

How does this unit link to prior learning?					
- Addition and Subtraction - Place Value - Long Multiplication					
Prior Knowledge Check					
1. Work out: a) $65 + 41$ b) $27 - 38$ 2. Write down the value of 5 in the following numbers: a) 57 b) 365 c) 5637 d) 24.05 3. Calculate 23×34					
What will you be learning about?			How does this link to the wider curriculum?		
- To be able to perform the 4 operations accurately, with an understanding of place value. - Use both estimation and prior calculation when achieving an answer. - Know and use key words associated with the number system.			The five British values are embedded in maths lessons through collaborative problem-solving, mutually respecting discussions of different methods, following classroom rules, making independent choices and appreciating diverse perspectives and contributions.		
We will develop our learning each week by focusing on:					
1. BIDMAS		RAG	2. Rounding Decimals		RAG
- Use priority of operations with positive and negative numbers. - Simplify calculations by cancelling.			Round to a given number of decimal places.		
3. Multiplying Decimals			4. Dividing decimals		
Multiply decimal numbers.			Divide decimal numbers.		
5. Place Value			6. Consolidation lesson		
Write decimal numbers of millions.			- Consolidation on all work covered so far on the topic. - Long periods of deliberate practice. - Should contain exam questions		
7. Significant Figures			8. Estimation		
Round to a given number of significant figures.			Estimate answers to calculations.		

9. Related Calculations Use one calculation to find the answer to another.		10. Prime Numbers Recognise 2-digit prime numbers.	
11. Factors, Multiples and Primes Find factors and multiples of numbers.		12. Highest Common Factor and Lowest Common Multiple - Find common factors and common multiples of two numbers. - Find the HCF and LCM of two numbers by listing.	
13. Squares, Cubes and Roots Find square roots and cube roots.		14. Index Notation Recognise powers of 2, 3, 4 and 5. Understand surd notation on a calculator.	
15. Prime Factors Write a number as the product of its prime factors.		16. HCF and LCM using a Venn Diagram Use prime factor decomposition and Venn diagrams to find the HCF and LCM.	
17. Revision Lesson - Select topics you feel the class need to revise. - Classroom based or Mathswatch.		18. Assessment Lesson Do 10-minute top up and go through answers together, students self-assess. Open book assessment done in silence.	
19. Feedback Lesson - Student to highlight their traffic light sheet. - Teacher to go through test and students to self-assess in green. - Students to complete the NOW section of the WOW-HOW-NOW sheet.			
Key Vocabulary			
Operations	Negative	Round	Factor
Multiple	Prime	Estimate	

How will this help you in the future?	
KS4 - Learning number skills builds strong problem-solving and logical thinking abilities. - These skills help students: - Understand math concepts more easily - Interpret data and information - Follow steps in subjects like science, technology, and economics - Number skills support everyday school tasks such as: - Managing time - Measuring accurately - Checking work for errors - Understanding graphs and results - Strong number skills help students feel more confident and successful in their learning.	Beyond LHS - Number skills help adults make informed and confident decisions in everyday life. - They are important for: - Managing money and budgeting - Paying bills - Understanding wages, taxes, and interest - Comparing prices while shopping - Number skills also help adults: - Interpret graphs, statistics, and data - Plan time effectively - Solve practical problems - These skills make daily tasks easier and support success in personal and professional life.



Autumn Learning Journey for Maths

Year 9F Unit 2 - Algebra



How does this unit link to prior learning?			
• Multiplying negative numbers • HCF and LCM • Square and cube numbers • Substitution • Expanding brackets			
Prior Knowledge Check			
1. Calculate 3×-7 2. Find the HCF of 32 and 24. 3. Write down a) the first five square numbers: b) the first five cube numbers: c) When $x = 4$, work out the value of $3x-14$ d) Expand: $2(2x +4)$			
What will you be learning about?		How does this link to the wider curriculum?	
• Understanding and writing algebraic expressions, simplifying and substituting into expressions. • Expanding brackets and factorising.		• The five British values are embedded in maths lessons through collaborative problem-solving, mutually respecting discussions of different methods, following classroom rules, making independent choices and appreciating diverse perspectives and contributions.	
We will develop our learning each week by focusing on:			
1. Algebraic expressions • Collect like terms.	RAG	2. Multiply and divide expressions. • Multiply and divide expressions.	RAG
3. Index Laws • Use the index laws.		4. Substitution • Substitute numbers into expressions.	
5. Formulae • Recognise the difference between a formula and an expression. • Substitute numbers into a simple formula.		6. Consolidation lesson • Consolidation on all work covered so far on the topic. • Long periods of deliberate practice. • Should contain exam questions	

