

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 etc 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</p>

	<p>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 Maths</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 Maths:</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

	<ul style="list-style-type: none"> § Computer science § Economics § Further Mathematics § Physics ○ International Baccalaureate § Mathematics
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.

	Foundation tier				
	Assessment objectives (AOs)	Component weightings (approx %)			Overall weighting (approx %)
		Paper 1	Paper 2	Paper 3	
AO1	40-60	40-60	40-60	50	
AO2	15-35	15-35	15-35	25	
AO3	15-35	15-35	15-35	25	
Overall weighting of components	33 $\frac{1}{3}$	33 $\frac{1}{3}$	33 $\frac{1}{3}$	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 is 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	Cycle 14 - GCSE Units: 28) Quadratics, rearranging formulae and Identities 29) Simultaneous equations 30) Trigonometry	Prior knowledge of some content from: <ul style="list-style-type: none"> • Formulae - Year 10 - Unit 22
To consolidate knowledge and revise topics covered on the	End of topic assessments and target lessons. Assessment - Full set of mock papers at Foundation tier, 3 x 1.5 hours. Super teaching week - focus on correcting the topics you expect them to know that they got	

<p>GCSE course.</p>	<p>wrong.</p> <p>Cycle 13 - GCSE Units: 24) Graphs 2 25) Transformations and vectors 26) Construction and loci 27) Direct and inverse proportion</p> <p>End of topic assessments and target lessons. Assessment - Full set of mock papers at Foundation tier, 3 x 1.5 hours. 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 2 - Year 7 - Unit 8, Year 8 - Unit 15/17, Year 9 - Unit 10 ● Transformations - Year 7 - Unit 9 ● Construction - Year 7 - Unit 5 ● Proportion - Year 8 - Unit 10
<p>Year 10: Key intent of this year</p> <p>Moving on to the some of the harder topics of GCSE</p>	<p>Cycle 12 - GCSE Units: 20) Standard form 21) 3D shapes 22) Formulae 23) Probability</p> <p>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"> ● Standard form - Year 8 - Unit 16 ● 3D shapes - Year 8 - Unit 11 ● Formulae - Year 7 - Unit 2 ● Probability - Year 8 - Unit 11
	<p>Cycle 11 - GCSE Units: 16) Equations and Inequalities 17) Ratio and proportion 18) Pythagoras' Theorem 19) Averages and Range</p> <p>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"> ● Equations - Year 7 - Unit 2 ● Ratio and proportion - Year 8 - Units 10 ● Pythagoras - Year 8 - Unit 18 ● Averages - Year 7 - Unit 9
	<p>Cycle 10 - GCSE Units: 13) Measure 14) Processing, representing and interpreting data 15) Percentages</p> <p>End of topic assessments and target lessons. Assessment - Non-calc GCSE Foundation paper 1.</p> <p>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 7 - Unit 3 ● Data - Year 7 - Unit 9 ● Percentages - Year 7 - Unit 6, Year 8 - Unit 14
<p>Year 9: Key intent of this year</p>	<p>Cycle 9 - GCSE Units: 9) Sequences 10) Graphs 1 11) Perimeter and Area of 2D shapes 12) Angles 2</p>	<p>Prior knowledge of some content from:</p> <ul style="list-style-type: none"> ● Sequences - Year 7 - Unit 8 ● Graphs 1 - Year 7 - Unit 8, Year 8 - Units 15 & 17 ● Perimeter and Area - Year 7 - Unit 3

Securing the basics required topics of GCSE	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.	<ul style="list-style-type: none"> Angles 2- Year 7 - Unit 5
	Cycle 8 - GCSE Units: 5) Decimals and rounding 6) Fractions 7) Algebra 2 8) Collecting & recording data and Scatter diagrams 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.	Prior knowledge of some content from: <ul style="list-style-type: none"> Decimals and rounding - Year 7 - Unit 1 Fractions - Year 7 - Unit 6, Year 8 - Unit 14 Algebra 2 - Year 7 - Unit 5, Year 8 - Unit 16 Data - Year 7 - Unit 9
	Cycle 7 - GCSE Units: 1) Using a calculator 2) Number 3) Algebra 1 4) Angles and 2D shapes End of topic assessments and target lessons. Assessment - Non-calc GCSE Foundation paper 1. 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"> Using a calculator - Year 7 - Unit 1 Number - Year 7 - Unit 1 Algebra 1 - Year 7 - Unit 2 Angles and 2D shapes - Year 7 - Unit 5
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	Prior knowledge of some content from Year 7 (units 2 & 3). Revisited in Cycle 5 and 6 assessment and super-teaching weeks.

	mins on units 7 to 9.	
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.	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.