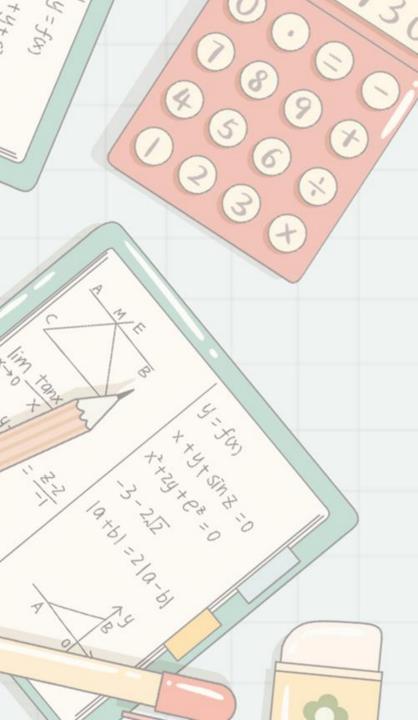
# Learn to Learn Mathematics

"J4

Heidi Brown – Subject Leader of Mathematics



# Exam board:

## Edexcel

1MA1 GCSE Maths is studied either at Higher or Foundation level. Both tiers of entry consist of 3 papers:

Paper 1 - Non-calculator Paper 2 - Calculator Paper 3 - Calculator

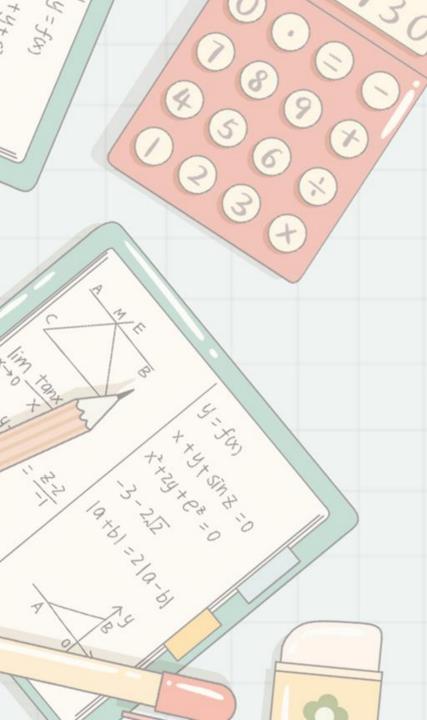
All 3 papers are 90 minutes long and carry equal weighting (80 marks each, total of 240 marks)

| 77         |  | 3-11      |           |
|------------|--|-----------|-----------|
| Tier       | Topic area                               | Weighting | 100       |
| Foundation | Number                                   | 22 - 28%  |           |
|            | Algebra                                  | 17 - 23%  | Heaviest  |
|            | Ratio, Proportion and Rates<br>of change | 22 - 28%  | weighting |
|            | Geometry and Measures                    | 12 - 18%  |           |
|            | Statistics & Probability                 | 12 - 18%  |           |
|            | Number                                   | 12 - 18%  | Heaviest  |
|            | Algebra                                  | 27 - 33%  | weighting |
| Higher     | Ratio, Proportion and Rates<br>of change | 17 - 23%  |           |
|            | Geometry and Measures                    | 17 - 23%  |           |
|            | Statistics & Probability                 | 12 - 18%  |           |

 **Current structure of Year 10/11 groups:** 

Higher Groups Foundation Groups Higher Groups Hi

> As you can see there is some overlap and for some students tier of entry is not decided until Year 11.



### **Course content:**

Topics in KS3 form the building blocks of GCSE and it can be worth pupils revisiting this content.

GCSE content is covered before April in Year 11.

Lessons after this time concentrate on consolidation, gap fill and exam technique.

Edexcel provide a revision checklist for students to see the content which they could be tested on in their GCSE papers.

### GCSE Maths Revision Checklist - Higher

Unit

Four operations usin And a fraction of an Convert between re-Percentages Use fraction to decir

