

Subject:	
“Magic and Gift” of the subject	<ul style="list-style-type: none"> ● Maths is everywhere! So many skills needed for real life purposes ● Everyone needs mathematical skills to be able to manage their finances ● Develops a love of problem solving and strategies for problem solving ● Enables you to think logically in a variety of areas ● There are clear methods and processes that will enable you to reach the correct answer ● It’s apparent in all aspects of the world from Science and Nature and explains the way everything works ● Universal language - accepted worldwide ● ‘Thinking maths takes the brain to places that no other activity can reach’ Ryuta Kawashima of Tohoku University.
Careers (salaries)	<p>Builder/Plasterer - use ratio for mixing quantities of paste/concrete/plaster etc £26000 -£36000 depending on experience.</p> <p>Architect – using scale drawing and construction in design work - £30000 to £40000 or more depending on experience/demand.</p> <p>Landscape gardener – annual salary £15,000-£32,000.</p> <p>Airline Pilot – Speed/Distance /Time calculations £28000 - £140000 Experienced pilot earns £36-48K Captain for a medium sized airline earns £57-78K. Those employed by major operators earn from £97K to over £140K.</p> <p>Kitchen Designer/Fitter £25-£32k</p> <p>Midwife. Measuring quantities of meds etc or dealing accurately with sizes and weights of babies £21000 to £35000</p> <p>Biomedical Engineer – looking for and using proportionality £26000 - £41000</p> <p>Architecture – use of similar shapes and scale factors from models to real life - £35000 - £70000</p> <p>Car designer - use of scale models to aid design process - £50000</p> <p>Personal trainer - converting units of weights ets or quantities of food – £20000 depending on experience/demand</p> <p>Surveyor: To determine lengths/distances. Salary - £46,000</p> <p>Construction worker: Use ‘3-4-5’ trick to make a square corner Salary - £27,000</p> <p>Animator - use of trigonometry to rotate models etc - £14000-£35000</p>
Notable high profile alumni (Park School and “famous”)	<p>Rachel Riley- BSc in Mathematics at the University of Oxford. Presenter of Countdown and The Gadget Show</p> <p>Tiger Woods- Degree in Economics from Stanford University. Professional golfer and multiple major winner</p> <p>Dennis Bergkamp- Degree in Mechanical Engineering from the University of Bath. Former professional footballer for Arsenal and Holland</p> <p>Brian May- BSc in Mathematics and Physics from Imperial College London. Guitarist in Queen</p> <p>Russell Howard- BSc in Economics from the University of West of England. Comedian and television presenter</p> <p>Dara O’Briain- Degree in Chemistry, Mathematics and theoretical physics from University College, Dublin. Comedian and presenter of Mock the Week</p> <p>Marie Curie- Degree in Physics, Chemistry and Mathematics from the University of Paris. Winner of multiple Nobel Prizes.</p>

	<p>Ashton Kutcher- Degree in Biochemical Engineering from the University of Iowa. Actor.</p> <p>Dave Gorman- BSc in Mathematics from the University of Manchester. Comedian and television presenter</p> <p>Dolph Lundgren- BSc and MSc in Chemical Engineering from the University of Stockholm. Actor, most notably Ivan Drago in the Rocky Movie Franchise.</p> <p>Laura Sherborne - ex pupil - Degree in Accounting. PPC Executive at Accord</p> <p>Graham White - ex pupil - Degree in Business. Director of Individual Giving at Cancer Research UK</p> <p>Kelly Barrett - ex pupil - Degree in Economics - Assistant Headteacher</p> <p>Angela Twitchen - ex pupil - Degree in Education - Maths Special Needs teacher in Mallorca</p> <p>John Sandwell - ex pupils - Degree in Engineering - Global Director of Product Management</p> <p>Emily Marsh - ex pupil - Degree in Medicine - GP</p> <p>Ross Bishop - ex pupil - BSc Ocean Science (Oceanography and Meteorology) - Head of Science at Park School</p>
<p>Degrees and Best Universities (Global?)</p>	<p>Top 5 Universities UK for Mathematics:</p> <ol style="list-style-type: none"> 1. University of Cambridge 2. University of Oxford 3. Imperial College London 4. The University of Warwick 5. The University of Edinburgh <p>Top 5 World Wide for Mathematics:</p> <ol style="list-style-type: none"> 1. University of Cambridge - England 2. Harvard University - USA 3. Massachusetts Institute of Technology (MIT) - USA 4. Stanford University - USA 5. University of Oxford - England <p>Top 5 Degrees that need maths:</p> <ol style="list-style-type: none"> 1. Engineering 2. Actuarial Science 3. Economics 4. Physics 5. Computer Science
<p>Post 16 Courses and Destinations</p>	<p>Post 16 courses and various destinations</p> <ul style="list-style-type: none"> · A levels <ul style="list-style-type: none"> ○ Maths, Further Maths, Pure Maths, Additional Maths, Statistics, use of Mathematics ○ Related subjects: Accounting, business studies, economics, computer science/ computing, engineering, physics, chemistry, electronics · International Baccalaureate (IB) <ul style="list-style-type: none"> ○ Mathematical Studies SL/ Mathematics SL/ Mathematics HL/ Further Mathematics HL · Applied and job-related learning (BTECs/ NVQs/ SVQs/ Diplomas) <ul style="list-style-type: none"> ○ Construction and built environment ○ Business studies ○ Electrical engineering

