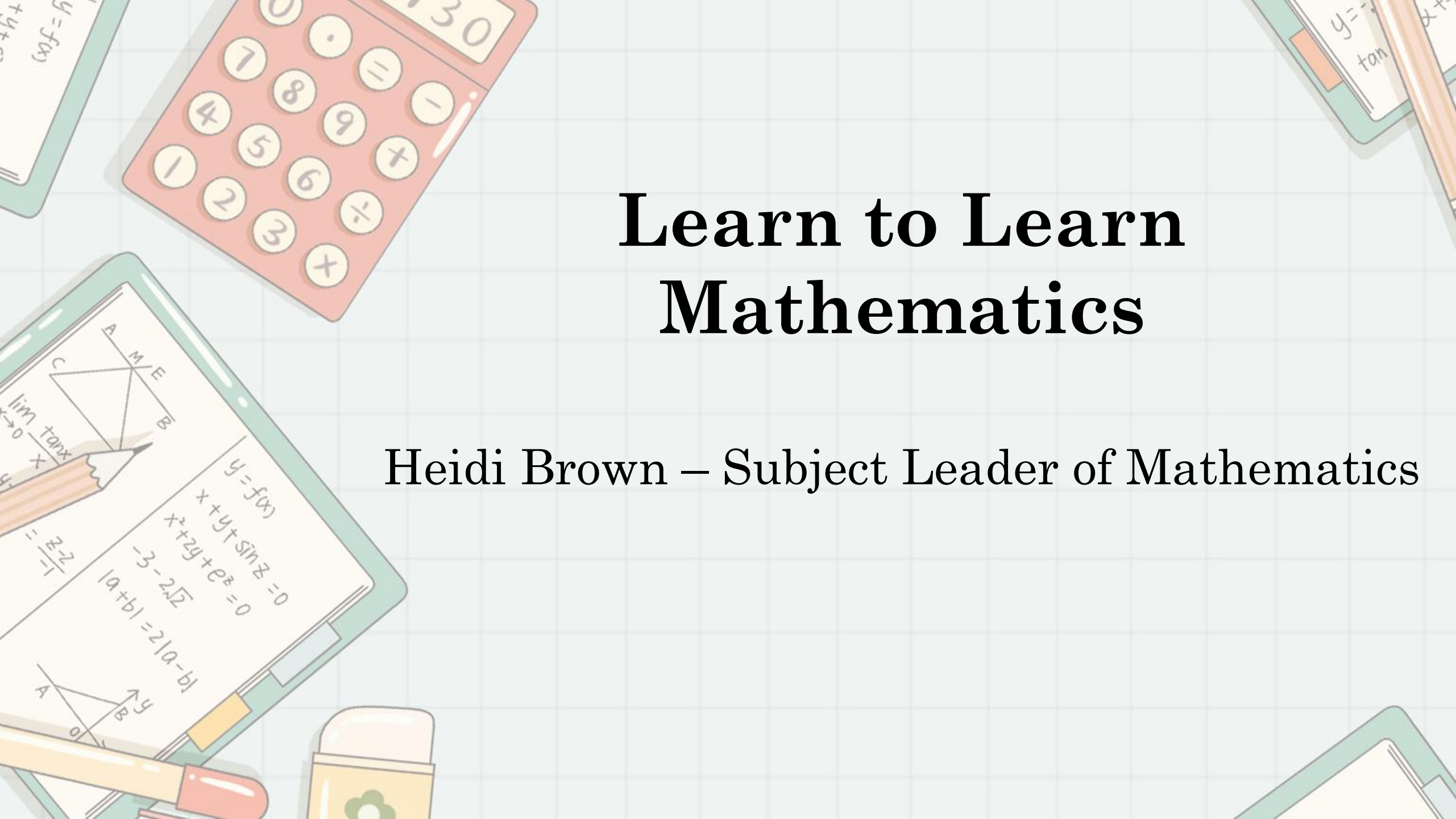
