

BRADFIELD COLLEGE

IGCSE Mathematics

Revision Guide

Bradfield College Maths Department

2010

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Introduction to the Revision Guide

Aims

The aim of the revision guide is to provide you with a resource that you can use to link to theory, examples and practice questions.

The four main areas to revise are:

- Number
- Algebra
- Shape, space and measure
- Handling data

How to use the guide

The tables that follow include the following information:

- A summary of the area, including an indication of whether it is a Foundation (F) or Higher (H) tier topic
- An example of a question relating to the topic
- A link to a textbook or online resource
- An indication of the level of difficulty of a particular topic. (Please treat this with care, it is a guide only)
- A self assessment column for you to review your own strengths and weaknesses

Before you start your revision there are two questions that you need to consider:

- What grade am I aiming for?
- What topics do I need to improve to achieve my target grade?

You should use the self assessment column to identify areas that you need to improve to achieve your goal. There is little benefit to be gained from practising topics that you can already do confidently. Equally, if you want to achieve a B it is not worth spending too much time revising A* topics. Think about where you need to improve and target these areas. If you get stuck then ask your teacher or come along to a Surgery.....

Using the different resources

The Revision Guide provides links to three main resources.

IGCSE Book 1 and Book 2

You should have a copy of IGCSE Book 2. Copies of IGCSE Book 1 are available in the Maths Department. When working through exercises remember that you can check your work by looking at the answers to the odd questions in the back of the book

MEP Books

There are three books: Unit 1-6, Unit 7-12 and Unit 13-19. Hard copies of the books are available in the Maths Department. Alternatively, you can click on the links to access the books online.

If you want to check your answers look in the back of the textbook or use the following links:

- [Solutions to Unit 1-6](#)
- [Solutions to Unit 7-12](#)
- [Solutions to Unit 13-19](#)

MyMaths

There are links to both online lessons (L1, L2 etc) and online homeworks (H1, H2 etc). To log on to MyMaths you need to know:

- School Password: Bradfield
- School Login: Seven

If you want to keep track of your scores, you will also need an individual login and password. If you haven't got this already you can obtain this from your teacher. Alternatively, you can do the homework tasks for fun. In this case you do not need an individual password.

Overview of topics

<u>Number</u>	<u>Algebra</u>
N1 Integers	Equations, Formulae and Identities
N2 Fractions	A1 Use of symbols
N3 Decimals	A2 Algebraic Manipulation
N4 Powers and Roots	A3 Expressions and Formulae
N5 Set Language and Notation	A4 Linear Equations
N6 Percentages	A5 Proportion
N7 Ratio and Proportion	A6 Simultaneous Linear Equations
N8 Degree of Accuracy	A7 Quadratic Equations
N9 Standard Form	A8 Inequalities
N10 Applying Number	Sequences, functions and graphs
N11 Electronic Calculators	A9 Sequences
	A10 Functional Notation
	A11 Graphs
	A12 Calculus

<u>Shape, Space and Measures</u>	<u>Handling data</u>
<u>Geometry</u>	HD1 Graphical Representation of Data
S1 Angles and triangles	HD2 Statistical Measures
S2 Polygons	HD3 Probability
S3 Symmetry	
S4 Measures	
S5 Construction	
S6 Circle properties	
S7 Geometrical reasoning	
S8 Trigonometry and Pythagoras' Theorem	
S9 Mensuration	
S10 Similarity	
<u>Vectors and Transformation Geometry</u>	
S11 Vectors	
S12 Transformation Geometry	

Note that the breakdown of exam questions is likely to follow the split below:

- Number and Algebra 55%
- Shape, Space and Measure 25%
- Handling data 20%

Revising Number

Topic	Sub-topic	Notes / example question	Reference	Grade	Self assessment
N1 Integers	Negative numbers (F)	Calculate -7×-4	IGCSE 1: p2-3 MEP: Unit 1-6: p30-32 , Unit 7-12: p184-186 MyMaths: L1 , H1 , L2 , H2	C	1 2 3 4 5 n/a
N1 Integers	Bidmas (F)	Calculate $(2 + 2 \times 6)^2$	IGCSE 1: p2-3 MEP: MyMaths: L1 , H1	C	1 2 3 4 5 n/a
N1 Integers	Prime factors, lowest common multiple, highest common factor (F/H)	Express 12 and 42 as the product of prime factors. Find the HCF and LCM of 12 and 42	IGCSE 1: p124-127 MEP: Unit 1-6: p11-12 MyMaths L1 , H1 , L2 , H2 , L3 , H3	C	1 2 3 4 5 n/a
N2 Fractions	Equivalent fractions, mixed numbers and vulgar fractions (F)	Simplify $\frac{28}{42}$ Convert $\frac{13}{4}$ to a mixed number	IGCSE 1: p1-2 MEP: MyMaths: L1 , H1 , L2 , H2	C	1 2 3 4 5 n/a
N2 Fractions	Convert between fractions, decimals and percentages (F)	Write 0.75 as a fraction and a percentage	IGCSE 1: p1-2 MEP: Unit 7-12: p213-217 , p234-236 MyMaths: L1 , H1 , L2 , H2	C	1 2 3 4 5 n/a
N2 Fractions	Add and subtract fractions (F)	Work out $2\frac{5}{6} + 1\frac{3}{4}$	IGCSE 1: p63-64 MEP: Unit 7-12: p249-252 MyMaths: L1 , H1	C	1 2 3 4 5 n/a
N2 Fractions	Multiply and divide fractions (F)	Work out $1\frac{7}{8} \times 4$	IGCSE 1: p63-64 MEP: Unit 7-12: p252-256 MyMaths: L1 , H1 , L2 , H2 , L3 , H3	C	1 2 3 4 5 n/a