- Applied science
- Computer science
- Accounting
- Engineering
- IT
- Sports and exercise sciences

- Apprenticeships

- Construction, planning and built environment, e.g. civil engineering technician
- Engineering and manufacturing technologies, e.g. installation electrician
- Information and communication technology, e.g. software tester
- Business admin and law, e.g. accounting technician

REQUIRING GRADE 5 AND ABOVE FOR MATHS GCSE

- Bideford College

- A Levels
 - § Business studies
 - § Economics
 - § Biology
 - § Chemistry
 - § Physics
 - § Psychology
 - § Further Mathematics
 - § Mathematics
 - § Science (Applied)

- Blundells

- A Levels
 - § Business Studies
 - § Chemistry
 - § Computing
 - § Economics
 - § Further Mathematics
 - § Mathematics
 - § Physics

- Petroc

- A Levels
 - § Mathematics
 - § Further Maths
- Access courses
 - § Nursing
 - § Midwifery
 - § Medical science
 - § Health and social care
 - § Teaching
- BTEC
 - § Engineering

- Exeter college

- A Levels
 - § Mathematics
 - § Biology
 - § Chemistry
 - § Computer science
 - § Economics

	<p style="text-align: center;">§ Further Mathematics § Physics ○ International Baccalaureate § Mathematics</p>																							
GCSE Specification	AQA GCSE MATHEMATICS (8300)																							
Assessment Objectives and Percentages in Examination	<ul style="list-style-type: none"> ● AO1: Use and apply standard techniques ● Students should be able to: <ul style="list-style-type: none"> ○ accurately recall facts, terminology and definitions ○ use and interpret notation correctly ○ accurately carry out routine procedures or set tasks requiring multi-step solutions. ● AO2: Reason, interpret and communicate mathematically ● Students should be able to: <ul style="list-style-type: none"> ○ make deductions, inferences and draw conclusions from mathematical information ○ construct chains of reasoning to achieve a given result ○ interpret and communicate information accurately ○ present arguments and proofs ○ assess the validity of an argument and critically evaluate a given way of presenting information. ● AO3: Solve problems within mathematics and in other contexts ● Students should be able to: <ul style="list-style-type: none"> ○ translate problems in mathematical or non-mathematical contexts into a process or a series of mathematical processes ○ make and use connections between different parts of mathematics ○ interpret results in the context of the given problem ○ evaluate methods used and results obtained ○ evaluate solutions to identify how they may have been affected by assumptions made. <p>Higher tier</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="3" style="text-align: center;">Assessment objectives (AOs)</th> <th colspan="3" style="text-align: center;">Component weightings (approx %)</th> <th rowspan="3" style="text-align: center;">Overall weighting (approx %)</th> </tr> <tr> <th style="text-align: center;">Paper 1</th> <th style="text-align: center;">Paper 2</th> <th style="text-align: center;">Paper 3</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">AO1</td> <td style="text-align: center;">30-50</td> <td style="text-align: center;">30-50</td> <td style="text-align: center;">30-50</td> <td style="text-align: center;">40</td> </tr> <tr> <td style="text-align: center;">AO2</td> <td style="text-align: center;">20-40</td> <td style="text-align: center;">20-40</td> <td style="text-align: center;">20-40</td> <td style="text-align: center;">30</td> </tr> <tr> <td style="text-align: center;">AO3</td> <td style="text-align: center;">20-40</td> <td style="text-align: center;">20-40</td> <td style="text-align: center;">20-40</td> <td style="text-align: center;">30</td> </tr> </tbody> </table>	Assessment objectives (AOs)	Component weightings (approx %)			Overall weighting (approx %)	Paper 1	Paper 2	Paper 3	AO1	30-50	30-50	30-50	40	AO2	20-40	20-40	20-40	30	AO3	20-40	20-40	20-40	30
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Overall weighting of components 33⅓ 33⅓ 33⅓ 100

