

Now that the revised curriculum has been taught, please consider the Implementation and Impact of the curriculum you taught. What changes might need to be made to the Curriculum Intent (See Curriculum Map and Overviews) in light of this year's experiences?

Year 9 Overview 2022-23 – Mathematics			
Date	Wk	Week	Units Studied & Learning Outcomes
Tues 5-Sep	A	1	<u>Calculating with Fractions (2)</u> Learning Outcomes: GW: Know that division is the same as a multiplicative inverse BI: Know how to perform all four operations with fractions, EW: Know when, and which, strategies to apply to solve problems
11-Sep	B	2	<u>Fraction, Decimal and Percentage equivalence and Calculations (4)</u> Learning Outcomes: GW: Know that fractions, decimals, and percentages are different representations of the same value. BI: Know how to convert between different representations and compare them. Calculate with mixed representations of FDP EW: Know how to order sets of fractions, decimals, and percentages. Divide by decimals and choose efficient calculation strategies.
18-Sep	A	3	<u>Expanding brackets (3)</u> Learning Outcomes: GW: Know that the distributive property applies to algebraic terms as well as numerical ones BI: Know how to expand two sets of brackets with and simplify the resulting expression EW: Know how to factorise by a common algebraic factor and apply the index laws to algebraic terms
25-Sep	B	4 RQ	<u>Lengths in Right-Angled Triangles (3)</u> Learning Outcomes: GW: Know that the longest side of a right-angled triangle is the hypotenuse, and its relationship to $a^2 + b^2 = c^2$ BI: Know how to use Pythagoras' Theorem to find missing side lengths EW: Know when to apply Pythagoras' Theorem to solve a problem
2-Oct	A	5	<u>Probability of Combined Events (3)</u> Learning Outcomes: GW: Know that frequency trees help us to organise sets of data, probability trees help us to organise combinations of outcomes BI: Know how to complete frequency trees and probability trees EW: Know how to complete frequency trees given proportional information (percentages or ratio), use probability trees to combine probabilities
9-Oct	B	6	<u>Percentage change (4)</u> Learning Outcomes: GW: Know that a percentage represents a proportion of an original amount BI: Know how to calculate the original amount after a multiple of 5%. Calculate percentage change using a multiplier EW: Know how to calculate percentages in real contexts including profit and loss

16-Oct	A	7 RQ	<u>Higher Order Formulae (3)</u> <u>Learning Outcomes:</u> GW: Know that a formula shows a connection between variables, and that a negative squared is a positive BI: Know how to substitute values into equations involving powers and roots EW: Know when to apply which formula to solve a problem
23-Oct	B	8	<u>Transformations (4)</u> <u>Learning Outcomes:</u> GW: Know that combined transformations can result in a single transformation BI: Know how to enlarge a shape by a fractional scale factor EW: Know how to describe a given enlargement
6-Nov	A	9	<u>Dividing into Ratio (3)</u> <u>Learning Outcomes:</u> GW: Know that ratios compare parts of a whole with each other, rather than as a proportion of the whole BI: Know how to divide an amount in a given ratio given one part EW: Know when to use which approach to solving ratio
13-Nov	B	10 RQ	<u>Angles & Polygons (4)</u> <u>Learning Outcomes:</u> GW: Know that the angle sum of any polygon must be a multiple of 180° BI: Know how to prove the angle sum of a polygon and use it. EW: Know multiple proofs of the angle sum of a polygon
20-Nov	A	11	<u>Rules of indices (3)</u> <u>Learning Outcomes:</u> GW: Know that a negative power indicates a reciprocal (multiplicative inverse) BI: Know how to write a number as a power of a given base, including with negative powers EW: Know that a square rooted power will have half the index
27-Nov	B	12	<u>Solve equations involving unknowns on both sides (4)</u> <u>Learning Outcomes:</u> GW: Know that equations can be solved by performing inverse operations BI: Know how to solve equations involving brackets or unknowns on both sides EW: Know when equations can be formed and solved to solve a problem.
4-Dec	A	13 RQ	<u>Standard form (3)</u> <u>Learning Outcomes:</u> GW: Know that standard form notation indicates a shift in place value BI: Know how to convert numbers into standard form and vice versa EW: Know how to change numbers in 'near' standard form into true standard form
11-Dec	B	14	<u>Equations of Linear Graphs (4)</u> <u>Learning Outcomes:</u> GW: Know that lines represent pairs of solutions to the equation, the gradient is the rate of change in y BI: Know how to plot linear graphs, find the gradient of a line from two pairs of coordinates EW: Know how to find the equation of a line from two pairs of coordinates