Topic	Sub-topic	Notes / example question	Reference	Grade	Self assessment
N3 Decimals	Convert recurring decimals into fractions (H)	Change $0.\dot{7}\dot{9}$ to a fraction	IGCSE 2: p5-8 MEP: MyMaths: L1 , H1 , L2 , H2	B	1 2 3 4 5 n/a
N4 Powers and roots	Calculate squares, square roots, cubes and cube roots (F)	Evaluate $8^2, \sqrt{16}$	IGCSE 1: MEP: Unit 1-6: p 3-5 MyMaths: L1 , H1	C	1 2 3 4 5 n/a
N4 Powers and roots	Use index notation and index laws with positive integer powers(F)	Find $2^7 \times 2^4, 7^{14} \div 7^2$	IGCSE 1: p79-80 MEP: Unit 1-6: p 5-9 MyMaths: L1 , H1	C	1 2 3 4 5 n/a
N4 Powers and roots	Use index notation and laws with fractional and negative powers (H)	Evaluate $\sqrt[3]{8^2}, 625^{-\frac{1}{2}}$	IGCSE 2: p72-76 MEP: Unit 1-6: p 13-15 MyMaths: L1 , H1	A	1 2 3 4 5 n/a
N4 Powers and roots	Understand and manipulate surds (H)	Simplify $(3 + 5\sqrt{2})^2$ Rationalise $\frac{2}{\sqrt{8}}$	IGCSE 2: p260-268 MEP: Unit 1-6: p246-250 MyMaths: L1 , H1 , L2 , H2	A*	1 2 3 4 5 n/a
N5 Set Language and Notation	Understand basic set theory and notation(eg \cup, \cap, \emptyset) (F)	$\varepsilon = \{\text{positive integers less than } 12\}$, $A = \{2, 4, 6, 8, 10\}$, $B = \{4, 5, 5, 7, 8\}$ List $A \cup B$ and $A \cap B$	IGCSE 1: p43-53 MEP: MyMaths:	B/C	1 2 3 4 5 n/a
N5 Set Language and Notation	Understand more advanced notation (eg complement, subset and $n(A)$) (H)	$\varepsilon = \{\text{positive integers less than } 12\}$, $A = \{2, 4, 6, 8, 10\}$, $B = \{4, 5, 5, 7, 8\}$ List $(A \cap B)'$ and find $n(A \cap B)$	IGCSE 1: p43-53 IGCSE 2: p57-65 MEP: MyMaths:	A/B	1 2 3 4 5 n/a
N5 Set Language and Notation	Use Venn Diagrams to represent sets and use sets in practical situations (H)	$\varepsilon = \{\text{positive integers less than } 12\}$, $A = \{2, 4, 6, 8, 10\}$, $B = \{4, 5, 5, 7, 8\}$ Show the information in a Venn Diagram	IGCSE 1: p43-53 IGCSE 2: p57-65 MEP: MyMaths:	A	1 2 3 4 5 n/a

Topic	Sub-topic	Notes / example question	Reference	Grade	Self assessment
N6 Percentages	Express a number as a percentage of another number (F)	Jack scores 72 out of 80 on a test. What is this as a percentage?	IGCSE 1: p3-5 MEP: Unit 7-12: p240-242 MyMaths:	C	1 2 3 4 5 n/a
N6 Percentages	Solve simple percentage problems including increase and decrease (F)	Find the interest earned after one year on \$3000 invested at 5% per annum	IGCSE 1: p3-5, 119-124 MEP: Unit 7-12: p242-248 MyMaths: L1 , H1 , L2 , H2	C	1 2 3 4 5 n/a
N6 Percentages	Solve inverse percentage problems (H)	A jumper is reduced in a sale by 30% and now costs £17.50. What was the original price of the jumper	IGCSE 1: p183-185 MEP: Unit 7-12: p259-261 MyMaths: L1 , H1	B	1 2 3 4 5 n/a
N7 Ratio and proportion	Divide a quantity in a given ratio and solve word problems about ratio (F)	Share £416 in the ratio 5:3	IGCSE 1: p65-69 MEP: Unit 13-19: p162-176 MyMaths: L1 , H1 , L2 , H2	C	1 2 3 4 5 n/a
N8 Degree of accuracy	Round to a given number of significant figures or decimal places (F)	Write 672900 correct to 3 significant figures. Write 23.428 correct to 1 decimal place	IGCSE 1: p7-9 MEP: Unit 1-6: p221-224 MyMaths: L1 , H1 , L2 , H2	C	1 2 3 4 5 n/a
N8 Degree of accuracy	Use estimates to evaluate approximations to calculations (F)	By rounding each number to 1 significant figure estimate the value of $\frac{4.9 \times 24.6}{46.3}$	IGCSE 1: p190-191 MEP: Unit 1-6: p228-230 MyMaths: L1 , H1	C	1 2 3 4 5 n/a
N8 Degree of accuracy	Identify upper and lower bounds (F)	The quantities of x and y are given to 1 significant figure as x=20 and y = 40. Find the upper and lower bound of x and y	IGCSE 1: p186-189 MEP: Unit 1-6: p237-241 MyMaths: L1 , H1	C	1 2 3 4 5 n/a
N8 Degree of accuracy	Solve problems involving upper and lower bounds (H)	The quantities of a and b are given to 1 significant figure as a=300 and b = 400. Find the minimum value of $a + b$ and $\frac{a}{b}$	IGCSE 1: p186-189 MEP: Unit 1-6: p237-241 MyMaths: L1 , H1	A/B	1 2 3 4 5 n/a

Topic	Sub-topic	Notes / example question	Reference	Grade	Self assessment
N9 Standard Form	Express numbers in the form $a \times 10^n$ (H)	Write these numbers in standard form: 47000, 0.0000463 Write these numbers in normal notation: 3.6×10^3 , 5.7×10^{-4}	IGCSE 1: p5-6, 59-62 MEP: Unit 1-6: p15-19 MyMaths: L1 , H1 , L2 , H2	C	1 2 3 4 5 n/a
N9 Standard Form	Solve problems involving standard form (H)	Calculate: $6.2 \times 10^8 \times 1.2 \times 10^{14}$ $(1.84 \times 10^6) \div (1.92 \times 10^{-7})$	IGCSE 1: MEP: Unit 1-6: p19-23 MyMaths: L1 , H1	B	1 2 3 4 5 n/a
N10 Applying number	Use and apply number to solve practical, day to day type problems	Lots of possibilities here...		C	1 2 3 4 5 n/a
N11 Electronic calculators	Use a scientific calculator (F)	Calculator checklist (you should be able to do all of the following): <ul style="list-style-type: none"> • Number: standard form, fractions, powers and roots, π <ul style="list-style-type: none"> ○ Can you use your calculator to convert between fractions and decimals? ○ Could you work out $2\frac{1}{8} \times 1\frac{1}{7}$? • Trigonometry: sin, cos, tan (and their inverse functions) <ul style="list-style-type: none"> ○ Tip: make sure your calculator is set to degrees • Memory button • Can you reset your calculator in case you have problems? 	IGCSE 1: MEP: Unit 1-6: p231-236 MyMaths:	B/C	1 2 3 4 5 n/a