7. Expand Brackets Expand single brackets			8. Expand and Simplify Simplify expressions with brackets.			
9. Factorising - Recognise factors of algebraic terms. - Factorise algebraic expressions.			10. Forming Expressions and Formulae - Write expressions and simple formulae to solve problems. - Use maths and science formulae.			
11. Revision Lesson - Select topics you feel the class need to revise. - Classroom based or Mathswatch.			12. Assessment Lesson - Do 10-minute top up and go through answers together, students self-assess. - Open book assessment done in silence.			
13. Feedback Lesson - Student to highlight their traffic light sheet. - Teacher to go through test and students to self-assess in green. - Students to complete the NOW section of the WOW-HOW-NOW sheet.						
Key Vocabulary						
Expression	Simplify	Substitute	Expand	Factorise	Terms	Variable

How will this help you in the future?	
KS4 Algebra skills strengthen problem-solving and critical-thinking abilities. They help students: - Work logically - Follow steps carefully - Solve complex problems Algebra is important for success in higher-level math. It is also used in subjects such as: - Science - Technology - Economics Algebra helps students understand formulas, patterns, and relationships between values.	Beyond LHS Algebra skills help adults think logically and solve real-world problems. They are useful for: - Budgeting and managing finances - Calculating interest - Planning expenses - Interpreting data and making comparisons Algebra supports careers in: - Science - Technology - Engineering - Business These skills help adults analyse situations, plan ahead, and make informed decisions in everyday life.



9. Construct stem and leaf diagrams Construct stem and leaf and back-to-back stem and leaf diagrams.		10. Interpret stem and leaf diagrams Interpret stem and leaf and back-to-back stem and leaf diagrams.				
11. Draw pie charts Draw pie charts.		12. Interpret pie charts Interpret pie charts.				
13. Draw and read scatter graphs - Plot and interpret scatter graphs. - Determine whether or not there is a relationship between sets of data.		14. Interpret scatter graphs using a line of best fit - Draw a line of best fit on a scatter graph. - Use the line of best fit to predict values.				
15. Revision Lesson - Select topics you feel the class need to revise. - Classroom based or Mathswatch.		16. Assessment Lesson - Do 10-minute top up and go through answers together, students self-assess. - Open book assessment done in silence.				
17. Feedback Lesson - Student to highlight their traffic light sheet. - Teacher to go through test and students to self-assess in green. - Students to complete the NOW section of the WOW-HOW-NOW sheet.						
Key Vocabulary						
Average	Discrete Data	Continuous Data	Qualitative data	Quantitative data	Frequency	Correlation

How will this help you in the future?	
KS4 Data skills help students confidently collect, organise, and represent data. Students learn to use: - Tables - Graphs - Digital tools These skills help students: - Analyse results - Identify patterns and trends - Explain findings using correct terminology Data skills are important for: - Coursework and assessments - Practical investigations - Formal examinations and major projects Students learn to: - Interpret complex data sets - Evaluate reliability and validity - Make informed conclusions Strong data skills also support: - Problem-solving questions - Independent investigations - Clear communication of evidence and decisions.	Beyond LHS Data skills help people understand and interpret real-world information. They are useful for understanding: - News reports - Social media graphs - Sports statistics - Health information - Financial data These skills help people: - Make informed decisions - Avoid misinformation - Think critically about trends and claims In the workplace, data skills are used for: - Tracking sales and performance - Managing budgets - Using digital systems - Collecting, analysing, and presenting data Strong data skills improve employability and confidence with technology and numbers. In personal life, data skills help with: - Budgeting and comparing prices - Planning travel - Understanding surveys - Managing time and resources effectively.



Spring Learning Journey for Maths

Year 9F Unit 4 – Fractions and Percentages

Ad Astra

How does this unit link to prior learning?

- **Four operations**
Links to lesson 2, 4 and 5
- **Factors**
Links to lesson 2
- **Fraction of an amount**
Links to lesson 3
- **Converting basic FDP**
Links to lesson 6

Prior Knowledge Check

1) Calculate: a) $356 + 215$ b) $243 - 175$ c) 24×36 d) $616 \div 4$

2) What are the common factors of 12 and 20?