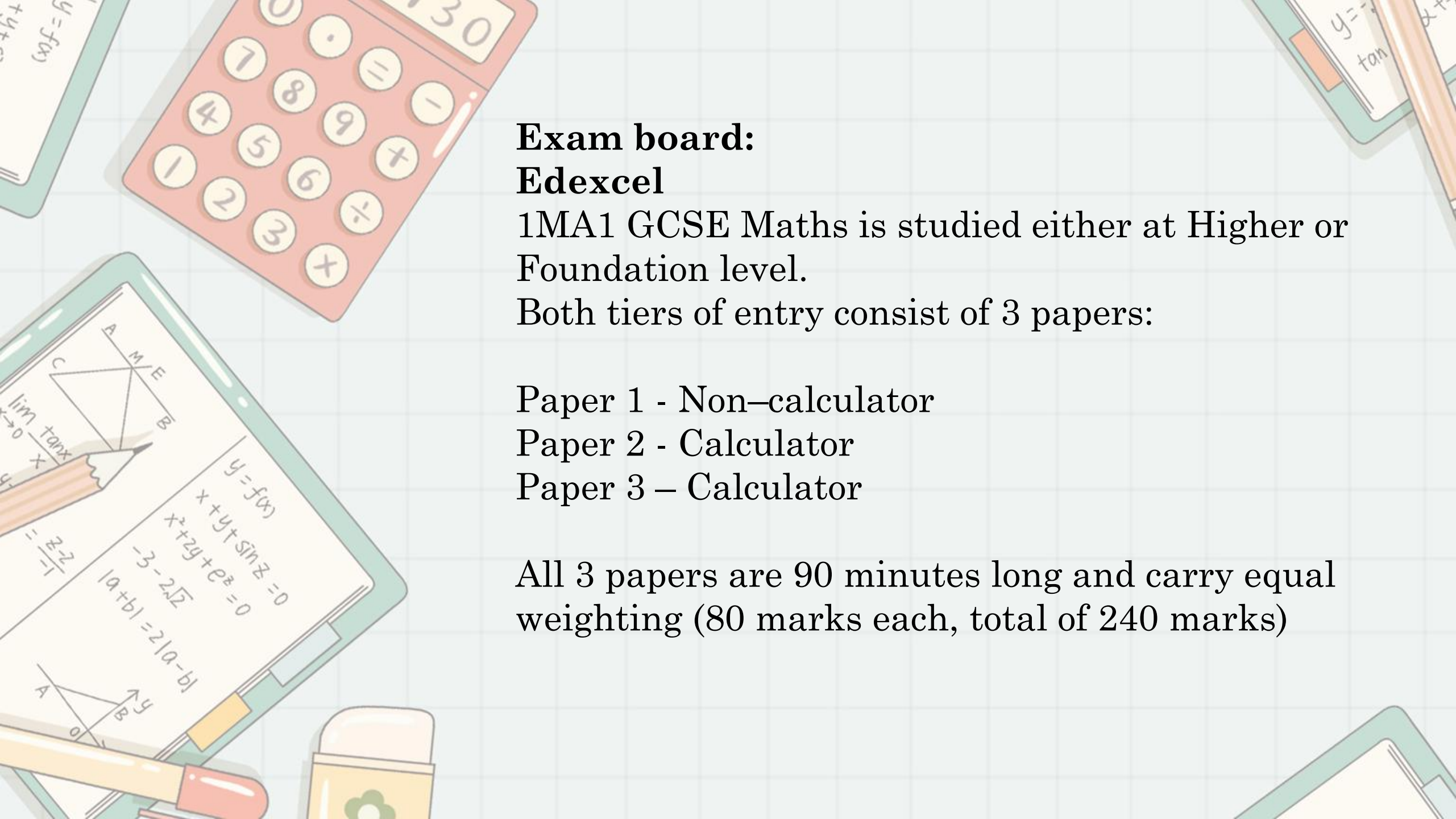