Quadratic, cubic and o

Linear graphs and cost

**Ratio and proportion** 

|               | t        | Unit / Topic   | Comple |
|---------------|----------|--|--------|
|               |          | Calculations, checking and rounding  |        |
|               |          | Four operations with decimals and whole numbers  |        |
| - 1           | a        | Use one calculation to find the answer to another  |        |
|               |          | Product rule   |        |
|               |          | Rounding & estimation  |        |
| - 1           |          | Indices, roots, reciprocals and hierarchy of operations  |        |
| - 1           | ь        | Use index notation including fractional and negative powers  |        |
|               | <u> </u> | Order of operations  |        |
| - 1           |          | Factors, multiples and primes  |        |
| 1             |          | identify factors, multiples and prime numbers  |        |
|               | <        | Find prime factorisation of a number (is write in index form)                                      |        |
|               |          | Find common factors & highest common factors   |        |
|               |          | End LCM of two jor three) numbers  |        |
| - 1           |          | Standard form and surds  | _      |
|               |          | index laws to simplify & calculate the value of an expression                                      |        |
|               |          | Convert between ordinary numbers and standard form   |        |
|               | đ        | Work with the four operations in standard form   |        |
|               |          | Use a calculator with indices and standard form  |        |
| - 1           |          | Simplify suid expressions  |        |
| +             |          | Algebra: the basics  |        |
| - 1           |          | Write an expression  |        |
| - 1           |          | Collect like terms   |        |
|               |          | Simplify expressions   |        |
|               | a        | Use index invo   |        |
|               | a        | Expand single & double brackets  |        |
|               |          | Factorise single brackets  | _      |
|               |          | Factorise single anackets<br>Factorise quadratic expressions                                       | _      |
|               |          | Factorise quadratic expressions using difference of two squares                                    |        |
|               | -        | Setting up, rearranging and solving equations  |        |
|               |          | Setup expressions and equations  |        |
|               |          | Substitute into expressions, equations and formulae  |        |
| 2             | b        | Solve linear equations and inequalities  |        |
|               | -        | Change the subject of a formula  |        |
|               |          | theration  | -      |
|               | -        |  |        |
|               |          | Sequences  |        |
|               |          | Continue sequences inc from pictures<br>Find the rith term   |        |
|               |          | Use nth term rule to generate or continue a sequence   |        |
|               | e        | Rind the rith term of a quadratic sequence   |        |
|               | ÷.       |  |        |
|               |          | Distinguish between anthmetic and geometric sequences  | _      |
|               |          | Recognise and use simple geometric progressions  |        |
| - 1           |          | Find term to term rule of a geometric sequence, including negative, fraction and<br>designal terms | 1      |
| $\rightarrow$ | _        | decimal terms  |        |
|               |          | Averages and range   |        |
| 1             |          | Use various charts & diagrams in relation to averages  |        |
|               | _        | Two way tables   |        |
| 1             | a        | Calculate the mean, mode, median and range from a list   |        |
| - 1           |          | Median, mean and range from a table (discrete data)  |        |
|               |          | Modal class, median and estimate of the mean from grouped data                                     |        |
| - F           | _        | Draw and interpret stem and leaf diagrams  |        |
| - 1           |          | Representing and interproting data   |        |
| 3             |          | Know which chart or diagram to use for different data sets   |        |
|               |          | Draw and interpret bar charts (inc dual & composite)   |        |
|               | b        | Draw and interpret line graphs (vertical & time-series)  |        |
|               |          | Draw and use pie charts  |        |
|               |          | Find mode & total frequency from a pie chart   |        |
| - 1           |          | Compare two pie charts   |        |
|               |          | Froduce and interpret histograms   |        |
|               |          | Compare dobtibutions   |        |
| - F           |          | Scatter graphs   |        |
| 1             | c        | Draw and use scatter graphs is lines of best fit   |        |
|               |          | identify outliers & correlation  |        |
|               |          | -/ // //   | 1      |
|               |          |  | /      |
|               |          |  |        |
|               |          |  | /      |