3) Shade $\frac{3}{8}$ of the rectangle



4) What is 25% as a) a fraction? b) a decimal?

What will you be learning about?

- Calculate using fractions and percentages.
- Convert between fractions, decimals and percentages.
- Calculate percentage increase and decrease.

How does this link to the wider curriculum?

- The five British values are embedded in maths lessons through collaborative problem-solving, mutually respecting discussions of different methods, following classroom rules, making independent choices and appreciating diverse perspectives and contributions.

We will develop our learning each week by focusing on:

1. Comparing Fractions • Comparing the size of fractions. • Finding fractions closer to 1. • Find equivalent fractions.		2. Add and subtract Fraction • Add and subtract fractions and mixed numbers.	RAG
3. Fraction of an amount • Find a fraction of a quantity or measurement. • Use fractions to solve problems.		4. Multiply Fractions • Multiply whole numbers, fractions and mixed numbers. • Simplify calculations by cancelling.	
5. Divide fractions • Divide a whole number by a fraction. • Divide a fraction by a whole number or a fraction.		6. Convert between fractions, decimals and percentages. • Convert fractions to decimals and vice versa. • Use decimals to find quantities.	

7. Consolidation Lesson Knowledge check and practice of topics learnt so far.				8. Percentage of a quantity (non-calculator) Find a percentage of a quantity without a calculator.			
9. Percentage of a quantity (calculator) - Convert percentages to decimals and vice versa. - Find a percentage of a quantity.				10. Simple Interest - Use percentages to solve problems. - Calculate simple interest.			
11. Percentage Increase and Decrease - Calculate percentage increases and decreases. - Use percentages in real-life situations. - Calculate VAT (value added tax).				12. Revision Lesson - Select topics you feel the class need to revise. - Classroom based or Mathswatch.			
13. Assessment Lesson - Do 10-minute top up and go through answers together, students self-assess. - Open book assessment done in silence.				14. Feedback Lesson - Student to highlight their traffic light sheet. - Teacher to go through test and students to self-assess in green. - Students to complete the NOW section of the WOW-HOW-NOW sheet.			
Key Vocabulary							
Numerator	Denominator	Improper	Mixed Number	Multiplier	VAT	Percentage	

How will this help you in the future?	
KS4	Beyond LHS
Fractions and percentages are used regularly in KS4 mathematics, including: - Ratio and proportion - Probability - Algebra - Statistics - Problem-solving questions A strong understanding helps pupils: - Follow multi-step methods - Avoid common mistakes - Work more confidently in exams These skills are important in other KS4 subjects, such as: - Science for calculating efficiency, concentration, and changes in results - Geography and Business for interpreting percentage changes, trends, and financial information - Design & Technology and Computing for scaling, measuring, and analysing outcomes Strong knowledge of fractions and percentages: - Makes the KS4 curriculum easier to access - Improves accuracy in assessments - Builds confidence in solving complex mathematical and real-world problems.	Fractions and percentages are essential for managing money, including: - Understanding discounts and sales - Calculating interest rates, wages, and taxes - Budgeting effectively These skills help pupils: - Compare prices - Calculate savings - Make informed financial decisions In everyday life, fractions and percentages are used for: - Cooking and measuring - Sharing amounts fairly - Understanding instructions - Estimating quantities - Managing time and scaling recipes In the workplace, these skills are important for: - Reading data - Calculating proportions - Tracking performance - Understanding targets and percentage results Strong fraction and percentage skills improve employability and confidence in real-world tasks. Overall, these skills help pupils become more independent, financially aware, and accurate in decision-making.



Learning Journey for Maths

Year 9F Unit 5 – Angles

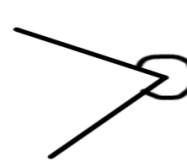
Ad Astra

How does this unit link to prior learning?

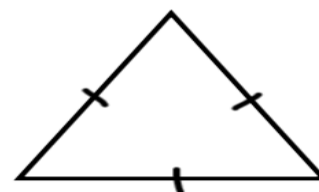
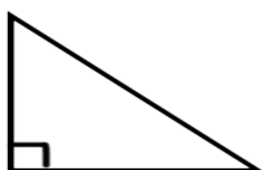
- **Types of angles**
Link to lessons 2, 4, 7, 8
- **Names of triangles**
Link to lesson 7

Prior Knowledge Check

1) What are the names of these types of angles?



