KS3 Mathematics Curriculum Coverage

Sequenced	Block 13: Solving ratio and proportion problems	Block 14: Rates	Block 15: Probability	Transformations			Block 19: Constructions and congruency
				Block 16: Rotation and translation	Block 17: Lines of symmetry	Block 18: Enlargement and similarity	
Key Knowledge	To know: • the features of a directly proportional relationship • the features of an inversely proportional relationship • the meaning of ratio table	To know: • units of time • metric conversions for distance (length) • speed is the rate at which distance changes over time • the formulae linking speed, distance and time • the formulae linking mass, density and volume • know 1 mile = 1.6 km or 5 miles = 8 km • distance on the y-axis and time on the x-axis • mph means the number of miles travelled in one hour • average speed is the total distance divided by total time	To know: • probabilities of mutually exclusive outcomes sum to 1 • the probability of an event not occurring = 1 – probability of the event occurring • the meaning of the words biased and fair • the greater the number of trials the more accurate the results will be • there is a difference between theoretical and experimental probabilities	To know that: • the order of rotational symmetry of regular 2d shapes • how to plot a pair of coordinates in all four quadrants • which direction is clockwise/anti-clockwise	To know: • know the conditions for a shape to have reflective symmetry • know the lines of symmetry for triangles, quadrilaterals and other polygons • know that lines in the form x=a are vertical and y=b are horizontal • y= x and y= -x are diagonal lines • reflecting a shape by a diagonal line changes it's orientation • an object and its image when reflected are congruent (the same lengths and angles)	To know that: • Similar shapes are enlargements of one another • Similar shapes preserve their angles and their lengths all have the same scale factor applied • Enlarging a shape by a scale factor between 0 and 1 will make the lengths smaller	To know: • the steps to use a protractor to measure angles in both directions • congruent shapes have equal lengths and angles • perpendicular lines intersect at a right angle • bisect means cut in two pieces
Key Skills	To be able to: • solve direct proportion problems • scale up/down ingredients in recipe questions • calculate unit cost • read/interpret conversion graphs • solve inverse proportion problems • **read/interpret inverse proportion graphs (H)** • solve ratio problems given the whole or part • solve best value problems using proportion	To be able to: • calculate speed, distance or time when given two of the three • convert between time and decimals e.g. 3 hours 15 minutes = 3.25hrs • calculate mass, density or volume when given two of the three • plot and interpret distance time graphs • calculate rates of change • **convert compound units (H)**	To be able to: • express the probability of a single event as a fraction, decimal or percentage • calculate the relative frequency of a given number of trials • draw/interpret a graph showing relative frequency • draw and interpret a sample space diagram • **draw and calculate probabilities from tree diagrams for multiple independent and dependent events (H)** • draw and interpret a Venn diagram • calculate probabilities from a Venn diagram	To be able to: • identify line and rotational symmetries in 2d shapes • rotate a shape about a given point • translate a shape by a given vector **describe single and multiple transformations**	To be able to: • identify lines of reflective symmetry in shapes • draw the lines with equations x=a and y=b • reflect a shape using horizontal, vertical and diagonal lines of reflection when the reflection line is/isn't touching the object on a grid or x-y co-ordinate axes	To be able to: • identify whether or not two shapes are similar • enlarge a shape by a given positive scale factor • enlarge a shape by a given scale positive factor from centre • **enlarge a shape by a given negative scale factor (H)** calculate missing side lengths and angles in similar shapes	To be able to: • construct: perpendicular bisector, perpendicular from and to a point, construct an angle bisector. • construct loci: distance from a point, distance from a straight line, equidistant from 2 points, distance from 2 lines.
	Tier 2 and 3 key vocabulary	Tier 2 and 3 key vocabulary	Tier 2 and 3 key vocabulary	Tier 2 and 3 key vocabulary	Tier 2 and 3 key vocabulary	Tier 2 and 3 key vocabulary	Tier 2 and 3 key vocabulary

Subject specific	relationship, ratio, multiplier, scale factor, constant, variable, non linear, gradient, inverse, proportional, product, share, divide, equal parts, equivalent, factor, unit cost,	speed, distance, time, per, convert, rounding, accuracy, average, gradient, axes, origin, density, mass, volume, substitute, rearrange, flow rate, constant rate, prism, volume, curve, straight line, gradient, rate of change, units, imperial, metric, double number line,	event, outcome, probability, biased, unbiased, fair, experiment, trial, frequency, relative frequency, independent, product, replacement, Venn diagram, intersection, union, sample space, two way table	rotational symmetry, order, regular, irregular, direction, invariant, clockwise, anti-clockwise, object, image, centre, translate, vector, horizontal, vertical, vertex, rotate, reflect, variant,	reflect line symmetry congruent object image vertical/horizontal vertex perpendicular distance	similar, ratio, enlargement, scale factor, centre of enlargement, corresponding, object, image, integer, positive, distance, position, inverted, negative, orientation,	acute, obtuse, reflex, right angle, protractor, estimate. scale, ratio, multiplier, conversion, locus, equidistant, construction, vertex, arc, perpendicular, bisector, line segment, net, prism. invariant, congruent, corresponding