CURRICULUM MAP (Long term plan)

SUBJECT : Maths **YEAR GROUP: 5**

	Cycle 1 **Autumn**	**Cycle 2** **Spring**	**Cycle 3** **Summer**
Substantive knowledge – Essential knowledge & conceptual understanding of the National Curriculum	Arithmetic. Number place value to 1 Million. Roman Numerals to One thousand. Round numbers. Add and subtract numbers with more than 4 digits. Solve problems using addition and subtraction. Types of Numbers. Compare and order fractions. Equivalent fractions. Proper and improper fractions. Add and subtract fractions and mixed numbers.	Arithmetic. Multiply a 4 digit number by a 2 digit number. Divide a 4 digit number by a 1 digit number. Solve problems using multiplication and division. Multiply fractions. Find a fraction of an amount. Find fraction, decimal and percentage equivalents. Understand decimals to 3DP. Percentages. Calculate area and perimeter of rectilinear shapes. Interpret line graphs. Solve problems involving timetables.	Arithmetic. Identify properties of 2D and 3D shapes. Types of Angles. Measure and draw angles. Angles on a line and a point. Reflection and Translation. Add and subtract Decimals. Powers of 10. Negative numbers across zero. Convert units of metric measures. Approximate conversions between imperial units. Time. Estimate Volume.
Disciplinary knowledge - what skills are practised?	**Place Value** - Read, write, order and compare numbers to 1,000,000. - Count forwards and backwards using powers of 10. - Round any number up to the nearest 1,000,000. - Read Roman Numerals to 1000 (including recognising years). - Solve practical problems involving all of the above. **Addition and Subtraction** - Add and Subtract whole numbers with more than 4	**Multiplication and Division** - Multiply numbers up to 4 digits by 1 or 2 digit numbers using a written method. - Divide up to 4 digit numbers by a 1 digit number using a written method (with remainders). - Multiply and divide numbers using known facts. - Solve Problems involving multiplication and division - including using knowledge of: factors, multiples and primes; understanding the equals sign; simple scaling and rates.	**Shape** - Identify 3D shapes. - Recognise, compare and order Acute, Obtuse and Reflex angles (including the degrees). - Draw and measure angles. - Identify angles at a point/full turn as 360°. - Identify angles at a point on a straight line as ½ a turn and 180°. - Identify 90° angles as right angles and other multiples of 90.

	digits both mentally and using a written method. - Use rounding to check answers. - Solve multi-step addition and subtraction problems. **Multiplication and Division** - Identify multiples and factors - including factor pairs and common factors. - Know and use the vocabulary of prime and composite numbers. - Recall prime numbers up to 19. - Recognise square and cube numbers -using the correct notation - eg (²). **Fractions** - Compare and order fractions whose denominators are multiples of each other. - Recognise and convert between mixed numbers and improper fractions. - Identify, name and write equivalent fractions. - Add and Subtract Fractions with the same denominator and those with denominators that are multiples. - Add and subtract Mixed Numbers.	**Fractions** - Multiply proper fractions and mixed numbers by whole numbers. - Recognise a fraction as division. - Find a fraction of an amount. **Decimals and percentages** - Read and write decimals as fractions. - Recognise and use thousandths relating them to tenths, hundredths and decimal equivalents. - round decimals to 2DP - Read, write, order and compare decimals up to 3DP. - Recognise the percent (%) symbol as part of 100. - Write percentages as fraction equivalents with 100 as the denominator. - Solve problems with decimal equivalents (½ , ¼ , ⅕. ⅖ , ⅘ and those with denominators which are multiples of 10 or 25). **Perimeter and Area** - Measure and calculate perimeter of rectilinear shapes. - Calculate the area of rectangles and squares using standard units (cm² and m²). - Estimate the area of irregular shapes. **Statistics** - Solve comparison, sum and difference problems using information presented on a line graph. - Complete, read and interpret information in tables and timetables.	- Use properties of rectangles to deduce related facts and missing lengths. - Distinguish between regular and irregular shapes (based on reasoning of equal sides and angles). **Position and direction** - Identify, describe and represent the position of a shape following a reflection or a translation (knowing the shape has not changed). **Decimals** - Add and subtract decimals with different numbers of decimal places. - Multiply and divide by 10, 100 and 1000. **Negative numbers** - Interpret negative numbers in context - counting forwards and backwards across zero. **Converting units** - Convert between metric units of measurement (eg kilometres and metres; centimetres and metre; centimetre and millimetre; gram and kilogram; litre and millilitre). - understand and use approximate equivalences between metric and imperial measures such as inches, pint and pounds. - Solve problems involving converting between units of time. **Volume** - Estimate volume and capacity using cubes.