Learn to Learn Mathematics

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)

Tier	Topic area	Weighting
Foundation	Number	22 - 28%
	Algebra	17 - 23%
	Ratio, Proportion and Rates of change	22 - 28%
	Geometry and Measures	12 - 18%
	Statistics & Probability	12 - 18%
Higher	Number	12 - 18%
	Algebra	27 - 33%
	Ratio, Proportion and Rates of change	17 - 23%
	Geometry and Measures	17 - 23%
	Statistics & Probability	12 - 18%

Heaviest weighting

Heaviest weighting

Current structure of Year 10/11 groups:

Higher Groups

11a/Ma1 – Aiming for 7, 8, 9

11a/Ma2 and 11b/Ma1 – Aiming for 5, 6, 7

11a/Ma3 and 11b/Ma2 – Aiming for 4, 5

Foundation Groups

11b/Ma3 – Aiming for 4 or below

Higher Groups

10b/Ma1 – Aiming for 7, 8, 9

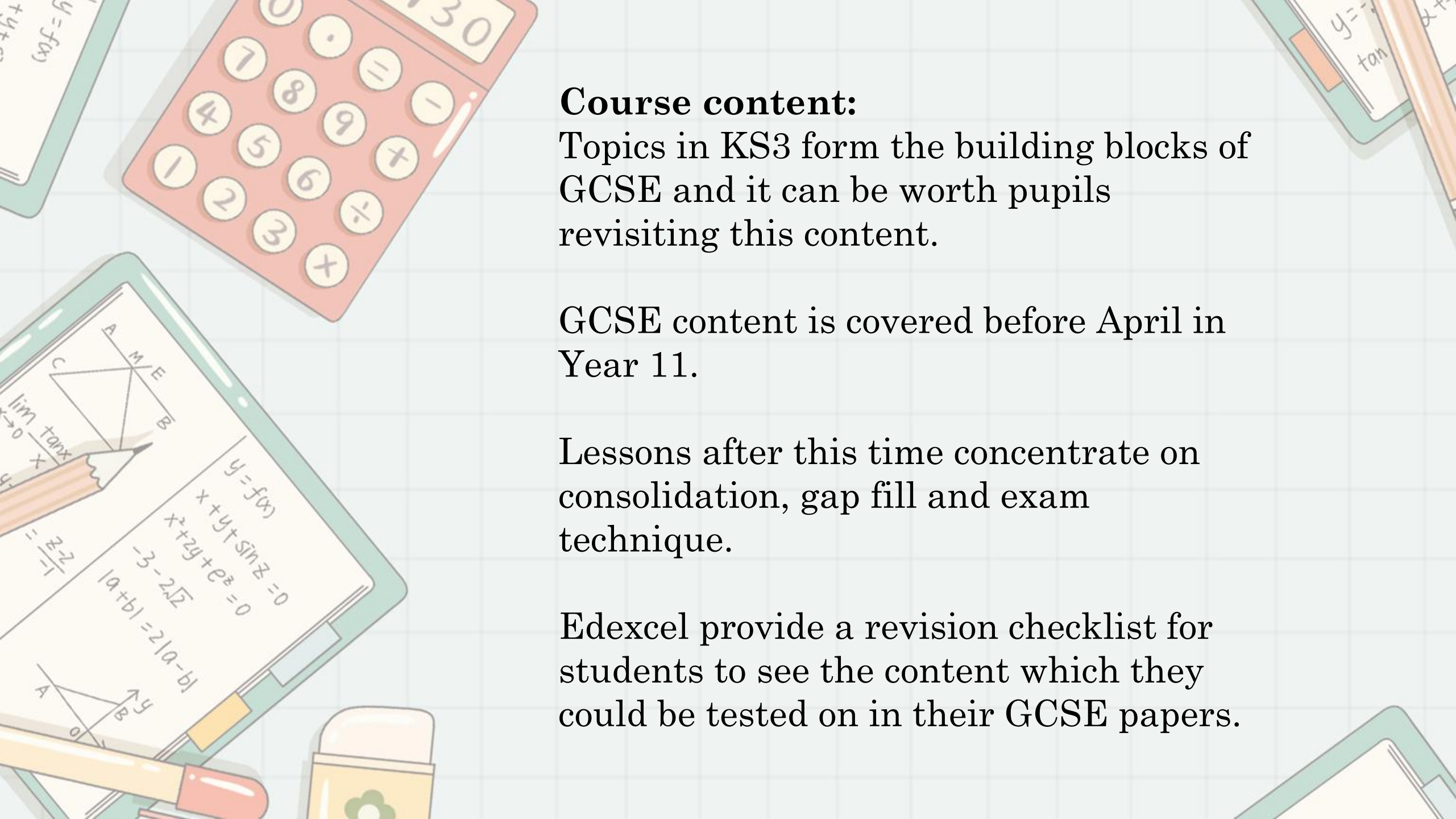
10b/Ma2, 10a/Ma1, 10a/MaS – Aiming for 5, 6, 7

10b/Ma3 and 10a/Ma2 – Aiming for 4, 5

Foundation Groups

10a/Ma3 – Aiming for 4 or below

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	Unit / Topic	Complete
1	Calculations, checking and rounding Four operations with decimals and whole numbers Use one calculation to find the answer to another Product rule Rounding & estimation	
	Indices, roots, reciprocals and hierarchy of operations Use index notation including fractional and negative powers Order of operations	
	Factors, multiples and primes Identify factors, multiples and prime numbers Find prime factorisation of a number (& write in index form) Find common factors & highest common factors Find LCM of two (or three) numbers	
	Standard form and surds Index laws to simplify & calculate the value of an expression Convert between ordinary numbers and standard form Work with the four operations in standard form Use a calculator with indices and standard form Simplify surd expressions	
	Algebra: the basics Write an expression Collect like terms Simplify expressions Use index laws Expand single & double brackets Factorise single brackets Factorise quadratic expressions Factorise quadratic expressions using difference of two squares	
	Setting up, rearranging and solving equations Set up expressions and equations Substitute into expressions, equations and formulae Solve linear equations and inequalities Change the subject of a formula Iteration	
2	Sequences Continue sequences etc from pictures Find the n th term Use n th term rule to generate or continue a sequence Find the n th term of a quadratic sequence Distinguish between arithmetic and geometric sequences Recognise and use simple geometric progressions Find term to term rule of a geometric sequence, including negative, fraction and decimal terms	
	Averages and range Use various charts & diagrams in relation to averages Two way tables Calculate the mean, mode, median and range from a list Median, mean and range from a table (discrete data) Modal class, median and estimate of the mean from grouped data Draw and interpret stem and leaf diagrams	
	Representing and interpreting data Know which chart or diagram to use for different data sets Draw and interpret bar charts (inc dual & composite) Draw and interpret line graphs (vertical & time-series) Draw and use pie charts Find mode & total frequency from a pie chart Compare two pie charts Produce and interpret histograms Compare distributions	
3	Scatter graphs Draw and use scatter graphs & lines of best fit Identify outliers & correlation	