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| Unit / T  | opic           |          | Complete  |          |       |      |                      |
|---|----------------|----------|---|----------|-------|------|----------------------|
| ractions  |                |          |   |          |       |      |                      |
| Equivalent fractions including simplifying &  |                | anng     |   |          |       |      |                      |
| Expressione amount as a fraction of anothe<br>Convert between mixed numbers and impri |                | antin    |   |          |       |      |                      |
| Four operations using fractions   | oper ii        | 0000     |   |          |       |      |                      |
| And a fraction of an amount   |                |          |   |          |       |      |                      |
| Convert between recurring decimals to fract   | tions a        | ind vi   |   |          |       |      |                      |
| Percentages   |                |          |   |          |       |      |                      |
| Use fraction to decimal conversions   |                |          |   |          |       |      |                      |
| Recognise terminating & recurring decimals  | 5              |          |   |          |       |      |                      |
| Convert between fractions, decimals & perc  |                |          |   |          |       |      |                      |
| Order & compare fractions, decimals & perc  |                | 95       |   |          |       |      |                      |
| Write one amount as a percentage of anoth<br>Calculate percentage of an amount        | er             |          |   |          |       |      |                      |
| Calculate percentage of an amount<br>Calculate percentage increase/decrease           |                |          |   |          |       |      |                      |
| Use decimals to find quantities (multiplier m   | wheel          | 80       |   |          |       |      |                      |
| increase / decrease an amount by a percent  |                | ~        |   |          |       |      |                      |
| Reverse percentages   |                |          |   |          |       |      |                      |
|   | ·              |          |   |          | 1.1.1 |      |                      |
| Write ratios in their simpl   | 、⊢             | - r      | Naths Revision Check  | lict_    | HIC   | Σł   | ner                  |
| Share a quantity in a give UCU  | ᄂ              |          | יומנווש הכיושוטוו כווכנה  | ISC -    | קוו ו | 51   | ICI                  |
| Use a ratio to find one gu  |                |          |   |          |       | _    |                      |
| Compare ratios  | Un             | hit.     | Unit / Topic  | Complete |       | Unit |                      |
| Write ratio in the form 12<br>Write a ratio as a fraction                             |                |          | Perimeter, area and circles   |          |       |      | Similarity a         |
| Write a ratio as a linear fi  |                |          | Convert between metric measures   |          | 4     |      | Use con              |
| Use direct & inverse prop   |                |          | Read scales<br>Perimeter of 2D shapes   |          | 4     | 12   | Use for              |
| Recipes   |                |          | Perimeter of 2D shapes<br>Area of 2 D shapes and compound shapes  |          | 4     |      | Identify             |
| Currency conversions  |                |          | Nets of a circle  |          | 1 1   |      | Identify<br>Use len  |
| Polygons, angles and parally  |                |          | Recall & use formula for area and circumference of a circle   |          | 1     |      | Area an              |
| Measure and draw lines,   |                |          | Arcs and sectors  |          |       | -    | Graphs of t          |
| identify and name 2D sha  |                |          | 3D forms and volume, cylinders, cones and spheres   |          |       | 1.   | Berger               |
| identify parallel and perp  | 7              |          | Identify and name 3D forms and their properties   |          |       | 1    | Exact tr             |
| Use angle facts - around a<br>Use angle properties of p                               |                |          | Volume of a cuboid<br>Volume of a prism   |          |       | - L  | Transfo              |
| Use same properties of p<br>Use sum of interior angle                                 |                | ь        | Volume of a composite forms   |          | 1     | 3    | Further tri          |
| Use sum of exterior angle   |                |          | Surface area of prisms & simple compound forms  |          | 1     | н.   | Formula              |
| Use the siderangle prope  |                |          | Surface area & volume of a cylinder   |          |       | 1    | Cosine               |
| quadrilaterais  |                |          | Spheres, pyremids, cores, frustums and composite solids.  |          |       |      | Pythag               |
| Pythagoras' Theorem and tr  |                |          | Accuracy and bounds   |          | 4 -   | -    | Collecting           |
| Pythagoras' Theorem   |                | c        | Calculate the upper & lower bounds of numbers<br>Calculate the upper & lower bounds of an expression  |          |       | 1    |                      |
| Trigonometry - sin, cos ar  |                |          | Calculate the upper & role of doubton or an expression<br>Use error intervals (inc truncation)  |          | 1 1   |      | Bias an              |
| Know exact trig values  |                |          | Transformations   |          | 1     |      | Cumulative           |
| Graphs: the basics and real-<br>Use coordinates in all feu                            |                |          | Transform and describe translations, rotations & reflections  |          | 1 1   |      | Constru              |
| Comersion graphs  |                |          | Transform and describe enlargements inc fractional and negative SF  |          | 1 1.  |      | Median               |
| Fixed cost and cost per u   |                | a        | Transform shapes using a combination of transformations   |          | 4     | 1    | Constru<br>Median    |
| Distance / time and Veloc   |                |          | Describe transformations when using multiple transformations  |          | 4     |      | Constru              |
| Midpoints of a line segme   |                | $\vdash$ | Describe the changes & invariance achieved by combinations of transformations<br>Constructions, loci and bearings   |          |       |      | Estimat              |
| Calculate the length of a l   | 8              |          | Draw plans and elevations of shapes   |          | 1 🗁   |      | Quadratics           |
| linear graphs and coordina  |                |          | Draw a 3D form given its plan and elevations  |          | 1     |      | cubes and            |
| Draw, use and interpret ()  |                | ь        | Use maps, scale drawings & bearings   |          |       |      | Sketch               |
| Find the equation of a lin  |                | l -      | Standard constructions  |          | 4     | 15   | identify             |
| Find the equation of a line<br>identify parallel and perp                             |                |          | Find regions satisfying a combination of loci<br>Find and describe regions satisfying a combination of loci, including in 3D                              |          |       |      | Comple               |
| Generate equations of pa  |                |          | Find and describe regions satisfying a construction of lost, including in 3D<br>Use constructions to asive lost problems including with bearings          |          | + I.  |      | Expand<br>Sketch     |
| Quadratic, cubic and other  |                |          | Solving quadratic and simultaneous equations  |          | 1     |      | Solve si             |
| Plot guadratic graphs   |                |          | Set up and solve quadratic equations  |          | 1     |      | Solve a              |
| Find solutions. Intercepts  |                |          | Completing the square   |          |       |      | Circle theo          |
| Recognise and sketch cut  |                |          | Quadratic Formula   |          | 4     | 1.   | Parts of             |
| Recognise and sketch rec  |                |          | Solve simultaneous equations algebraically and graphically (inear/linear)   |          | 1     | 6 L  | Prove.r              |
| Draw circles, centre the o  | 9              |          | Solve stmultaneous equations algebraically and graphically (Inear/quadratic)<br>Solve Simultaneous equations algebraically and graphically (Inear/circle) |          | 1 1"  | - I. | Circle geom          |
|   |                | $\vdash$ | Inequalities  |          | 1     | 1    |                      |
|   |                |          | On a number Inc   |          | 1 –   | _    | Changing t           |
|   |                | ь        | Listing numbers that satisfy an inequality  |          | 1     |      | equations (          |
|   |                |          | Solving inequalities and show the solution on a number line   |          |       |      | Rationa              |
|   | <u> </u>       | -        | Represent and interpret inequalities graphically<br>Probability   |          |       |      | Simplify             |
|   |                |          | Probability scale   |          | 1 1   | 17   | Change               |
|   |                |          | Listing outcomes  |          | 1     |      | Algebra              |
|   |                |          | Two-way cables  |          | 1     |      | Functio              |
|   | - 14           | D D      | Frequency trees   |          | 1     |      | Inverse              |
|   |                |          | Use 1-p   |          | 1 -   | -    | Vectors are          |
|   |                |          | Ralative frequency  |          |       |      | Underst              |
|   |                |          | Sample space diagrams<br>Vann diagrams & set notation   |          |       | .    | Find the             |
|   |                |          | Probability tree diagrams   |          | - 1   | 8    | Calculat             |
|   |                |          | Multiplicative reasoning  |          |       |      | Geome                |
|   |                |          | Best value  |          |       |      | Geome                |
|   |                |          | Use compound measures Pressure, Density & Speed   |          |       | T    | Reciprocal           |
|   | - 11           | 1        | Percentage profit / loss  |          | -     |      | Recogn               |
|   | - <sup>-</sup> |          | Reverse percentages<br>Simple interest  |          | 1     |      | Calculat<br>Calculat |
|   |                |          | Compound interest & growth  |          | 1 ["  | " H  | Direct and           |
|   |                |          | Depreciation & decay  |          |       |      |                      |
|   |                |          | Rates of pay  |          | JL    |      | Set up a             |
|   |                |          |   |          |       | -    |                      |

