volume, including capacity and solid volume.</i></li> <li>▪ Estimate volume (for example, using 1 cm<sup>3</sup> blocks to build cuboids (including cubes)) and capacity (for example, using water).</li> </ul>	<p>Children should understand that area is a measure of surface within a given boundary and the convention is to cover the surface with any tessellating shape (usually squares, giving rise to square units). Children should learn to calculate the area from scale drawings using given measurements.</p> <p>Children's understanding of volume develops to include 'solid' volume and that this means the amount of space occupied by a 3-D shape whereas capacity is the maximum amount a container holds and if the container is not full then we are considering the volume of liquid it is holding. Children should learn that 1cm<sup>3</sup> is equal to 1ml.</p> <p>Children should make links between the area of a rectangle (including squares) and the volume of cuboids (including cubes). They could explore how different cuboids can have the same volume much like rectangles with different dimensions can have the same area.</p>



	<b>Main learning</b>	<b>Rationale</b>
<b>Week 6</b> Assess and review	Assess and review week.	It is useful at regular intervals for teachers to consider the learning that has taken place over a term (or half term), assess and review children's understanding of the learning and use this to inform where the children need to go next.