

CURRICULUM MAP (Long term plan)

SUBJECT : Maths

YEAR GROUP: 6

	Cycle 1 Autumn	Cycle 2 Spring	Cycle 3 Summer
Substantive knowledge – Essential knowledge & conceptual understanding of the National Curriculum	Arithmetic. Numbers to 10 million. Round numbers. Negative numbers. Addition and subtraction. Types of numbers. BIDMAS (order of operations). Divide a 3 digit number by a 2 digit number. Interpret remainders. Solver problems with all four operations. Estimation. Multiply digit by 2 digit numbers. Equivalent fractions. Add and subtract fractions and mixed numbers. Multiply and divide fractions. Coordinates. Reflection and translation.	Arithmetic. Ratio and scaling. Understand decimals up to 3DP. Powers of 10. Multiply and divide decimals. Round decimals. Percentages. Fraction, decimals and percentage equivalents. Area and perimeter formula. Area of shapes. Volume. Interpret graphs. Pie Charts. Mean. Convert units of measure (metric and imperial). Solve problems with measures.	Arithmetic. Classify 2D and 3D shapes using properties. Nets. Parts of a circle. Angles around a point and straight line. Year 7 Transition Apply skills learnt in KS2 to solve real life problems. Algebra in readiness for Year 7. Calculator skills. Using a Compass. Use of the gap analysis to plug any gaps individual classes might have.
Disciplinary knowledge - what skills are practised?	Place value to 10,000,000 <ul style="list-style-type: none"> - Read, write, order and compare numbers to 10,000,000. - Round any number to a required degree of accuracy. - use negative numbers in context including calculating across zero. Addition, Subtraction, Multiplication and Division	Ratio <ul style="list-style-type: none"> - Solve problems involving relative sizes of two quantities. - Scale factor. - Unequal sharing and grouping. Decimals <ul style="list-style-type: none"> - Identify the value of each digit up to 3DP. - multiply and divide whole and decimal numbers by 10, 100 and 1000. 	Shape <ul style="list-style-type: none"> - Draw 2D shapes using given dimensions or angles. - Recognise, describe and build 3D shapes (including nets). - Compare and classify shapes based on their properties. - Illustrate and name parts of a circle. - Recognise angles on a point, straight line, opposite and in a shape (including finding missing angles).

