Garibaldi School
Year 9 Overview
Scheme of Learning

2025-2026 teaching

THE GARIBALDI SCHOOL

PRIDE • RESPECT • ACHIEVE

The Year 9 Scheme of Learning has been designed to ensure that our students build upon the mathematical knowledge acquired at Key Stage 2, and continue to develop fluency, reasoning and problem solving through Key Stage 3.

The Maths team have ensured that the order of learning is **progressive and logical**, and continues to develop deeper understanding through careful **interleaving of content**.

We strive to increase our students love and enthusiasm for maths, and improve understanding of real-world applications, through a series of lessons focused on '**Personal Finance**', which are:

HT1 - Bank accounts & bank cards
HT2 - Debt
HT3 - Wages & deductions
HT4 - Household Budgeting
HT5 - Renting versus Mortgages
HT6 - First Car

	Term 1			Term 2	
Autumn	Number			Number	
	Use of number systems	Fractional reasoning	Application of percentages	Application of numbers	Application of compound measures
Spring	Algebra			Geometry	
	Algebraic manipulation	Interpret and use graphs		Working with angles	Application of shape and space
Summer	Number	Geometry		Probability	Data
	Surds	Pythagoras and trigonometry		Working with Probability	Displaying data

Year 9 Scheme of Learning 2025/26

THE GARIBALDI SCHOOL

Autumn 1

Half Term 1

Number

1. Use of Number Systems

Understanding Number Systems	Be able to work with place value. Order and compare. Identify Inequality symbols & represent inequalities on number lines. Be able to add/subtract/multiply and divide integers and decimals. (Include Bank Statements)
Rounding & truncating	Be able to round to 10,100,1000. Be able to round to a given Decimal Place . Simplify numbers using truncation by 'cutting off' one or more digits.
Sig Figs	Be able to round to various significant figures using integers and decimals.
Estimation	Estimate answers to calculations given a rule. Check answers to calculations by rounding. Estimate using 1 sig fig. apply to other topics such as area/perimeter/money.
Error Intervals	Write error intervals given an accuracy of rounding. Work with money.
Upper and Lower Bounds	Find Max and Min value for rounding. Find upper and lower bounds dependant on context. Involve compound measures.
Recurring decimals	Can identify if a fraction is a recurring decimal or not.
Converting recurring Decimals	Understand recurring notation & be able to write recurring decimals in fractions. Use algebra and add and subtract recurring decimals and write in simplest form.
Iteration and Trial & improvement	Use iterative formulae to identify the next value, or to find approximate solutions to equations. Use trial and improvement to find approximate solutions to equations.

2. Fractional Reasoning

Fraction of an amount	Find a fraction of an amount. Fractions of amounts where there is an improper fraction. Mixed numbers of an amount. Comparing fractions of amounts. Problems involving fractional increase/decrease.
Fraction Operations	Convert between mixed and improper fractions and understand terminology. Addition and subtraction of fractions with same denominator and different denominator. Multiply and Divide Fractions.
Mixed Number Fraction Operations	Be able to add/subtract/multiply and divide mixed numbers as calculations in context.
Reverse Fractions	Finding the original given the fraction. Finding a fraction given another fraction

3. Application of Percentages

FDP	Be able to work fluently with Decimals, Percentages and Fractions. Order FDP. Work out quantities using FDP.
Percentages of amounts (Increase & Decrease)	Be able to represent percentages in diagrams. Find Fractions of amount using non calc & Calc methods. Percentage Inc/Dec by finding the amount and adding or subtracting.
Percentage Change	Be able to work out the quantity as a percentage of another. Be able to work out percentage change both increase and decrease given two quantities.
Reverse Percentage	Be able to find the whole given the final or given the part. Example:- Increase by 20%, new amount is 500. Find the original amount.
Simple /Compound Interest	Understand how to formulate the compound interest formula. Work out final values and interest gained. Reason with which option is best and also identify how many years an investment is needed to make a certain quantity.
Depreciation	Depreciation with compound percentage loss. Problems involving depreciation and compound interest by fractional amounts.
More complex problems involving percentages.	Application and extension of above

