Year 6 Summer 2

Starter suggestions for Number

- Know by heart facts for all multiplication tables up to 10 x 10.
- Find pairs of numbers with a sum of 100, decimals with a sum of 0.1, 1, 10.
- To derive related facts from those already known (e.g. 4 x 0.8 linked to 4 x 8 or 3 + 7 = 10 linked to 0.3 + 0.7 = 1)
- Mentally multiply and divide two-digit and single-digit numbers.
- Use partitioning to double or halve any number.
- Mentally multiply and divide pairs of multiples of 10 and 100.
- Mentally multiply and divide two-digit decimals by a single digit number, e.g., (U.t x U or U.t ÷ U).
- Identify the multiples/factors of given numbers.
- Read and write any integer and use decimal notation for tenths, hundredths and thousandths and know what each digit represents.
- Compare and order two or more different positive and/or negative integers and/or decimal numbers with up to 3 decimal places, say which is the least / greatest; use the symbols <, > and = correctly and place on a number line.
- Calculate differences in temperature, including those that involve a positive and negative temperature.
- Count forwards and backwards in steps of 0.001, 0.01, 0.1, 1, 10, 100, 1000, 25, 2.5, 0.2, 0.25 from any positive or negative integer or decimal.
- Recall and use addition and subtraction facts for 1 (with decimal numbers to two decimal places).
- Multiply and divide whole numbers and decimals 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 three decimal places to the nearest integer or number of decimal places.
- Count in fraction steps (e.g. of $\frac{1}{12}$, i.e. $\frac{1}{12}, \frac{1}{6}, \frac{1}{4}, \frac{1}{3}, \frac{5}{12}, \frac{1}{2}$).

Starter suggestions for Measurement, Geometry and Statistics

- Know and use standard metric units of measure.
- Estimate and calculate length (including perimeter), mass, volume/capacity and area.
- Convert between units by multiplying and dividing by powers of 10.
- Know metric and imperial equivalences of feet, inches, pints and pounds.
- Convert between miles and kilometres using knowledge that 5 miles is roughly equivalent to 8km.
- Read, write and convert between units of time.
- Identify and describe properties of 2D and 3D shapes, including regular and irregular.
- Find missing angles and lengths using properties of shape.
- Estimate and identify acute, obtuse and reflex angles.
- Describe positions on the first quadrant of a coordinate grid.
- Solve comparison, sum and difference problems using information presented in all types of graph.
- Continue to complete and interpret information in a variety of sorting diagrams (including those used to sort properties of numbers and shapes).

	Main learning	Rationale
Week 1 **Measurement (mass and volume/capacity)**	▪ Solve problems involving the calculation and conversion of units of measure (including money and time), using decimal notation up to three decimal places where appropriate. ▪ Use, read, write and convert between standard units, converting measurements of mass and volume from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places. ▪ Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3) and extending to other units (for example, mm^3 and km^3).	Children should continue to work practically with the concepts of mass and volume, enhancing their understanding of both measures, including gaining a 'benchmark' measure to support estimation, as well as being able to accurately measure using different equipment and converting between units. When converting between units, children should relate this to their understanding of the Base 10 number system.

	Main learning	Rationale
Week 2 **Mental and written calculation**	▪ Perform mental calculations, including with mixed operations and large numbers and decimals. ▪ *Add and subtract whole numbers and decimals using formal written methods (columnar addition and subtraction).* ▪ *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 addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. ▪ Solve problems involving addition, subtraction, multiplication and division. ▪ Use their knowledge of the order of operations to carry out calculations involving the four operations. ▪ Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication. ▪ Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context. ▪ Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context. ▪ Use estimation and inverse to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.	During this final half term it is important that the children continue to consolidate and refine their calculation skills so that they are secure before transition to secondary school.
Week 3 **Fractions**	▪ Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. ▪ Compare and order fractions, including fractions >1 *(including on a number line).* ▪ Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. ▪ Multiply simple pairs of proper fractions, writing the answer in its simplest form *(using diagram)* (e.g. $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$). ▪ Divide proper fractions by whole numbers *(using diagram)* (e.g. $\frac{1}{3} \div 2 = \frac{1}{6}$).	During this final half term it is important that the children continue to consolidate and refine their understanding of and skills related to fractions so that they are secure before transition to secondary school.
Week 4 **Place value and decimals**	▪ *Count forwards or backwards in steps of integers, decimals or powers of 10 for any number.* ▪ *Order and compare numbers including integers, decimals and negative numbers.* ▪ *Calculate differences in temperature, including those that involve a positive and negative temperature.* ▪ *Find 0.001, 0.01, 0.1, 1, 10 and powers of 10 more or less than a given number.* ▪ *Round decimals with three places to the nearest whole number or one or two decimal places.* ▪ *Describe and extend number sequences including those with multiplication and division steps, inconsistent steps, alternating steps and those where the step size is a decimal.*	During this final half term it is important that the children continue to consolidate and refine their understanding of the structure of the number system so that they are secure before transition to secondary school.

	Main learning	Rationale
Week 5 **Geometry (2-D and 3-D shape)**	▪ Draw 2-D shapes using given dimensions and angles. ▪ Recognise, describe and build simple 3-D shapes, including making nets. ▪ Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons. ▪ *Continue to complete and interpret information in a variety of sorting diagrams (including those used to sort properties of numbers and shapes).* ▪ Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. ▪ Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.	Children gain practical experience of drawing and making shapes, in order to support their work on recognising, describing, comparing and classifying shapes. It is important that children see and use regular and irregular polygons and polyhedra and experience them in different orientations. Children's knowledge and understanding of circles is developed through the introduction of new language including radius, diameter and circumference, and understanding the relationships between any of these terms. Children should discover the angle sum of triangles and quadrilaterals and use this knowledge, and knowledge of the term 'regular' to find missing angles.
Week 6 **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.