



Year 11 FOUNDATION Maths Medium Term Plan

Autumn Term

Learning Overview	Expressions, formulae and rearranging equations • understand that a letter may represent an unknown number or a variable • use correct notational conventions for algebraic expressions and formulae • substitute positive and negative integers, decimals and fractions for words and letters in expressions and formulae • use formulae from mathematics and other real-life contexts expressed initially in words or diagrammatic form and convert to letters and symbols • derive a formula or expression • change the subject of a formula where the subject appears once Inequalities • understand and use the symbols $>$, $<$, $\geq$ and $\leq$ • understand and use the convention for open and closed intervals on a number line • solve simple linear inequalities in one variable and represent the solution set on a number line Sequences • generate terms of a sequence using term-to-term and position-to-term definitions of the sequence • find subsequent terms of an integer sequence and the rule for generating • use linear expressions to describe the nth term of arithmetic sequences Graphs of inequalities • identify regions on rectangular Cartesian graphs defined by simple linear inequalities Simultaneous equations • calculate the exact solution of two simultaneous equations in two unknowns
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	Measures, bearings and scale drawings • interpret scales on a range of measuring instruments • calculate time intervals in terms of the 24-hour and the 12-hour clock • make sensible estimates of a range of measures • understand angle measure including threefigure bearings • measure an angle to the nearest degree • solve problems using scale drawings Symmetry • identify any lines of symmetry and the order of rotational symmetry of a given two-dimensional figure Polygons • recognise and give the names of polygons, To include parallelogram, rectangle, square, rhombus, trapezium, kite, pentagon, hexagon and octagon • understand and use the term 'quadrilateral' and the angle sum property of quadrilaterals • understand and use the properties of the parallelogram, rectangle, square, rhombus, trapezium and kite
Assessment Opportunities	
Textbooks Published Lesson Resources	
Home Learning Resources	Dr Frost – Homework and independent learning Specific Links to Oak Academy
Knowledge organisers	

Autumn 1

Week Number	Learning Overview / objective (outlined above)	What should pupils know, understand and be able to do by the end of the week?
1	Expressions, formulae and rearranging equations	By the end of this week, students should be able to: substitute positive and negative integers, decimals and fractions for words and letters in expressions and formulae, use formulae from mathematics and other real-life contexts expressed initially in words or diagrammatic form and convert to letters and symbols,
2	Expressions, formulae and rearranging equations cont..	By the end of this week, students should be able to: derive a formula or expression, change the subject of a formula where the subject appears once
3	Inequalities	By the end of this week, students should be able to: understand and use symbols, the convention for open and closed intervals on a number line, solve simple linear inequalities in one variable and represent the solution set on a number line
4	Sequences	By the end of this week, students should be able to: generate terms of a sequence using term-to-term and position-to-term definitions of the sequence, find subsequent terms of an integer sequence and the rule for generating,
5	Sequences & Graphs of inequalities	By the end of this week, students should be able to: use linear expressions to describe the n th term of arithmetic sequences,
6	Graphs of inequalities	By the end of this week, students should be able to: identify regions on rectangular Cartesian graphs defined by simple linear inequalities
7	Recap and revision of unit 1 content for Modular Exam Mocks	

Autumn 2

Week Number	Learning Overview / objective (outlined above)	What should pupils know, understand and be able to do by the end of the week?
1	Simultaneous equations	By the end of this week, students should be able to: calculate the exact solution of two simultaneous equations in two unknowns
2	Measures, bearings and scale drawings	By the end of this week, students should be able to: interpret scales on a range of measuring instruments, calculate time intervals, understand angle measure including threefigure bearings, solve problems using scale drawings
3	Recap and revision of unit 1 content for Modular Exam	
4	Recap and revision of unit 1 content for Modular Exam	
5	November exams	
6	Symmetry	By the end of this week, students should be able to: identify any lines of symmetry and the order of rotational symmetry of a given two-dimensional figure
7	Polygons	By the end of this week, students should be able to: recognise and give the names of polygons and use the properties, To include parallelogram, rectangle, square, rhombus, trapezium, kite, pentagon, hexagon and octagon



