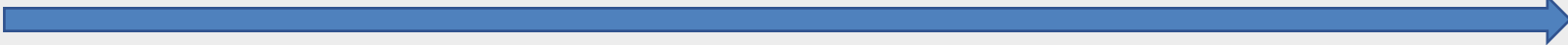


KS4 Mathematics Curriculum Coverage: 2025-26

Year 10H Spring Term 						
Sequenced	Non-calculator methods	Straight line graphs	Probability	Rounding and estimation	Perimeter, area and volume	Interpret and represent data
Key Knowledge	<p>To know:</p> <ul style="list-style-type: none"><li>that there is an order of operations that must be applied (BIDMAS)</li><li>fractions can be represented as terminating or recurring decimals</li><li>how to solve basic equations</li><li>the concept of place value</li></ul>	<p>To know:</p> <ul style="list-style-type: none"><li>how to plot coordinates in four quadrants</li><li>how to substitute numbers in place of letters</li><li>lines <math>x = a, y = b, y = x, y = -x</math></li><li>the shape of linear and quadratic graphs</li><li>the equation of a line is <math>y = mx + c</math></li><li>m is the gradient, understand how this affects the steepness of the line</li><li>c is the y intercept</li><li>lines with the same gradient are parallel</li><li>the product of the gradients of two perpendicular lines is -1</li></ul>	<p>To know:</p> <ul style="list-style-type: none"><li>probability adds up to 1 (or 100%).</li><li>That probabilities are represented by fractions and decimals</li><li>how to carry out basic calculations with fractions</li><li>the probability of an event not occurring = <math>1 - n</math> probability of the event occurring.</li><li>the meaning of the words biased and fair.</li><li>the greater the number of trials the more accurate the results will be.</li><li>there is a difference between theoretical and experimental probabilities</li><li>the difference between independent and dependent events</li></ul>	<p>To know:</p> <ul style="list-style-type: none"><li>that decimals can be represented on a number line</li><li>the difference between decimal places and significant figures</li><li>how to calculate mentally with multiples of 10</li><li>the basic operations on a scientific calculator</li><li>inequality symbols</li><li>the concept of upper and lower bounds</li></ul>	<p>To know:</p> <ul style="list-style-type: none"><li>the difference between 2-D and 3-D shapes</li><li>the difference between area and perimeter</li><li>that a compound shape is made by putting 2-D shapes together</li><li>the units of perimeter are mm, cm, m</li><li>the units of area are <math>mm^2, cm^2, m^2</math></li><li>pi (<math>\pi</math>) has an approximate value of 3.142</li></ul>	<p>To know</p> <ul style="list-style-type: none"><li>there are three mathematical averages (mean, median and mode)</li><li>the range is a measure of spread</li><li>large data sets can be represented in frequency tables</li><li>how to calculate the median (in class intervals)</li><li>the meaning of bias</li></ul>
Key Skills	<p>To be able to:</p> <ul style="list-style-type: none"><li>understand and apply the order of operations to a range of calculations</li><li>solve multi step problems</li><li>convert recurring decimals to fractions</li></ul>	<p>To be able to:</p> <ul style="list-style-type: none"><li>plot straight line graphs by plotting coordinates</li><li>find solutions to equations by plotting straight line graphs</li><li>find the gradient of a line and compare lines with different gradients</li><li>represent graphs given the equation <math>y = mx + c</math></li><li>find the equation of a line when the graph is given</li><li>represent solutions to single and multiple inequalities on a graph</li><li>find the midpoint of a line segment</li><li>find the equation of a straight-line graph given one point and the gradient</li><li>find the equation of a straight-line graph given two points</li><li>draw and interpret real-life straight-line graphs</li><li>recognise the equations of, and plot, perpendicular lines</li></ul>	<p>To be able to:</p> <ul style="list-style-type: none"><li>find the probability of a single event</li><li>use the property that probabilities sum to 1 to calculate missing values</li><li>list outcomes</li><li>calculate relative frequency</li><li>draw and interpret sample space diagrams for one or more events</li><li>draw and interpret two-way tables</li><li>draw and interpret frequency trees</li><li>calculate the probability of independent events and represent them on tree diagrams</li><li>draw and interpret tree diagrams for dependent events</li><li>calculate conditional probability</li></ul>	<p>To be able to:</p> <ul style="list-style-type: none"><li>round numbers to a given number of decimal places</li><li>round numbers to a given number of significant figures</li><li>estimate answers to calculations</li><li>use a calculator for the four operations, brackets, indices and roots</li><li>represent error intervals (rounding and truncating) as inequalities</li><li>find upper and lower bounds and carry out related calculations</li></ul>	<p>To be able to:</p> <ul style="list-style-type: none"><li>calculate the perimeter of a 2-D shape (square, rectangle, triangle, parallelogram, trapezium)</li><li>calculate the area of a 2-D shape (square, rectangle, triangle, parallelogram, trapezium)</li><li>calculate the area of a compound shape</li><li>calculate the circumference of a circle</li><li>calculate the area of a circle</li><li>calculate arc length and perimeter</li><li>calculate the area of a sector</li><li>calculate the volume of prisms and cylinders</li><li>calculate the surface area of prisms and cylinders</li><li>sketch and construct nets of 3-D shapes</li></ul>	<p>To be able to:</p> <ul style="list-style-type: none"><li>calculate averages (mean, median, mode) and the range</li><li>calculate averages from an ungrouped frequency table</li><li>calculate averages from a grouped frequency table</li><li>use data to compare distributions</li><li>recognise different types of data</li><li>recognise and use different sampling methods</li><li>use the capture and recapture method to calculate population and sample sizes</li><li>plot interpret scatter graphs and understand correlation</li></ul>
Subject specific vocabulary	add, subtract, multiply, divide, fraction, denominator, numerator, decimal, recurring, brackets, indices	table of values, x axis, y axis, horizontal, vertical, parallel, intercept, y-intercept, straight line, equation, graph, coordinate, gradient, real life, perpendicular, product	impossible, certain, likely, unlikely, even chance, probability, outcome, event, experimental, theoretical, frequency tree, probability tree diagram, relative frequency, expected outcomes, dependent events, independent events, sample space diagram, bias, fair, conditional probability	decimal place, significant figures, rounding, error interval, upper bound, lower bound, truncate	2-D shape, 3-D shape, square, rectangle, triangle, parallelogram, trapezium, circle, compound shape, area, perimeter, circumference, arc, radius, diameter, chord, sector, segment, tangent, cube, cuboid, cone, cylinder, sphere, prism, pyramid, pi, surface area, volume, net	average, mean, median, mode, range, frequency, grouped data, ungrouped data, class interval, sample, population, correlation, scatter graph, consistent