Unit / Topic

Similarity and congruence in 2D and 3D

Area and surface area of frustume

Transforming graphical functions

Formula for area of a triangle

Graphs of trigonometric functions

Exact trig values

**Further trigonometry** 

**Collecting data** 

Types of data

Sine rule in 2D and 3D

Cosine rule in 2D and 3D

Bias and eliminating bias

Construct & histograms

Completing the square

cubes and quadratics

Sketch cubics

Parts of a circle

Alsebraic Proof Functions & function notation Inverse functions Composite functions Vectors and geometric proof

Find the length of a vector

**Direct and inverse proportion** 

Calculate the resultant of a vector

**Circle theorems** 

**Circle geometry** 

Sketch guadratics

Construct & interpret box plots

Pythageras Theorem in 3D

Use length, area and volume scale factors

Cumulative frequency, box plots and histograms

Median, quartiles & interquartile range from box plots

Estimate the mean and median from a histogram

Solve simultaneous equations graphically

Solve and represent quadratic inequalitie

Prove, recall and apply circle theorems

Recognise and construct the graph of a circle

Rationalise the denominator involving surds Simplify, multiply and divide algebraic fractions

Change the subject of a complex formula

Find the equation of a tangent to a circle Changing the subject of formulae (more complex), algebraic fractions, solving equations arising from algebraic fractions, rationalising surds, proof

Understand represent and use vector notation, including column notation

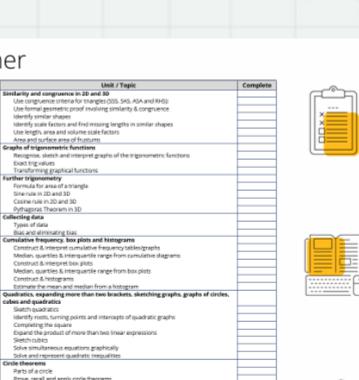
Geometric problems in 2D where vectors are divided in a given ratio. Geometrical proofs to prove points are collinear & vectors/lines are parallel Reciprocal and expenential graphs; Gradient and area under graphs Recognise, sketch and interpret reciprocal graphs Calculate and interpret the area under a curve

Calculate and interpret gradient of a tangent to a curve

Set up and use formulae for direct & inverse proportion

Recognise and interpret graphs of direct & inverse proportion

Identify similar shapes



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### GCSE Maths Revision Checklist - Foundation