	<ul style="list-style-type: none"> - Add and subtract a number with any amount of integer and solve multistep problems in context. - Identify common Factors and multiples. - Primes to 100. - Squares and Cubes. - Perform mental calculations involving the four operations. - Use knowledge of BIDMAS to solve calculations. - Divide up to 4 digit numbers by a 2 digit number including interpreting remainders. - Solve problems with the four operations. - Use estimation to check answers to calculations to an appropriate degree of accuracy. - Multiply 4 digit numbers by 2 digit numbers using a written method. <p>Fractions</p> <ul style="list-style-type: none"> - Use common factors to simplify fractions and to find equivalent fractions. - Compare and order fractions (including those greater than 1). - Add and subtract fractions and mixed numbers. - Multiply fractions by fractions and whole numbers. - Divide fractions by whole numbers. <p>Position and Direction</p> <ul style="list-style-type: none"> - Describe position on all four quadrants. - Draw and translate shapes on a coordinate plane. 	<ul style="list-style-type: none"> - Multiply 1 digit numbers by decimals up to 2DP. - Divide decimal numbers up to 2DP by a whole number. - Round decimals. <p>Fractions, Decimals and Percentages</p> <ul style="list-style-type: none"> - Find percentages of an amount. - Associate fractions as a division. - Recall simple equivalences between fractions, decimals and percentages. <p>Area, Perimeter and Volume</p> <ul style="list-style-type: none"> - Recognise that shapes with the same area can have different perimeters (and vice versa). - Use formulae to calculate area and volume. - Calculate the area of triangles and Parallelogram. - Calculate, estimate and compare volume of cubes and cuboids. <p>Statistics</p> <ul style="list-style-type: none"> - Interpret and construct pie charts and line graphs. - Use graphs to solve problems. - Calculate the mean as an average. <p>Converting Measures</p> <ul style="list-style-type: none"> - Use, read, write and convert between standard units of length, mass, volume and time. - Convert between miles and km. - Solve problems involving the conversion of units. 	<p>Year 7 Transition:</p> <ul style="list-style-type: none"> - Consolidation of the four operations. - Explicit teaching of how to apply various areas of Maths taught in KS2 in project based work. <p>Algebra</p> <ul style="list-style-type: none"> - Use simple formulae - generate and describe linear sequences. - Express missing number problems using algebra. - find pairs of numbers to satisfy an equation with unknowns. - investigate enumerate possibilities of two variables. <p>Calculator</p> <ul style="list-style-type: none"> - Calculator functions - Fractions as divisors - Growing patterns - Multiplicative thinking - Additive Reasoning - Comparing Fractions - Calculating angles in shapes. <p>Compass</p> <ul style="list-style-type: none"> - Constructing shapes within a circle.
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	- Reflect shapes across different axes.		
Key questions (What is the learning about?)	Have students got secure methods for the four operations with whole numbers and fractions? Are students able to apply four operations knowledge to real life problems? Can students apply knowledge of the four quadrants to different position and direction contexts?	Can students apply place value knowledge to understand fractions, decimals and percentages and their equivalents? Are students able to apply mathematical knowledge to solve problems in statistics contexts? Can students apply converting measures skills to contexts?	Are students able to use addition, subtraction and shape knowledge to solve problems with angles? Do students have a secure understanding of the properties of shapes? Have students got a basic knowledge of algebraic formulae, and have they practised applying it in various contexts?
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, Subtraction, Multiplication and Division, Fractions A and B, Position and Direction. EOT - PIXL test taken in September - used as a year 6 baseline. Second PIXL test taken in November.	Live marking during the lesson with misconceptions addressed during the lesson. PPC - Ratio, Decimals, Fractions, Decimals and Percentages, Area Perimeter and Volume, Statistics and Converting Measures. EOT - PIXL test taken in January. Mock SATS - Taken in February/march - use 2022 paper.	Live marking during the lesson with misconceptions addressed during the lesson. PPC - Shape, Algebra, Arithmetic skills. EOT - SATS 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. Position and Direction - immersion day activity where students had to use coordinate references to find clues around the school site. They also had to use symmetry to create patterns in an Art Lesson.	In lessons questions and problems are presented in 'real life' contexts. Converting measures - Immersion day included: activities in the science lab using the various different measuring jugs, cylinders etc to compare scales; a 'shop experience' where they needed to chose a recipe and then shop for the correct ingredients.	In lessons questions and problems are presented in 'real life' contexts. Investigations where students create their own Theme park using a broad variety of maths skills including area and perimeter, problem solving and finance - they work in groups to produce a presentation using Literacy, Art and DT skills.