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18-Dec	A	15	<p>Similarity (3)</p> <p><u>Learning Outcomes:</u> GW: Know that <i>corresponding</i> lengths in similar shapes have a common scale factor BI: Know how to calculate missing sides, scale factors. Identify similar shapes. EW: Know when two sides are corresponding (using congruency facts)</p>
8-Jan	A	16 RQ	<p>Set notation (3)</p> <p><u>Learning Outcomes:</u> GW: Know that Venn diagrams can be used to organise sets of information, know the symbols used. BI: Know how to calculate the probability of an outcome, or combination of outcomes, from a Venn diagram EW: Know how to complete a Venn diagram given probabilities</p>
15-Jan	B	ST1	
22-Jan	A	ST1	
29-Jan	B	19	<p>Metric Units for Volume (3)</p> <p><u>Learning Outcomes:</u> GW: Know that conversions for area and volume measures are different from linear measures. Know that $1\text{cm}^3 = 1\text{ml}$. BI: Know how to convert between measures of area and between measures of volume EW: Know when to apply a conversion in solving a problem</p>
5-Feb	A	20	<u>EBI Response</u>
12-Feb	B	21 RQ	<p>Accuracy (4)</p> <p><u>Learning Outcomes:</u> GW: Know that estimation is used to find an easier, similar calculation BI: Know how to find upper and lower bounds EW: Know what effect rounded values will have on the estimation</p>
26-Feb	B	22	<p>Direct proportion (3)</p> <p><u>Learning Outcomes:</u> GW: Know that variables in direct proportion have a multiplicative link between them, for inverse proportion variables multiply to give a constant. BI: Know how to use unit ratio to make comparisons and solve problems EW: Know when a problem is direct or inverse and solve accordingly</p>
4-Mar	A	23	<p>Nth term of Quadratic Sequence (4)</p> <p><u>Learning Outcomes:</u> GW: Know that quadratic sequences have a common 'second difference' BI: Know how to generate from, and describe sequences as nth terms relating to n^2 EW: Know how to describe sequences of the form an^2</p>

11-Mar	B	24	3D Shapes Volume & Surface Area (3) <u>Learning Outcomes:</u> GW: Know that the surface area of an object is the combined area of every face. BI: Know how to calculate surface areas of prisms and pyramids EW: Know how to calculate volumes of cylinders
18-Mar	A	25	Relative Frequency (4) <u>Learning Outcomes:</u> GW: Know that the relative frequency of an event gives an estimate of its true probability, and therefore more data yields a better estimate. BI: Know how to calculate the relative frequency of an event and use it to make predictions of future results EW: Know when relative frequency estimations may indicate unfairness or bias
25-Mar	B	26 RQ	Use of a calculator (3) <u>Learning Outcomes:</u> GW: Know the functions of the calculator keys BI: Know how to combine operations efficiently on a calculator EW: Know how to interpret the calculator display
15-Apr	A	27	Speed and rate of change (4) <u>Learning Outcomes:</u> GW: Know that average speed is the rate of a change of distance with regards to time BI: Know how to calculate (both with the speed formula and using proportion) speeds etc. EW: Know how to calculate speeds etc. with, for example, multiples of 12 minutes
22-Apr	B	28	Simultaneous Equations Graphically (3) <u>Learning Outcomes:</u> GW: Know that linear simultaneous equations (that are not parallel) have exactly one solution BI: Know how to plot functions and find the simultaneous solution EW: Solve simultaneous equations algebraically by identifying value of differences between equations
29-Apr	A	29	Construction & Loci (4) <u>Learning Outcomes:</u> GW: Know that the locus is the set of all points that satisfy a given condition BI: Know how to combine constructions to find more complex loci EW: Know how to describe a region with loci
6-May	B	30 RQ	Grouped Frequency Tables & Averages (4) <u>Learning Outcomes:</u> GW: Know that continuous data can be grouped and organise data in that format. BI: Know how to calculate an estimate of the mean from grouped data. EW: Know the limits of using grouped continuous data in this way.
13-May		31	Non-linear graphs (3) <u>Learning Outcomes:</u> GW: Know that squaring a negative value makes a positive. Quadratic graphs have a parabolic shape. BI: Know how to plot simple quadratics and cubics [$y = x^2 + c$, $y = ax^3$] EW: Know how to use graphs to find approximate solutions to equations.