Unit

-b

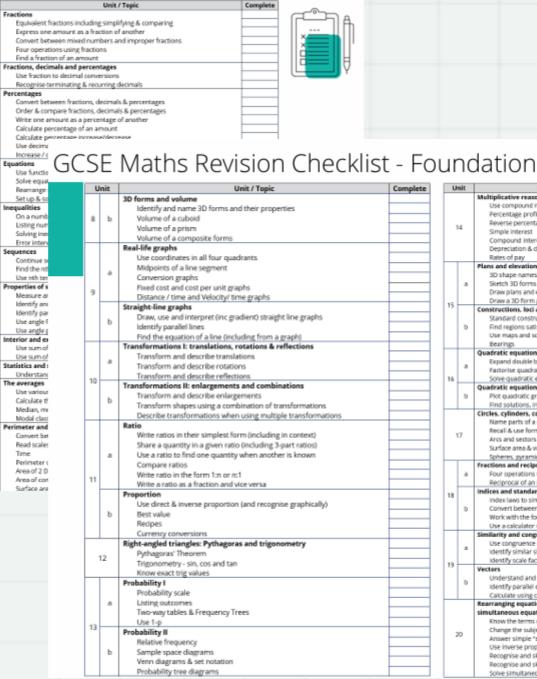
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| U | nit                          | Unit / Topic   | Complete |
|---|------------------------------|--|----------|
|   |                              | Integers and place value   |          |
|   |                              | Types of number  |          |
| a |                              | Use and order positive and negative numbers                                |          |
|   |                              | Use inequality symbols   |          |
|   |                              | Four operations using positive and negative numbers                        |          |
|   |                              | Round numbers to nearest 10, 100, 1000 and use rounding for estimation     |          |
|   |                              | Decimals   |          |
|   | Use decimals and place value |  |          |
|   | ь                            | Compare and order decimal numbers  |          |
|   | Р                            | Four operations using decimal numbers                                      |          |
|   |                              | Round to nearest whole number, decimal place & significant figures         |          |
| 1 |                              | Use one calculation to check another                                       |          |
|   |                              | Indices, powers and roots  |          |
|   |                              | Find squares and cubes   |          |
|   |                              | Use index notation including negative powers                               |          |
|   | ¢                            | Use laws of indices to multiply and divide numbers in index form           |          |
|   |                              | Order of operations including powers and brackets                          |          |
|   |                              | Use of calculator  |          |
|   |                              | Factors, multiples and primes  |          |
|   |                              | Identify factors, multiples and prime numbers                              |          |
|   | d                            | Find prime factorisation of a number (& write in index form)               |          |
|   | -                            | Find common factors & highest common factor                                |          |
|   |                              | Find LCM of two (or three) numbers   |          |
| _ |                              | Algebra: the basics  |          |
|   |                              | Write an expression  |          |
|   |                              | Collect like terms   |          |
|   | -                            | Simplify expressions   |          |
|   |                              | Use index laws   |          |
|   |                              | Expanding and factorising single brackets                                  |          |
| 2 |                              | Expand single brackets   |          |
|   | b                            | Simplify expressions using squares and cubes                               |          |
|   |                              | Factorise expressions  |          |
|   |                              | Expressions and substitution into formulae                                 |          |
|   | 6                            | Substitute into expressions involving brackets & powers                    |          |
|   | · ·                          | Substitute into a formula (& word formula)                                 |          |
| - | -                            | Tables   |          |
|   |                              | Sort and classify data (inc tally charts)                                  |          |
|   | а                            | Extract data from lists and tables (inc timetables)                        |          |
|   |                              | Identify mode from a list / table  |          |
|   |                              | Charts and graphs  |          |
|   |                              | Know which chart or diagram to use for different data sets                 |          |
|   |                              | Draw and interpret bar charts (inc dual & composite)                       |          |
|   | ь                            | Draw and interpret line graphs (vertical & time-series)                    |          |
|   | ۳                            | Draw and interpret frequency polygons                                      |          |
| 3 |                              | Draw and interpret pictograms  |          |
|   |                              | Draw and interpret pictograms<br>Draw and interpret stem and leaf diagrams |          |
|   |                              | Pie charts   |          |
|   |                              | Draw and use pie charts  |          |
|   | c                            | Find mode & total frequency from a pie chart                               |          |
|   |                              | Compare two pie charts   |          |
|   |                              | Scatter graphs   | -        |
|   | d                            | Draw and use scatter graphs & lines of best fit                            |          |
|   |                              |  |          |
|   |                              | 0/ 0///  |          |
|   |                              |  | /        |
|   |                              |  | /        |
|   |                              |  |          |
|   |                              |  |          |
|   |                              | 9. // //   |          |
|   |                              | Identify outliers & correlation  |          |
| 1 |                              | 0/   |          |
| 1 | -                            | ~ 7 / / /  |          |
|   | 1                            | 1.6  |          |
|   | 1                            | 18 / ) / /   |          |
|   | -                            |  |          |
|   | 0                            |  |          |
| - | the second second            |  |          |



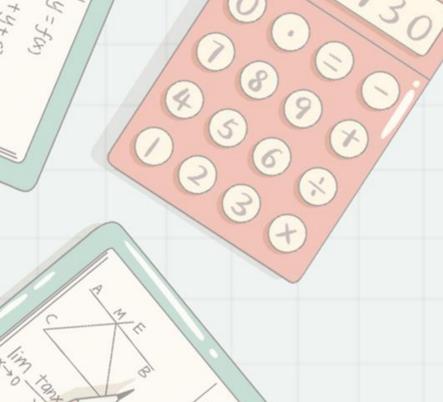
| U  | nit | Unit / Topic  | Complete |          |
|----|-----|---|----------|----------|
|    |     | Multiplicative reasoning  |          | 2.0      |
|    |     | Use compound measures: Pressure. Density & Speed  |          | 11 #     |
|    |     | Percentage profit / loss  |          |          |
| 14 |     | Reverse percentages   |          |          |
|    |     | Simple interest   |          |          |
|    |     | Compound interest & growth  |          | H        |
|    |     | Depreciation & decay  |          | V I      |
| _  |     | Rates of pay<br>Plans and elevations  |          |          |
|    |     | 3D shape names and properties   |          |          |
|    | a   | Sketch 3D forms   |          |          |
|    |     | Draw plans and elevations of shapes   |          |          |
|    |     | Draw a 3D form given its plan and elevations  |          |          |
| 15 |     | Constructions, loci and bearings  |          |          |
|    |     | Standard constructions  |          |          |
|    | b   | Find regions satisfying a combination of loci   |          |          |
|    |     | Use maps and scale drawings   |          |          |
|    |     | Bearings  |          | <u> </u> |
|    |     | Quadratic equations: expanding and factorising  |          |          |
|    | a   | Expand double brackets  |          | 7=1      |
|    | -   | Factorise quadratic expressions   |          | ΞIJ      |
| 16 |     | Solve quadratic equations   |          |          |
|    |     | Quadratic equations: graphs   |          |          |
|    | b   | Plot quadratic graphs   |          |          |
| _  |     | Find solutions, intercepts & turning points of a quadratic graph<br>Circles, cylinders, cones and spheres |          |          |
|    |     | Name parts of a dride   |          |          |
|    |     | Recall & use formula for area and circumference of a circle   |          |          |
| 1  | 17  | Arcs and sectors  |          |          |
|    |     | Surface area & volume of a cylinder   |          |          |
|    |     | Spheres, pyramids, cones and composite solids.  |          |          |
|    |     | Fractions and reciprocals   |          |          |
|    | a   | Four operations with mixed number fractions   |          |          |
|    |     | Reciprocal of an integer, decimal or fractions  |          | _        |
| 18 |     | Indices and standard form   |          | -        |
|    |     | index laws to simplify & calculate the value of an expression   |          | $\gamma$ |
|    | b   | Convert between ordinary numbers and standard form  |          | N'       |
|    |     | Work with the four operations in standard form  |          | 1        |
| _  | -   | Use a calculator with indices and standard form   |          |          |
|    |     | Similarity and congruence in 2D<br>Line communication for triangler (SSS_SAS_ASA and BUS):                |          | ×        |
|    | а   | Use congruence criteria for triangles (SSS, SAS, ASA and RHS);<br>identify similar shapes                 |          |          |
|    |     | identify scale factors and find missing lengths in similar shapes   |          |          |
| 19 | -   | Vectors   |          |          |
|    |     | Understand and use column notation including drawing them   |          |          |
|    | b   | identify parallel column vectors  |          |          |
|    |     | Calculate using column vectors  |          |          |
|    | -   | Rearranging equations, graphs of cubic and reciprocal functions and                                       |          |          |
|    |     | simultaneous equations  |          |          |
|    |     | Know the terms equation, identity, expression etc.  |          |          |
|    | 10  | Change the subject of a formula   |          | )        |
|    | 0.0 | Answer simple "show that" questions.  |          |          |
|    |     | Use inverse proportion involving graphs   |          |          |
|    |     | Recognise and sketch cubic functions  | Pear     | 0.01     |
|    |     | Recognise and sketch reciprocal functions   | Pear     | sor      |
|    |     | Solve simultaneous equations algebraically and graphically  |          |          |