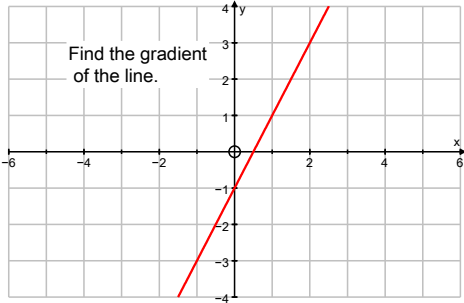
Revising Algebra

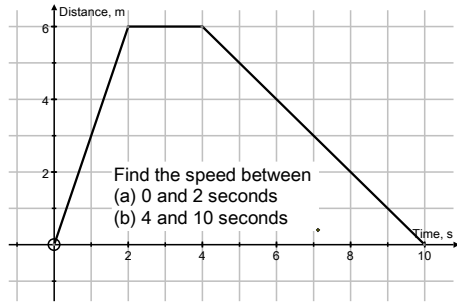
Topic	Sub-topic	Notes / example question	Reference	Grade	Self assessment
A1 Use of Symbols	Use index notation and laws for positive integer powers (F)	Simplify $x^3 \times x^2$ Simplify $\frac{x^7}{x^2}$	IGCSE 1: p79-80 MEP: Unit 1-6: p 5-9 MyMaths: L1, H1	C	1 2 3 4 5 n/a
A1 Use of Symbols	Use index notation involving fractional powers (H)	Simplify $(64t^3)^{\frac{1}{3}}$	IGCSE 2: p72-76 MEP: Unit 1-6: p 13-15 MyMaths: L1, H1	A	1 2 3 4 5 n/a
A2 Algebraic Manipulation	Collect like terms (F)	Simplify $2p^2 - 5p^2 + 2p - 4p$	IGCSE 1: p11-12 MEP: Unit 7-12:p187-189 MyMaths: L1, H1, L2, H2	C	1 2 3 4 5 n/a
A2 Algebraic Manipulation	Multiply out single and double brackets (F)	Multiply out the brackets: $3(x + 4)$ $(x + 3)(x - 2)$	IGCSE 1: p12-13, 268-270 MEP: Unit 7-12:p187-189 Unit 7-12:p201-204 MyMaths: L1, H1	C	1 2 3 4 5 n/a
A2 Algebraic Manipulation	Factorise simple expressions (F)	Factorise: $x^2 + 3x$	IGCSE 1: p132-133 MEP: Unit 7-12:p210-212 MyMaths: L1, H1	C	1 2 3 4 5 n/a
A2 Algebraic Manipulation	Multiply out harder expressions (H)	Multiply out the brackets: $(2x + 3)(3x - 1)$ $(2x - y)(3x + y)$	IGCSE 1: p268-270 MEP: Unit 7-12:p201-204 MyMaths: L1, H1	B	1 2 3 4 5 n/a
A2 Algebraic Manipulation	Factorise quadratic expressions (H)	Factorise: $x^2 + 12x - 45$ $6x^2 - 5x - 4$	IGCSE 1: p273-276 MEP: Unit 7-12:p212-215 MyMaths: L1, H1, L2, H2	A/B	1 2 3 4 5 n/a

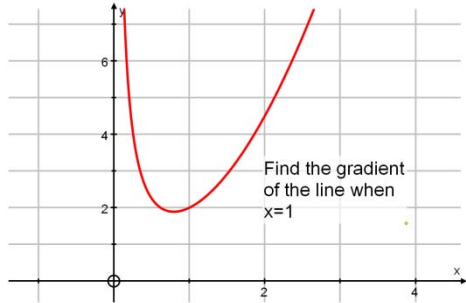
Topic	Sub-topic	Notes / example question	Reference	Grade	Self assessment
A2 Algebraic Manipulation	Simplify expressions with algebraic fractions (H)	Express as a single fraction: $\frac{x+1}{3} + \frac{x-3}{4}$ $\frac{x+1}{x+2} - \frac{x-3}{4}$ Factorise and simplify: $\frac{x^2 - 4x}{x^2 - x - 12}$	IGCSE 1: p 70-73 IGCSE 2: p 269-274 MEP: Unit 7-12:p224-227 MyMaths: L1 , H1 , L2 , H2 , L3 , H3	A*/A	1 2 3 4 5 n/a
A3 Expressions and formulae	Substitute numbers into expressions and formulae (F)	Evaluate $2x - 3y$ when $x = -2$ and $y = 4$	IGCSE 1: p197-200 MEP: Unit 1-6: p32-35 MyMaths: L1 , H1 , L2 , H2	C	1 2 3 4 5 n/a
A3 Expressions and formulae	Use formulae from maths and other real life contexts expressed in words. Convert to letters and symbols (F)	Lots of possibilities...	IGCSE 1: MEP: MyMaths:	C	1 2 3 4 5 n/a
A3 Expressions and formulae	Change the subject of a formula	Make s the subject of $v^2 = u^2 + 2as$ Make t the subject of $m = \frac{1+at}{1-at}$	IGCSE 1: p194-197 MEP: Unit 1-6: p39-45 MyMaths: L1 , H1 , L2 , H2	A*/A/ B	1 2 3 4 5 n/a
A4 Linear equations	Solve linear equations (F)	Solve: $3x + 7 = 22$ $\frac{15 - x}{4} = 2$	IGCSE 1: p13-19 MEP: Unit 7-12:p189-197 MyMaths: L1 , H1 , L2 , H2	C	1 2 3 4 5 n/a

Topic	Sub-topic	Notes / example question	Reference	Grade	Self assessment
A4 Linear equations	Solve linear equations (H)	Solve: $\frac{17 - x}{4} = 2 - x$ $\frac{2x - 3}{6} + \frac{x + 2}{3} = \frac{5}{2}$	IGCSE 2: p275-281 MEP: MyMaths: L1 , H1	A/B	1 2 3 4 5 n/a
A4 Linear equations	Set up simple linear equations (F)	The three angles of a triangle are: a, (a+10) and (a+20) Find the value of a	IGCSE 1: MEP: MyMaths:	C	1 2 3 4 5 n/a
A5 Proportion	Set up problems involving direct or inverse proportion (H)	y is directly proportional to the square of x. If y = 100 when x = 5, find: - A formula for y in terms of x - y when x = 6 - x when y = 64	IGCSE 2: p9-19 MEP: Unit 13-19:p177-196 MyMaths: L1 , H1	A/B	1 2 3 4 5 n/a
A6 Simultaneous Linear Equations	Solve simple simultaneous equations (F)	Solve: $y = 2x, x + y = 12$ $x + y = 14, x - y = 2$	IGCSE 1: p137-138 MEP: MyMaths: L1 , H1	B/C	1 2 3 4 5 n/a
A6 Simultaneous Linear Equations	Solve harder simultaneous equations (H)	Solve: $3x - 4y = 7, 2x - y = 8$ $2x + 3y = 17, 3x - 5y = 18$	IGCSE 1: p138-143 MEP: Unit 7-12:p205-210 MyMaths: L1 , H1 , L2 , H2 , L3 , H3	A/B	1 2 3 4 5 n/a
A6 Simultaneous Linear Equations	Use graphical methods to solve simultaneous equations (H)	Draw the graphs of $y = 2x, x + y = 12$ Hence solve $y = 2x, x + y = 12$	IGCSE 1: p86-88 MEP: Unit 13-19: p59-68 MyMaths:	B	1 2 3 4 5 n/a