Unit	Unit / Topic	Complete
a	Fractions Equivalent fractions including simplifying & comparing Express one amount as a fraction of another Convert between mixed numbers and improper fractions Four operations using fractions Find a fraction of an amount Convert between recurring decimals to fractions and vice versa	
	Percentages Use fraction to decimal conversions Recognise terminating & recurring decimals Convert between fractions, decimals & percentages Order & compare fractions, decimals & percentages Write one amount as a percentage of another Calculate percentage of an amount Calculate percentage increase/decrease Use decimals to find quantities (multiplier methods) Increase / decrease an amount by a percentage Reverse percentages	
b	Ratio and proportion Write ratios in their simplest form Share a quantity in a given ratio Use a ratio to find one quantity Compare ratios	
	Polygons, angles and parallel lines Measure and draw lines Identify and name 2D shapes Identify parallel and perpendicular lines Use angle facts - around a point, at a vertex, angles in a triangle, angles in a quadrilateral Use angle properties of parallel lines Use sum of interior angles of a polygon Use sum of exterior angles of a polygon Use the side-angle-side and angle-angle-side criteria for congruence	
c	Pythagoras' Theorem and Trigonometry Pythagoras' Theorem Trigonometry - sin, cos, tan Know exact trig values	
	Graphs: the basics and real-life Use coordinates in all four quadrants Conversion graphs Fixed cost and cost per unit Distance / time and Velocity / time graphs Midpoints of a line segment Calculate the length of a line segment	
d	Linear graphs and coordinates Draw, use and interpret a line Find the equation of a line Identify parallel and perpendicular lines Generate equations of straight lines	
	Quadratic, cubic and other functions Plot quadratic graphs Find solutions, intercepts Recognise and sketch cubics Recognise and sketch quartics, cubics, cubics	
e	Algebraic manipulation Simplify algebraic expressions Factorise algebraic expressions Solve linear equations and inequalities Solve quadratic equations and inequalities Solve simultaneous equations algebraically and graphically	
	Geometry and measures Perimeter, area and volume Identify and name 2D shapes and their properties Identify and name 3D shapes and their properties Calculate the perimeter, area and volume of 2D and 3D shapes Calculate the area and volume of composite shapes Calculate the area and volume of similar figures and solids Calculate the area and volume of similar figures and solids	
f	Statistics Collect, represent and interpret data Calculate the mean, median, mode and range Calculate the standard deviation Calculate the variance Calculate the coefficient of variation Calculate the correlation coefficient	
	Probability List the outcomes of a probability experiment Calculate the probability of an event Calculate the probability of two events occurring together Calculate the probability of two events occurring separately	



GCSE Maths Revision Checklist - Higher

Unit	Unit / Topic	Complete
7	Perimeter, area and circles Convert between metric measures Read scales Perimeter of 2D shapes Area of 2 D shapes and compound shapes Name parts of a circle Recall & use formula for area and circumference of a circle Arcs and sectors	
	3D forms and volume, cylinders, cones and spheres Identify and name 3D forms and their properties Volume of a cuboid Volume of a prism Volume of a composite forms Surface area of prisms & simple compound forms Surface area & volume of a cylinder Spheres, pyramids, cones, frustums and composite solids	
	Accuracy and bounds Calculate the upper & lower bounds of numbers Calculate the upper & lower bounds of an expression Use error intervals (inc truncation)	
	Transformations Transform and describe translations, rotations & reflections Transform and describe enlargements inc fractional and negative SF Transform shapes using a combination of transformations Describe transformations when using multiple transformations Describe the changes & invariance achieved by combinations of transformations	
	Constructions, loci and bearings Draw plans and elevations of shapes Draw a 3D form given its plan and elevations Use maps, scale drawings & bearings Standard conventions Find regions satisfying a combination of loci Find and describe regions satisfying a combination of two, including in 3D Use constructions to solve loc problems including with bearings	
	Solving quadratic and simultaneous equations Set up and solve quadratic equations Completing the square Quadratic Formula Solve simultaneous equations algebraically and graphically (linear/linear) Solve simultaneous equations algebraically and graphically (linear/quadratic) Solve simultaneous equations algebraically and graphically (quadratic/quadratic)	
	Inequalities On a number line Listing numbers that satisfy an inequality Solving inequalities and show the solution on a number line Represent and merge inequalities graphically	
	Probability Probability scale Listing outcomes Two-way tables Frequency trees Use 1-p Relative frequency Sample space diagrams Venn diagrams & set notation Probability tree diagrams	
	Multiplicative reasoning Best value Use compound measures: Pressure, Density & Speed Percentage profit / loss Reverse percentages Simple interest Compound interest & growth Depreciation & decay Rates of flow	

Unit	Unit / Topic	Complete
12	Similarity and congruence in 2D and 3D Use congruence criteria for triangles (SSS, SAS, ASA and RHS); Use formal geometric proof involving similarity & congruence Identify similar shapes Identify scale factors and find missing lengths in similar shapes Use length, area and volume scale factors Area and surface area of frustums	
a	Graphs of trigonometric functions Recognise, sketch and interpret graphs of the trigonometric functions Exact trig values Transforming graphical functions	
13	Further trigonometry Formula for area of a triangle Sine rule in 2D and 3D Cosine rule in 2D and 3D Pythagoras Theorem in 3D	
b		
a	Collecting data Types of data Bias and eliminating bias	
14	Cumulative frequency, box plots and histograms Construct & interpret cumulative frequency tables/graphs Median, quartiles & interquartile range from cumulative diagrams Construct & interpret box plots Median, quartiles & interquartile range from box plots Construct & histograms Estimate the mean and median from a histogram	
b		
15	Quadratics, expanding more than two brackets, sketching graphs, graphs of circles, cubics and quadratics Sketch quadratics Identify roots, turning points and intercepts of quadratic graphs Completing the square Expand the product of more than two linear expressions Sketch cubics Solve simultaneous equations graphically Solve and represent quadratic inequalities	
a	Circle theorems Parts of a circle Prove, recall and apply circle theorems	
16	Circle geometry Recognise and construct the graph of a circle Find the equation of a tangent to a circle	
b		
17	Changing the subject of formulae (more complex), algebraic fractions, solving equations arising from algebraic fractions, rationalising surds, proof Rationalise the denominator involving surds Simplify, multiply and divide algebraic fractions Change the subject of a complex formula Algebraic Proof Functions & function notation Inverse functions Composite functions	
a	Vectors and geometric proof Understand represent and use vector notation, including column notation Find the length of a vector Calculate the resultant of a vector Geometric problems in 2D where vectors are divided in a given ratio. Geometrical proofs to prove points are collinear & vectors/lines are parallel	
18		
a	Reciprocal and exponential 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	
19	Direct and inverse proportion Recognise and interpret graphs of direct & inverse proportion Set up, and use formulae for direct & inverse proportion	
b		



