



Garibaldi School Year 7 Overview Schemes of Learning

2024-2025 teaching

About this Scheme of Learning

This Year 7 Scheme of Learning has been carefully put together to ensure that our students 'hit the ground running' from their transition from Key Stage 2 through to Key Stage 3.

The maths team have ordered the same to ensure it is progressive and logical, and continues to build on knowledge acquired at KS2, in addition to delving deeper into reasoning and problem solving through our 'Bowland' problem solving lessons. Further, we aim to increase our students love and enthusiasm for 'real-life' applications of maths through the delivery of our suite of 'Real-world maths' lessons.

Our teachers will build on prior learning, by interleaving content, in order to help students consolidate topics and aid retention.

Any statutory Key Stage 2 content within this Scheme of Learning is shown by the red border around the topic list.

We are proud of our ambitious curriculum offering, which goes beyond the specification, in it's inclusion of the 'Bowland' problem solving lessons, which are carried out twice each half-term. These help increase student resilience, oracy and confidence in speaking to the rest of the class, along with giving students the opportunity to do extended written tasks in mathematics. We also offer 'Real-world maths' lessons to furnish our students with the essential maths knowledge they need in everyday life, both now, and beyond their school years.



PRIDE • RESPECT • ACHIEVE

	Term 1			Term 2	
Autumn	Reasoning With Number	Application of Number			
	Place Value and Rounding	Addition and Subtraction	Multiplication and Division	Types of Number	Geometric application of number
Spring	Fractional Thinking		Percentages	2D Geometric Reasoning	
	Understanding Fractions	Fractional Operations	Percentages – calculate with	Shape Properties	Working with angles
Summer	Understanding Data	Understanding Algebra			End of Year Assessment
	Representing Data	Expressions		Equations	Revise, Assess and Improve

Reasoning With Number

1. Place Value & Rounding

<u>Writing Numbers</u>	Fluency between numbers and words.
<u>Ordering Numbers</u>	Order integers, decimals, negatives & identify missing numbers in a sequence. Represent numbers on a number line.
<u>Representing Inequalities</u>	Draw an inequality on a number line and be able to write an inequality from a number line. Use the symbols $=, <, >, \geq, \leq$
<u>Rounding Place Value</u>	Rounding with integers and decimals to a given accuracy. 10, 100, 1000 and decimal places.
<u>Significant Figures</u>	Identify a numbers given Significant Figures & round to a specified Significant Figure. Use approximation through rounding to 1 sig fig to complete calculations.
<u>Error Intervals</u>	Writing error intervals based off rounding accuracy. Challenge understanding by using money problems.

Application of number

2. Addition & Subtraction

Integers & Decimals	Addition & Subtraction of integers & decimals. Recognise and use relationships between addition and subtraction including inverse operations
Negatives	Evaluate Addition & Subtraction of negative numbers.
Time	Read and write the time. Calculate with time in varying scenarios. Read and understand bus/train timetables.
Perimeter	Understand that perimeter is distance. Calculate and solve problems involving perimeter.
Bank Statements	Understand the process of bank accounts and how credit are debit are calculated. Apply to real-life scenarios and extend to profit and loss.
Upper and lower Bounds for + and -	Calculate the upper and lower bounds involving addition and subtraction. Apply and extend to real-life scenarios including money.

3. Multiplication & Division

Integer Multiplication	Promote fluency of basic multiplication facts and inverse operations. Multiply two digit numbers and above by various methods including Column & Grid.
Integer Division	Divide integers using multiplication facts, chunking and long division methods.
Powers of 10	Multiply and divide any integer and decimal by 10, 100, 1000 and beyond.
Decimal Multiplication	Multiply any decimal number by an integer or decimal. Include electric bills etc
Decimal Division	Divide any decimal numbers. Manipulate a calculation fact to satisfy a similar calculation E.g $2 \times 4 = 8$ what is 0.02×0.4 ?
Negative Numbers	Multiply and Divide with negative integers and decimals.
Upper and Lower Bounds for x and /	Complete the upper and Lower Bounds for Multiplication and Division Calculations.

