Year 5 Autumn 1

- Read and write any integer and use decimal notation for tenth and hundredths 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).
- Find pairs of numbers with a sum of 100.
- 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)
- Find doubles and halves of decimals each with units and tenths.
- 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.
- 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.

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 2D and 3D 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.
- Compare and classify geometric shapes based on their properties.
- Read scales to an appropriate degree of accuracy.

	Main learning	**Rationale**
Week 1 **Place value**	▪ Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit. ▪ *Identify, represent and estimate numbers using the number line.* ▪ Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000. ▪ *Describe and extend number sequences including those with multiplication and division steps and those where the step size is a decimal.* ▪ Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000. ▪ Solve number problems and practical problems that involve all of the above. ▪ *Find 1, 10, 100, 1000 and other powers of 10 more or less than a given number than a given number.*	Understanding of the number system is necessary pre-requisite knowledge for any number work. Children should understand the Base 10 notion in which there are 10 numerals (0-9) and these can be organised in different ways to form any number. This is based on grouping in tens i.e. ten 1s are the same as one 10; ten 10s are the same as one 100; ten 100s are the same as one 1000 and so on. And vice versa. Children should experience numbers in many different ways (both practically and visually) and understand which model to use in which situation e.g. when rounding numbers it is useful to use or imagine the numbers on a number line.
Week 2 **Place value** **(decimals)**	▪ *Identify, represent and estimate numbers using the number line.* ▪ Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents. ▪ *Identify the value of each digit to three decimal places.* ▪ Read, write, order and compare numbers with up to three decimal places. ▪ *Find 0.01, 0.1, 1, 10, 100, 1000 and other powers of 10 more or less than a given number than a given number.* ▪ *Count forwards and backwards in decimal steps.* ▪ *Describe and extend number sequences including those with multiplication and division steps and those where the step size is a decimal.* ▪ Round decimals with two decimal places to the nearest whole number and to one decimal place. ▪ Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000. ▪ Solve problems involving number up to three decimal places.	Children's understanding of the Base 10 number system is extended to include decimals. Children learn that decimals are a way of expressing fractions within the structure of our Base 10 number system. It is important that children see practical and visual models to understand the meaning and size of units/ones, tenths and hundredths. When introducing thousandths, it is useful to use measures contexts such as kg and g or litre and ml. Children should be able to relate the numbers they are using to a context, including measurement. When multiplying and dividing by 10, 100 and 1000, it is important that children see this as scaling up and down (making amounts 10 times larger or smaller) rather than repeated addition and repeated subtraction.
Week 3 **Written** **addition and** **subtraction**	▪ 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). ▪ *Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method).* ▪ *Use estimation and inverse to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.* ▪ Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	Children learn and explain when it is appropriate to use mental and written methods of calculation. Children make links with their knowledge of rounding numbers to the nearest 10, 100 and 1000 to estimate the answers to calculations. Calculations should be in contexts including, money, measures, real life problems and number enquiries. 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.

	Main learning	Rationale
Week 4 Geometry (angles)	▪ Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles. ▪ Draw given angles and measure them in degrees (°).	Pupils should use their knowledge of measuring and drawing lines and angles to help them accurately construct shapes. They should use this knowledge of angles to help them identify angles within shapes.
Week 5 Geometry and measures (perimeter)	▪ Distinguish between regular polygons based on reasoning about equal sides and angles. ▪ Use the properties of rectangles to deduce related facts and find missing lengths and angles. ▪ Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres.	Children apply their developing understanding of the properties of shapes to classify and name them. The terms regular and irregular should be used to describe shapes that have equal sides and angles and those that do not. They can then use these shapes to identify those that are rectilinear (are made of straight lines meeting at right angles). Children solve problems involving calculating the perimeter of shapes by applying their knowledge of the properties of shapes.
Week 6 Addition and subtraction using statistics	▪ Solve comparison, sum and difference problems using information presented in a line graph. ▪ Add and subtract numbers mentally with increasingly large numbers and decimals to two decimal places. ▪ *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.*	Children should connect their work on scales to their interpretation of line graphs, including intermediate points on the scale. They should identify when it is appropriate to use mental methods to solve number problems. The problems they are given should be a selection of some which can be solved mentally and some which cannot to enable children to make a choice. They should relate their calculation methods to answering questions about line graphs, including finding the difference between two readings as well as finding, for example, how long the cyclist stopped to rest, when there were two or more rest breaks contained in the line graph.