GCSE Maths Revision Checklist - Foundation

Unit	Unit / Topic	Complete
1	Integers and place value Types of number 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 Compare and order decimal numbers Four operations using decimal numbers Round to nearest whole number, decimal place & significant figures 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 Find prime factorisation of a number (& write in index form) Find common factors & highest common factor Find LCM of two (or three) numbers	
2	Algebra: the basics Write an expression Collect like terms Simplify expressions Use index laws	
	Expanding and factorising single brackets Expand single brackets Simplify expressions using squares and cubes Factorise expressions	
	Expressions and substitution into formulae Substitute into expressions involving brackets & powers Substitute into a formula (& word formula)	
3	Tables Sort and classify data (inc tally charts) 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) Draw and interpret line graphs (vertical & time-series) Draw and interpret frequency polygons Draw and interpret pictograms Draw and interpret stem and leaf diagrams	
	Pie charts Draw and use pie charts Find mode & total frequency from a pie chart Compare two pie charts	
	Scatter graphs Draw and use scatter graphs & lines of best fit Identify outliers & correlation	

Unit	Unit / Topic	Complete
4	Fractions Equivalent fractions including simplifying & comparing Express one amount as a fraction of another Convert between mixed numbers and improper fractions Four operations using fractions Find a fraction of an amount	
	Fractions, decimals and percentages Use fraction to decimal conversions Recognise terminating & recurring decimals	
	Percentages Convert between fractions, decimals & percentages Order & compare fractions, decimals & percentages Write one amount as a percentage of another Calculate percentage of an amount Calculate percentage increase/decrease Use decimal increase/decrease	



GCSE Maths Revision Checklist - Foundation

Unit	Unit / Topic	Complete
5	3D forms and volume Identify and name 3D forms and their properties Volume of a cuboid Volume of a prism Volume of a composite forms	
	Real-life graphs Use coordinates in all four quadrants Midpoints of a line segment Conversion graphs Fixed cost and cost per unit graphs Distance / time and Velocity / time graphs	
	Straight-line graphs Draw, use and interpret (inc gradient) straight line graphs Identify parallel lines Find the equation of a line (including from a graph)	
6	Transformations I: translations, rotations & reflections Transform and describe translations Transform and describe rotations Transform and describe reflections	
	Transformations II: enlargements and combinations Transform and describe enlargements Transform shapes using a combination of transformations Describe transformations when using multiple transformations	
7	Ratio Write ratios in their simplest form (including in context) Share a quantity in a given ratio (including 3-part ratios) Use a ratio to find one quantity when another is known Compare ratios Write ratio in the form 1:n or n:1 Write a ratio as a fraction and vice versa	
	Proportion Use direct & inverse proportion (and recognise graphically) Best value Recipes Currency conversions	
8	Right-angled triangles: Pythagoras and trigonometry Pythagoras' Theorem Trigonometry - sin, cos and tan Know exact trig values	
	Probability I Probability scale Listing outcomes Two-way tables & Frequency Trees Use 1-p	
9	Probability II Relative frequency Sample space diagrams Venn diagrams & set notation Probability tree diagrams	

Unit	Unit / Topic	Complete
14	Multiplicative reasoning Use compound measures: Pressure, Density & Speed Percentage profit / loss Reverse percentages Simple interest Compound interest & growth Depreciation & decay Rates of pay	
	Plans and elevations 3D shape names and properties 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 Find regions satisfying a combination of loci Use maps and scale drawings Bearings	
	Quadratic equations: expanding and factorising Expand double brackets Factorise quadratic expressions Solve quadratic equations	
16	Quadratic equations: graphs Plot quadratic graphs Find solutions, intercepts & turning points of a quadratic graph	
	Circles, cylinders, cones and spheres Name parts of a circle Recall & use formula for area and circumference of a circle Arcs and sectors Surface area & volume of a cylinder Spheres, pyramids, cones and composite solids	
17	Fractions and reciprocals Four operations with mixed number fractions Reciprocal of an integer, decimal or fractions	
	Indices and standard form Index laws to simplify & calculate the value of an expression Convert between ordinary numbers and standard form Work with the four operations in standard form Use a calculator with indices and standard form	
18	Similarity and congruence in 2D Use congruence criteria for triangles (SSS, SAS, ASA and RHS); identify similar shapes Identify scale factors and find missing lengths in similar shapes	
	Vectors Understand and use column notation including drawing them Identify parallel column vectors Calculate using column vectors	
19	Rearranging equations, graphs of cubic and reciprocal functions and simultaneous equations Know the terms equation, identity, expression etc Change the subject of a formula Answer simple 'show that' questions Use inverse proportion involving graphs Recognise and sketch cubic functions Recognise and sketch reciprocal functions Solve simultaneous equations algebraically and graphically	



Homework:

Homework is set on a weekly basis.
Set on Wednesday, due the following
Tuesday.