RWM: Bank accounts & bank cards

Autumn 2

Half Term 2

Number

4. Application of Number

Types of Number	Be able to recognize multiples, factors, square and cube numbers, prime numbers, powers and roots. Fully understand terminology.
Function Machines	Be able to work out inputs and outputs of a functions machine. Work out missing operations given a function machine. Work with algebraic expressions as input or output of a function machine.
Indices Rules	Be able to understand what happens to indices when multiplying or dividing with common base. Simplifying algebraic and numerical base expressions with powers.
Order of Operations	Develop full understanding of the order of operations and not simply following BIDMAS. BIDMAS should be a recall tool not a rule to be learnt and followed.
Product of Primes	Be able to find the product of primes by using non-calculator and calculator methods. Be able to check a solution and justify if it is correct. Be able to work with product of primes to find factors and problem solve.
HCF / LCM	Understand the difference between HCF and LCM. Be able to find both HCF and LCM with and without finding product of primes and understand when it is most efficient to use a Venn to find solutions.
Standard Form (Simplifying)	Understand what standard form means and be able to check and correct answers. Be able to convert big and small numbers into standards form. Be able to write standard form solutions into written numbers. Ensure students can work with standard form both with and without a calculator.
Standard Form Calculations	Ensure students can multiply and divide standard form using indices rules but also finding the original then putting back into standard form. Students need to understand that they can work with original numbers to add and subtract but also when they can add standard form directly (e.g. when the powers are the same), and why that works.
Fractional and Negative Indices	Be able to work with negative integer powers. Understand how fractional indices effects the base. Work with negative and fractional indices. Be able to work fluently with indices and give answers in a given form.

RWM: Debt

Autumn 2

Half Term 2

Number

5. Application of Compound Measures

Ratio Recap	Simplify ratio and split into a given ratio. Convert ratio to fraction and percentage. Work with ratio given a part. Work with ratio given a difference. Write in the form 1:n.
Best Buy	Find unit pricing. Compare best buy problems involving fractions and percentage discounts. Work out the best value to a given amount.
Recipes	Be able to find the proportion for 1. Be able to use non-calculator methods to build up to an amount. Use proportion to find any given amount needed to make a quantity. Find limiting factors to a given recipe.
Limiting Factor Ratio	Work with ratio to find factors that will limit a solution.
Three Way Ratio	Be able to combine two or more ratios into one. EXAMPLE - A:B = 3:4 and A:C = 2:3 Write in the form A:B:C Work with ratio problems involving two or more ratio quantities.
Conversion Graphs	Be able to plot quantities on a conversion graph. Identify values from a conversion graph. Extrapolate to find values not on a conversion graph. Make comparisons using a conversion graph.
SDT / Distance Time Graph	Understanding of speed units. Work with SDT fluently. Be able to identify movement and speed from a Distance time graph. Be able to calculate speed from a distance time graph.
SUVAT	Be able to substitute values into the SUVAT formulae to solve problems, including problems involving two different formulae.
DMV	Understand units of density. Fluently work with DMV in simple context. Work with DMV when the volume might need to be found from a shape. DMV problems when more than one material is compared and worked with.
Before and After Ratio	Working with ratio when a before after model is presented and to be able to understand what has changed in order to find values and solutions to problems.
Direct and Indirect Proportion (Algebraic)	Use of proportionality symbol. Understand the difference between direct and indirect. Be able to find the constant value and form equations involving proportionality. Use a given proportion equation to find unknowns. Be able to identify graphs of proportionality.
Velocity Time Graphs	Understand that velocity and speed are the same. Know the difference between distance-time graphs and velocity-time graphs. Understand how to find the acceleration form a velocity time graph and the units for acceleration. Find distance and determine if it is an underestimate or overestimate. Use total distance and total time to find the average speed (Velocity).