Topic	Sub-topic	Notes / example question	Reference	Grade	Self assessment
A7 Quadratic Equations	Solve quadratic equations by factorising (H)	Solve: $x^2 + 7x + 12 = 0$ $2x^2 - 3x + 1 = 0$	IGCSE 1: p277-279 IGCSE 2: p77-83 MEP: Unit 7-12:p216-219 MyMaths: L1 , H1	A/B	1 2 3 4 5 n/a
A7 Quadratic Equations	Solve quadratic equations by using the quadratic formula (H)	Solve: $x^2 + 5x - 2 = 0$	IGCSE 2: MEP: Unit 7-12:p220-223 MyMaths: L1 , H1	A	1 2 3 4 5 n/a
A7 Quadratic Equations	Form and solve quadratic equations from data given in context (H)	The sum of the squares of two consecutive integers. Find the integers.	IGCSE 2: p83-87 MEP: MyMaths:	A*	1 2 3 4 5 n/a
A7 Quadratic Equations	Solve simultaneous equations involving one quadratic (H)	Solve: $y = 2x - 11$ and $x^2 + y^2 = 25$ $y = 11x - 2$ and $y = 5x^2$	IGCSE 2: p188-195 MEP: MyMaths: L1 , H1	A*	1 2 3 4 5 n/a
A8 Inequalities	Solve simple inequalities and show solutions on a number line (F)	Solve the inequality and show the result on a number line: $3x - 2 < 10$	IGCSE 1: p80-94 MEP: Unit 13-19: p197-203 MyMaths: L1 , H1 , L2 , H2	C	1 2 3 4 5 n/a
A8 Inequalities	Show simple inequalities on a graph and interpret graphs with inequalities (F)	Shade the region defined by the inequalities $x \geq 0, y > 1, x + y < 5$	IGCSE 1: p88-94 MEP: Unit 13-19: p208-219 MyMaths: L1 , H1	B	1 2 3 4 5 n/a
A8 Inequalities	Show simple inequalities on a graph and interpret graphs with inequalities (F)	Shade the region defined by the inequalities $x \leq 4, y < 2x + 1, 5x + 2y < 20$	IGCSE 1: p88-94 MEP: Unit 13-19: p208-219 MyMaths: L1 , H1	A/B	1 2 3 4 5 n/a
A8 Inequalities	Solve quadratic inequalities (H)	Solve the inequalities: $x^2 \leq 25$ $(2x - 1)(x - 1) < 0$	IGCSE 2: p87-90 MEP: Unit 13-19: p204-207 MyMaths: L1 , H1	A*	1 2 3 4 5 n/a

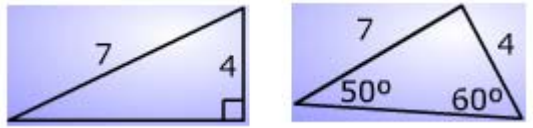
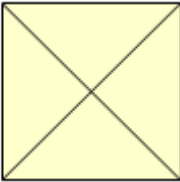
Topic	Sub-topic	Notes / example question	Reference	Grade	Self assessment
A9 Sequences	Find terms in a sequence and continue a sequence (F)	Find the next three terms in the sequence: 3, 7, 11, 15, ... Find the first four terms in the sequence: nth term = $4n-3$	IGCSE 1: p283-286 MEP: Unit 7-12: p262-264 MyMaths: L1 , H1	C	1 2 3 4 5 n/a
A9 Sequences	Describe the nth term in an arithmetic sequence (H)	Find an expression for the nth term in the sequence 3, 7, 11, 15,...	IGCSE 1: p288-293 MEP: Unit 7-12: p273-279 MyMaths: L1 , H1	B/C	1 2 3 4 5 n/a
A10 Function notation	Understand simple functions (H)	If $f(x) = 3x - 2$, find: $f(4)$, $f(-x)$, $f(x + 2)$, $f(x) + 2$ If $f(x) = 3x - 2$ and $f(x) = 25$, find x	IGCSE 2: p196-199 MEP: MyMaths:	B	1 2 3 4 5 n/a
A10 Function notation	Find the domain and range of a function (H)	Which values cannot be included in the domain of the following functions: $f(x) = \frac{1}{x+1}$ $f(x) = \sqrt{x-2}$	IGCSE 2: p200-203 MEP: MyMaths:	A	1 2 3 4 5 n/a
A10 Function notation	Use composite functions ($f \circ g$) and inverse functions (f^{-1}) (H)	If $f(x) = x^2$ and $g(x) = x + 2$, find $f \circ g(x)$ and $g \circ f(x)$ If $f(x) = \sqrt{3x-1}$, find $f^{-1}(x)$	IGCSE 2: p204-211 MEP: MyMaths:	A*	1 2 3 4 5 n/a
A11 Graphs	Find the gradient of a line (F)		IGCSE 1: p21-24 MEP: Unit 13-19: p25-30 MyMaths:	C	1 2 3 4 5 n/a