The platform we use is Sparx maths

www.sparxmaths.com



Compulsory



XP Boost



Target



Independent
Learning

Hey Teacher,

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

0/0

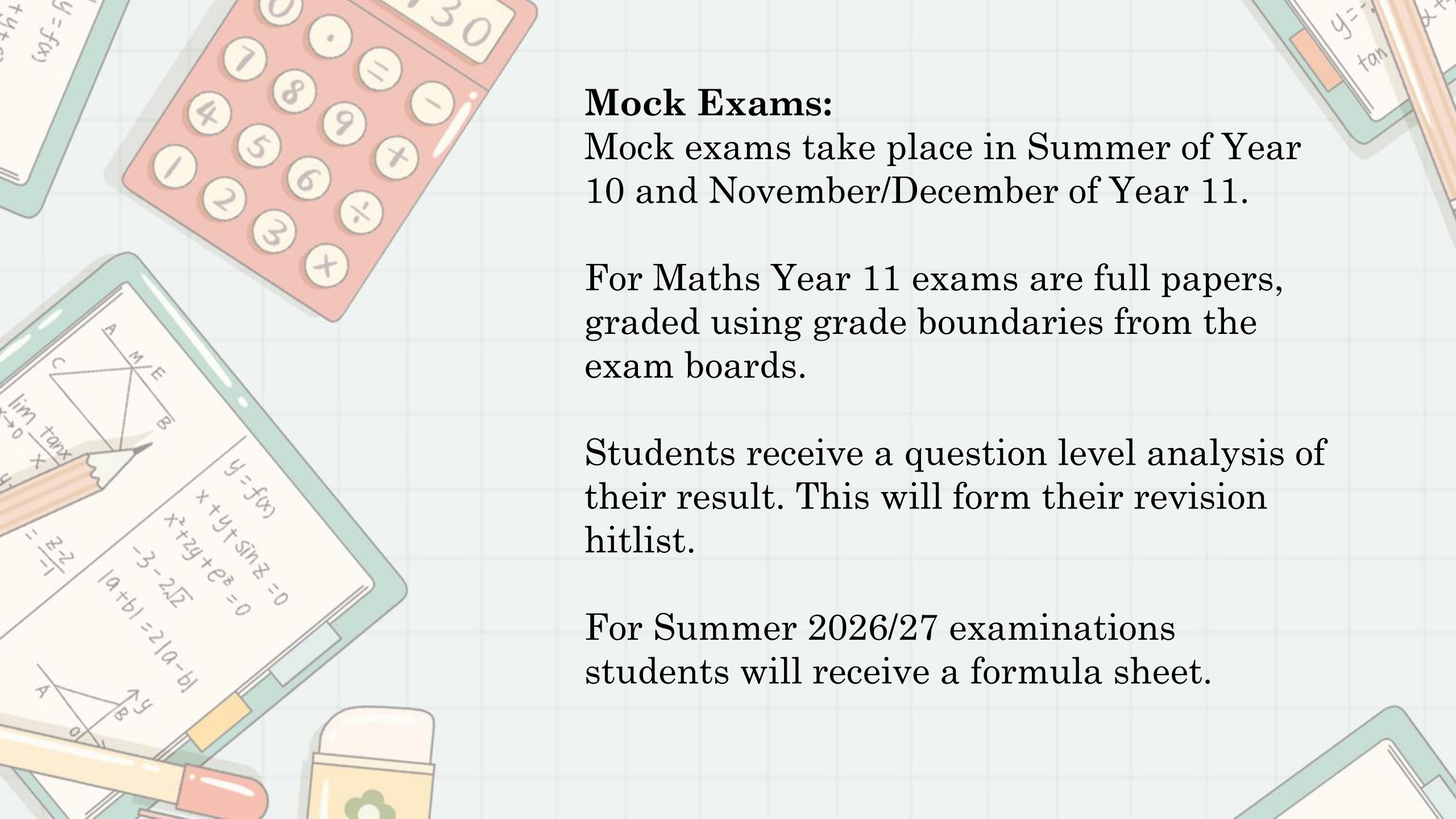
Optional Homework in Sparx Maths



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

Independent learning – take control of your own learning

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



Mock Exams:

Mock exams take place in Summer of Year 10 and November/December 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 2026/27 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:

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

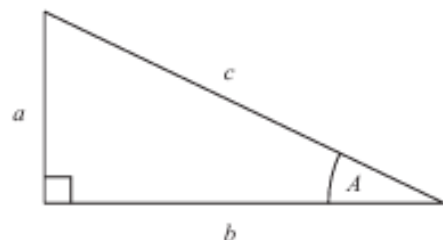
Volume of a prism = area of cross section $\times$ length

Where r is the radius and d is the diameter:

$$\text{Circumference of a circle} = 2\pi r = \pi d$$

$$\text{Area of a circle} = \pi r^2$$

Pythagoras' Theorem and Trigonometry

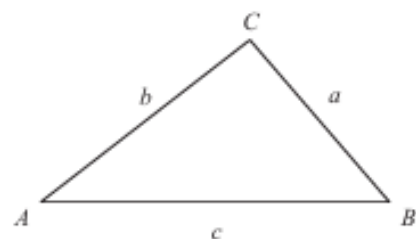


In any right-angled triangle where a , b and c are the length of the sides and c is the hypotenuse:

