

Year 7: Curriculum of study

Year 7 SOW - 2017/18			
Term	Topic	KPIs related to topic content	
1a	Place value and Number sense	7.01	Understand and use place value for decimals, measures and integers of any size
	Addition and Subtraction	7.02	Use Addition and Subtraction, including formal written methods, applied to integers, decimals
	Perimeter	7.03	Calculate and solve problems involving perimeters of rectangles and compound shapes (not circles)
	Rounding & Estimation (in real life)	7.04	Estimate calculations by rounding
1b	Multiplication and Division	7.05	Use Multiplication and Division, including formal written methods, applied to integers, decimals
	Factors and Multiples	7.06	Use the concepts and vocabulary of prime numbers, factors (or divisors), multiples, common factors, common multiples, highest common factor, lowest common multiple
	Area of rectangles and triangles and parallelograms	7.07	Derive and apply formulae to calculate and solve problems involving area of triangles and rectangles
2a	Fractions as part of a whole	7.08	Express one quantity as a fraction of another, where the fraction is less than 1 and greater than 1
	Fractions as a value	7.09	Use addition and subtraction, including formal written methods, applied to proper and improper fractions, and mixed numbers
		7.10	Compare and order fractions by creating common denominators
	Fractions as an operation	7.11	Interpret fractions as operators
2b	Order of operations	7.12	Solve calculations requiring understanding of B-I-DM-AS (know that the inverse of squaring is 'square rooting')
	Basic rules of algebra	7.13	Use the basic rules of algebra
	Expand and factorise	7.14	Simplify and manipulate algebraic expressions to maintain equivalence by multiplying a single term over a bracket or by taking out common factors
	Substitution	7.15	Substitute into simple formulae
3a/3b	Angles	7.16	Apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles
	Polygons	7.17	Derive, describe and illustrate properties of triangles, quadrilaterals and other plane figures [for example, equal lengths and angles] using appropriate language and technologies
	Symmetry and reflection	7.18	Describe, sketch and draw regular polygons, and other polygons that are reflectively and rotationally symmetric
	Coordinates	7.19	Read and plot coordinates in all 4 quadrants
3b	Mean	7.20	Describe, interpret and compare observed distributions of a single variable through the use of the mean
	Two way tables & Venn diagrams	7.21	Enumerate sets and unions/intersections of sets systematically, using tables, grids and Venn diagrams



Year 8: Curriculum of study

Year 8 SOW - 2017/18			
Term	Topic	KPIs related to topic content	
1a	Indices	8.01	Use integer powers and associated real roots (square, cube and higher), recognise powers of 2, 3, 4, 5 and distinguish between exact representations of roots and their decimal approximations
	Prime Factorisation	8.02	Use the concepts and vocabulary of prime numbers, factors (or divisors), multiples, common factors, common multiples, HCF, LCM, prime factorisation, including using product notation and the unique factorisation property
	Rounding	8.03	Round numbers and measures to an appropriate degree of accuracy (for example, to a number of decimal places or significant figures)
	Fractions	8.04	Multiply and divide fractions and mixed numbers
	Percentages revision	8.05	Year 7 Half Term 6 Percentages revision
1b	Linear equations	8.06	Use algebraic methods to solve linear equations in one variable (including all forms that require rearrangement)
		8.07	Model situations or procedures by translating them into algebraic expressions or formulae and by using graphs
	Coordinates and basic graphs	8.08	Coordinates and developing algebraic relationships
2a	Units of measurement	8.09	Use standard units of mass, length, time, money and other measures, including with decimal quantities
	Angles	8.10	Understand and use the relationship between parallel lines and alternate and corresponding angles
		8.11	Calculate interior and exterior angles of (regular) polygons
	Circumference	8.12	Calculate and solve problems involving perimeters of 2-D shapes (including circles) and composite shapes
2b	Proportional reasoning	8.13	Understand that a multiplicative relationship between two quantities can be expressed as a ratio or a fraction
	Fractions, decimals and percentages	8.14	Solve problems involving percentage change, including: percentage increase, decrease, original value problems and simple interest in financial mathematics
	Ratio	8.15	Divide a given quantity into two parts in a given part:part or part:whole ratio; express the division of a quantity into two parts as a ratio
3a	Area of composite shapes	8.16	Derive and apply formulae to calculate and solve problems involving area of triangles, parallelograms, trapezia and (part)circles
	Presenting and interpreting data	8.17	Construct and interpret appropriate tables, charts, and diagrams, including frequency tables, bar charts, pie charts and vertical line (or bar) charts for ungrouped and grouped numerical data
	Averages	8.18	Describe, interpret and compare observed distributions of a single variable through appropriate measures of central tendency (mean, mode, median) and spread (range, consideration of outliers)
3b	Two way tables	8.19	Enumerate sets and unions/intersections of sets systematically, using tables, grids and Venn diagrams
	3-D visualisation	8.20	Use the properties of faces, surfaces, edges and vertices of cubes, cuboids, prisms, cylinders, pyramids, cones and spheres to solve problems in 3-D
	Volume	8.21	Derive and apply formulae to calculate and solve problems involving volume of cuboids (including cubes) and other prisms (including cylinders)

*At KS3, students follow the above schemes of learning. These are based around 'Key Performance Indicators' (KPI's), which help us track whether students are on target, and help us intervene if student's struggle with any particular topic.