Solve simultaneous equations algebraically and graphically









Hey Teacher,

**Homework:** Homework is set on a weekly basis. Set on Friday, dur the following Thursday. The platform we use is Sparx maths

130 XP Teacher

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Menu =

### www.sparxmaths.com

This is your personalised Compulsory homework. You need to answer every question correctly to complete it.

#### **Sparx Maths**

Compulsory

**Ş** 

XP Boost

₩ Target

-∛ Independent

Learning

# **Optional Homework in Sparx Maths**

### Compulsory

y=fay

Sparx produces three personalised tasks for you every single week that you have homework to complete



54

After you finish your Compulsory homework, refine your skills by completing similar problems in **XP Boost** 

Further enhance your skills by completing the **Target** work which is a set of six questions chosen specifically to challenge you

Target

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Sparx Maths

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# Independent learning – take control of your own learning

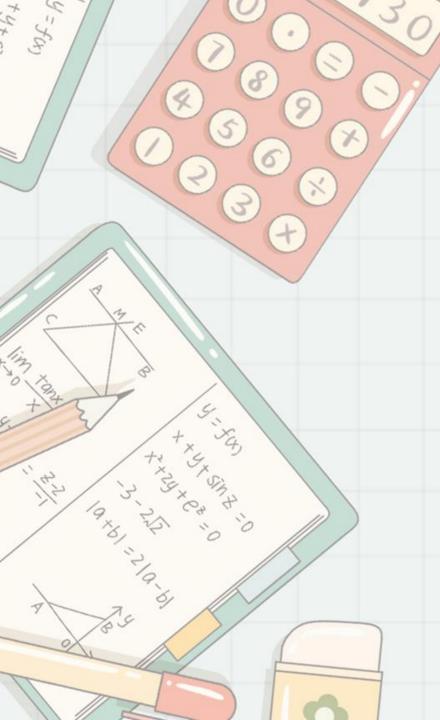
- Access every single question on Sparx
- Choose one of three levels of question
  - Introduce: basic skills
  - I Strengthen: improve understanding
  - .I Deepen: problem solving
- Do this after Compulsory homework, XP Boost and Target

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**Mock Exams:** Mock exams take place in Summer of Year 10, November and March of Year 11.

For Maths Year 11 exams are full papers, graded using grade boundaries from the exam boards.

Students receive a question level analysis of their result. This will form their revision hitlist.

For Summer 2025/26/27 examinations students will receive a formula sheet.

#### **Higher Tier Formulae Sheet**

Perimeter, area and volume

Where a and b are the lengths of the parallel sides and h is their perpendicular separation:

Area of a trapezium =  $\frac{1}{2}(a+b)h$ 

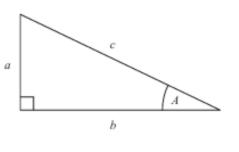
Volume of a prism = area of cross section × length

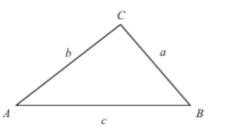
Where r is the radius and d is the diameter:

Circumference of a circle = 
$$2\pi r = \pi a$$

Area of a circle =  $\pi r^2$ 

Pythagoras' Theorem and Trigonometry





#### Compound Interest

END OF EXAM AID

Where P is the principal amount, r is the interest rate over a given period and n is number of times that the interest is compounded:

Total accrued = 
$$P\left(1 + \frac{r}{100}\right)^{\circ}$$

Quadratic formula The solution of  $ax^2 + bx + c = 0$ where  $a \neq 0$  $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ 

In any right-angled triangle where a, b and c are the length of the sides and c is the hypotenuse:

$$a^2 + b^2 = c^2$$

In any right-angled triangle ABC where a, b and c are the length of the sides and c is the hypotenuse:

$$\sin A = \frac{a}{c}$$
  $\cos A = \frac{b}{c}$   $\tan A = \frac{a}{b}$ 

In any triangle ABC where a, b and c are the length of the sides:

sine rule: 
$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$
  
cosine rule:  $a^2 = b^2 + c^2 - 2bc \cos A$ 

Area of triangle =  $\frac{1}{2}ab\sin C$ 

#### Probability

Where P (A) is the probability of outcome A and P (B) is the probability of outcome B: P (A or B) = P (A) + P (B) – P (A and B)