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

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

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



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

$$\text{sine rule: } \frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\text{cosine rule: } a^2 = b^2 + c^2 - 2bc \cos A$$

$$\text{Area of triangle} = \frac{1}{2} a b \sin C$$

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:

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

Probability

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

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

$$P(A \text{ and } B) = P(A \text{ given } B) P(B)$$

END OF EXAM AID

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:

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

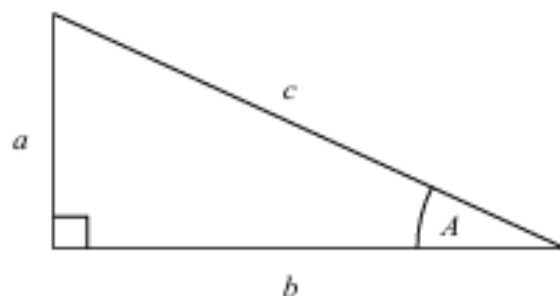
Volume of a prism = area of cross section $\times$ length

Where r is the radius and d is the diameter:

$$\text{Circumference of a circle} = 2\pi r = \pi d$$

$$\text{Area of a circle} = \pi r^2$$

Pythagoras' Theorem and Trigonometry



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:

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

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:

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

Probability

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

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

END OF EXAM AID

In this paper you achieved:

Mark: 27 / 80

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: 54 / 80

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 / 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.

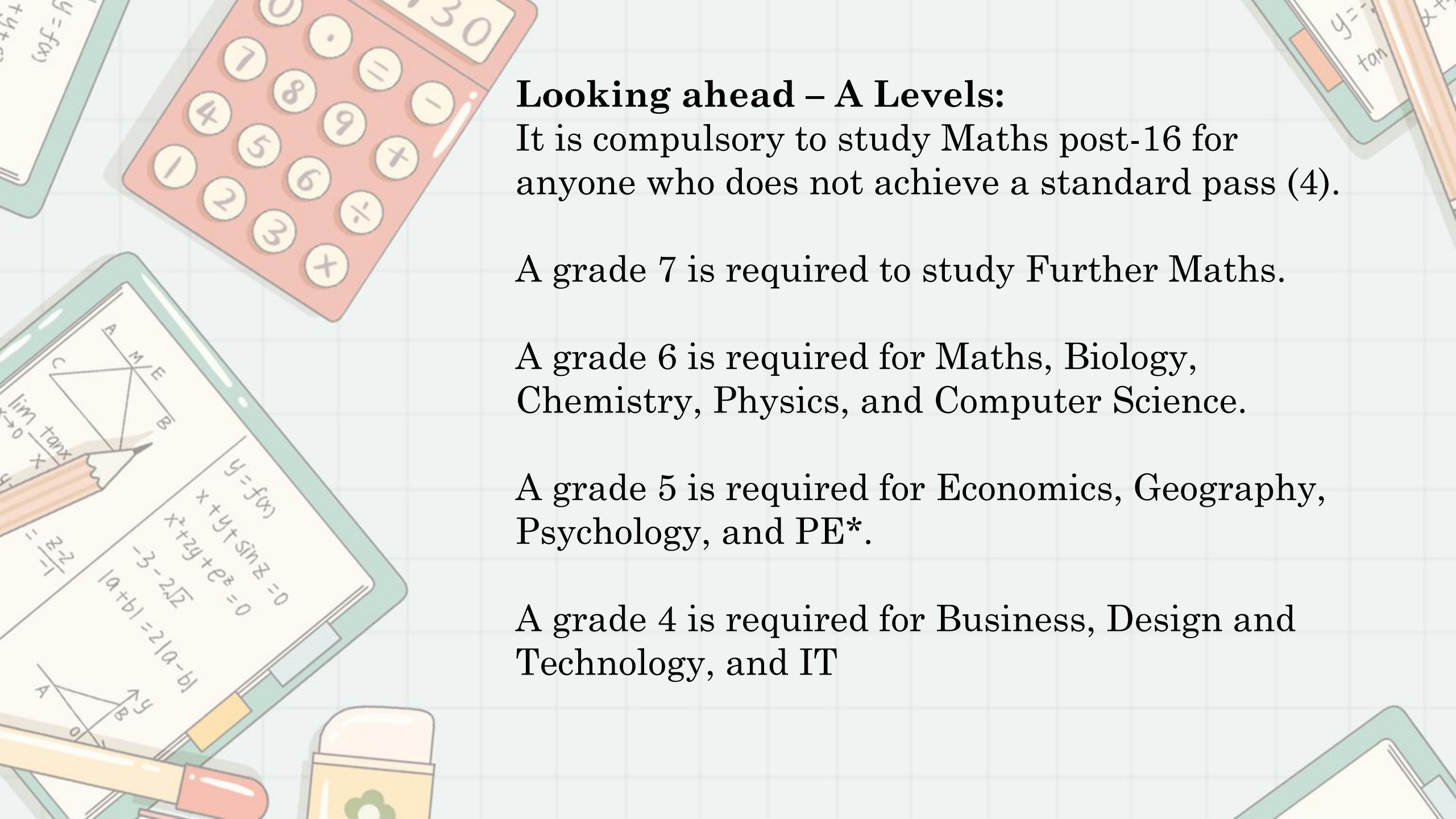
Green – Done better than expected

Amber – Still dropped some marks

Red – PRIORITY!!

