Biddulph High School Curriculum Intent

To deliver a broad and enriching curriculum through engaging and challenging lessons that provide a wide range of opportunities for all students to achieve their potential.

Students will all be prepared to take their next steps in a diverse and ever changing future ready to make a positive contribution to society.

Through a broad programme of extracurricular activities students will have the opportunities to showcase their talents and experience new challenges.

We value individuals and all that they can offer as well as supporting each other with kindness and empathy.

Curriculum Intent for Mathematics:

Mathematics is an integral facet of everyday life. We want our learners to be curious, confident and competent in Mathematics. Our aim is to ensure that all students are numerate and are secure in its applications so they are prepared for everyday life and future employment.

All teachers will follow the schemes of work provided by the department. This will ensure that all students receive the same high-quality provision. All units of work will provide a clear outline of the knowledge and skills required and assessments will ensure that this knowledge has been retained and that skills can be evidenced.

Teachers will ensure that gaps are closed through regular monitoring within the classroom. DINT activities will allow for interleaving and recap of previous learning. Misconceptions will be identified through effective questioning and the regular inspection of student work.

Mathematics **Long Term Overview**						
Year Group	**Autumn 1**	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
9	High Frequency Exam Crossover Topics	Block B Number	Block B Number Block B Ratio	Block B Algebra	Block B Geometry Block B Probability and Data	Block C Number
10	Block C Ratio and Proportion Block C Algebra	Block C Geometry	Block C Probability and Data	Block D Number	Block D Ratio and Proportion	Block D Algebra
11	Block D Geometry	Block D Probability and Data Block E Number	Block E Algebra Block E Geometry	Block E Probability and Data Block E Ratio and Probability		
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Mathematics: Medium Term Overview

Year 10 Foundation	Autumn Term 1	Unit Title: Block C – Ratio and Proportion/Algebra	No of Lessons: 25
Overview/Intent	This unit builds upon and consolidates topics covered in KS2/KS3 and Block B allowing students to improve their confidence applying Mathematical techniques		
Assessment	Students will complete an assessed piece of work during lesson time which will be marked in line with STAR.		

Essential Knowledge (what must students know): Students will be able to:	Essential Skills (what must students be able to demonstrate):	Lessons:
- Use proportion to identify the quantity of ingredients needed for a given recipe - Calculate lengths from a scale given in the form 1:n - Convert mixed compound measures e.g 3foot2inches to inches. - Use a conversion graphs and statements involving direct proportion e.g 5 apples cost £10 so 7 apples cost - Use simple interest to find the value of an investment or the interest earned. - Use a function machine with given inputs to find outputs and the inverse operation - Find the nth term of a linear sequence - Multiply algebraic terms together using addition/subtraction laws of indices e.g $5ab \times 3a^2$ - Expand two single brackets and simplify the expression e.g. $3(2x + 5) + 2(3x + 4)$ - Factorise an expression into one bracket with multiple factors e.g $5a(2a + b)$ - Solve 2 step equation of the form $5 - 3x = 14$ including negative solutions - Solve 2 step inequalities and represent the solution on a number line - Interpret and complete a distance time graph - Solve 3 step equation of the form $5a + 2 = 2a + 23$	- How to calculate lengths using a ratio - How to Convert between measurements - How to find simple interest - How to use a function machine using inverse operations - How to find the nth term - How to expand a single bracket - How to expand and simplify 2 single brackets - Simplifying an expression using index laws - Factorise a linear expression - Factorise an expression into 1 bracket - Solve 2 and 3 step equations - Solve 2 step inequalities - Show an inequality on a number line - Substitute values into SUVAT formulae - Solve simultaneous equations to find 2 unknowns - Rearrange an equation involving 2 steps to change the subject - Find the gradient between 2 points	- Recipes - Interpreting scale measures written as a ratio - Conversions using a scale - Direct proportion+ relate to graph - Simple Interest - Use Function machines to find input and output - Find the nth term - Multiplying and dividing algebraic expressions - Expanding brackets expand and simplify - Factorise into 1 bracket - Solve 2 step equations - Solve 2 step inequality - Distance-Time Graphs - Solve 3 step equations - substitution - Solve Simultaneous Equations - Change the subject of a formula involving 2 steps - Find the gradient between 2 points - Rearrange an equation to find the gradient and intercept - Sketch Linear graphs using gradient and Intercept

- Use substitution to find the value of an expression e.g $s = ut + \frac{1}{2}at^2$
- Solve simultaneous equations where the coefficients of x or y are equivalent (positive solutions only)
- Change the subject of a formula involving 2 steps
- Find the gradient between two points. Written points and points from a graph as in Physics
- Rearrange an equation to the form y = mx + C to find the gradient and y-intercept
- Sketch linear graphs using the gradient and y - intercept

- Express an equation in the form y = mx + c
- How to sketch a linear graph using the gradient and y intercept.

