

Stone Hill School
Curriculum Plan 2020/21
Mathematics Year 9

Intent: In Year 9, pupils will begin to explore place value above 1000 and decimal numbers. Their calculation strategies will be refined, allowing for more efficient mental methods, and column addition and subtraction. In fractions, they will work with a greater range of denominators and numerators and begin to recognise equivalency. In Geometry, they will expand their understanding of the properties of shapes and how they can be reflected, rotated and translated. This learning will be presented in a range of contexts, including problems that require written reasoning as this will prepare pupils for examinations in Key Stage 4.

Term	Week/s	Topic/Theme <i>Key vocabulary including Tier 3 subject specific words</i>	Learning Outcomes Knowledge and Skills To know, to use, to apply...	Links to: Literacy, Numeracy, SMSC, Gatsby Benchmarks
Autumn	1-3	Place Value Digit, number, numeral, partition, combine, total, value, equal, ones, tens, hundreds, thousands, compare, order, symbol, more than, less than, represent, round.	<ul style="list-style-type: none"> Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number. Recognise the place value of each digit in a three-digit number (hundreds, tens, ones). Identify, represent and estimate numbers using different representations. Solve number problems and practical problems involving these ideas. <p>Reasoning and Problem Solving (RPS): Missing number opportunities.</p>	Literacy Take part in discussions.
	4-8	Number, Addition and Subtraction Parts, whole, combine, partition, total, number bond, multiple, add, subtract, equal, inverse, operation, increase, decrease, equation, calculate, sum, find, column method, bridging, regrouping (not carrying over), exchanging (not borrowing)	<ul style="list-style-type: none"> Add and subtract tens or hundreds from a three-digit number. Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction. Estimate the answer to a calculation and use inverse operations to check answers. Solve problems, including missing number facts, place value, and more complex addition and subtraction. <p>RPS: Missing number opportunities.</p>	Literacy Take part in discussions, talk or write about pictures, answer questions
	9-12	Multiplication and division Group, set, multiple, multiply, divide, counting, equal, pairs, factor, product, array, row, column, inverse, equation, calculate.	<ul style="list-style-type: none"> Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. Solve problems involving missing numbers and scaling. <p>RPS: Odd one out opportunities.</p>	SMSC Socialise with other pupils and other people, Cooperate with others Literacy Talk or write about pictures.
	13-15	Properties of Shapes. Circle, square, triangle, rectangle, 2D, flat, 3D solid, cube, cuboid, sphere, pyramid, prism, cone, cylinder, curved, straight, face, side, angle, vertices, Venn diagram, Carroll diagram.	<ul style="list-style-type: none"> Draw 2-D shapes and make 3-D shapes using modelling materials. Recognise 3-D shapes in different orientations and describe them. Identify horizontal and vertical lines and pairs of perpendicular and parallel lines. <p>RPS: Odd one out opportunities.</p>	Literacy Use new vocabulary Gatsby Benchmark 4
Spring	1-2	Review of Autumn term	Revisit elements from Autumn Term (as chosen by Class Teacher). <ul style="list-style-type: none"> Four operations in contexts (money/measures). Revisit of shapes. 	Gatsby Benchmarks 4 and 6
	3-6	Fractions Half, quarter, third, fifth, tenth, whole, part, equal, split, divide, share, groups, numerator, denominator equivalent, decimal place.	<ul style="list-style-type: none"> Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts. Recognise and show, using diagrams, equivalent fractions with small denominators. Add and subtract fractions with the same denominator within one whole. Compare and order unit fractions, and fractions with the same denominators. <p>RPS: True, false, sometimes true opportunities.</p>	SMSC Offer reasoned views Literacy Take part in discussions
	7-10	Time	<ul style="list-style-type: none"> Tell the time from 1- hour and 24-hour clocks. 	Literacy

		Clock face, hands, hour, minute, second, analogue, digital, am, pm, 24-hour display, 12-hour display, leap year, convert.	<ul style="list-style-type: none"> Tell time to the nearest minute. Know the number of seconds in a minute, the number of days in each month and the number of days in a year/leap year. Calculate the duration of an event and solve problems involving measuring time. <p>RPS: Visualisation opportunities</p>	Talk or write about pictures, use new vocabulary. SMSC Enjoy learning about the world around them. Understand consequences. Gatsby Benchmark 4
	11-12	Geometry: Sequences, Position and Direction Rotate, quarter turn, half turn, whole turn, clockwise, anticlockwise, right angle.	<ul style="list-style-type: none"> Recognise angles as a property of shape or a description of a turn. Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle. <p>RPS: Visualisation opportunities</p>	Literacy Use new vocabulary
Summer	1-3	Money Coin, note, bank card, cash, total, add, change, more, less, customer, increase, decrease, combine, decimal point.	<ul style="list-style-type: none"> Correct use pound and pence notation. Add and subtract pound and pence to solve real life problems, including finding change. <p>RPS: Word problem opportunities</p>	SMSC Socialise with other pupils and other people, Cooperate with others, Enjoy learning about the world around them, Understand consequences. Literacy Role play Gatsby Benchmarks 2 and 6
	4-7	Measures: Length, capacity and mass Millilitre, centimetre, metre, millilitre, litre, gram, kilogram, measure, estimate, record, perimeter.	<ul style="list-style-type: none"> Measure, compare, add and subtract lengths (m/cm/mm). Measure, compare, add and subtract mass (kg/g). Measure, compare, add and subtract volume/capacity (l/ml). Measure the perimeter of simple 2-D shapes. <p>RPS: Word problem opportunities</p>	Literacy Take part in discussions, develop vocabulary Gatsby Benchmark 4
	8-10	Geometry: Properties of Shapes Cube, cuboid, sphere, pyramid, prism, cone, cylinder, curved, straight, face, side, angle, vertices, rotate, order, sequence, perpendicular, right angle, parallel, vertical, horizontal, diagonal.	<ul style="list-style-type: none"> Draw 2-D shapes and make 3-D shapes using modelling materials. Recognise 3-D shapes in different orientations and describe them. Identify horizontal and vertical lines and pairs of perpendicular and parallel lines. <p>RPS: Opportunities to use diagrams, charts and tables</p>	Literacy Use new vocabulary, make marks on materials. SMSC Participate positively in art, interest in faiths (geometric patterns)
	11-12	Statistics Frequency, total, mark, tally, survey, collect, group, record, category, pictogram, bar chart, axis, scale, icon, conclusion, difference, combine.	<ul style="list-style-type: none"> Interpret and present data using bar charts, pictograms and tables. Solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables. <p>RPS: Opportunities to use diagrams, charts and tables</p>	Literacy Ask questions, answer questions, listen to an opinion, use punctuation. SMSC Enjoy learning about the world around them, Enjoy learning about others.

Intended impact:
Pupils will have a secure knowledge of calculation, shape and measures up to the level required to access the Entry Level Mathematics course in Year 10. Pupils who have excelled in Year 9 may already have taken the Entry Level examination and will work towards Functional Skills Level 1 in Year 10. In addition, the course will have helped them to develop as reflective learners who check their answers carefully. The increased use of investigation will have developed as independent enquirers and resourceful thinkers.