Year 11 HIGHER Maths Medium Term Plan

Autumn Term

Learning Overview	Inequalities • solve quadratic inequalities in one unknown and represent the solution set on a number line Sequences • understand and use common difference (d) and first term (a) in an arithmetic sequence • know and use nth term $= a + (n-1)d$ • find the sum of the first n terms of an arithmetic series (S_n) Graphs of inequalities • identify harder examples of regions defined by linear inequalities Harder graphs and transformation of graphs • apply to the graph of $y = f(x)$ the transformations $y = f(x) + a$, $y = f(ax)$, $y = f(x + a)$, $y = af(x)$ for linear, quadratic, sine and cosine functions • interpret and analyse transformations of functions and write the functions algebraically • find the gradients of non-linear graphs by drawing a tangent • find the intersection points of two graphs, one linear y_1 and one non-linear y_2 and recognise that the solutions correspond to the solutions of $(y_2 - y_1) = 0$ Simultaneous equations • calculate the exact solution of two simultaneous equations in two unknowns • interpret the equations as lines and the common solution as the point of intersection Function notation • understand the concept that a function is a mapping between elements of two sets • use function notations of the form $f(x) = \dots$ and $f : x \mapsto \dots$ • understand the terms 'domain' and 'range' and which values may need to be excluded from a domain
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	- understand and find the composite function fg and the inverse function f^{-1} Calculus - understand the concept of a variable rate of change - differentiate integer powers of x - determine gradients, rates of change, stationary points, turning points (maxima and minima) by differentiation and relate these to graphs Find the coordinates of the maximum and minimum points - distinguish between maxima and minima by considering the general shape of the graph only E apply calculus to linear kinematics and to other simple practical problems Geometry of shapes - find the surface area and volume of a sphere and a right circular cone using relevant formulae - recognise and give the names of polygons and use the properties, to include parallelogram, rectangle, square, rhombus, trapezium, kite, pentagon, hexagon and octagon
Assessment Opportunities	Each week students will answer exam style questions on the topic they are studying in class. Mock tests to practice answering exam style questions in timed conditions.
Textbooks Published Lesson Resources	Edexcel International GCSE (9-1) Mathematics A Student Book 1 & 2

Home Learning Resources	Dr Frost – Homework and independent learning Save My Exams Specific Links to Oak Academy	
Knowledge organisers	Insert links here. No International GCSE specific KO's available. Edexcel GCSE can be used	

Autumn 1

Week Number	Learning Overview / objective (outlined above)	What should pupils know, understand and be able to do by the end of the week?
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1	Inequalities	By the end of this week, students should be able to: solve quadratic inequalities in one unknown and represent the solution set on a number line
2	Sequences	By the end of this week, students should be able to: understand and use common difference (d) and first term (a) in an arithmetic sequence, know and use n th term $= a + (n-1)d$, find the sum of the first n terms of an arithmetic series (S_n)
3	Graphs of inequalities	By the end of this week, students should be able to: identify harder examples of regions defined by linear inequalities
4	Harder graphs and transformation of graphs	By the end of this week, students should be able to: apply to the graph of $y = f(x)$ the transformations for linear, quadratic, sine and cosine functions, interpret and analyse transformations of functions and write the functions algebraically, find the gradients of non-linear graphs by drawing a tangent, find the intersection points of two graphs, one linear y_1 and one non-linear
5	Simultaneous equations	By the end of this week, students should be able to: calculate the exact solution of two simultaneous equations in two unknowns, interpret the equations as lines and the common solution as the point of intersection
6	Recap and revision of unit 1 content for Modular Exam Mocks	
7	Recap and revision of unit 1 content for Modular Exam Mocks	

Autumn 2

Week Number	Learning Overview / objective (outlined above)	What should pupils know, understand and be able to do by the end of the week?
1	Function notation	By the end of this week, students should be able to: understand the concept that a function is a mapping between elements of two sets, understand the terms 'domain' and 'range' and which values may need to be excluded from a domain,
2	Function notation & Calculus	By the end of this week, students should be able to: understand and find the composite function fg and the inverse function f^{-1} understand the concept of a variable rate of change, differentiate integer powers of x
3	Calculus	By the end of this week, students should be able to: determine gradients, rates of change, stationary points, turning points (maxima and minima) by differentiation and relate these to graphs, distinguish between maxima and minima by considering the general shape of the graph, apply calculus to linear kinematics and to other simple practical problems
4	Recap and revision of unit 1 content for Modular Exam	
5	Recap and revision of unit 1 content for Modular Exam	
6	November exams	
7	Geometry of shapes	By the end of this week, students should be able to: find the surface area and volume of a sphere and a right circular cone using relevant formulae