RWM: Debt

Spring 1

Half Term 3

Algebra

6. Algebraic Manipulation

Algebraic Manipulation	Be able to form expressions. Use 4 operations with algebra. Form algebraic expressions given information. Begin working with inequalities.
Expanding and Factorising Linear	Expand single brackets. Expand and simplify expressions with single brackets. Factorise linear expressions. Interleave with perimeter, area etc.
Solving Equations unknown on one side	Be able to solve one step equations involving all operations. Be able to solve two step equations with unknown on either side. Be able to solve fractional equations involving one variable on one side. Ensure method is used to solve inequalities.
Forming and Solving Equations	Be able to form expressions and equations from both worded and geometric problems. Include angle problems, perimeter, area etc. Work with money in context. Change the subject for basic 1 and 2 step equations.
Expanding	Expand double brackets in the form $(x \pm a)(x \pm b)$ Also include with coefficient of x in the bracket.
Substitution into Formula	Substitution into a formula to be able to find any variable. EXAMPLE: Celsius to Fahrenheit conversion formula, cost formula, cooking time formula, medicine directions formula etc. INTERLEAVE WITH SUVAT FORMULAE.
Factorise Quadratics	Be able to factorise quadratic into two brackets and also solve for when = 0. Understand that solutions are called the roots.
Solving with unknown on both sides	Solve algebraic equations involving unknown on both sides. Elimination of smallest unknown is preferred method. Ensure method is used for solving inequalities.
Simplifying Algebraic Fractions	Simplifying algebraic fractions with numerical denominators.
Simplify Algebraic Fractions	Simplifying fractions involving factorising of algebra. Simplifying fractions with algebraic denominators.
Solving Algebraic Fractions (Linear)	Solve Linear algebraic Fractions. Interleave with probability, SDT, DMV, Mean, Reverse Mean etc.
Expanding Triple Brackets	Expanding triple brackets in any form.

RWM: Wages & deductions

Spring 1

Half Term 3

Algebra

7. Interpret and Use Graphs

Drawing Linear graphs	Be able to use a table of values to draw linear equations in all forms. E.g. y = ±ax ± b and ±ax ± by = ±c Drawing linear graphs by finding 3 points. Evaluating if a given point is on a line.
Y=Mx+C	Given an equation of the form y = mx+c be able to identify the gradient and y-intercept. Given an equation not in the form y = mx+c, be able to rearrange and find the gradient and y-intercept. Given a line, be able to write the equation in the form y = mx+c and state the gradient and y-intercept. Extend where appropriate to find the equation of a line given two points.
Drawing Quadratic /Cubic graphs	Recognise and draw quadratic graphs given a table of values, and can identify roots, turning points and the line of symmetry. Recognize ad draw cubic graphs from a t.o.v.
Parallel lines	Be able to identify parallel lines based off the gradient, and know that parallel lines have the same gradient. Can evaluate the equation of lines that are parallel to each other.
Reciprocal graphs	Be able to recognise the features of a reciprocal graph, and can sketch a reciprocal graph.
Perpendicular Lines	Be able to identify perpendicular lines based off the gradient. Perpendicular = NEGATIVE RECIPROCAL gradient Be able to evaluate and find lines that are perpendicular to others.
Equation of Tangent to Circle	Use knowledge of equation of circle, circle theorems (tangent meets radius at 90 degrees hence perpendicular) and gradient to find the equation of tangents to circles in the form y=mx+c. Use the equation of the line to find intersection points on the x and y axis.
Graphical Inequalities	Be able to draw straight lines with inequalities. Understand how to represent the different inequality symbols. E.g. bold for 'and equal to' ≤ and ≥ , dashed for > and < 'not equal to'. Plot and recognize the acceptable region available and clearly show to the examiner.
Graph Transformations	Familiarise students with the changes that occur for graph transformations, following a translation or a reflection (only). Be able to determine how a graph changes based of the transformation and also be able to determine the changed equation if given a transformation.

RWM: Wages & deductions

Spring 2

Half Term 4

Geometry

8. Working with Angles

Angle Properties	Understand that an angle measures turn and isn't affected by line size. Know the different types of angles and descriptors. Identify angle type and write using angle notation.
Angles around Point on a line	Know that angles around a point add to 360°. Be able calculate angles around a point.
Angles in Triangles	Know that angles in a triangle add to 180. Be able to work out interior and exterior angles of triangles with missing angles. Use triangles to prove that angles in a any quadrilateral add to 360. Use ratio, fraction of amount and algebra to find missing angle values.
Angles on parallel Lines	Know the difference between two parallel lines and the transversal. Be confident that for a set of parallel lines and a transversal: all acute angles, and all obtuse angles, are equal. Know the correct terminology and types of angles in parallel lines. Be able to use parallel line facts to find missing angles. Incorporate algebra into questions to solve.
Exterior / Interior Angles in Polygons	Be able to recall that exterior angles of polygons are given by 360 ÷ number of sides. EXT + INT = 180. Sum of angles in a polygon given by 180(n-2) Use all the above facts to find missing values in regular polygon questions.
Bearings	Be able to identify bearing from a given point by knowing it must be 3 digits, from north and clockwise. Use parallel line rules to find missing bearings. Use bearings to draw on maps and find missing locations.
Circle Theorems	Start to explore and investigate circle theorems: 1) Isosceles triangle in a circle 2) Triangle in a semi-circle is a right-angled triangle. 3) Angle at the centre twice that of angle at circumference. 4) Cyclic quadrilateral in a circle.

