



Year 5 Spring 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. 4×0.8 linked to 4×8 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.
- 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.
- 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
Week 1 Mental and written division	<ul style="list-style-type: none"> Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. Divide numbers mentally drawing upon known facts. 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. Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method). Select a mental strategy appropriate for the numbers involved in the calculation. Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign. Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates. 	<p>They should use and understand the terms factor, (numbers that divide exactly into another number) multiple and prime, square and cube numbers.</p> <p>They should apply their knowledge of multiplication and division facts up to 12×12 to larger numbers. When learning about division, children need to maintain the understanding that it is sharing, repeated subtraction (grouping) or linked to scaling down i.e. making an amount a number of times smaller (if the scale factor is a fraction then the amount will decrease in size).</p> <p>Children should interpret remainders in different ways, including as whole numbers, as fractions, as decimals and rounding up or down appropriate to the context.</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>
Week 2 2-D and 3-D shape including sorting	<ul style="list-style-type: none"> Distinguish between regular and irregular polygons based on reasoning about equal sides and angles. Use the properties of rectangles to deduce related facts and missing lengths and angles. Identify 3-D shapes, including cubes and other cuboids, from 2-D representations. Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. 	<p>Pupils continue to classify shapes using geometrical properties, extending to classifying different triangles (for example, isosceles, equilateral, scalene) and quadrilaterals (for example, parallelogram, rhombus, and trapezium). This will include irregular shapes and shapes in different orientations.</p> <p>When children classify shapes, they should discuss the properties that are the same and different and use these to determine the features of a given shape.</p>
Week 3 Calculating with fractions	<ul style="list-style-type: none"> Recognise mixed number and improper fractions and convert from one form to the other. Add and subtract fractions with the same denominator and denominators that are multiples of the same number (using diagrams). Write mathematical statements > 1 as a mixed number, e.g. $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$. 	<p>Children build on their understanding of fractions, applying their knowledge of mixed numbers and equivalence to convert between forms. When adding and subtracting fractions, children should be supported by diagrams to see that $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$. They should use knowledge of equivalent fractions to add and subtract fractions in which one denominator is a multiple of the other e.g. $\frac{2}{5} + \frac{9}{10} = \frac{4}{10} + \frac{9}{10} = \frac{13}{10} = 1\frac{3}{10}$</p>



	Main learning	Rationale
Week 4 Measurement (area and volume)	<ul style="list-style-type: none"> ▪ Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes. ▪ <i>Understand the difference between liquid volume, including capacity and solid volume.</i> ▪ Estimate (and calculate) volume (for example, using 1cm³ blocks to build cuboids (including cubes)). 	<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 1cm³ 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>
Week 5 Statistics, measures and calculation	<ul style="list-style-type: none"> ▪ Use, read and write standard units of length and mass to a suitable degree of accuracy. ▪ Estimate and calculate capacity. ▪ <i>Calculate and interpret the mode, median and range.</i> ▪ Add and subtract numbers mentally with increasingly large numbers and decimals to two decimal places. ▪ Add and subtract whole numbers with more than 4 digits and decimals with two decimal places, including using formal written methods. ▪ <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> ▪ <i>Select a mental strategy appropriate for the numbers involved in the calculation.</i> ▪ Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. 	<p>By placing calculation and statistics into a measures context, it enables children to use and apply their skills. The concepts of mode, median and range can be taught through the measures or alternative data. It is important that children understand that mode and median are forms of average. Identifying the median will consolidate children's ordering skills, and the range will support with the concept of subtraction finding the difference. Children's work on averages and measurement should reflect their ability in other number work in place value and calculation.</p>
Week 6	Assess and review week	<p>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.</p>