## JKHS MATHS DEPARTMENT CURRICULUM INTENT.

Students deserve a creative and ambitious mathematics curriculum, rich in skills and knowledge, which ignites curiosity and prepares them well for everyday life and future employment. Our mathematics curriculum will give students the opportunity to:

- become fluent in the fundamentals of mathematics, through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately. Our spiral curriculum does this.
- reason mathematically by following a line of questioning and processing and developing an argument, justification or proof using mathematical language.
- can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing confidence and fluidity, including breaking down problems into a series of simpler steps and persevering in seeking solutions.
- can communicate, justify, argue and prove using mathematical vocabulary.
- develop their character, including resilience, confidence and independence, so that they contribute positively to the life of the school, their local community and the wider environment.
- apply curriculum knowledge to everyday occurrences with cross-curricular learning on topics including money (tax, exchange rates, budgeting & financial planning).
- stretch those more able with opportunities to excel across national events (UKMC) and support those who require further support whilst garnering the same level of enthusiasm, support and learning opportunities for all.
- Create multiple opportunities for students to study Maths post-16 to continue their mathematical development, irrespective of ability. A-Level Maths, Further Maths, Core Maths and support for students resitting Maths cover all.



Year 7 Topics – extension in bold								
Half-term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2		
Unit	Whole numbers &	FDP & Expressions	Angles and Polygons	Mental Calculations	Graphs & Ratio and	Probability & Real		
	measures	and Formulae	& Equations	& Statistics	Proportion	world finance.		
Learning Focus	measuresArithmetic with integers.Factors, multiples andprimes.LCM and HCF.Squares, cubes androots.IndicesMetric measures.Perimeter and area ofrectangle.Area of triangle.Area of trapezium andparallelogram.Circumference and areaof circles.	and Formulae Ordering decimals. Adding and subtracting fractions. Percentages and fractions of amounts. Converting between FDP. <b>Multiplying and</b> <b>dividing fractions.</b> Collecting like terms. Substitution. Expanding brackets. Factorising expressions. Algebraic fractions.	& Equations Angles on line, at point and on parallel lines. Properties of triangles. Properties of quadrilaterals. Properties of polygons. Congruent shapes. Solving one-step equations and multi- step equations. Solving equations with brackets. Real life equations. <b>Equations with</b> fractions.	& Statistics Rounding. Mental addition and subtraction. Multiply and divide by powers of 10. Mental multiplication and division. Arithmetic with negative integers Powers of 10 Collecting data. Pie charts. Bar charts and frequency diagrams. Averages Averages from frequency table. Scatter graphs and correlation.	Proportion Drawing straight line graphs. Equation of a straight line. Real life graphs. Time series graphs. Curved graphs. Midpoints of co- ordinate pairs. Graphs of implicit functions. Ratio. Dividing a ratio. Direct proportion. Percentage change. Comparing proportions. Algebra and proportion	world finance. Listing outcomes. Probability. Experimental probability. Theoretical probability. Sets Tree diagrams Mutually exclusive outcomes Introduction to finance in the world. Students will be given experience in many financial aspects of real life including, budgeting,		
				Stem and leaf diagrams.		currencies and taxes.		
				distributions				
Career links	Design	Programming	Construction	Data analysts	Food and Drink	Risk management		
Cross-curricular link aims	D&T	Comp Sci		Science and Geography	Food technology			
Assessment	End of half-term	End of half-term	End of half-term	End of half-term	End of half-term	End of year		

## JKHS MATHS - KS3 CURRICULUM MAP

Year 8 Topics - <b>extension in bold</b>								
Half-term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2		
Unit	Transformations &	3D shapes & written	Constructions and	Graphs & Ratio	Statistics & 2D	FDP & Farm		
	sequences	calculation methods	Formulae		Shapes	investigation.		
Learning Focus	Transformations. Combinations of transformations. Symmetry. Enlargements (from COE). Enlargements with fractional SF. Term-to-term rule. Position-to-term rule. Sequences in context. Geometric sequences. Recursive sequences e.g Fibonacci.	3D shapes. Plans and elevations. Surface area of a cuboid. Volume of a cuboid. Volume of a prism. Surface area of a prism. Written addition and subtraction. Written methods of multiplication Written methods of division. Order of operations. Addition and subtraction problems. Multiplication and division problems.	Constructing triangles. Bisectors. Constructing perpendiculars. Loci. Scale drawings. Bearings. Factors in algebra. Algebraic fractions. Formulae in context. Rearranging formulae.	Table of values.Drawing straight-linegraphs.Gradients.y=mx+c.Equation of line.Real-life graphs.Distance-time and time-series graphs.Parallel andperpendicular linesQuadratic, cubic,exponential andreciprocal graphs.Direct proportionComparing proportionsRatioUse of ratioProportional reasoning	Frequency tables. Pictograms. Pie charts. Bar charts and frequency diagrams. Time series Averages from grouped data. Scatter graphs and correlation. Comparing distributions. Box plots Angle properties of a triangles, polygons and quadrilaterals. Circumference and area of a circle Arcs and sectors	Adding and subtracting fractions. Multiplying and dividing fractions. Decimals and fractions Percentage change. Percentage problems. <b>Recurring decimals and</b> <b>reciprocals.</b> <b>Reverse percentages.</b> Farm investigation:		
Career links	Building design	Finance	Software engineer	Economist				
Cross-curricular								
link aims								
Assessment	End of half-term	End of half-term	End of half-term	End of half-term	End of half-term	End of year		

Year 9 Topics - extension in bold							
Half-term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	
Unit	Pythagoras and Trig & Powers and roots	Solving Equations	Number and data	Angles and algebra	FDP, bearings & transformations	Accuracy and angles in polygons.	
Learning Focus	Pythagoras' theorem. Trigonometry – find lengths. <b>Trigonometry - find</b> <b>angles</b> Square and cube roots Index Laws (multiplying and dividing) Surds Standard form large numbers Standard form small numbers <b>Fractional and</b> <b>negative indices.</b>	Solving equations Equations with brackets Unknowns on both sides Solving inequalities Simultaneous equations	Negative numbers Inequalities Rounding 4 operations BIDMAS Tally charts Two way tables Bar Charts Pie Charts Pictograms Averages	Angles on lines Angles about a point Angles in parallel lines Angles in triangles and quadrilaterals Algebra basics Collecting terms Simplifying expressions Substitution Laws of indices Expanding and factorising	Convert between and compare FDP Calculate with fractions and decimals <b>Reccurring</b> decimals Measuring lengths and angles Area of a 2D shape Translations Rotations Reflections Bearings	Estimation and approximation Calculator methods Measures and accuracy Recap angles (lines, triangle & quadrilateral) Congruence and similarity Angles in polygons	
Career links	Accountancy	Artificial intelligence	Data analysts	Architecture	Engineering and traffic control	Surveyor	
Cross-curricular links			Science and Geography	D&T			
Assessment	End of half-term	End of half-term	Final week using AQA questions	Final week using AQA questions	Final week using AQA questions	End of Y9 assessment	