RWM: Household budgeting

Spring 2

Half Term 4

Geometry

9. Application of Space and Shape

Basic Perimeter, Area	Be able to find perimeter and area of basic 2D shapes, including squares, rectangles, parallelograms, triangles, trapezium. Find missing lengths given the area. Work in real life context with area and perimeter. Calculate perimeter and area of compound shapes.
Area and circumference of circles	Be able to label and identify parts of a circle. Use formula to find the area and circumference of circles. Area of semi circles and quarters. Perimeter of semi circles and quarters. Be able to write answer in terms of π.n Find the radius/diameter given the area or circumference.
Surface area and Volume	Be able to find the surface area of basic 3D shapes. Be able to work with surface area in real life context. Find volume of cuboids and cubes. Find the volume of prisms. Work with volume in real life context. Find lengths given the surface area or volume.
Arc and Sectors	understand how to work with sectors to find area and arc lengths. Simple use of proportion of a full circle to be able to evaluate in terms of π. Be able to work fluently to find the area/arc, radius/diameter.
Cones , Sphere's and Pyramids	Be able to work out the volume of cones, spheres and pyramids given the formula. Be able to work and simplify fully in terms of π. Work with real life contexts.
Surface Area more Complex	Work with surface area in more complex scenarios. Interleave ratio, fraction of amount, percentage etc.
Volume more Complex	Working with volume in more complex scenarios. Use of time and rate of flow. Interleave ratio, fraction of amount, percentage etc.
Frustums	Use of scale factor to find missing lengths. Understand that a frustum is what is left from a cone. Be able to work in terms of π. Work in real life context and use of rate of flow.

RWM: Household budgeting

Summer 1

Half Term 5

Angles and Number

10. Surds (higher test only)

Surds – introduction to the basics	Can recognise surds/non-surds. Can simplify surds.
Surds – calculations	Can multiply, divide surds. Expand brackets and simplify surds. Add and subtract surds.
Rationalise the denominator	Can rationalise the denominator.
Surds – more complex	Extend to calculations involving areas of rectangles and triangles.

RWM: Renting versus Mortgages

Summer 1

Half Term 5

Geometry

11. Pythagoras and Trigonometry

Pythagoras	Be able to determine if Pythagoras can be used. Find any missing length of a right-angled triangle given the other two lengths. Extend to functional style questions.
Trigonometry Lengths (basic)	Accurately label a right-angled triangle with H, A and O Develop a method of using trigonometry SOH CAH TOA to identify and evaluate the correct trigonometric ratio. Rearrange and apply the trigonometric ratio to find the given length.
Trigonometry Angles (basic)	Accurately label a right-angled triangle with H, A and O Develop a method of using trigonometry SOH CAH TOA to identify and evaluate the correct trigonometric ratio. Rearrange and apply the trigonometric ratio to find the given angle.
Trigonometry (functional)	Calculate missing sides or angles in right-angled triangles using SOHCAHTOA in non-routine/functional style questions.
Exact Values	Know and recall exact trigonometric values for Sin, Cos and Tan for all the following: 0˚, 30˚, 45˚, 60˚ and 90˚.
Sine Rule	Understand that Sine rule can be used on any triangle with a matching pair of angle and opposite side length. Be able to recall Sine rule and understand how to best use the formula based on finding an angle or length. Apply the formula to find lengths and angles. Apply in routine and non-routine questions.
Cosine Rule	Understand that Cosine rule can be used on any triangle with an angle sandwich (angle and two adjacent lengths). Be able to recall Cosine rule and understand how to best use the formula based on finding an angle or length. Apply the formula to find lengths and angles. Apply in routine and non-routine.
Area Formula	Use and apply Area formula for any triangle. 1/2abSinC Formula must be recalled by students. Be able to label accurately and use the area formula in routine and non-routine problems to find, area, as well as work backwards to find sides or angle.
Exact trig values	Extend to more complex calculations involving exact trig values and proofs.

