YEAR 5 MATHS PROGRESSION IN SKILLS (N.C. COVERAGE) AND KNOWLEDGE STATUTORY REQUIREMENTS

AUTUMN	SPRING	SUMMER
AUTUMN 1: ***NUMBER – NUMBER AND PLACE VALUE*** ➢ Read Roman numerals to 1000 (M) and recognise years written in Roman numerals. ➢ Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit ➢ Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 ➢ Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000 ***NUMBER – ADDITION AND SUBTRACTION*** ➢ Add and subtract numbers mentally with increasingly large numbers ➢ Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) ➢ Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy ➢ Estimate and use inverse operations to check answers to a calculation ➢ Solve addition and subtraction multi- step problems in contexts, deciding which operations and methods to use and why ***NUMBER – MULTIPLICATION AND DIVISION*** ➢ Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers ➢ Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers	**SPRING TERM:** **NUMBER – MULTIPLICATION AND DIVISION** ➢ 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 ➢ 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 ***NUMBER – FRACTIONS (INCLUDING DECIMALS AND PERCENTAGES)*** ➢ Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams ➢ Read, write, order and compare numbers with up to three decimal places ➢ Read and write decimal numbers as fractions [for example, 071 = 71/100] ➢ Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents ➢ Round decimals with two decimal places to the nearest whole number and to one decimal place ➢ 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 ***MEASURE – PERIMETER AND AREA*** ➢ Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres	**SUMMER TERM:** ***GEOMETRY – PROPERTIES OF SHAPES*** ➢ Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles ➢ Draw given angles, and measure them in degrees (°) ➢ Identify: –angles at a point and one whole turn (total 360°) –angles at a point on a straight line and 1 2 a turn (total 180°) – other multiples of 90 ➢ Use the properties of rectangles to deduce related facts and find missing lengths and angles ➢ Use the properties of rectangles to deduce related facts and find missing lengths and angles ➢ Distinguish between regular and irregular polygons based on reasoning about equal sides and angles ➢ Identify horizontal and vertical lines and pairs of perpendicular and parallel lines (Year 3) ➢ Identify 3D shapes, including cubes and other cuboids, from 2D representations ***GEOMETRY – POSITION AND DIRECTION*** ➢ Describe positions on a 2D grid as coordinates in the first quadrant (Year 4) ➢ Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed

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- Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)
- Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000

NUMBER – FRACTIONS (INCLUDING DECIMALS AND PERCENTAGES)

- Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths
- Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example,2/5 + 4/5 = 6/5 = 1 1/5]
- Compare and order fractions whose denominators are all multiples of the same number
- Add and subtract fractions with the same denominator and denominators that are multiples of the same number

- 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

STATISTICS – GRAPHS AND TABLES

- Solve comparison, sum and difference problems using information presented in a line graph
- Complete, read and interpret information in tables, including timetables

- Identify lines of symmetry in 2D shapes presented in different orientations (Year 4)
- Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed

NUMBER – FRACTIONS (INCLUDING DECIMALS AND PERCENTAGES)

- Solve problems involving number up to three decimal places
- Read, write, order and compare numbers with up to three decimal places
- Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents

NUMBER – NUMBER AND PLACE VALUE

- Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero

MEASURE – CONVERTING UNITS

- Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)
- Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints
- Solve problems involving converting between units of time
- Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling

		MEASURE – VOLUME AND CAPACITY ➢ **Estimate volume [for example, using 1 cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water]**

YEAR 5 MATHS PROGRESSION IN SKILLS (N.C. COVERAGE) AND KNOWLEDGE STATUTORY REQUIREMENTS

Year 5 Maths Skills

Addition and Subtraction	Number and Place Value	Fractions (Inc Decimals and %)	Algebra	Measurement	Geometry: Properties of shapes	Statistics
MENTAL CALCULATION add and subtract numbers mentally with increasingly large numbers **WRITTEN METHODS** add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) **INVERSE OPERATIONS, ESTIMATING AND CHECKING ANSWERS** use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy **PROBLEM SOLVING** solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why	**COUNTING** -interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero -count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 **COMPARING NUMBERS** read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit *(appears also in Reading and Writing Numbers)* **READING AND WRITING NUMBERS** (inc Roman Numerals) -read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit *(appears also in Comparing Numbers)*	**RECOGNISING FRACTIONS** recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents (appears also in Equivalence) **COMPARING FRACTIONS** compare and order fractions whose denominators are all multiples of the same number **COMPARING DECIMALS** read, write, order and compare numbers with up to three decimal places **ROUNDING INCLUDING DECIMALS** round decimals with two decimal places to the nearest whole number and to one decimal place **EQUIVALENCE (inc fractions, decimals and %)**	**EQUATIONS** use the properties of rectangles to deduce related facts and find missing lengths and angles *(copied from Geometry: Properties of Shapes)*	**COMPARING AND ESTIMATING** calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes *(also included in measuring)* - estimate volume (e.g. using 1 cm3 blocks to build cubes and cuboids) and capacity (e.g. using water) **MEASURING and CALCULATING** -use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scaling. - measure and calculate the perimeter of composite rectilinear	**IDENTIFYING SHAPES AND THIER PROPERTIES** identify 3-D shapes, including cubes and other cuboids, from 2-D representations **DRAWING AND CONSTRUCTING** draw given angles, and measure them in degrees (o) **COMPARING AND CLASSIFYING** -use the properties of rectangles to deduce related facts and find missing lengths and angles - distinguish between regular and irregular polygons based on reasoning about equal sides and angles **ANGLES** -know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles	**INTERPRETING, CONSTRUCTING AND PRESENTING DATA** complete, read and interpret information in tables, including timetables **SOLVING PROBLEMS** solve comparison, sum and difference problems using information presented in a line graph

	-read Roman numerals to 1 000 (M) and recognise years written in Roman numerals **UNDERSTANDING PLACE VALUE** -read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit *(appears also in Reading and Writing Numbers)* -recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents *(copied from Fractions)* **ROUNDING** -round any number up to 1 000 000 to the nearest 10, 100, 1 000, 10 000 and 100 000 -round decimals with two decimal places to the nearest whole number and to one decimal place *(copied from Fractions)* **PROBLEM SOLVING** Solve number problems and practical	- identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths - read and write decimal numbers as fractions (e.g. 0.71 = 71/100) - recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents - 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 as a decimal fraction **ADDITION AND SUBTRACTION OF FRACTIONS** -add and subtract fractions with the same denominator and multiples of the same number - recognise mixed numbers and improper		shapes in centimetres and metres - calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes - recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) *(copied from Multiplication and Division)* **TELLING THE TIME** solve problems involving converting between units of time **CONVERTING** -convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) - solve problems involving converting between units of time	- identify: * angles at a point and one whole turn (total 360o) * angles at a point on a straight line and ½ a turn (total 180o) * other multiples of 90o **Geometry: Position and Direction** **POSITION, DIRECTION AND MOVEMENT** identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed	

	problems that involve all of the above	fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number (e.g. 2/5 + 4/5 = 6/5 = 11/5) MULTIPLICATION AND DIVISION OF FRACTIONS multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams PROBLEM SOLVING - solve problems involving numbers up to three decimal places -solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those with a denominator of a multiple of 10 or 25.		understand and use equivalences between metric units and common imperial units such as inches, pounds and pints		