2) What are the names of these special triangles?



What will you be learning about?

- Understand the differences in angles in different polygons and shapes.
- Understand angle properties between parallel lines and other polygons and be able to express your understanding using the correct mathematical notation.

How does this link to the wider curriculum?

- The five British values are embedded in maths lessons through collaborative problem-solving, mutually respecting discussions of different methods, following classroom rules, making independent choices and appreciating diverse perspectives and contributions.

We will develop our learning each week by focusing on:

1. Angle Facts

- Recap on angles around a point and on a straight line
- Recap on vertically opposite angles

RAG

2. Properties of Quadrilaterals

- Solve geometric problems using side and angle properties of quadrilaterals.

RAG

3. Angles in Quadrilaterals

- Solve geometric problems using side and angle properties of quadrilaterals.

4. Congruent Shapes

- Identify congruent shapes.

5. Use Angles in Parallel lines Understand and use the angle properties of parallel lines.		6. Finding Angles in Parallel Lines Find missing angles using corresponding and alternate angles.	
7. Consolidation Lesson Knowledge check and practice of topics learnt so far.		8. Angles in triangles - Solve angle problems in triangles. - Understand angle proofs about triangles.	
9. Interior angles Calculate the interior angles of regular polygons.		10. More exterior and interior angles Calculate the interior and exterior angles of polygons.	
11. Geometrical patterns Solve geometrical problems showing reasoning.		12. Revision Lesson - Select topics you feel the class need to revise. - Classroom based or Mathswatch.	
13. Assessment Lesson - Do 10-minute top up and go through answers together, students self-assess. - Open book assessment done in silence.		14. Feedback Lesson - Student to highlight their traffic light sheet. - Teacher to go through test and students to self-assess in green. - Students to complete the NOW section of the WOW-HOW-NOW sheet.	
Key Vocabulary			
Quadrilateral	Angle	Polygon	Parallel
Interior	Exterior	Tessellation	

How will this help you in the future?	
KS4 Learning about angles is important for success in KS4 and GCSE maths. Angles are used in many geometry and trigonometry problems. Understanding angles helps students: - Develop logical thinking skills - Solve mathematical problems more confidently - Prepare for higher-level maths Angle knowledge is also useful for real-life applications.	Beyond LHS Learning about angles helps develop practical and problem-solving skills. Angles are useful in areas such as: - Navigation - Construction - Design Understanding angles also strengthens logical thinking skills. These skills are valuable in everyday life and many professional careers.



Summer Learning Journey for Maths

Year 9F Unit 6 – Equations, Inequalities and Sequences

How does this unit link to prior learning?			
- Recognizing and understanding inequality notation. - Finding missing values in a sequence.			
Prior Knowledge Check			
1. Write $>$ or $<$ between each pair of numbers: a) 3.....5 b) 7.....6 c) 9.....-7 d) -6.....2 2. Write the next 2 terms and the term-to-term rule for each sequence. a. 2, 6, 10, 14, 18,, rule: b. 32, 28, 24, 20, 16,, rule: c. 5, 7, 9, 11, 13,, rule:			
What will you be learning about?		How does this link to the wider curriculum?	
- Understand and use expressions, equations, formulae and inequalities. - Manipulate formulae and solve linear equations. - Create algebraic expressions or formulae. - Solve linear inequalities and represent them on number lines. - Generate and use rules for sequences.		The five British values are embedded in maths lessons through collaborative problem-solving, mutually respecting discussions of different methods, following classroom rules, making independent choices and appreciating diverse perspectives and contributions.	
We will develop our learning each week by focusing on:			
1. Function Machines	RAG	2. Solve Simple Equations	RAG
3. Solving Equations 2		4.Solving Equations with Brackets	
5. Solve equations with unknowns on both sides.		6. Rearrange Equations	

