Garibaldi School Year 7 Overview Schemes of Learning 2022-2023 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 'Life Skills' 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 'Life Skills' lessons to furnish our students with the essential maths knowledge they need in everyday life, both now, and beyond their school years.

THE GARIBALDI SCHOOL

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

Year 7 Scheme of Learning 2022/23

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Term 1

Reasoning With Number	Application of number	
1. Place Value & Rounding	**2. Addition & Subtraction**	**3. Multiplication & Division**

Autumn 1

1. Place Value & Rounding

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

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 x 4 = 8 what is 0.02 x 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_
Life Skills lessons (wk 2, 4 & 5)	_Wages, Household Bills, 'Mobile Phone Deals'_

Year 7 Autumn Term 1

THE GARIBALDI SCHOOL

Term 2		
Application of Number		

<table>
<tr><th colspan="2">4. Types of Number</th><th colspan="2">5. Geometric application of number</th></tr>
<tr>
<td>Types of Number</td>
<td>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.</td>
<td>Area of Rectangles</td>
<td>Understand that area is the amount of square units. Calculate the area of rectangles with and without a grid. Find lengths given the area.</td>
</tr>
<tr>
<td>Function Machines</td>
<td>Use and identify function machines including inverse operations.</td>
<td>Area of a Parallelogram</td>
<td>Calculate the area of a parallelogram and understand the link to rectangles and square units. Find lengths given the area.</td>
</tr>
<tr>
<td>Order of Operations</td>
<td>Understand the order of operations using BIDMAS.</td>
<td>Area of a Triangle</td>
<td>Calculate the area of different types of triangles and link to rectangles and square units. Find lengths given the area.</td>
</tr>
<tr>
<td>Product of Primes</td>
<td>Write values as a product of their Prime factors and in Index Form.</td>
<td>Compound Shapes</td>
<td>Calculate the area of compound shapes made from rectangles, triangles and parallelograms. Find lengths given the area.</td>
</tr>
<tr>
<td>HCF & LCM</td>
<td>Use Listing strategies, Venn Diagrams and other methods.</td>
<td rowspan="2">Surface Area</td>
<td rowspan="2">Calculate the Surface Area of 3D Shapes containing faces including rectangles, triangles and parallelograms. Calculate the surface area when given the net.</td>
</tr>
<tr>
<td>Powers and Roots</td>
<td>Use integer powers and associated real roots, recognise powers of 2, 3, 4 and 5.</td>
</tr>
<tr>
<td>Indices Rules</td>
<td>Recognise and understand rules of indices with numerical base values, include positive and negative powers.</td>
<td>Area of a Trapezium</td>
<td>Calculate the area of a trapezium and find missing lengths given the area.</td>
</tr>
<tr>
<td>Standard Form</td>
<td>Write numbers in & out of SF. Calculate with SF using all four operations.</td>
<td rowspan="2">Upper & Lower Bounds</td>
<td rowspan="2">Calculate the Upper and Lower Bounds in area contexts involving squares, rectangles, triangles parallelograms and trapeziums.</td>
</tr>
<tr>
<td>Surds</td>
<td>Multiplying Surds and Simplify</td>
</tr>
</table>

Bowland lessons (wk 3 and 6)	*Youth Hostel and Speedy Santa*
Life Skills lessons (wk 2, 4 & 5)	*Time, Banking, 'Cost of Xmas'*

Autumn 2

THE GARIBALDI SCHOOL

Year 7 Autumn Term 2

Fractional Thinking	Fractional Thinking	Percentages
6. Understanding Fractions	**7. Fractional Operations**	**8. Percentages – calculate with**

Spring 1

6. Understanding Fractions

Representing Fractions	Draw fractions in different contexts e.g counters, bars etc. Represent Fractions on number lines.
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.
Equivalent Fractions	Find equivalent fractions including simplifying.
Compare and order Fractions	Compare fractions by finding common denominators.
Fraction of an amount	Calculate a fraction of an amount by pictorial representation of fractional parts.
Fractional Increase & Decrease	Calculate fractional increase and decrease of amounts. Discuss about the new amount being less or more than the original whole.
Convert between Mixed and Improper Fractions	Understand Pictorially how to convert between mixed and improper before allowing students to generalise a more efficient rule.
Reverse Fraction	Calculate the whole when given part of a fraction or when given the answer after a fractional change.

7. Fractional Operations

Addition & Subtraction of Fractions	Add and subtract fractions when the denominators are the same or different.
Multiplication between integer and Fraction	Multiply integers and fractions. Emphasise Commutivity. Show Pictorial representations to introduce.
Multiplication of Fraction & Fraction	Multiply Fractions by fractions.
Division of Integer & Fraction	Divide integers by fractions.
Division of Fraction & Fraction	Divide Fraction By Fraction.
Mixed Number Operations	Be able to use all 4 operations with mixed numbers
Problem Solving with Fractional Operations	SAME AS ABOVE

8. Percentages – calculate with

Understanding Percentages	Define percentage as 'number of parts per hundred' and understand that amounts can be represented as more or less than 100%.
FDP	Convert freely between fractions, decimals and percentages. Order Fractions, Decimals and Percentages.
Expressing quantities %s	Write amounts as a percentage of the whole including those over 100%
Comparing two Percentages	Compare two or more quantities as percentages when their wholes are different amounts.
Percentage of an amount	Calculate percentages of amounts with both mental and calculator skills and knowledge. Understand the decimal multiplier and why this works.
Percentage Increase/ Decrease	Calculate percentage increase/decrease with both mental and calculator skills and knowledge. Understand the decimal multiplier and why this works.
Simple Interest	Calculate simple interest using mental and calculator methods in context.
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.