Year by Year Intent (7 hours per fortnight)	Cycle by Cycle Intent - Clear Areas of Knowledge (big topics), Skills and Assessment Objectives (linked to GCSE Spec), Cross Curricular Links and Opportunities (where is this topic/knowledge delivered elsewhere in the school (and is that department more "expert").	Where will this cycle be revisited/ where has it been taught before (interleaving)?
Year 11: Key intent of this year	Exams -AQA GCSE Maths (8300) - Higher/Foundation tier 1 Non-calc paper and 2 calculator papers 90 mins each.	
To complete the GCSE SoW - teaching the final more challenging topics To consolidate knowledge and revise topics covered on the GCSE course.	Cycle 14 - GCSE Units 31-33 31) Algebraic fractions and algebraic proof 32) Equations of circles 33) Pre-calculus End of topic assessments and target lessons. Assessment - Full set of mock papers at higher tier, 3 x 1.5 hours. Super teaching week - focus on correcting the topics you expect them to know that they got wrong.	Prior knowledge of some content from: <ul style="list-style-type: none"> Algebraic fractions - Year 9 - Unit 4 <i>Pre-calculus - Acceleration and velocity-time graphs are taught at GCSE in Science (Physics)</i>
	Cycle 13 - GCSE Units 27-30 27) Transformations of functions 28) Processing, representing & interpreting data 29) Constructions and loci 30) Proportion 2 End of topic assessments and target lessons. Assessment - Full set of mock papers at higher tier, 3 x 1.5 hours. Super teaching week - focus on correcting the topics you expect them to know that they got wrong.	Prior knowledge of some content from: <ul style="list-style-type: none"> Transformation of functions - Year 10 - Unit 24 & 26 Data - Mostly new content Constructions - Year 7 - Unit 5 Proportion 2 - Year 10 - Unit 14 & KS3 <i>Processing and representing data is taught in GCSE Statistics and Geography</i>
Year 10: Key intent of this year Moving on to the some of the harder topics of GCSE	Cycle 12 - GCSE Units 21-26 21) Indices, Surds and Standard form 22) Pythagoras & Trig 2 23) Circle Geometry 24) Transformations 25) Vectors 26) Functions End of topic assessments and target lessons. Assessment - Calc GCSE Higher paper 3. Super teaching week - focus on correcting the	Prior knowledge of some content from: <ul style="list-style-type: none"> Indices, surds and SF - Year 8 - Unit 16 Pythag & Trig - Year 10 - Unit 15 & KS3 Transformations - Year 7 - Unit 7