RWM: Renting versus Mortgages

Summer 2

Half Term 6

Probability

12. Working with Probability

Probability of events	Be able to write probabilities of events as fractions, decimals and percentages. Probability of basic events like rolling a dice or number problems.
Probability adding to 1	Understanding that probability adds to 1. Represent probabilities using fractions, decimals and percentages. Find missing values from probabilities presented in a table. Find probabilities of events given others EXAMPLE: P(win) = 0.2 P(Lose) = 0.7 find the P(draw). Use probability notation.
Sample Space Diagrams	Be able to use a set of instructions to complete a sample space diagram. Interpret sample space diagrams given some parameters. Be able to scale the probability to any number of trials/frequencies to estimate probability.
Combinations, Listing Outcomes	Use listing strategies to find total number of combinations for a given problem. Write a probability given the listed outcomes. Find total number of outcome possibilities.
Frequency Trees	Be able to understand and use a frequency tree. Find missing numbers based on information given. Problems involving ratio and fraction of amount. Using algebra or ratio where two things are missing EXAMPLE: the number of boys is 3 times the number of girls. So B:G = 3:1 or B = 3x and G = x to solve. Using a frequency tree to work with a wider problem. Use frequency trees to state probabilities.
Venn Diagrams	Given information find missing areas of a Venn diagram. Be able to use a Venn diagram to find probabilities. Understand Set Notation.
Tree Diagrams	Using a tree diagram to represent outcomes of events. Be able to use decimals and fraction probabilities. Understand that each branch adds to 1. Work out probabilities by multiplying given outcomes. Work with independent and very basic dependent questions. Understand the difference between frequency and probability trees.
Experimental Prob.	Understand that the more trials the more accurate the probability. Use experimental probability to scale to find estimates.
Relative Frequency	Work out the relative frequency based off number of times the outcome has arisen over total trials. Use probabilities to find estimate outcomes for a set number of trials/attempts.
Product Rule for Counting	Understand and use the product rule for counting. Interpret information to be able to apply the product rule in various contexts. EXAMPLE: padlock codes, menu options, number problems etc. Be able to find probabilities of events using product rule.
Conditional Probability	Working with fractions and decimals to be able to work out probabilities that are conditional. The 1st outcome effects the 2nd probability etc.
Probability with Algebra	Be able to construct probabilities using algebra and hence solve to find accurate solutions using algebraic fractions.

RWM: First Car

Summer 2

Half Term 6

Data

13. Displaying Data

Discrete Representations	Understand discrete representations of data including: Tally Charts. Pictograms. Bar Charts (single, dual and composite) Line graphs. Be fluent in drawing and interpreting.
MMMR	Basic understanding of the averages; Mean, Median and Mode. Understanding that range is a statistical measure but not an average. Evaluate which average is most appropriate. Be able to find missing values given the MMMR. Be able to work out new mean dependent on new data or changing data. Understand how changes affect the MMMR.
Scatter Graphs	Understand the difference between describing the relationship and stating the correlation. Know the three correlations and how to determine the strength of the correlation. Be able to plot values and identify outliers. Accurately draw and use a line of best fit for interpolation. Understand why extrapolation can not be used with a scatter graph.
Mean from Table	Calculate mean from discrete and continuous tables. Understand how to find the MMMR from discrete and continuous tables. Using midpoint to find an estimated mean. Be able to find missing frequencies given the mean/ estimated mean. Understand the impact when the group sizes are reduced.
Pie Charts	Understand pie charts are a representation of proportion. Finding scale factor and drawing pie charts when quantity is below and above 360. Interpreting pie charts given a part or difference using angle proportion. Comparing pie charts based on proportion not quantity.
Comparing Statistics	Be able to choose and explain which statistic gives you the best information given a set of data. (This changes depending on data given). Compare a set of MMMR and answer in context to the question.
Cumulative Frequency	Draw cumulative frequency diagrams and be able to interpret to answer questions based on quantity, proportion or percentage. Be able to argue or justify a given statement using a cumulative frequency curve.
Box Plots / IQR	Find IQR and draw box plots from a cumulative frequency curve or a set of data. Understand what percentage of the data is in the IQR and why it is good to use. (Middle 50% and removes outliers) Interpret box plots and be able to correct. Interpret and compare box plots using the median and IQR.
Histograms	Understand the reasoning for using a histogram. Be able to find the frequency density given data. Draw a histogram given a scale and without. Be able to find the scale from a histogram and information. Interpret histograms based on quantity, proportion and percentage.

RWM: First Car