

Al Jazeera Academy Maths Department: Programme of Study (11 Sept – Nov 2011)

<u>Year Group</u>	<u>Topics Covered</u>	<u>Knowledge and content</u>	<u>Key skills taught</u>	<u>Useful Websites / Resources</u>	<u>What will we test?</u>	<u>How can we help?</u>
Year 7	Number Types of number 4 operations Sequences Function machines Points, lines & angles	Recognise types of number Efficient methods of calculation Recognise patterns and create patterns using functions Learn names and properties of angles Learn and apply angle rules	Mental maths will be focused on making sure pupils are familiar and confident with timetables and number bonds.	www.mymaths.co.uk www.bbc.co.uk/schools/ks3bitesize/maths	Test of 1 st month's content. After which KS3 assessments. Levels and end of year targets will be provided	Classroom support. Differentiated lessons and exercises. Use textbooks, mymaths website for self-study. Monitor pupil progress via website
Year 8	Number 4 operations Types of number Sequences Geometric sequences, Function machines Decimals Fractions	Recognise types of number Efficient methods of calculation Recognise patterns and create patterns using functions 4 operations with Decimal and Fractions inc with Improper and mixed number fractions	Mental maths will be focused on making sure pupils are familiar and confident with timetables and number bonds.	www.mymaths.co.uk www.bbc.co.uk/schools/ks3bitesize/maths	Test of 1 st month's content. After which KS3 assessments. Levels and end of year targets will be provided	Classroom support. Differentiated lessons and exercises. Use textbooks, mymaths website for self-study. Monitor pupil progress via website
Year 9	Number Fractions BIDMAS Types of number HCF LCM Decimals Percentages	Types of number Apply order of operations rule Use factors, multiples, prime factors to obtain HCF and LCM 4 operations with Decimals Decimal/Percentage equivalences Percentage of an amount Percentage Inc/Dec	Mental maths will be focused on making sure pupils are familiar and confident with timetables and number bonds.	www.mymaths.co.uk www.bbc.co.uk/schools/ks3bitesize/maths	Test of 1 st month's content. After which KS3 assessments. Levels and end of year targets will be provided	Classroom support. Differentiated lessons and exercises. Use textbooks, mymaths website for self-study. Monitor pupil progress via website
Year 10 Foundation	Mod 4 – Fractions Mod 5 – Percentages Mod 1 – Algebraic manipulation Mod 2 Expressions and formulae	4 operations Equivalent and simplifying Frac/Dec/Perc conversion. Per Increase and Decrease Percentage and Fraction problems Collecting like terms basic factorisation Substitution Using formulae in words and algebraic form	Consolidation of previous years' work. Basic number work will also be required with this group	www.mymaths.co.uk Mathswatch CD	Initial assessment to specify groupings of higher and foundation pupils. Secondary assessment to determine target grades for IGCSE	Small group of pupils. 'Time will be used effectively to adequately support this group and their specific needs.' Mymaths website will also be used to motivate and monitor the pupils
Year 10 higher	Mod 3 – Fractions Mod 2 – Powers and roots Mod 1 – Algebraic Manipulation Mod 2 Expressions and formulae	4 operations Fraction problems HCF LCM Prime factors Surds Order of Operations Factorising single and double brackets Add and subtract algebraic fractions Using and deriving worded and algebraic formulae	Consolidation of previous years' work Introduction to higher level A/A* topics and how to approach these important topics	www.mymaths.co.uk Mathswatch CD	Initial assessment to specify groupings of higher and foundation pupils. Secondary assessment to determine target grades for IGCSE	Assessment of work covered Past paper questions to be used as starters and plenaries

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Year 11 Foundation	Directed numbers Order of operations Solving equations Simultaneous equations	4 operations with directed numbers Use BIDMAS to solve questions Solve simple linear equations Solve simple simultaneous equations by elimination or substitution	Exam techniques How to achieve as many marks as possible in higher level questions	www.mymaths.co.uk Mathswatch CD	Assessments after every couple of modules	Past paper booklets Providing pupils with their target grades and supporting them to achieve this with specific feedback
Year 11 Higher	Measurements with units Pythagoras's theorem Trigonometry Quadratic Functions	Convert between different units of measurement Use Pythagoras' theorem to solve 2D problems Use trigonometry to solve problems Inc. bearings Using linear, quadratic and inverse functions to solve unknowns	Exam techniques How to achieve as many marks as possible in higher level questions	www.mymaths.co.uk Mathswatch CD	Assessments after every couple of modules	Past paper booklets Providing pupils with their target grades and supporting them to achieve this with specific feedback
Year 12 (AS level)	-Algebra and function -Quadratic functions -Equation and Inequalities -Sketching Curves --Transformation of graphs -Coordinate geometry in the (x,y) plane	Expand expressions Factorise quadratics Understand and apply the rules of indices. Solve quadratics using different methods completing the square. Solve linear and quadratic inequalities Sketch quadratics and cubic graphs and find the coordinates of the point of intersection. Apply transformations to functions Find the gradient and the equation of a straight line including parallel and perpendicular lines.		www.mymaths.co.uk	Assesment1 Chapter 1 to 3 Assessment2 Chapter 4 & 5	Provide past papers booklets.
Year13 (IBDP) Higher	Matrices Vectors	Definition of a matrix: element, row, etc. Algebra of matrices: equality; operations by a scalar. Identity and zero matrices. Determinant of a square matrix. Inverse of a matrix: conditions for its existence Solution of systems of linear equations Conditions for the existence of a unique solution, no solution and an infinity of solutions Vectors as displacements in the plane and 3 dimensions. Components of a vector; Algebraic and geometric approaches to the following topics: the sum and difference of two vectors; the zero vector, the vector $-v$; multiplication by a scalar magnitude of a vector unit vectors; base position vectors The scalar product of two vectors Algebraic properties of the scalar product Perpendicular vectors; parallel vectors. The angle between two vectors Vector equation of a line The angle between two lines Coincident, parallel, intersecting and skew lines, distinguishing between these cases. Points of intersection - The vector product of two vectors The determinant representation. Vector equation of a plane Use of normal vector Cartesian equation of a plane		www.mymaths.co.uk	Assessment 1 –Matrices Revision assessment : Complex numbers Assessment 2 – Vectors Revision assessment : Differentiation Revision assessment: Integration.	Provide past papers booklets.

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