7. Consolidation lesson - Consolidation on all work covered so far on the topic. - Long periods of deliberate practice. - Should contain exam questions.				8. Inequality Notation Use correct notation to show inclusive and exclusive inequalities.			
9. Number Lines Represent inequalities on a number line.				10. Solving Inequalities - Solve simple linear inequalities. - Write down whole numbers which satisfy an inequality.			
11. Solving Inequalities with 2 sides. Solve two-sided inequalities.				12. Substitution Substitute values into formulae and solve equations.			
13. Generating Sequences Recognise and extend sequences.				14. Using the nth term of a sequence - Use the nth term to generate terms of a sequence. - Find the nth term of an arithmetic sequence.			
15. Revision Lesson - Select topics you feel the class need to revise. - Classroom based or Mathswatch.				16. Assessment Lesson (non-calculator) - Do 10-minute top up and go through answers together, students self-assess. - Open book assessment done in silence.			
17. Feedback Lesson - Student to highlight their traffic light sheet. - Teacher to go through test and students to self-assess in green. - Students to complete the NOW section of the WOW-HOW-NOW sheet.							
Key Vocabulary							
Algebra	Expression	Solve	Symbol	Equation	Variable	Substitution	

How will this help you in the future?	
KS4 Learning about equations, inequalities, and sequences improves problem-solving and critical-thinking skills. These topics help students: - Understand patterns and relationships - Solve real-world problems - Think logically and systematically They are important for success in KS4 subjects such as: - Maths - Science.	Beyond LHS Learning about equations, inequalities, and sequences helps develop logical thinking and problem-solving skills. These skills are useful for: - Managing limits and resources - Recognising patterns and trends - Solving everyday problems They help adults make decisions involving: - Money and budgeting - Time management - Planning and organisation Understanding these topics supports accurate decision-making in everyday life and work.



Summer Learning Journey for Maths

Year 9F Unit 7 – Averages and Range

Ad Astra

How does this unit link to prior learning?

- Midpoints
- Averages

Prior Knowledge Check

1. What is the midpoint of 7 and 11?
2. Use the following data to find: 2 7 4 6 9 2
 - a. Mode
 - b. median
 - c. mean
 - d. range

What will you be learning about?

- Be able to work out the mean, median, mode and range from a variety of sources.
- Be able to draw and interpret a stem and leaf diagram. Understand why we take samples and how we can do it.

How does this link to the wider curriculum?

- The five British values are embedded in maths lessons through collaborative problem-solving, mutually respecting discussions of different methods, following classroom rules, making independent choices and appreciating diverse perspectives and contributions.

We will develop our learning each week by focusing on:

1. Averages from a List

- Find the mean, median, mode and range from a list of numbers.

RAG

2. Mean and Range from a frequency table

- Calculate the mean and range from a frequency table.

RAG

3. Find the median and Mode from a frequency table.

- Calculate the median and mode from a frequency table.

4. Stem and Leaf Diagrams

- Find the mode, median and range from a stem and leaf diagram.
- Identify outliers.
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5. Comparing Data using averages

- Compare sets of data using the mean, median, mode and range.

6. Consolidation lesson

- Consolidation on all work covered so far on the topic.
- Long periods of deliberate practice.
- Should contain exam questions

7. Estimated Mean Estimated mean from grouped frequency tables.			8. Grouped Frequency Tables Estimating the median, modal class and range from grouped frequency tables.			
9. Advantages and disadvantages. Recognise the advantages and disadvantages of each type of average.			10. Sampling Understand the need for sampling. Understand how to avoid bias.			
11. Revision Lesson Select topics you feel the class need to revise. Classroom based or Mathswatch.			12. Assessment Lesson (non-calculator) - Do 10-minute top up and go through answers together, students self-assess. - Open book assessment done in silence.			
13. Feedback Lesson - Student to highlight their traffic light sheet. - Teacher to go through test and students to self-assess in green. - Students to complete the NOW section of the WOW-HOW-NOW sheet.						
Key Vocabulary						
<i>Average</i>	<i>Continuous</i>	<i>Discrete</i>	<i>Sample</i>	<i>Estimate</i>	<i>Interval</i>	<i>Sort</i>

How will this help you in the future?	
KS4 Learning about averages and range helps students analyse and interpret data. These skills allow students to: - Compare results - Understand variation in data - Make sense of information clearly Averages and range are useful in subjects such as: - Maths - Science - Social studies Understanding these concepts supports problem-solving and data interpretation across different subjects.	Beyond LHS Learning about averages and range helps people interpret and understand data in everyday life. These skills help individuals: - Compare different choices - Understand variation in information - Make informed decisions They are useful for: - Budgeting and managing money - Evaluating work performance - Solving everyday problems Overall, they support better decision-making in daily life and work.