Key questions (What is the learning about?)	Have students got a secure understanding of addition and subtraction of whole numbers and fractions? Are students able to apply place value, addition and subtraction and number facts knowledge and skills to problems across different contexts?	Have students got a secure knowledge of multiplication and division (to a year 5 level)? Are students able to apply four operations knowledge to solve problems in a statistics context? Do students have a secure knowledge of simple Fraction, decimal and percentage equivalents?	Are students able to apply place value and four operations knowledge to decimals and negative numbers in context? Do students have an understanding of measurement equivalencies and can they apply them to real context? Are students able to apply addition and subtraction skills to concepts in geometry (angles)? Have students got a secure understanding of the properties of shapes?
Assessment **PPC** - White Rose end of topic assessment which tests the knowledge taught in these units. **EOT** - PIXL Tests use old SATS papers.	Live marking during the lesson with misconceptions addressed during the lesson. **PPC** - Place Value, Addition and Subtraction, Multiplication and division and Fractions. **EOT -** PIXL test taken in September. **This is used as a baseline.**	Live marking during the lesson with misconceptions addressed during the lesson. **PPC** - Multiplication and division, fractions, decimals and percentages, perimeter and area and Statistics. **EOT -** PIXL test taken in January.	Live marking during the lesson with misconceptions addressed during the lesson. **PPC** - Shape, Position and Direction, Decimals, negative numbers, converting units and Volume. **EOT -** PIXL test taken in May.
Literacy (L),**Numeracy** (N), **Oracy** (O) **opportunities**	Word problems presented to children each lesson have to understand the mathematical vocabulary to solve the problems. Developing the use of 'Let's Talk Maths' mats in class to develop students sentence formation when talking about maths concepts. Working walls display Key vocabulary for the unit.		
Cross Curricular Opportunities	In lessons questions and problems are presented in 'real life' contexts.	In lessons questions and problems are presented in 'real life' contexts.	In lessons questions and problems are presented in 'real life' contexts.
Where is Maths applied across the curriculum?	**Geography** - Climate graphs. **History** - Chronology timelines (their own and Mayans). **French** - Numbers to 31 - including addition.	**Geography** - angles (longshore drift), **weather** - climate graphs (bar and scatter). **History -** Chronology timelines. **French** - Numbers to 31-100 - including addition. Time. **Music -** beats in a bar linking to fractions. **ICT** - comparing data, statistics.	**Geography** - comparing population. **History** - kings and queens family trees. **French** - Direction

SMSC / Character/Careers/ Cultural Capital (personal development)	**Spiritual** - In most Maths lessons we aim to provide opportunities for all students to develop an appreciation of the richness and power of maths and opportunities to develop deep thinking through problem solving and a safe place to question each other's methods or way of working. **Moral -** Across the school, we encourage respect including teaching the value of listening to others views and opinions on problem solving. Students know it is okay to make mistakes and know this is how we learn; we encourage students to self and peer assess work to find their specific errors and then learn from these leading to deeper learning. **Social -** In classrooms, we look for opportunities for pupils to use mini-whiteboards to promote self-esteem and build self-confidence. Collaborative learning in the classroom is encouraged in the form of listening and learning from each other which develops their mathematical voice and logical reasoning skills. We participate in team maths challenges for increased pupil involvement. **Cultural -** We explicitly teach areas of Maths in lots of different subjects across the school to show students the importance of Maths in different roles, for example: Statistics in Geography and Science; Finance in Citizenship and Chronology in History. Every month Maths Teachers nominate someone in their form for Mathematician of the Month - HOD choses a winner and announces in assembly.		
Equality and Diversity	Famous Mathematician of the Month on display board in KS2 corridor. Names and characters used in presentations represent people with disabilities and different ethnicities.		
Super Curriculum (personal development)	F1 Club + Trip Dr Frost Clean Up activities. Times Tables Rockstars Maths Shed	F1 Club + Trip Dr Frost Clean Up activities. Times Tables Rockstars Maths Shed	F1 Club + Trip Dr Frost Clean Up activities. Times Tables Rockstars Maths Shed