P(A and B) = P(A given B) P(B)

#### Foundation Tier Formulae Sheet

#### Perimeter, area and volume

Where a and b are the lengths of the parallel sides and h is their perpendicular separation:

Area of a trapezium = 
$$\frac{1}{2}(a + b)h$$

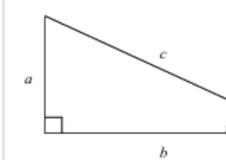
Volume of a prism = area of cross section × length

Where r is the radius and d is the diameter:

Circumference of a circle =  $2\pi r = \pi d$ 

Area of a circle = 
$$\pi r^2$$

#### Pythagoras' Theorem and Trigonometry



#### Compound Interest

Where P is the principal amount, r is the interest rate over a given period and n is number of times that the interest is compounded:

A

Total accrued = 
$$P\left(1 + \frac{r}{100}\right)^n$$

#### END OF EXAM AID

In any right-angled triangle where a, b and c are the length of the sides and c is the hypotenuse:

$$a^2 + b^2 = c^2$$

In any right-angled triangle ABC where a, b and c are the length of the sides and c is the hypotenuse:

$$\sin A = \frac{a}{c}$$
  $\cos A = \frac{b}{c}$   $\tan A = \frac{a}{b}$ 

#### Probability

Where P(A) is the probability of outcome A and P(B) is the probability of outcome B:

$$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$$

#### June 2023 - Paper 1H Joe Bloggs 11b1 - HB

In this paper you achieved: Mark: 27780 *Grade:* 5c

This PLC shows you how best to target your revision by comparing your performance to the average student who achieved a Grade 6.

If you master the 9 topics in red then you could have achieved an additional 27 marks. This would have resulted in you achieving:

Mark: 54780

Grade: 7b

You achieved a high score for this question and performed better than the average Grade 6 student. You performed better than the average Grade 6 student but still dropped marks. You did not perform as well as the average Grade 6 student. You should prioritise these areas. Your time would be better spent focussed on your Red and Amber questions.

| Questions | Question Title  | Score | Clip Number(s) |
|-----------|---|-------|----------------|
| Q01       | Divide Decimals   | 3 / 3 | U293           |
| Q02       | Calculate exactly with fractions                            | 3 / 3 | U793           |
| Q03       | Volume cuboids and other right prisms (including cylinders) | 0/4   | U929/U786      |
| Q04       | Frequency polygons  | 1 / 2 | U840           |
| Q05a      | Venn diagrams   | 0 / 3 | U476           |
| Q05b      | Probability from a Venn Diagram                             | 2 / 2 | U748/296       |
| Q06a      | Scatter graphs  | 1 / 1 | U277           |
| Q06b      | Line of best fit  | 2 / 2 | U128           |
| Q07       | Percentages problems  | 0 / 2 | U286           |
| Q08       | Use compound units  | 0 / 3 | U174U527       |
| Q09       | Solve simultaneous equations graphically                    | 1 / 1 | U836           |
| Q10       | Exterior and interior angles                                | 0 / 4 | U427           |
| Q11       | Laws of indices   | 0 / 3 | U235/694       |
| Q12       | Probability Trees   | 3 / 3 | U558/806       |
| Q13       | Direct and inverse proportion                               | 2 / 3 | U407/640       |
| Q14a      | Negative Indices  | 1 7 1 | U694           |
| Q14b      | Fractional Indices  | 0 / 3 | U772           |
| Q15       | Graphs and equations of lines                               | 1 / 3 | U898           |
| Q16       | Surface area of spheres                                     | 3 / 4 | U893           |
| Q17       | Rearrange formulae to change the subject                    | 2 / 4 | U556           |
| Q18       | Ratio in real context                                       | 1 / 4 | U595           |
| Q19       | Listing strategies/Product rule for counting                | 0 / 2 | U369           |
| Q20a      | Inverse functions   | 1 / 2 | U996           |
| Q20b      | Composite functions   | 0 / 3 | U448           |
| Q21       | Circle theorems   | 0/4   | U459/808       |
| Q22       | Pythagoras's Theorem and Trigonometry                       | 0 / 2 | U170/U319      |
| Q23       | Calculate with Surds  | 0 / 4 | U707/281       |

# **QLAs**

Compares each students performance with the next grade.

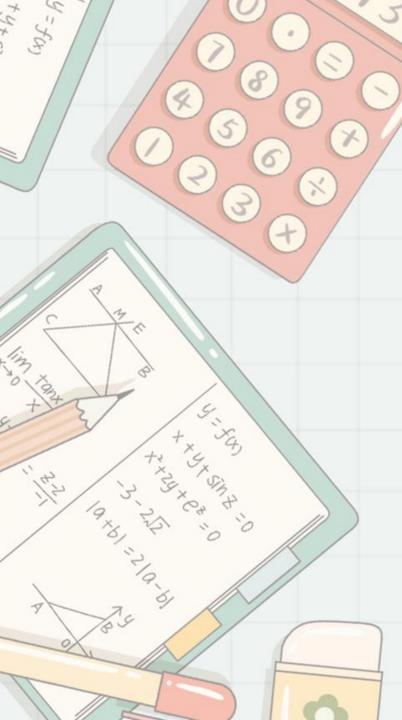
Green – Done better than expected

Amber – Still dropped some marks

Red – PRIORITY!!