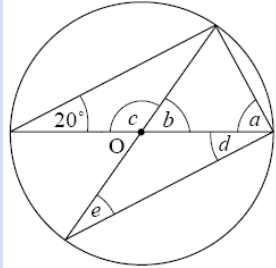
Topic	Sub-topic	Notes / example question	Reference	Grade	Self assessment
A11 Graphs	Find the gradient of a line given two points (H)	Find the gradient of the straight line joining A(6,4) to D (12,1)	IGCSE 1: p21-24 MEP: Unit 13-19: p25-30 MyMaths:	B	1 2 3 4 5 n/a
A11 Graphs	Recognise that m is the gradient, c is the y intercept and find parallel lines (H)	Find the gradient and y intercept of the equation $y = 3x + 5$	IGCSE 1: p24-29 MEP: Unit 13-19: p49-56 MyMaths: L1 , H1	C	1 2 3 4 5 n/a
A11 Graphs	Plot straight line and quadratic graphs (F)	Draw a graph of: $y = 2x - 3$ $3x + 4y = 12$ $y = x^2 + 3x + 2$	IGCSE 1: p24-29 MEP: Unit 13-19: p9-24 MyMaths: L1 , H1	B/C	1 2 3 4 5 n/a
A11 Graphs	Plot and draw more complicated graphs (H)	Draw a graph of: $y = \frac{1}{x}$ $y = 3x^3 - 2x^2 + 5x - 4$ $y = \frac{1}{x}(3x^2 - 5)$	IGCSE 2: p21-29 MEP: Unit 13-19: p69-73 MyMaths: L1 , H1 , L2 , H2	A/B	1 2 3 4 5 n/a
A11 Graphs	Interpret graphs including distance-time, speed-time and currency conversion (F)	 <p>Find the speed between (a) 0 and 2 seconds (b) 4 and 10 seconds</p>	IGCSE 1: p146-153 MEP: Unit 13-19: p30-39 MyMaths: L1 , H1 , L2 , H2	C	1 2 3 4 5 n/a

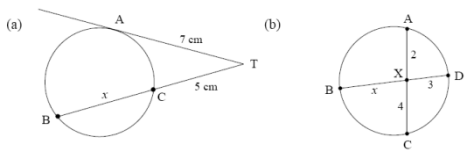
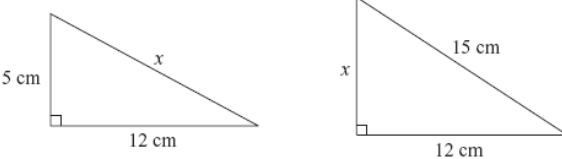
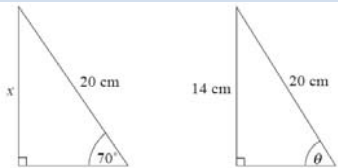
Topic	Sub-topic	Notes / example question	Reference	Grade	Self assessment
A11 Graphs	Find the gradient of a graph by drawing a tangent (H)		IGCSE 2: p212-223 MEP: MyMaths:	A	1 2 3 4 5 n/a
A11 Graphs	Find the intersection of two graphs by graphical and algebraic methods	Find the x values of the co-ordinates of intersection of $y = 2x + 1$ and $y = x^2 + x - 3$	IGCSE 2: p91-103 MEP: Unit 13-19: p74-78 MyMaths: L1 , H1	A*/A	1 2 3 4 5 n/a
A12 Calculus	Differentiate powers of x	Differentiate: $y = x^3$ $y = 2x^3 + 4x^{-1} + 5$ $y = x^2(x + 2)$	IGCSE 2: p284-287 MEP: MyMaths:	A	1 2 3 4 5 n/a
A12 Calculus	Determine gradients and turning points by differentiation. Distinguish between maximum and minimum points.	Find and classify the turning points on the curve $y = x^3 + 3x^2 - 9x - 7$	IGCSE 2: p288-295 MEP: MyMaths:	A*	1 2 3 4 5 n/a
A12 Calculus	Use differentiation to solve problems involving displacement, velocity and acceleration	The displacement, s metres of a particle after t seconds is given by $s = 100 + 5t^2$ Find an expression for the velocity. Find the acceleration	IGCSE 2: p296-301 MEP: MyMaths:	A*	1 2 3 4 5 n/a

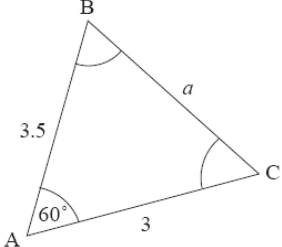
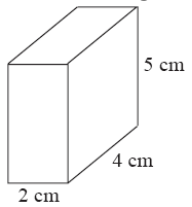
Revising Shape, Space and Measures

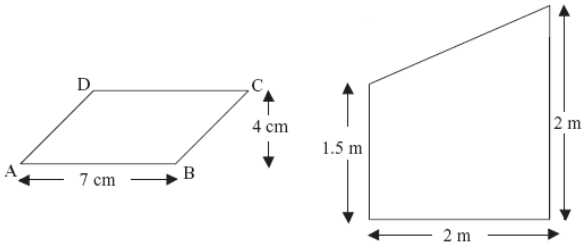
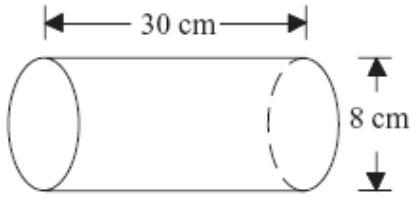
Topic	Sub-topic	Notes / example question	Reference	Grade	Self assessment
S1 Angles and triangles	Use angle properties (angles at a point, vertically opposite angles, alternate angles and corresponding angles) and understand difference between acute, obtuse and reflex angles (F)	<p>Find the angles marked in each diagram, giving reasons for your answers.</p>	IGCSE 1: p31-36 MEP: Unit 1-6: p73-79 MyMaths: L1 , H1	C	1 2 3 4 5 n/a
S1 Angles and triangles	Use angle properties of triangles to include isosceles, equilateral and right angled. Find exterior angles and angle sum in a triangle. (F)	The largest angle in an isosceles triangle is 100 degrees. Find the other two angles.	IGCSE 1: p31-36 MEP: Unit 1-6: p66-73 MyMaths: L1 , H1	C	1 2 3 4 5 n/a
S2 Polygons	Recognise the names and properties of the following polygons: Parallelogram, rectangle, square, rhombus, trapezium, kite, pentagon, hexagon and octagon (F)	State similarities and differences between a parallelogram and a rhombus.	IGCSE 1: p31 MEP: MyMaths: L1 , H1	C	1 2 3 4 5 n/a
S2 Polygons	Calculate interior and exterior angles for regular polygons (F)	The interior angle of a regular polygon is 150 degrees. How many sides does it have?	IGCSE1: p32-36 MEP: Unit 1-3: p80-84 MyMaths: L1 , H1	B/C	1 2 3 4 5 n/a