Terminology:
Key Words: Ratio, scale, compound measure, direct proportion, simple interest, inverse operation, linear sequence, nth term, indices, expression, Factorise, solution, inequality, change the subject, y -intercept, gradient

Careers Links:	Enrichment:	**MYPB:** Resilience, Self-Motivation, Communication, Motivation

Mathematics: Medium Term Overview

Year 10 Foundation	Autumn Term 2	Unit Title: Block C - Geometry		No of Lessons: 25
Overview/Intent	This unit builds upon and consolidates topics covered in KS2/KS3 and Block B allowing students to improve their confidence applying Mathematical techniques			
Assessment	Students will complete an assessed piece of work during lesson time which will be marked in line with STAR.			

Essential Knowledge (what must students know):	Essential Skills (what must students be able to demonstrate):	Lessons:
Students will be able to: • Describe the key features of 2D shapes e.g. Equivalent lengths, Equivalent angles, Lines of Symmetry, Rotational Symmetry • Describe the key features of 3D shapes e.g. Faces/Edges/Vertices • Find the Area of a Trapezium. Use the area of a trapezium to find a length • Find the area and perimeter of 3/4 sided shapes that involve unit conversion • Find the volume of a prism. Use the volume to find a missing length • Find the Circumference of a circle. Use the circumference to find a missing length • Use multi link cubes to draw plans and elevations • Construct the nets of 3D objects • Apply the features of corresponding/alternate and co-interior angles • Find Bearings and back bearings, use a protractor to accurately draw bearings • Use Pythagoras' Theorem to find the length of the hypotenuse • Use a compass and protractor to construct accurate triangle. • Construct an angle bisector and locus of a point. • Construct a perpendicular bisector of a line, from a point on a line and from a point to a line.	• How to show equivalent lengths on a shape • How to describe symmetrical properties • Describe the features of a 3d shape • How to find the area of a trapezium • Use the area of a trapezium to work backwards to find a length • Find the volume of a prism • Find a length of a prism given the volume • Find the circumference of a circle • How to use the circumference to find the radius or diameter • Sketch the plan and elevations of a 3D object • Be able to explain corresponding/alternate and co-interior angles • Use a compass to find a bearing • Appy the formula for Pythagoras' Theorem to find a missing length • How to use a compass to draw an accurate arc • Use a compass to form an angle bisector	• Describe the features of key shapes of 2D shapes • 3D Objects - Describe Features • Area of a Trapezium • Find Areas and Perimeters of shapes that need to use conversions • Volume of rectangular Prism/Triangular prism • Circumference of a circle • Plans and elevations • Nets of 3D objects • Co-interior • Bearings • Pythagoras' Theorem • Constructing Triangles • Angle Bisector • Perpendicular Bisectors • Translation • Reflection • Algebraic angle calculations

• Describe and construct a Translation • Describe and construct a Reflection in a given line e.g x = 3 • Form an equation using knowledge of parallel lines, vertically opposite angles and isosceles triangles	• Use a compass to form a perpendicular bisector • Perform a translation • Describe a translation • Describe a reflection • Perform a reflection in a given line • Be able to sketch a line of the form x = a or y = a • Solve a linear equation involving 2 or 3 steps • Form an equation using information about angles and lengths. **Terminology:** Key Words: equivalent, symmetrical, rotational symmetry, trapezium, prism, volume, circumference, elevation, plan, corresponding, alternate, co – interior, translation, reflection, equation, angle bisector, perpendicular bisector, isosceles, bearing, back bearing	
Careers Links:	**Enrichment:**	**MYPB:** Resilience, Self-Motivation, Communication, Motivation

Mathematics: Medium Term Overview

Year 10 Foundation	Spring Term 1	Unit Title: Block C – Probability and Data	No of Lessons: 15
Overview/Intent	This unit builds upon and consolidates topics covered in KS2/KS3 and Block B allowing students to improve their confidence applying Mathematical techniques		
Assessment	Students will complete an assessed piece of work during lesson time which will be marked in line with STAR.		