Grey – Focus should be elsewhere

Clip Number – Sparx independent learning



Looking ahead – A Levels:

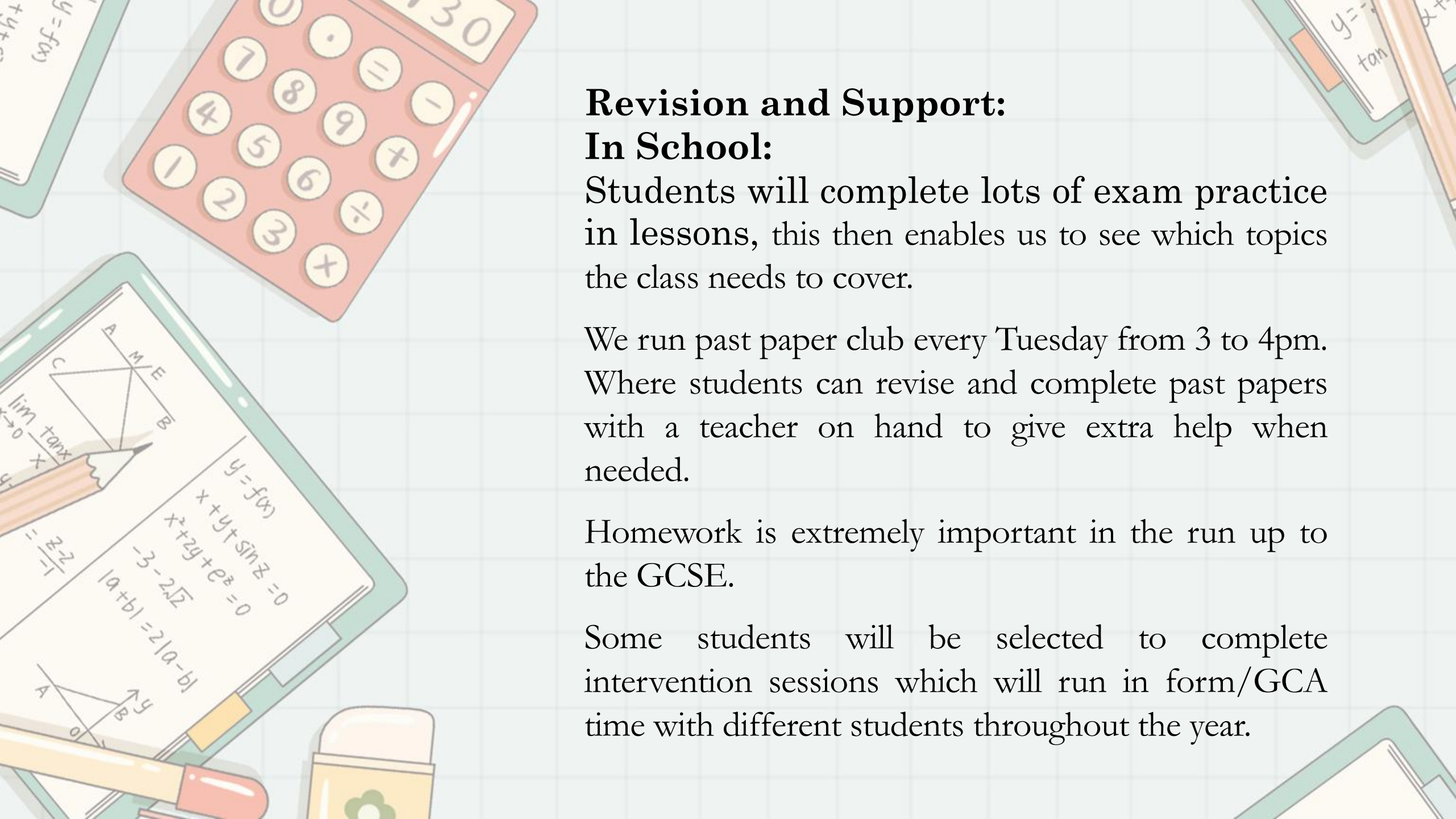
It is compulsory to study Maths post-16 for anyone who does not achieve a standard pass (4).

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:

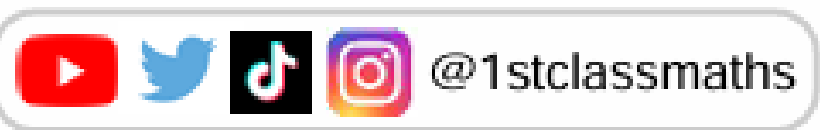
In School:

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/GCA 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:

Sparx Maths – Homework/Independent Learning

1st 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

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

On Maths – Papers online with instant marking



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 GOOD QUALITY scientific calculator. We would recommend Casio (FX-83GT). Can be purchased on MCAS app and collected in finance office (£9.50).



Encouragement

Support

Place to work



Thank you

**Please feel free to ask any
questions**