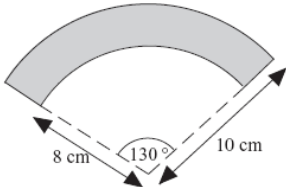
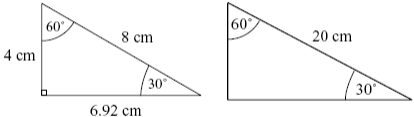
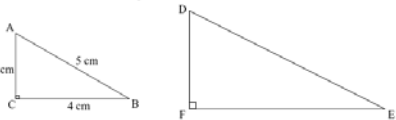
Topic	Sub-topic	Notes / example question	Reference	Grade	Self assessment
S2 Polygons	Understand congruence as meaning the same size and shape (F)	Are the shapes congruent? 	IGCSE1: p31-36 MEP: MyMaths: L1 , H1	C	1 2 3 4 5 n/a
S3 Symmetry	Recognise line and rotational symmetry and state order of rotational symmetry (F)	How many lines of symmetry does the shape have? 	IGCSE1: p31-36 MEP: Unit 1-3: p61-66 MyMaths: L1 , H1 , L2 , H2	C	1 2 3 4 5 n/a
S4 Measures	Interpret a range of measures: <ul style="list-style-type: none"> • Scales • Time intervals for 12 and 24 hour clocks • Measure angles • Find bearings • Use relationship between speed, distance and time (F) 	The bearing of B from A is 130 degrees. Find the bearing of A from B.	IGCSE 1: p97, p146,153 MEP: MyMaths:	C	1 2 3 4 5 n/a
S5 Construction	Construct triangles and other 2d shapes using a ruler, protractor and/or compass. Construct the perpendicular bisector of a line and the bisector of an angle (F)	Construct triangle ABC, where AB = 8cm, angle BAC = 60 degrees and angle ABC=45 degrees	IGCSE 1: p36-42 MEP: Unit 13-19: p90-96 Unit 13-19: p109-111 MyMaths: L1 , H1 , L2 , H2	B/C	1 2 3 4 5 n/a

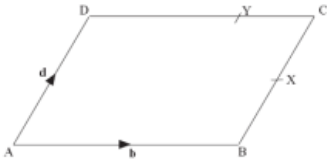
Topic	Sub-topic	Notes / example question	Reference	Grade	Self assessment
S5 Construction	Solve problems using scale drawings (F)	A room measures 8m by 6m. Construct a scale drawing where 1cm represents 50cm.	IGCSE 1: MEP: MyMaths:	C	1 2 3 4 5 n/a
S6 Circle properties	Know circle definitions including: centre, radius, chord, diameter, circumference, tangent, arc, sector and segment. Use chord and tangent properties of circles (F)		IGCSE 1: p214 MEP: Unit 1-6: p96 MyMaths:	C	1 2 3 4 5 n/a
S6 Circle properties	Use angle properties of circles including: <ul style="list-style-type: none"> Angle at centre is twice angle at circumference (so angle in semi-circle is right angle) Angles in the same segment are equal Sum of opposite angles in cyclic quadrilateral is 180 degrees Alternate segment theorem (H) 	Find the missing angles 	IGCSE 1: p214-225 IGCSE 2: p38-48 MEP: Unit 1-6: p96-109 MyMaths: L1 , H1	A/B	1 2 3 4 5 n/a

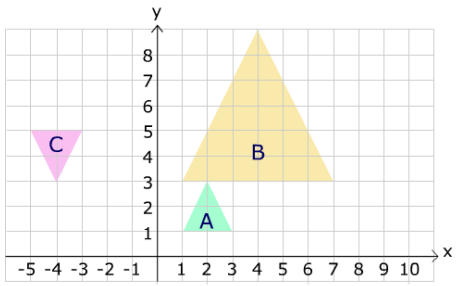
Topic	Sub-topic	Notes / example question	Reference	Grade	Self assessment
S6 Circle properties	Use the internal and external intersection chord properties (H)	Find the unknown lengths in the following diagrams. 	IGCSE 2: p49-56 MEP: Unit 1-6: p110-115 MyMaths:	A*	1 2 3 4 5 n/a
S7 Geometrical reasoning	Provide reasons to support numerical answers given in questions relating to angles and circles (H)	No links or examples here... just remember to <u>give a reason</u> when answering these sorts of questions	IGCSE 1: MEP: MyMaths:	A	1 2 3 4 5 n/a
S8 Trigonometry and Pythagoras' Theorem	Use Pythagoras' Theorem (F)	Find x in each of the triangles 	IGCSE 1: p234-239 MEP: Unit 1-6: p118-126 MyMaths: L1 , H1	C	1 2 3 4 5 n/a
S8 Trigonometry and Pythagoras' Theorem	Use sine, cosine and tangent rules to find missing lengths and angles in right angled triangles (F)	Find the missing angle and missing side 	IGCSE 1: p95-103,p154-167 MEP: Unit 1-6: p126-141 MyMaths: L1 , H1 , L2 , H2	B/C	1 2 3 4 5 n/a

Topic	Sub-topic	Notes / example question	Reference	Grade	Self assessment
S8 Trigonometry and Pythagoras' Theorem	Use sine and cosine rules to find missing angles in any triangle (H)	Find the unknown angles and side 	IGCSE 2: p305-317 MEP: Unit 1-6: p142-148 MyMaths: L1 , H1 , L2 , H2 , L3 , H3	A	1 2 3 4 5 n/a
S8 Trigonometry and Pythagoras' Theorem	Use the formula $\frac{1}{2}absinC$ to find the area of a triangle	Calculate the area of the triangle in the box above	IGCSE 2: p318-319 MEP: MyMaths: L1 , H1	B	1 2 3 4 5 n/a
S8 Trigonometry and Pythagoras' Theorem	Use Pythagoras and trigonometry to solve problems in 3 dimensions	Find the length of the longest rod that will fit in the box 	IGCSE 2: p320-328 MEP: Unit 13-19: p244-255 MyMaths: L1 , H1 , L2 , H2	A	1 2 3 4 5 n/a
S9 Mensuration	Convert measurements within the metric system including area and volume (F)	A rectangle measures 3m by 4m. Find its area in cm^3 A bottle has a capacity of 2 litres. Find the volume in cm^3	IGCSE 1: MEP: Unit 7-12: p1-5 MyMaths:	C	1 2 3 4 5 n/a
S9 Mensuration	Convert between volume measures (H)	A cuboid measures 1m by 2m by 3m. Find the volume in mm^3	IGCSE 2: p104-109 MEP: MyMaths:	B	1 2 3 4 5 n/a