**Bowland lessons (wk 3 and 5)**	_Mobile Phones and Security Cameras_
**Life Skills lessons (wk 2 & 4)**	_Recipes, 'Build a Farm'_

Year 7 Spring Term 1

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Term 4				
2D Geometric Reasoning		**2D Geometric Reasoning**		
9. Shape Properties		**10. Working with Angles**		
2D Shapes	Recognise, name and describe all 2D Shapes by their properties including circles.	Measuring Angles	Draw and measure angles accurately including past 180	
Types of Triangles	Recognise Scalene, Isosceles, Right-Angled and Equilateral Triangles & their properties. Describe and sketch triangles.	Angle Notation	Understand the different representations of labelling angle notation .	
		Constructing Shapes	Construct shapes using a straight edge and protractor.	
Types of Quadrilaterals	Recognise, describe and sketch all the types of quadrilaterals and understand their different properties.	Angles around a point	Calculate missing angles around a point.	
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.	Angles at a point on a line	Calculate missing angles at a point or on a straight line.	
Parallel & Perpendicular Lines	Identify Parallel & perpendicular lines in shapes and sketch these with correct notation.	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.	
Lines of Symmetry	Identify lines of symmetry in any shape and justify what properties of shapes allow/negate symmetry. Complete diagrams for given symmetry.	Angles in a Quadrilateral	Calculate interior and exterior angles in a quadrilateral. Solve problems using the properties of special quadrilaterals.	
Rotational Symmetry	Identify the order of rotational symmetry for any polygon. Complete diagrams for given order of rotational symmetry.	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.	

Spring 2

**Bowland lessons (wk 3 and 6)**	_Ice Creams and 110 Years on_
**Life Skills lessons (wk 2, 4 & 5)**	_Direction and Distance, Area & perimeter, 'School Sports Field'_

THE GARIBALDI SCHOOL

Year 7 Spring Term 2

11. Understanding Data: Representing Data		12. Understanding Algebra: Expressions	
Bar & Line charts	Design and complete/interpret bar and line charts.	Algebraic Notation	Understand that a letter represents a variable. Understand the difference between an expression, equation, formula, term, function and identity.
Pictograms	Design, interpret and critique pictograms. Calculate totals, missing keys, complete missing diagrams.	Simplifying/ collecting like terms	Know how to simplify expressions by collecting like terms, and simplify by multiplication.
Pie charts	Design and complete/interpret pie charts. Be able to scale from a total less or more than 360.	Forming Expressions (Worded)	Form expressions from words. Function Machines. No Solving.
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.	Forming Expressions with Geometry	Form Expressions involving angles, perimeter and area. No Solving or involving brackets.
Probability	Understand that probabilities add to 1, including tables. Understand that probabilities can be written as a fraction, decimal or percentage.	Substitution	Substitute positive and negative integers and decimals into expressions and formulae. Use varying types of formulae e.g. SDT, DMV
Sample Space Diagrams	Design, complete and interpret sample space diagrams. Calculate probabilities from these.	Expanding Single Brackets	Expand single brackets with a number and/or letter. Include fraction s, decimals, perimeter and area.
Frequency Trees	Use and interpret frequency trees as a way to organise number problems. Link to two-way tables.	Expanding and simplifying Single Brackets	Expand and simplify when adding or subtracting two brackets. Include fractions, decimals, perimeter and area.
Reverse Mean	Calculate a missing value when mean is given or has been changed.	Expanding Double Brackets	Expand and simplify double brackets when the coefficient of x is 1 or greater. Include Fractions, Decimals , perimeter and area.
Venn Diagrams	Understand how to organise data into a Venn diagram and calculate probabilities from this. Use set notation.	Expanding Triple Brackets	Expand and simplify triple brackets when the coefficient of x is 1 or greater. Include fractions and decimals.

Summer 1

**Bowland lessons (wk 3 and 6)**	_Tuck Shop and Olympic Cycling_
**Life Skills lessons (wk 2, 4 & 5)**	_Saving & Borrowing, Converting currencies, 'Family Holiday'_

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Year 7 Summer Term 1

Term 6		
Understanding Algebra	**Understanding Algebra**	**Revise/Assess/Improve**
Expressions (continued)	**13. Equations**	

Summer 2

Expressions (continued)

Complete any of the topics not covered in Half-Term 5/ revisit RAG documents in Red Assessment books

13. Equations

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.

Bowland lessons (wk 3 and 6)	*Hilbre Island and Lottery*
Life Skills lessons (wk 2 and 4)	*Best Deal, Summer Fayre*

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Year 7 Summer Term 2