Bowland lessons (wk 3 and 6)*Counting Tree's and Taxi Cabs***Real-world maths lesson***Wages*

Year 7 Autumn Term 1

Application of Number

4. Types of Number

Types of Number	Understand and recognise types of number such as square, Triangle, Cube, Odd, Even and Prime. Solve problems with types of number to satisfy given criteria.
Function Machines	Use and identify function machines including inverse operations.
Order of Operations	Understand the order of operations using BIDMAS.
Product of Primes	Write values as a product of their Prime factors and in Index Form.
HCF & LCM	Use Listing strategies, Venn Diagrams and other methods.
Powers and Roots	Use integer powers and associated real roots, recognise powers of 2, 3, 4 and 5.
Reciprocals	Write reciprocals of integers and fractions, and extend to links with perpendicular lines and the negative reciprocal
Indices Rules	Recognise and understand rules of indices with numerical base values, include positive and negative powers.
Standard Form	Write numbers in & out of SF. Calculate with SF using all four operations.
Surds	Multiplying Surds and Simplify

5. Geometric application of number

Area of Rectangles	Understand that area is the amount of square units. Calculate the area of rectangles with and without a grid. Find lengths given the area.
Area of a Parallelogram	Calculate the area of a parallelogram and understand the link to rectangles and square units. Find lengths given the area.
Area of a Triangle	Calculate the area of different types of triangles and link to rectangles and square units. Find lengths given the area.
Compound Shapes	Calculate the area of compound shapes made from rectangles, triangles and parallelograms. Find lengths given the area.
Surface Area	Calculate the Surface Area of 3D Shapes containing faces including rectangles, triangles and parallelograms. Calculate the surface area when given the net.
Area of a Trapezium	Calculate the area of a trapezium and find missing lengths given the area.
Upper & Lower Bounds	Calculate the Upper and Lower Bounds in area contexts involving squares, rectangles, triangles parallelograms and trapeziums.

Bowland lessons (wk 3 and 6)*Youth Hostel and Speedy Santa***Real-world maths lesson***Cost of Xmas Party*

Term 3					
Fractional Thinking		Fractional Thinking		Percentages	
6. Understanding Fractions		7. Fractional Operations		8. Percentages – calculate with	
Representing Fractions	Draw fractions in different contexts e.g counters, bars etc. Represent Fractions on number lines.	Addition & Subtraction of Fractions	Add and subtract fractions when the denominators are the same or different.	Understanding Percentages	Define percentage as 'number of parts per hundred' and understand that amounts can be represented as more or less than 100%.
Expressing a fraction as a quantity of another	Understand why the denominator & Numerator is represented by its particular value. Use Real life contexts like money.	Multiplication between integer and Fraction	Multiply integers and fractions. Emphasise Commutivity. Show Pictorial representations to introduce.	FDP	Convert freely between fractions, decimals and percentages. Order Fractions, Decimals and Percentages.
Equivalent Fractions	Find equivalent fractions including simplifying.	Multiplication of Fraction & Fraction	Multiply Fractions by fractions.	Expressing quantities %s	Write amounts as a percentage of the whole including those over 100%
Compare and order Fractions	Compare fractions by finding common denominators.	Division of Integer & Fraction	Divide integers by fractions.	Comparing two Percentages	Compare two or more quantities as percentages when their wholes are different amounts.
Fraction of an amount	Calculate a fraction of an amount by pictorial representation of fractional parts.	Division of Fraction & Fraction	Divide Fraction By Fraction.	Percentage of an amount	Calculate percentages of amounts with both mental and calculator skills and knowledge. Understand the decimal multiplier and why this works.
Fractional Increase & Decrease	Calculate fractional increase and decrease of amounts. Discuss about the new amount being less or more than the original whole.	Mixed Number Operations	Be able to use all 4 operations with mixed numbers	Percentage Increase/ Decrease	Calculate percentage increase/decrease with both mental and calculator skills and knowledge. Understand the decimal multiplier and why this works.
Convert between Mixed and Improper Fractions	Understand Pictorially how to convert between mixed and improper before allowing students to generalise a more efficient rule.	Problem Solving with Fractional Operations	SAME AS ABOVE	Simple Interest	Calculate simple interest using mental and calculator methods in context.
Reverse Fraction	Calculate the whole when given part of a fraction or when given the answer after a fractional change.			Reverse Percentage	Calculate the original amount after a percentage change. Ensure that this is both after an increase or a decrease. Use both proportionality methods and inverse.
				Percentage Change	Be able to work out the percentage change by comparing two quantities
				Compound Interest	Calculate compound interest with the decimal multiplier and understand why it is compounded.

<u>Bowland lessons (wk 3 and 5)</u>	<i>Mobile Phones and Security Cameras</i>
<u>Real-world maths lesson</u>	<i>Build a Farm</i>

Year 7 Spring Term 1

2D Geometric Reasoning

9. Shape Properties

2D Shapes	Recognise, name and describe all 2D Shapes by their properties including circles.
Types of Triangles	Recognise Scalene, Isosceles, Right-Angled and Equilateral Triangles & their properties. Describe and sketch triangles.
Types of Quadrilaterals	Recognise, describe and sketch all the types of quadrilaterals and understand their different properties.
Working with Coordinates	Be able to read and plot co-ordinates in all 4 quadrants. Find Mid-points of co-ordinates and identify coordinates that satisfy shape properties.
Parallel & Perpendicular Lines	Identify Parallel & perpendicular lines in shapes and sketch these with correct notation.
Lines of Symmetry	Identify lines of symmetry in any shape and justify what properties of shapes allow/negate symmetry. Complete diagrams for given symmetry.
Rotational Symmetry	Identify the order of rotational symmetry for any polygon. Complete diagrams for given order of rotational symmetry.