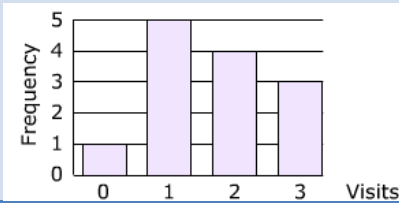
Topic	Sub-topic	Notes / example question	Reference	Grade	Self assessment
S9 Mensuration	Find areas and perimeters for triangles and rectangles (F)	Find the area and perimeter of a right angled triangle that has sides of 3m, 4m and 5m	IGCSE 1: p75-76 MEP: Unit 7-12: p24-31 MyMaths: L1 , H1 , L2 , H2	C	1 2 3 4 5 n/a
S9 Mensuration	Find the area of a parallelogram and a trapezium (F)	Find the area of each shape 	IGCSE 1: p75-76 MEP: Unit 7-12: p57-61 MyMaths: L1 , H1 , L2 , H2	C	1 2 3 4 5 n/a
S9 Mensuration	Find the circumference and area of a circle (F)	A circle has a radius of 4cm. Find its circumference and area	IGCSE 1: p75-76 MEP: Unit 7-12: p32-37 MyMaths: L1 , H1 , L2 , H2	C	1 2 3 4 5 n/a
S9 Mensuration	Find the surface area of simple shapes (F)	A cube has sides of 3cm. What is its surface area?	IGCSE 2: p124-135 MEP: Unit 7-12: p62-68 MyMaths: L1 , H1	C	1 2 3 4 5 n/a
S9 Mensuration	Find the volume of prisms including cuboids and cylinders (F)	Find the volume of the cylinder 	IGCSE 2: p124-129 MEP: Unit 7-12: p38-45 MyMaths: L1 , H1 , L2 , H2 , L3 , H3	C	1 2 3 4 5 n/a

Topic	Sub-topic	Notes / example question	Reference	Grade	Self assessment
S9 Mensuration	Find perimeters and areas of sectors of circles (H)	Find the shaded area 	IGCSE 2: p110-123 MEP: Unit 7-12: p72-80 MyMaths: L1 , H1	A	1 2 3 4 5 n/a
S9 Mensuration	Find the surface areas and volumes of spheres and cones (H)	A sphere has a volume of 4000 cm^3 . Find its radius and surface area <i>Note: MEP and My Maths link also includes volumes of pyramids – this is NOT in IGCSE syllabus</i>	IGCSE 2: p129-135 MEP: Unit 7-12: p72-80 MyMaths: L1 , H1 , L2 , H2	A/B	1 2 3 4 5 n/a
S10 Similarity	Understand that angles stay the same in similar shapes (F)	Are the triangles similar? Give a reason 	IGCSE 1: p226-234 MEP: MyMaths: L1 , H1	C	1 2 3 4 5 n/a
S10 Similarity	Find missing lengths and areas of similar shapes (H)	The diagrams show two similar triangles.  If the area of the triangle DEF is 26.46 cm^2 , find the lengths of its sides.	IGCSE 2: p135-141 MEP: Unit 13-19: p145-155 MyMaths: L1 , H1	A	1 2 3 4 5 n/a

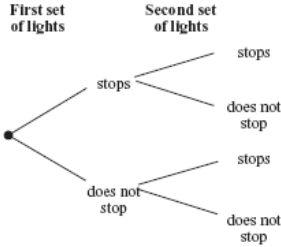
Topic	Sub-topic	Notes / example question	Reference	Grade	Self assessment
S10 Similarity	Find missing lengths and volumes of similar shapes (H)	A can has a height of 10 cm and a volume of 200 cm^3 . A can with a similar shape has a height of 12cm. a) Find the volume of the larger can. b) Find the height of a similar can with a volume of 675 cm^3	IGCSE 2: p142-151 MEP: Unit 13-19: p145-155 MyMaths: L1 , H1	A	1 2 3 4 5 n/a
S11 Vectors	Use vector notation and use simple vector arithmetic (H)	If $\mathbf{a} = \begin{pmatrix} 3 \\ 7 \end{pmatrix}$ and $\mathbf{b} = \begin{pmatrix} -2 \\ 4 \end{pmatrix}$ Find (i) $\mathbf{a} + \mathbf{b}$ (ii) $5\mathbf{a}$ (iii) $3\mathbf{a} - 5\mathbf{b}$	IGCSE 2: p224-239 MEP: Unit 13-19: p256-259,266-273 MyMaths:	A	1 2 3 4 5 n/a
S11 Vectors	Find the resultant of two or more vectors (H)	In the parallelogram shown below, $\vec{AB} = \mathbf{b}$ and $\vec{AD} = \mathbf{d}$. Also X is the midpoint of BC and Y lies on DC such that $DY = 2CY$.  Express the following vectors in terms of \mathbf{b} and \mathbf{d} . (a) \vec{AC} (b) \vec{BX} (c) \vec{AX} (d) \vec{DY} (e) \vec{AY} (f) \vec{XY}	IGCSE 2: p224-239 MEP: Unit 13-19: p256-259,266-273 MyMaths:	A	1 2 3 4 5 n/a
S11 Vectors	Find the modulus (magnitude) of a vector (H)	If $\mathbf{a} = \begin{pmatrix} 3 \\ 7 \end{pmatrix}$, find the magnitude of the vector \mathbf{a}	IGCSE 2: p224-239 MEP: Unit 13-19: p256-259,266-273 MyMaths:	A	1 2 3 4 5 n/a
S11 Vectors	Apply vector methods to simple geometrical proofs (H)	If $\mathbf{a} = \begin{pmatrix} 3 \\ 7 \end{pmatrix}$, $\mathbf{b} = \begin{pmatrix} -2 \\ 4 \end{pmatrix}$ and $\mathbf{c} = \begin{pmatrix} 2 \\ 6 \end{pmatrix}$, show that $\mathbf{a} + \mathbf{b}$ is parallel to \mathbf{c}	IGCSE 2: p224-239 MEP: Unit 13-19: p256-259,266-273 MyMaths:	A*	1 2 3 4 5 n/a

Topic	Sub-topic	Notes / example question	Reference	Grade	Self assessment
S12 Transformation geometry	Rotate, reflect and translate shapes (F) <i>Note – for higher tier only need to be able to translate using vector notation</i>	Describe the transformation from A to B 	IGCSE 1: p295-302 MEP: Unit 13-19: p118-134 MyMaths: L1 , H1 , L2 , H2 , L3 , H3	C	1 2 3 4 5 n/a
S12 Transformation geometry	Combine transformations (F)	Describe the transformation from A to C (in the diagram above) by using more than one transformation	IGCSE 1: p303-304 MEP: Unit 13-19: p135-138 MyMaths: L1 , H1	C	1 2 3 4 5 n/a
S12 Transformation geometry	Enlarge a shape using centre of enlargement and scale factor (F)	Describe the transformation from A to B (in the diagram above)	IGCSE 1: p305-312 MEP: Unit 13-19: p96-103 MyMaths: L1 , H1	C	1 2 3 4 5 n/a

