

YEAR 11 MATHS

YEAR 11 MATHS INTENT	Students will continue to develop and extend their knowledge through learning new concepts. They will also be able to interpret when the structure of a numerical problem requires additive, multiplicative or proportional reasoning. They will extend their knowledge of ratio and proportion in working with measures and geometry, and in formulating proportional relations algebraically. Looking closely at analysis and interpretation of data will develop students' oracy skills and will allow them to explore mathematical data in the real world.
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Exam Information (Y10-11)	Board:	Edexcel
	Qualification:	Level 1/Level 2 GCSE (9–1) in Mathematics (1MA1)
	Website link to specification/resources:	Maths GCSE Edexcel GCSE Mathematics (2015) Pearson qualifications

Autumn 1	Autumn 1	Spring 1	Spring 2	Summer 1	Summer 2
			Exam Revision	Exam Revision	GCSE Exams
16 Circle theorems 16.1 Radii and chords 16.2 Tangents 16.3 Angles in circles 1 16.4 Angles in circles 2 16.5 Applying circle theorems 17 More algebra 17.1 Rearranging formulae 17.2 Algebraic fractions 17.3 Simplifying algebraic fractions 17.4 More algebraic fractions 17.5 Proof 17.6 Surds 17.7 Solving algebraic fraction equations 17.8 Functions 18 Vectors and geometric proof 18.1 Vectors and vector notation 18.2 Vector arithmetic 18.3 More vector arithmetic 18.4 Parallel vectors and collinear points 18.5 Solving geometric problems 19 Proportion and graphs 19.1 Direct proportion 19.2 More direct proportion 19.3 Inverse proportion 19.4 Exponential functions 19.5 Non-linear graphs 19.6 Translating graphs of functions 19.7 Reflecting graphs of functions		Plan changes yearly and is planned by looking at gaps in knowledge and understanding of pupils. 1 Number 2 Algebra 3 Interpreting and representing data 5 Angles and trigonometry 6 Graphs 7 Area and volume 8 Transformations and constructions 9 Equations and inequalities 10 Probability 11 Multiplicative reasoning 12 Similarity and congruence 13 More trigonometry 14 Further statistics 15 Equations and graphs 16 Circle theorems 17 More algebra 18 Vectors and geometric proof 19 Proportion and graphs	Revision is tailored to individual students and groups. Plan changes yearly and is planned by looking at gaps in knowledge and understanding of pupils.	Revision is tailored to individual students and groups. Plan changes yearly and is planned by looking at gaps in knowledge and understanding of pupils.	Revision is tailored to individual students and groups. Plan changes yearly and is planned by looking at gaps in knowledge and understanding of pupils.
GCSE (9-1) SPEC REFERENCE N2 N3 N4 N5 N6 N7 N8 N9 N14 N15 <ul style="list-style-type: none"> Have practical experience of drawing circles with compasses. 					

- Recall the words, centre, radius, diameter, circumference, arc, sector and segment
- Recall the relationship of the gradient between two perpendicular lines.
- Find the equation of the straight line, given a gradient and a coordinate.
- Recall the properties of an isosceles triangle and the language of a circle.
- Use the basic congruence criteria for triangles (SSS, SAS, ASA, RHS).
- Recall that the line drawn from the centre of a circle to the midpoint of a chord is at right angles to the chord.
- Know that the sum of the angles in a triangle must be 180°
- Recall the correct maths language for parts of a circle
- Recall simple maths facts.
- Recall the correct maths language for parts of a circle.
- Recall sum of angles of a triangle and a quadrilateral.
- Recall correct maths language for parts of a circle.
- Understand that $x^2 + y^2 = r^2$ is the equation of a circle with centre at the origin.
- Find the gradient of a line from its equation and know the gradient of a line perpendicular to it.
- Find the equation of the straight line, given a gradient and a coordinate.
- Recall circle theorems
- Simplify surds.
- Use negative numbers with all four operations.
- Add and multiply numeric fractions.
- Recall and use the hierarchy of operations.
- Manipulate algebraic expressions.
- Recall and use the quadratic formula.
- Substitute into linear equations.
- Change the subject of a formula.
- Factorise linear expressions.
- Simplify numeric fractions and fractions containing simple algebraic terms.
- Add and multiply numeric fractions.
- Factorise expressions by identifying the common factor between two terms.
- Simplify fractions containing simple algebraic terms.
- Factorise quadratic expressions of the form $x^2 + bx + c$
- Simplify algebraic fractions by cancelling common factors.
- Add, subtract, divide and multiply fractions containing simple algebraic terms.
- Identify an odd number and an even number written algebraically.
- Recall the definitions of equations and identities.
- Decide whether each number is rational or irrational.

- Find the lowest common multiple of two algebraic fractions.
- Solve quadratic equations by factorising.
- Manipulate expressions containing simple algebraic fractions.
- Calculate the output from a function machine for three different inputs.
- Solve simple equations
- Write expressions using function machines
- Use vectors to describe translations.
- Recall and use Pythagoras' Theorem.
- Recall the properties of triangles and quadrilaterals.
- Express the relationship between two quantities as a ratio.
- Simplify surds.
- Use vectors to describe translations.
- Recall and use Pythagoras' Theorem.
- Simplify surds.
- Understand the components of a vector and use vectors to describe translations.
- Recall properties of triangles and quadrilaterals.
- Use properties of a parallelogram to identify equal and parallel lines.
- Add two column vectors.
- Identify parallel column vectors.
- Add and subtract column vectors.
- Understand the relationship between ratio and fractional parts
- Identify parallel vectors
- Draw linear and quadratic graphs.
- Recognise linear and quadratic graphs.
- Calculate the gradient of a linear function between two points.
- Recall transformations of trigonometric functions.
- Write statements of direct proportion and forming an equation to find values.
- Recognise a graph showing direct proportion.
- Recall and use the formula $\text{speed} = \text{distance} \div \text{time}$.
- Recognise direct proportion
- Write equations for quantities in direct proportion.
- Use direct proportion.
- Find the constant of proportionality.
- Using inverse proportion to solve simple problems.
- Write equations for quantities in direct proportion.
- Evaluate indices
- Work out the area of a trapezium
- Recall and use the formula $\text{speed} = \text{distance} \div \text{time}$.
- Find the gradient of a line between two given points.
- Translating coordinates
- Function notation
- Transformation of functions