Grey – Focus should be elsewhere

Clip Number – Sparx independent learning



## Looking ahead – A Levels:

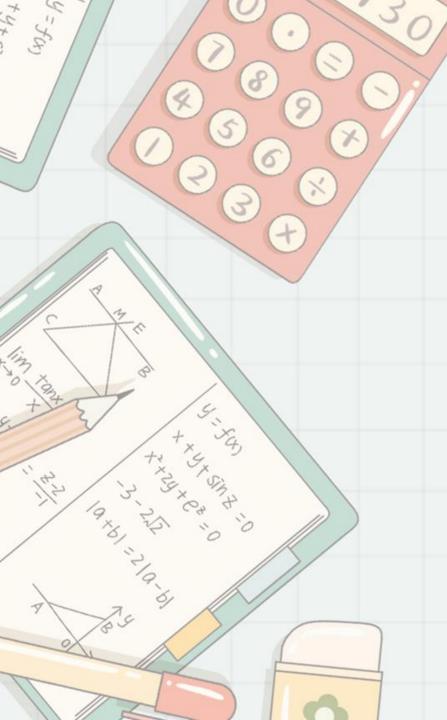
It is compulsory to study Maths post-16 for anyone who does not achieve a standard pass (4).

A grade 7 is required to study Further Maths.

A grade 6 is required for Maths, Biology, Chemistry, Physics, and Computer Science.

A grade 5 is required for Economics, Geography, Psychology, and PE\*.

A grade 4 is required for Business, Design and Technology, and IT



# **Revision and Support: In School:**

Students will complete lots of exam practice in lessons, this then enables us to see which topics the class needs to cover.

We run past paper club every Tuesday from 3 to 4pm. Where students can revise and complete past papers with a teacher on hand to give extra help when needed.

Homework is extremely important in the run up to the GCSE.

Some students will be selected to complete intervention sessions which will run in form time with different students throughout the year.



Revision and Support: At Home: It's never too early to revise! The best way to revise is to do Maths!

**Other websites:** 

🕨 🔰 🚺 🮯 @1stclassmaths

 $\bigcirc$  Corbettm $\alpha$ ths

on maths

Maths Genie 1<sup>st</sup> Class Maths – Exam style questions on particular topics/papers with video solutions

Mathsgenie.co.uk - Exam style questions on particular topics/papers with worked solutions

Sparx Maths – Homework/Independent Learning

Corbett Maths – Practise questions on all topics/5 a day mixed revision/ultimate revision packs

On Maths – Papers online with instant marking



Casio FX-83GTX Scienti FX-83GT CW (Black)

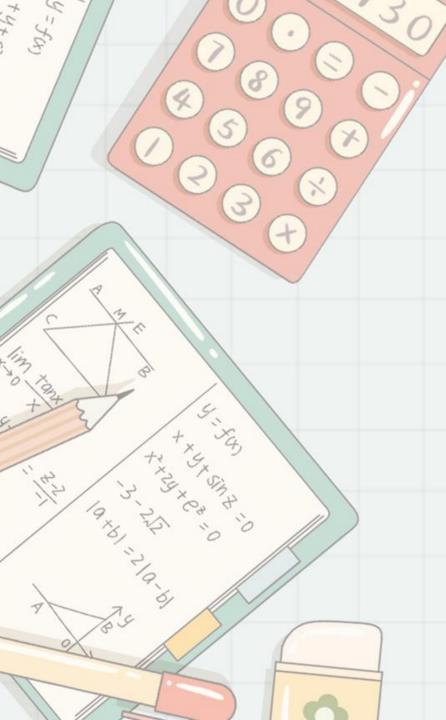
#### AX-595TV Brand: AURORA

# **Revision and Support: Parents/Careers:** Encourage your child to complete homework, ensuring they have time and space to do it.

Check they have the right equipment.

### **Calculators**

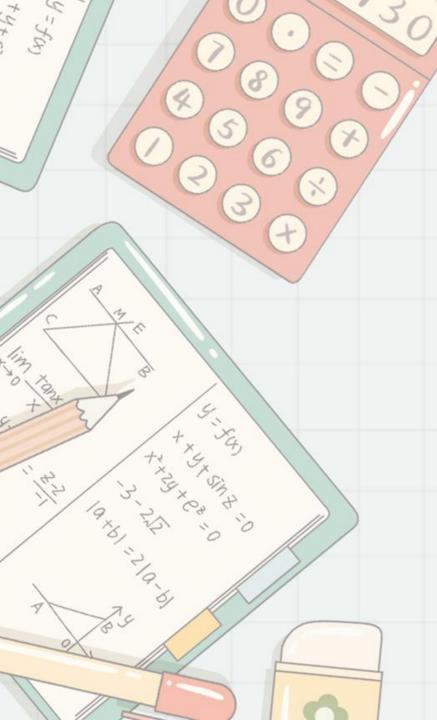
For the calculator papers students need a scientific calculator. Every brand works differently so it is essential students use a calculator they are familiar with in the exam. In Maths we use Aurora (AX-595TV) calculators and would recommend them, or Casio (FX-83GTX of FX-83GTCW).



# Encouragement

Support

# Place to work



# Thank you

# Please feel free to ask any questions