Year 9 – 11: Curriculum of study

In Year 9, students move onto a 3 year GCSE Scheme of Learning, at Foundation or Higher level, in preparation for the EDEXCEL GCSE Grade 9-1 examination at the end of Year 11.

Year 9 Foundation					
Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Place value & Number Properties	FDP	Notation	Linear Equations	Properties of shapes	Sequences
4 Rules - Decimals	Fractions	Simplifying & Index Laws	Linear Inequalities	Angle facts	Basic vectors
Indices Powers & Roots	Percentages	Expanding & Factorising	Perimeter & Area	Parallel lines	
Factors, Multiples & Primes	Proportion	Expressions & Substitution	Pythagoras	Circles	
Ratio (basic)				Volume & Surface Area	
Year 10 Foundation					
Half Term 7	Half Term 8	Half Term 9	Half Term 10	Half Term 11	Half Term 12
Linear Graphs	Rearrange formulae	Probability	Simple interest	Statistics	Plans & elevations
$y = mx + c$	Linear Simultaneous Equations	Standard Form	Ratio (further)		Constructions & Loci
Compound Measures	Further graphs		Growth & Decay		
Quadratic graphs, TP and roots					
Year 11 Foundation					
Half Term 13	Half Term 14	Half Term 15	Half Term 16	Half Term 17	Half Term 18
Pythagoras	Algebra Review	Transformations	Number review	Revision	Revision
Right angled Trigonometry		Congruence			
Bearings & Scale Drawings		Vectors			
		Similar shapes			

Year 9 Higher					
Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Place value & Number Properties	FDP	Notation	Linear Equations	Properties of shapes	Sequences
4 Rules - Decimals	Fractions	Simplifying & Index Laws	Linear Inequalities	Angle facts	Basic vectors
Indices Powers & Roots	Percentages	Expanding & Factorising	Perimeter & Area	Parallel lines	
Factors, Multiples & Primes	Proportion	Expressions & Substitution	Pythagoras	Circles	
Ratio (basic)				Volume & Surface Area	
Year 10 Higher					
Half Term 7	Half Term 8	Half Term 9	Half Term 10	Half Term 11	Half Term 12
Linear Graphs	Rearrange formulae	Probability	Surds	Statistics - no higher	Right angled Trigonometry
$y = mx + c$	Further expanding & factorising	Capture & Recapture	Recurring decimals	Simple interest	Plans & elevations
Compound Measures	Linear Simultaneous Equations	Standard Form	Bounds	Ratio (further)	Constructions & Loci
Quadratic graphs, TP and roots	Further graphs	Proportion (further)	Growth & Decay		Similar shapes
Year 11 Higher					
Half Term 13	Half Term 14	Half Term 15	Half Term 16	Half Term 17	Half Term 18
Algebraic proof	Bearings	Statistics (Further)	Gradients (Further), and area under a graph	Revision	Revision
Solving quadratics & further Simultaneous equations	Circle theorems	Transformations	Kinematics		
Functions	Further Trigonometry & Trigonometric graphs	Congruence	Graphical transformations		
Iteration		Vectors			
Quadratic inequalities					



Homework & Revision

As part of the United Learning Academy Trust, JSA students are automatically subscribed to 'Hegarty Maths', an online Mathematics Learning Facility. Students are expected to complete weekly tasks set by the teacher, and may also complete online learning in their own time as revision and to catch up on missed work.

Students are also provided with Revision Guides and Workbooks when they enter into their final year of study.

A Level

COURSE LEADER: Mr Wood

What does the course involve?

The course is taught over two years encompassing.

- Pure mathematics—trigonometry, calculus, functions, graphs, vectors, proof.
- Mechanics—kinematics, forces and motion, constant and variable acceleration.
- Statistics—probability, statistical distributions, hypothesis testing.

Students will sit three exams at the end of the two year course, two in pure mathematics and one in mechanics and statistics.

Our students say:

'Maths is logistical and fun, its hard work but rewarding when I solve a complex problem'

'I chose to stay at John Smeaton because of the teachers—they always go out of their way to help—even in holidays!'

Where will this course take you?

Maths A level is a highly prized and sought after qualification due to the logistical approach to problem solving it prescribes.

Both universities and employers look favourably upon students who have achieved maths at A level.

The career paths are limitless with many highly paid and highly respected careers. A few possibilities are listed here:

Animator, special effects director, computer games designer, forensic scientist, astronaut, cryptanalyst, architect, doctor, fashion designer, accountancy, actuary, astronomer, meteorologist, environmental consultant, stockbroker, interior designer, car designer, political scientist, aeronautical engineer, NASA.

Entry Requirements and Further Information:

Five 9-5 grades at GCSE including a 5 or above in English.

Minimum Grade 6 GCSE Maths



Supporting your child

As well as the general equipment required by your child, there are some specific pieces of equipment needed in maths. Below is a list of maths equipment required every maths lesson, and the reasons why they need it:

RED PEN – When students are taking key notes in maths, or copying model answers from the teacher, they must use a red pen.



WHITEBOARD PEN – During maths lessons, students use mini-whiteboards to do their working out, and show teachers their answers.



360° PROTRACTOR – Although using a 180° protractor is fine, it is much easier to measure angles using a 360° one!



SCIENTIFIC CALCULATOR – The calculator shown below is the recommended calculator that students are required to use from Y7 to Y11.



Casio FX85GT Plus Scientific Calculator

Prices range from between £5 to £10

Available online, many retailers and soon in the school shop.



Further information

If you require any further information about the department please use the following the contact details:

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