<p>Where is Maths applied across the curriculum?</p>	<p>Geography - UK Geog - Map, compass directions, contours, Climate graphs and pictograms. History - timeline chronology. RE - Percentages looking at faith across the world compared to the UK.</p>	<p>Science - Statistics is taught in Science groups, the curriculum content is themed around science data to produce and interpret graphs. History - timeline chronology, victorian census data. Food Technology - Converting measure unit looks at recipes and measuring using a variety of scales. Geography - comparing length of rivers. ICT - Spreadsheets unit include formulae, graphs, money. Citizenship - Finance unit looking at budgeting and spending.</p>	<p>Music - In composition tasks students look at beats in a bar and how notes of different sizes fit into a bar (including half and quarter notes). Geography - Money in relation to fair trade including looking at percentages.</p>
<p>Super Curriculum (personal development)</p>	<p>Position and Direction Immersion day. F1 Club + Trip Dr Frost Clean Up activities. Times Tables Rockstars Maths Shed</p>	<p>Converting Measures Immersion day. Revision Week - including Maths activities. F1 Club + Trip Dr Frost Clean Up activities. Times Tables Rockstars Maths Shed</p>	<p>F1 Club + Trip Dr Frost Clean Up activities. Times Tables Rockstars Maths Shed</p>
<p>Careers</p>	<p>HT 1 - Jobs in Mathematics https://www.youtube.com/watch?v=RdNk60DrLEo HT 2 - What is an actuary - A-Z of Actuary https://www.youtube.com/watch?v=8tWicFMDTUs</p>	<p>HT1 - Why are accountants important? https://www.youtube.com/watch?v=WR2oftl_urg HT2 - Careers powered by Maths - https://www.youtube.com/watch?v=Pd1hDVEfTh4</p>	<p>HT1 - How Nurses are using Maths - https://www.youtube.com/watch?v=c3X99Q57zTc HT2 - Protecting Forests with Maths - https://www.youtube.com/watch?v=5o_dZxQYn1Y</p>
<p>Equality and Diversity Gender Disability Religion Race Sexuality</p>	<p>Mathematician of the Month class readers: Euclid (greek) Stephen Hawking (disabled) Euphemia Lofton Haynes (Black Woman) Grace Alele-Williams (Black woman) https://drive.google.com/drive/folders/1KkSxAz6KK-53PbiogZHgKyo8zgz_xlzK</p>	<p>Female accountant represented in video https://www.youtube.com/watch?v=WR2oftl_urg All females represented - https://www.youtube.com/watch?v=Pd1hDVEfTh4</p>	<p>Protecting Forests with Maths from the perspective of different race female. https://www.youtube.com/watch?v=5o_dZxQYn1Y Mathematician of the Month class readers: Sophie Germain (French Woman) Shakuntala Devi (Indian Woman)</p>



		<p>Mathematician of the Month class readers:</p> <p>Nira Chamberlain (Black Man)</p> <p>Pythagoras (Greek)</p> <p>Kate Adebola Okikiolu (Black Woman)</p> <p>https://drive.google.com/drive/folders/1ITQPnS8trOc-COo1ivrG47ao4zzAOxOL</p>	<p>Jillian Beardwood (woman)</p> <p>Hypatia of Alexandria (female)</p> <p>https://drive.google.com/drive/folders/1oiAG-oXNq9PHcq9CPcS5L07Onrj93nWo</p>
Local Community Links	N/A	N/A	N/A
<p>British Values</p> <p>Democracy</p> <p>The rule of Law</p> <p>Individual Liberty</p> <p>Mutual Respect and Tolerance of others</p> <p>SMSC</p> <p>Character Education</p>	<p>Tolerance/individual liberty/respect: When learning new and different methods of calculations, students are encouraged to share their methods and listen to each other's ideas to help solve problems. They are also allowed to choose the methods that suit them best.</p> <p>SMSC - Immersion day activities include a group activity to solve various problems using coordinate maps.</p> <p>https://drive.google.com/drive/u/0/folders/1mRThw0vsAAVnR7LZxmoq8N838o0y3FXy</p>	<p>Democracy: Statistics unit covers voting within the different topics covered in the different graphs.</p> <p>https://docs.google.com/presentation/d/1LqCxW7n6N9QhixV6_20pbokJcUqCSvCJ/edit?usp=drive_link&oid=112097966160525543021&rtpof=true&sd=true</p> <p>SMSC - Immersion day activities include group activities to solve problems when converting units of measurement.</p> <p>https://docs.google.com/presentation/d/1SbwEmKuLTN21fAKxHL9s-KtBXTIuF_Pak9V6t-V6NYs/edit?usp=drive_link</p>	<p>SMSC (social) / mutual respect and Tolerance: Post SATs students work in teams on various projects like designing and planning a music festival and designing a garden.</p> <p>https://drive.google.com/drive/u/0/folders/12F0JJHOOUijy65nIIF7koQ0k3h_MrFVA</p>