Essential Knowledge (what must students know): Students will be able to:	Essential Skills (what must students be able to demonstrate):	Lessons:
- Understand a theoretical probability and be able to make estimates - Perform activities to find experimental probabilities - Find using theoretical probability the probability of HHH or 5,6 on a die - Plot points on a scatter graph, determine the type and strength of correlation and use a line of best fit. - Interpret values and make inferences from a pie chart. Construct a pie chart from a frequency table and bar chart - Complete a frequency tree including finding fractions of an amount - Find the mean from a list of numbers. Use the mean to find a missing value - Construct a Continuous Bar Chart(Histogram) from a grouped frequency table - Construct a time series graph - Construct a simple tree diagram involving 2 independent events - Construct a Venn diagram and find the probability of an event	- Find a missing probability using the sum of probabilities = 1 - Use a probability to estimate future events - Plot coordinates on a graph(scatter) - Describe the types of correlation and be able to identify them - Use proportion to find angles used in a pie chart - Construct an accurate pie chart - Complete a frequency table to construct a pie chart - Complete a frequency tree - Find a fraction of an amount - Find the averages and range from a list of numbers - Use the mean to complete a list of numbers - Use the averages to complete a list of numbers - Draw a discrete bar chart - Draw a continuous bar chart - Complete a table of values for a time series - Complete a time series graph	- Theoretical Probability - Experimental Probability - Simple Probability - Plot Scatter Graphs - Pie Charts - Frequency Trees - Mean from a list of numbers - Continuous Bar Charts - Time Series graph - Simple Tree Diagram - Venn Diagram(Non conditional probability)

	• Explain what independent means in reference to probability • Complete a Venn diagram • Find a probability using a Venn diagram. **Terminology:** Key Words:	
Careers Links:	**Enrichment:**	**MYPB:** Resilience, Self-Motivation, Communication, Motivation

Mathematics: Medium Term Overview

Year 10 Foundation	Spring Term 2	Unit Title: Block D - Number	No of Lessons: 25
Overview/Intent	This unit builds upon and consolidates topics covered in KS2/KS3 and Block B allowing students to improve their confidence applying Mathematical techniques		
Assessment	Students will complete an assessed piece of work during lesson time which will be marked in line with STAR.		

Essential Knowledge (what must students know):	Essential Skills (what must students be able to demonstrate):	Lessons:
Students will be able to: • Perform conversion between Standard Form and ordinary numbers • Understand the definition of Truncation • Convert any fraction to a decimal • Produce an order list of Fractions/Decimals and Percentages using non calculator methods • Division of a decimals and integers by a decimal • Multiply a decimal and integer by a decimal • Round integers and decimals to a given number of significant figures and decimal places • Perform calculations in standard form for all operations including significant figures • Perform calculations in standard form for all operations including significant figures • Find a percentage of an amount using Calc and NC methods • Round values to 1 significant figures to estimate a calculation • Find the Percentage change between 2 numbers using Calculator and Non Calculator methods • Add and Subtract fractions involving mixed numbers with different denominators • Multiply and Divide Fractions involving mixed numbers with different denominators • Use laws of indices including $(5x^2y^3)^3$	• Appropriate multiplication strategies • Accurately round to a given number of decimal places/significant figures. • Accurately calculate with standard form • Find a % of amount • Estimate the answer to a problem posed. • Find a percentage change. • Apply the four operations to fractions. • Express a number as product of its prime factors. • Use an appropriate method to find the HCF/LCM. • Express a surd in its simplest form. **Terminology:** Key Words: Integer, Significant Figure, Estimate, Approximate, Index/Indices, Factor, Multiple, Surd, Square Number	• Standard Form conversions • Truncation • Convert a fraction to a decimal • Put a list of decimals/fractions/percentages in order • Division • Multiplication • Significant Figures/Decimal places • Standard Form calculations • Standard Form calculations • % of an amount • Estimation • Find a Percentage change • Add/Subtract fractions • Multiply/Divide Fractions • Laws of Indices • Prime Factor decomposition • HCF/LCM • HCF/LCM • HCF/LCM (Exam questions) • Introduction to surds

- Express a number as a product of its prime factors in index form - Find the Highest Common Factor using prime factors e.g Venn Diagram method - Find the Lowest Common Multiple using prime factors - Use an appropriate method to find the HCF and LCM - Simplify a surd of the form root 20 or root 8		
Careers Links:	**Enrichment:**	**MYPB:** Resilience, Self-Motivation, Communication, Motivation

Mathematics: Medium Term Overview

Year 10 Foundation	Summer Term 1	Unit Title: Block D – Ratio and Proportion	No of Lessons: 15
Overview/Intent	This unit builds upon and consolidates topics covered in KS2/KS3 and Block B allowing students to improve their confidence applying Mathematical techniques		
Assessment	Students will complete an assessed piece of work during lesson time which will be marked in line with STAR.		