2D Geometric Reasoning

10. Working with Angles

Measuring Angles	Draw and measure angles accurately including past 180
Angle Notation	Understand the different representations of labelling angle notation .
Constructing Shapes	Construct shapes using a straight edge and protractor.
Angles around a point	Calculate missing angles around a point.
Angles at a point on a line	Calculate missing angles at a point or on a straight line.
Vertically opposite Angles	Understand that vertically opposite angles are equal and distinguish if and when they are vertically opposite.
Angles in Triangles	Calculate missing angles in triangles and that are exterior to the triangle. Solve compound triangle problems.
Angles in a Quadrilateral	Calculate interior and exterior angles in a quadrilateral. Solve problems using the properties of special quadrilaterals.
Exterior and Interior angles in Polygons	Calculate the interior and exterior angles of any polygon. Solve problems involving compound shapes.
Bearings	Measure and draw bearings.

Bowland lessons (wk 3 and 6)

Ice Creams and 110 Years on

Real-world maths lesson

Hair Salon

11. Understanding Data: Representing Data

Bar & Line charts	Design and complete/interpret bar and line charts.
Pictograms	Design, interpret and critique pictograms. Calculate totals, missing keys, complete missing diagrams.
Pie charts	Design and complete/interpret pie charts. Be able to scale from a total less or more than 360.
Mean	Calculate mean from a list of numbers. Compare data sets from the mean and understand how mean is affected when data is removed or added.
Mode, Median & Range	Calculate all averages and range from a list of numbers. Justify which average is most appropriate. Compare two or more sets of data in context.
Probability	Understand that probabilities add to 1, including tables. Understand that probabilities can be written as a fraction, decimal or percentage.
Sample Space Diagrams	Design, complete and interpret sample space diagrams. Calculate probabilities from these.
Frequency Trees	Use and interpret frequency trees as a way to organise number problems. Link to two-way tables.
Reverse Mean	Calculate a missing value when mean is given or has been changed.
Venn Diagrams	Understand how to organise data into a Venn diagram and calculate probabilities from this. Use set notation.

12. Understanding Algebra: Expressions

Algebraic Notation	Understand that a letter represents a variable. Understand the difference between an expression, equation, formula, term, function and identity.
Simplifying/collecting like terms	Know how to simplify expressions by collecting like terms, and simplify by multiplication.
Forming Expressions (Worted)	Form expressions from words. Function Machines. No Solving.
Forming Expressions with Geometry	Form Expressions involving angles, perimeter and area. No Solving or involving brackets.
Substitution	Substitute positive and negative integers and decimals into expressions and formulae. Use varying types of formulae e.g. SDT, DMV
Expanding Single Brackets	Expand single brackets with a number and/or letter. Include fraction s, decimals, perimeter and area.
Expanding and simplifying Single Brackets	Expand and simplify when adding or subtracting two brackets. Include fractions, decimals, perimeter and area.
Expanding Double Brackets	Expand and simplify double brackets when the coefficient of x is 1 or greater. Include Fractions, Decimals , perimeter and area.
Expanding Triple Brackets	Expand and simplify triple brackets when the coefficient of x is 1 or greater. Include fractions and decimals.

Bowland lessons (wk 3 and 6)*Tuck Shop and Olympic Cycling***Real-world maths lesson***Planning a Family Holiday*

Term 6			
Understanding Algebra <i>Expressions (continued)</i>	Understanding Algebra <u>13. Equations</u>	Revise/Assess/Improve	
<div>Complete any of the topics not covered in Half-Term 5/ revisit RAG documents in Red Assessment books</div>	Solve one-step Equations/ inequalities	Solve Equations and Inequalities with an unknown on one side. Ensure that the unknown appears on either side of the equation. Link to angles, perimeter and area.	
	Solve Two-Step Equations/ inequalities	Solve equations and inequalities with an unknown on one side. Ensure that the unknown appears on either side of the equation. Link to angles, perimeter and area.	
	Solving Equations with Brackets/ inequalities	Solve equations and inequalities with single brackets. Ensure that the bracket appears on either side of the equation. Link to angles, perimeter and area.	
	Solving Equations with Variables on both sides	Solve Equations and inequalities with an unknown on both sides. Ensure that the highest value unknown appears on either side of the equation. Link to Angles, perimeter and area.	
<u>Bowland lessons (wk 3 and 6)</u>	Hilbre Island and Lottery		
<u>Real-world maths lesson</u>	Summer Fayre		