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20-May		32	Arcs and Sectors (4) <u>Learning Outcomes:</u> GW: Know that an arc or sector is a fraction of the full turn at the centre of the circle BI: Know how to calculate arc length or sector area for half and quarter circles EW: Know how to calculate arc length and sector area for angles that are factors of 360°. Calculate perimeters of sectors.
3-Jun	A	ST2	
10-Jun	B	ST2	
17-Jun	A	35 RQ	Solve & Represent Inequalities (3) <u>Learning Outcomes:</u> GW: Know that inequalities have a range of values for which they are true BI: Know how to solve inequalities including fractions and brackets EW: Know how to solve inequalities with negative coefficients of x
24-Jun	B	36	EBI Response Select 3 topics identified from ST1 analysis as areas for improvement.
1-Jul	A	37	Scatter Graphs (3) <u>Learning Outcomes:</u> GW: Know that stem-and-leaf diagrams represent values by the position of the 'leaf' and its value. Know how to plot bivariate data. BI: Know how to interpret back-to-back stem and leaf diagrams. Know how to interpret scatter graphs. EW: Know the limits of scatter graphs with regards to causation and extrapolation.
8-Jul	B	38	Prime Factor Form (3) <u>Learning Outcomes:</u> GW: Know that every natural number has a unique prime factor form BI: Know how to write a number as a product of its prime factors EW: Know how to identify factors from the prime factor form
15-Jul	A	39 RQ	Proportion Graphs (4) <u>Learning Outcomes:</u> GW: Know that direct proportion graphs are straight lines that intersect the origin BI: Know how to calculate the rate of change from a graph EW: Know how the effect of a translation in the y direction affects a direct proportion graph.

* Bank Holidays

Overview of Year 9	
Based on your Flight Path (E.g. Targets 1L – 4L)	By the end of Year 8, students will have learned
GW: (E.g. Grade 1)	Details of what content students should have learned; skills acquired; connections they might within and across subject(s). E.g. Students can demonstrate ...
BI: (E.g. Grades 2-3M)	Students can recognise
EW: (E.g. Grades 3U-4L)	Students can understand information from a variety

Prompt Questions

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Please revisit the prompts from last year:

- What are the Key concepts for this unit?
- How will it link to wider disciplinary knowledge/cultural capital: history, culture, authentic artefacts, music, art, literature?
- How does it build on prior knowledge and link to other units, concepts, years, GCSE?
- What is it intended students will have learned?
 - For each Unit? By the end of the Year?
 - GW: ; BI: ; EW
- Is it worth summarising in a knowledge organiser?
- **Assessment: how do you know they have learned the foundational concepts, curriculum and wider disciplinary knowledge? Does assessment look like GCSE light? Should it?**
- Skills used/learned
- Tier 2/3 vocabulary ((Etymology e.g. of Greek/Latin)