Essential Knowledge (what must students know):	Essential Skills (what must students be able to demonstrate):	Lessons:
Students will be able to: • Convert decimalised time to standard units e.g 3.2 hours = 3 hours 12 minutes • Convert between metric hours for speed e.g. 3km/h to m/s • Perform conversions between differing measure of area and volume • Perform A03 calculations involving £/l • Use the link between Speed Distance and Time to find unknown values Calc and Non Calc methods • Convert to the same units of measure write in the form 1:n or n:1 • Share a given amount using a ratio e.g divide £50 by the ratio 3:10 • Express ratios of the form A:B and B:C in the form A:B:C • Application of ratios • Understand the difference between simple and compound interest and its application • Use Direct and Inverse proportion in context	• Convert decimalised time into hours and minutes • Convert between different units of metric speeds • Convert between different units of measurement • Accurately apply the relationship between speed, distance and time • Simplify ratios into their simplest form/in the form of 1:n including ratios with different units • Share any amount in a given ratio • Compare and combine 2 ratios to solve problems. • Understand the difference between simple and compound interest and accurately solve these problems. • Solve direct and inverse contextual problems. • **Terminology:** Key Words: Simple Interest, Compound Interest, Direct Proportion, Inverse Proportion.	• Convert decimalised time to standard units • Convert km/s to metres/hour • Conversions between standard measurements • calculations with Compound measurements • Speed/Distance/Time • Simplifying ratios • Sharing in a given ratio • Compare 2 ratios • Application of ratio using examination questions • Simple Interest and Compound Interest • Inverse and Direct Proportion (Not the algebraic method)
Careers Links:	**Enrichment:**	**MYPB:** Resilience, Self-Motivation, Communication, Motivation

Mathematics: Medium Term Overview

Year 10 Foundation	Summer Term 1 and 2	Unit Title: Block D - Algebra	No of Lessons: 25
Overview/Intent	This unit builds upon and consolidates topics covered in KS2/KS3 and Block B allowing students to improve their confidence applying Mathematical techniques		
Assessment	Students will complete an assessed piece of work during lesson time which will be marked in line with STAR.		

Essential Knowledge (what must students know): Students will be able to:	Essential Skills (what must students be able to demonstrate):	Lessons:
- Find the nth term of a linear sequence - Expand and simplify 2 single brackets e.g 3(2x + 5) - 2(2x - 3) - Expand 2 binomials including (3x + y)(2x - 3y) - Factorise a quadratic equation where the coefficient of x^2 is 1 - Solve 2 step equation of the form 5 - 3x = 14 including negative solutions - Solve 3 step equation of the form 5(3a + 5) = 2(3a - 4) including fractional and negative solutions - Identify an inequality from a number line - Solve inequalities and represent on a number line. - Rearrange SUVAT formulae - Substitution involving SUVAT formulae and other science related formulae - Solve simultaneous equations where the coefficients of x or y are equivalent (positive solutions only) - Find the gradient between two points. Written points and points from a graph as in Physics - Find the equation of a line between two points that are written and from a graph. - Construct a Speed Distance Time Graph. Use the gradient to find acceleration - Construct 2 linear graphs to solve simultaneous equations	- Use the term-to-term rule to find the nth term - Expand single brackets and collect like terms - Multiply out two brackets - Factorise an expression into two brackets. - Solve linear equations requiring more than 1 step to solve. - Identify an inequality. - Solve an inequality. - Rearrange formula to change the subject. - Accurately substitute values into formulae. - Solve different types of simultaneous equations. - Find the gradient between two points and use this to find the equation of a straight line. - Accurately construct and interpret a Speed, Distance Time Graph. - Use linear graphs to solve simultaneous equations.	- Find the nth term - Expanding 2 single brackets expand and simplify - Expand 2 binomials - Factorise 2 binomials - Solve 2 step equations - Solve 3 step equations - Inequalities on a number line - Solve inequalities - Rearrange standard formula - Substitution - Solve Simultaneous Equations - Find the gradient between 2 points - Find the equation of a straight line - Speed Distance Time graphs - Graphical Simultaneous Equations - Simultaneous Equations - Quadratic Graphs

• Solve simultaneous equation where x and y coefficients differ. Only 1 row needs multiplying • Form and complete a table of values to plot a quadratic graph	• Complete a table of values for a quadratic graph and accurately draw the graph. **Terminology:** Key Words: Linear, Sequence, Binomial, Expand, Factorise, Solve, Inverse, Inequality, Rearrange, Simultaneous, Gradient, Substitution.	
Careers Links:	**Enrichment:**	**MYPB:** Resilience, Self-Motivation, Communication, Motivation