	<p>topics you expect them to know that they got wrong.</p>	
	<p>Cycle 11 - GCSE Units 17-20 17) Probability 18) More graphs & Equations 19) Simultaneous Equations 20) Area and Volume 2 End of topic assessments and target lessons. Assessment - Calc GCSE Higher paper 2. Super teaching week - focus on correcting the topics you expect them to know that they got wrong.</p>	<p>Prior knowledge of some content from:</p> <ul style="list-style-type: none"> ● Probability - Year 8 - Unit 13 ● Graphs - Year 10 - Unit 13 and KS3 ● Simultaneous Equations - Year 9 - Unit 2 & KS3 ● Area and volume - Year 9 - Unit 10 & KS3
	<p>Cycle 10 - GCSE Units 13-16 13) Graphs 14) Ratio and Proportion 15) Pythagoras and trigonometry 16) Inequalities and formulae End of topic assessments and target lessons. Assessment - Non-calc GCSE Higher paper 1. Super teaching week - focus on correcting the topics you expect them to know that they got wrong.</p>	<p>Prior knowledge of some content from:</p> <ul style="list-style-type: none"> ● Graphs - Year 7 - Unit 8 & Year 8 - units 15 & 17 ● Ratio & Proportion - Year 8 - Unit 10 ● Pythagoras & Trig - Year 8 - unit 18 ● Formulae - Year 7 - Unit 2 <p><i>Trigonometry is taught in Technology</i></p>
Year 9: Key intent of this year	<p>Cycle 9 - GCSE Units 9 - 12. 9) Area and Volume 1 10) Measure 11) Congruence, Symmetry & Similarity 12) Percentages - Growth & Decay End of topic assessments and target lessons. Assessment - Calc GCSE Foundation paper 3. Super teaching week - focus on correcting the topics you expect them to know that they got wrong.</p>	<p>Prior knowledge of some content from:</p> <ul style="list-style-type: none"> ● Measure - Year 8 - Unit 15 ● Congruence - ● Area/Volume - Year 7 - Unit 3 & Year 8 - Unit 10 ● Percentages - Year 7 - Unit 6 & Year 8 - Unit 14 <p><i>Compound measures are taught in Science</i></p>
	<p>Cycle 8 - GCSE Units 6-8 6) Expanding brackets and solving quadratics 7) Angles and Polygons 8) Collecting & recording data and Averages End of topic assessments and target lessons. Assessment - Calc GCSE Foundation paper 2. Super teaching week - focus on correcting the topics you expect them to know that they got wrong.</p>	<p>Prior knowledge of some content from:</p> <ul style="list-style-type: none"> ● Brackets & Factorising - Year 8 - Unit 12 ● Angles - Year 7 - Unit 5 ● Data - Year 7 - Unit 9 <p><i>Collecting and recording data and averages are taught in GCSE Statistics and Geography</i></p>
	<p>Cycle 7 - GCSE Units 1 to 5. 1) Number 2) Linear Equations 3) Sequences 4) Fractions 5) Decimals and Estimation End of topic assessments and target lessons. Assessment - Non-calc GCSE Foundation paper 1.</p>	<p>Prior knowledge of some content from:</p> <ul style="list-style-type: none"> ● Number - Year 7 - Unit 1 ● Equations - Year 7 - Unit 2 ● Fractions/Decimals - Year 7 - unit 6 & Year 8 unit 14 ● Sequences - Year 7 - Unit 8

	Super teaching week - focus on correcting the topics you expect them to know that they got wrong.	
Year 8: Key intent of this year	Cycle 6 - Units 16 to 18: 16) Indices, Standard form and Surds 17) Harder graphs 18) Pythagoras and Trigonometry End of topic assessments and target lessons. Assessments x 2 60 mins on units 1 to 9 and 60 mins on units 10 to 18.	Prior knowledge of some content from Year 7 (units 4 & 8). Revisited in super-teaching weeks.
	Cycle 5 - Units 13 to 15: 13) Fractions, decimals and percentages 2 14) Probability 15) Real life graphs and compound measures End of topic assessments and target lessons. Assessment 45 mins on units 10 to 15 and 15 mins on units 1 to 6.	Prior knowledge of some content from Year 7 (unit 6). Revisited in Cycle 6 assessment and super-teaching weeks. Science cover speed, distance, time and travel graphs in Year 7 cycle 1. They cover density in Year 9 cycle 9 and pressure, force, area in year 9 cycle 7.
	Cycle 4 - Units 10 to 12: 10) Ratio and Proportion 11) Volume and 3D shapes 12) Expressions and equations End of topic assessments and target lessons. Assessment 30 mins, on units 10 to 12 and 15 mins on units 7 to 9.	Prior knowledge of some content from Year 7 (units 2 & 3). Revisited in Cycle 5 and 6 assessment and super-teaching weeks.
Year 7: Key intent of this year	Cycle 3 - Units 7 to 9: 7) Sequences and Graphs 8) Transformations 9) Statistics End of topic assessments and target lessons. Assessment 60 mins, on units 1 to 9.	Prior knowledge of some content from Year 6 (if taught). Revisited in Cycle 4, 5 and 6 assessment and super-teaching weeks. Unit 8 revisited in unit 17.
	Cycle 2 - Units 4 to 6: 4) Factors and Powers 5) Angles, Lines, Shape and constructions 6) Fractions, decimals and Percentages 1 End of topic assessments and target lessons. Assessment 45 mins, on units 1 to 6 (30 mins 4-6 and 15 mins 1-3).	Prior knowledge of some content from Year 6 (if taught). Revisited in Cycle 3, 5 and 6 assessment and super-teaching weeks. Unit 4 revisited in unit 16. Unit 6 revisited in unit 14.
	Cycle 1 - Units 1 to 3: 1) Number 2) Expressions, functions and formulae 3) Perimeter, Area and 2D Shapes End of topic assessments and target lessons. Assessment 30 mins, on units 1 to 3.	Prior knowledge of some content from Year 6 (if taught). Revisited in Cycle 2, 3, 5 and 6 assessment and super-teaching weeks. Unit 2 revisited in unit 12. Unit 3 revisited in unit 11.