

Stone Hill School
Curriculum Plan 2020/21
Mathematics Year 10

Intent: Key Stage 4 Mathematics focuses on preparing pupils for using Mathematics in everyday life, including the workplace. Pupils will work towards meaningful, nationally recognised qualifications; OCR Mathematics (Entry Level) and Functional Skills (which is equivalent to a GCSE grade).

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	1-4	Place value, addition and subtraction. Digit, numeral, total, value, equal, calculation, sum, difference, share, total, twice, triple.	<ul style="list-style-type: none"> Write, order and compare whole numbers up to 1000. Know the value of each digit in a 3-digit number. Understand vocabulary associated with numerical calculations: sum, difference, share, total, twice, triple. Add and subtract whole numbers from an initial value no greater than 1000. 	Literacy Take part in discussions, talk or write about pictures, answer questions
	5-8	Fractions, decimals and percentages. Decimal point, decimal place, halves, quarters, thirds, quarters, fifths, tenths, equivalent, denominator, numerator	<ul style="list-style-type: none"> Add and subtract decimals in context, i.e. money, mensuration etc. Recognise equivalent fractions including fractional quantities greater than 1 Calculate thirds, quarters, fifths and tenths of quantities where the answer is an integer. Use fractions in context. Order decimals and fractions. Recognise equivalent fraction, decimal and percentage notation. Understand that 1% is equivalent to dividing by 100. Find 1%, 25%, 50% for three digit numbers, limited to results which are whole number answers. 	Gatsby Benchmark 4
	9-10	Multiples Multiple, multiply, divide, counting, equal, pairs, factor, product, inverse, equation, calculate, divisible	<ul style="list-style-type: none"> Know and use multiplication of numbers up to 10 by 3, 4, 5 and 10. Recognise when a two-digit number is divisible by 2, 3, 4, 5 and 10. 	SMSC Offer reasoned views.
	11-12	Lists and Outcomes Venn diagram, probability, likelihood, tally, frequency, possibilities, outcomes	<ul style="list-style-type: none"> Use a two-circle Venn Diagram to sort and classify numeric and graphic data by two criteria. Use systematic listing strategies to identify different outcomes of two combined events, i.e. rolling two dice. Understand and complete a tally chart including numerical frequency. Complete or extract information from lists with a maximum of two columns or two rows. 	SMSC Investigate moral and ethical issues, offer reasoned views, knowledge of different socio-economic groups in Britain. Gatsby Benchmarks 2 and 3
Spring	1-2	Shapes and Solids Polygons – circle, triangle, square, rectangle, pentagon, quadrilateral, hexagon, octagon, heptagon Scalene, right-angled, equilateral. side, edge, corner, square face, rectangular face, triangle face, cube, cuboid, cross-section, pyramid, sphere, cone, cylinder.	<ul style="list-style-type: none"> Sort and classify polygons by number of sides, e.g. triangle, quadrilateral, pentagon, hexagon. Distinguish between different triangles (equilateral, isosceles, right angled and scalene). Know and use the terms side, edge, corner, square face, rectangular face, triangle face, cube, cuboid, cross-section, pyramid, sphere, cone, cylinder. 	Literacy Develop vocabulary
	3-4	Symmetry and Transformations Reflect, rotate, translate, horizontal, vertical, symmetry, tessellate, degrees (turn)	<ul style="list-style-type: none"> Identify lines and draw shapes which have horizontal and/or vertical lines of symmetry. Rotate, reflect and translate simple shapes to form tessellated pattern. Draw the rotation of a simple object through 90 degrees on squared paper. 	SMSC Interest in faiths (Islamic patterns), participate positively in art, Enjoy learning about the world around them.
	5-6	Proportionality, Scales and Graphs	<ul style="list-style-type: none"> Solve simple proportion problems by doubling constituent parts, e.g. adapt a four person recipe for eight people. 	SMSC Investigate moral and ethical issues, offer reasoned views, knowledge of

		Proportion, scale, parts, scale, divisions, dial, conversion, convert	<ul style="list-style-type: none"> Read and mark a scale or dial whose divisions are labelled and represent 2, 5 or 10 units. Read dial and scales in familiar contexts. Interpret graphs in real-world contexts, e.g. money conversion, cost-time. 	different socio-economic groups in Britain.
	7-12	Revision and Assessment Timetable, survey, budget, public transport, change, cost, duration, departure, arrival	<ul style="list-style-type: none"> Pupils will complete their two assessment papers and a practical task. For the practical task, pupils will organise a visit to Meadowhall using public transport. 	Literacy Answer questions Gatsby Benchmarks 2,3,4 and 5
Summer	1	Formulae Sequence, increase, decrease, rule, function, input, output, operation.	<ul style="list-style-type: none"> Complete a sequence increasing or decreasing by 2, 3, 5 or 10. Use a simple one-step function machine to determine outputs for given inputs. 	
	2	Estimations and Approximations Round, estimate, value, approximate, decimal place	<ul style="list-style-type: none"> Round numbers less than 100 to the nearest ten or whole number. Estimate totals using rounded values. Estimate approximate total cost and expected change for a number of items (no more than ten) to be bought. 	
	3-5	Units of Measure – Area, Perimeter and Angles. Area, perimeter, centimetres squared (cm ²), clockwise, anticlockwise, acute, obtuse, right-angle, protractor	<ul style="list-style-type: none"> Calculate the area of rectangles drawn on cm square grids. Understand and use the terms 'clockwise' and 'anticlockwise' and the idea of 'quarter turn', 'half turn' and 'three quarters turn'. Recognise lines greater than, equal to, and less than 90 degrees in shapes. Measure acute angles to the nearest 10 degrees using a protractor. 	Gatsby – 5,6
	6-7	Units of Measure – Money Coin, note, bank card, cash, total, add, change, more, less, customer, increase, decrease, combine, decimal point.	<ul style="list-style-type: none"> Use £ and p notation. Select coins equivalent to an amount of money up to £5. Order a collection of coins and notes. Give change from £5. 	Gatsby – 4,3 Literacy – role play
	8-10	Units of Measure – Time 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"> Find start or end times for a planned time period. Calculate the duration given the start and end times. Understand and use am/pm method of stating time. Read and write time for digital and analogue clocks (in hours and in fifteen minute intervals). Use a calendar to solve problems. 	Gatsby – 4, 3 Literacy – role play
	11-12	Averages and Trends Scale, frequency, bar graph, pictogram, icon, key, average, mean, median, range, scatter graph, plot, line of best fit, positive correlation, negative correlation.	<ul style="list-style-type: none"> Construct and interpret a bar graph, using a frequency scale in 5s or 10s. Draw and interpret a pictogram with scale in multiples of 2, 4, 5 or 10. Order small list of numbers (up to ten numbers) to identify middle value (median). Understand and use 'range' as the difference between the biggest and smallest recorded values on an appropriate frequency diagram. Plot scatter graphs for pairs of data values. Interpret given lines of best fit for points on a given scatter graph. 	SMSC – contexts for data Gatsby - 2 Literacy – ask questions, answer questions, speak coherently, use and correct punctuation.

Intended impact:

Pupils will have worked towards, or achieved, an Entry Level qualification that they can build upon in Year 11. In addition, the course will have helped them to develop as reflective learners who improve their work, and the increased expectations in terms of problem solving will have progressed pupils as effective participators and resourceful thinkers.