Revising Handling data

Topic	Sub-topic	Notes / example question	Reference	Grade	Self assessment												
HD1 Graphical representation of data	Use and interpret bar charts and pie charts (F)	<p>The bar charts shows the number of visits made to a supermarket by different people. How many visits were made in total?</p> 	IGCSE 1: p108-112 MEP: Unit 7-12: p98-110 MyMaths: L1 , H1 , L2 , H2 , L3 , H3	C	1 2 3 4 5 n/a												
HD1 Graphical representation of data	Construct and interpret histograms (H)	<p>Construct a histogram from the information below</p> <table border="1" data-bbox="808 754 1084 1023"> <thead> <tr> <th>hours per week</th> <th>number of people</th> </tr> </thead> <tbody> <tr> <td>$0 < h \leq 5$</td> <td>30</td> </tr> <tr> <td>$5 < h \leq 10$</td> <td>40</td> </tr> <tr> <td>$10 < h \leq 20$</td> <td>65</td> </tr> <tr> <td>$20 < h \leq 35$</td> <td>21</td> </tr> <tr> <td>$35 < h \leq 60$</td> <td>55</td> </tr> </tbody> </table>	hours per week	number of people	$0 < h \leq 5$	30	$5 < h \leq 10$	40	$10 < h \leq 20$	65	$20 < h \leq 35$	21	$35 < h \leq 60$	55	IGCSE 2: p240-249 MEP: Unit 7-12: p132-139 MyMaths: L1 , H1	A	1 2 3 4 5 n/a
hours per week	number of people																
$0 < h \leq 5$	30																
$5 < h \leq 10$	40																
$10 < h \leq 20$	65																
$20 < h \leq 35$	21																
$35 < h \leq 60$	55																
HD2 Statistical measures	Calculate the mean, median and mode for a discrete data set (F)	<p>Calculate the mean, median and mode for the following data set: 1, 3, 3, 3, 4, 6, 9</p>	IGCSE 1: p106-107 MEP: Unit 7-12: p145-149 MyMaths: L1 , H1 , L2 , H2 , L3 , H3	C	1 2 3 4 5 n/a												

Topic	Sub-topic	Notes / example question	Reference	Grade	Self assessment										
HD2 Statistical measures	Calculate the mean and modal class from grouped data (F)	Calculate the mean time to complete a snooker frame from the table below <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>time (mins)</th> <th>freq</th> </tr> </thead> <tbody> <tr> <td>$0 < t \leq 10$</td> <td>12</td> </tr> <tr> <td>$10 < t \leq 20$</td> <td>26</td> </tr> <tr> <td>$20 < t \leq 30$</td> <td>49</td> </tr> <tr> <td>$30 < t \leq 60$</td> <td>13</td> </tr> </tbody> </table>	time (mins)	freq	$0 < t \leq 10$	12	$10 < t \leq 20$	26	$20 < t \leq 30$	49	$30 < t \leq 60$	13	IGCSE 1: p168-175 MEP: Unit 7-12: p157-163 MyMaths: L1 , H1	C	1 2 3 4 5 n/a
time (mins)	freq														
$0 < t \leq 10$	12														
$10 < t \leq 20$	26														
$20 < t \leq 30$	49														
$30 < t \leq 60$	13														
HD2 Statistical measures	Construct a cumulative frequency diagram and use it to calculate the median and interquartile range(H)	Construct a cumulative frequency from the table above. Hence find the median time taken to complete a frame.	IGCSE 1: p314-326 MEP: Unit 7-12: p164-174 MyMaths: L1 , H1	B	1 2 3 4 5 n/a										
HD3 Probability	Understand the language of probability and the probability scale (F)	Rank these events by likelihood: <ul style="list-style-type: none"> • Snow in June • flipping a coin and getting a head • Manchester United beating a second division team 	IGCSE 1: MEP: Unit 1-6: p159-163 MyMaths: L1 , H1	C	1 2 3 4 5 n/a										
HD3 Probability	Estimate probabilities from previously collected data and calculate expected frequencies (F)	The probably that a randomly selected person has green eyes is 0.2 If 100 people are chosen, find an estimate for the number who have green eyes.	IGCSE 1: p240-242 MEP: Unit 1-6: p167-170 MyMaths: L1 , H1	C	1 2 3 4 5 n/a										
HD3 Probability	Solve problems involving theoretical probability and use sample spaces (F)	If two dice are rolled and their scores are added, what are the different possible outcomes and what are the probabilities associated with each outcome?	IGCSE 1: p243-249 MEP: Unit 1-6: p161-167,171-181 MyMaths: L1 , H1 , L2 , H2	B/C	1 2 3 4 5 n/a										

Topic	Sub-topic	Notes / example question	Reference	Grade	Self assessment
HD3 Probability	Use the addition rule for mutually exclusive events (F)	The probability that a person has green eyes is 0.3. The probability that a person has blue eyes is 0.2. Find the probability that a randomly chosen person has green eyes or blue eyes.	IGCSE 2: p153 MEP: Unit 1-6: p195-200 MyMaths:	C	1 2 3 4 5 n/a
HD3 Probability	Draw and use tree diagrams (H)	The probability that a bus has to stop at any set of traffic lights is 0.2. Use the tree diagram to find the probability that a bus has to stop at one out of two traffic lights. 	IGCSE 2: p152-157 MEP: Unit 1-6: p182-188 MyMaths: L1 , H1	B	1 2 3 4 5 n/a
HD3 Probability	Determine the probability of two or more independent events (H)	What is the probability of flipping a coin and getting heads three times in a row?	IGCSE 2: p152-157 MEP: Unit 1-6: p189-194 MyMaths:	B	1 2 3 4 5 n/a
HD3 Probability	Use simple conditional probability (H)	A box contains two white bead and three red beads. Two beads are selected without replacement. What is the probability that both beads are the same colour?	IGCSE 2: p158-163 MEP: Unit 1-6: p201-206 MyMaths:	A	1 2 3 4 5 n/a

Target setting

Target grade: _____

Timing	Topics to target	Comments
End of lent term	1) 2) 3)	
Easter Holidays	1) 2) 3) 4) 5)	
Summer Term Week 1	1) 2) 3)	
Summer Term Week 2	1) 2) 3)	
Summer Term Week 3	1) 2) 3)	
Summer Term Week 4	1) 2) 3)	
Summer Term Week 5	1) 2) 3)	
Summer Term Week 6	1) 2) 3)	
Long Leave	1) 2) 3)	
Summer Term Week 8	Exams on: <ul style="list-style-type: none"> • Monday 7th June • Friday 11th June 	