

GCSE Information Evening

Mathematics

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Mathematics 9-1 GCSE

A year of big changes

- Grading Structure
- Exam Structure
- Content



Mathematics 9-1 GCSE

Grading Structure

New grading structure	Current grading structure
9	A*
8	A
7	A
6	B
5	B
4	C
3	D
2	E
1	F
1	G
U	U

GOOD PASS (DfE)
5 and above = top of C and above

AWARDING
4 and above = bottom of C and above

Source: Ofqual



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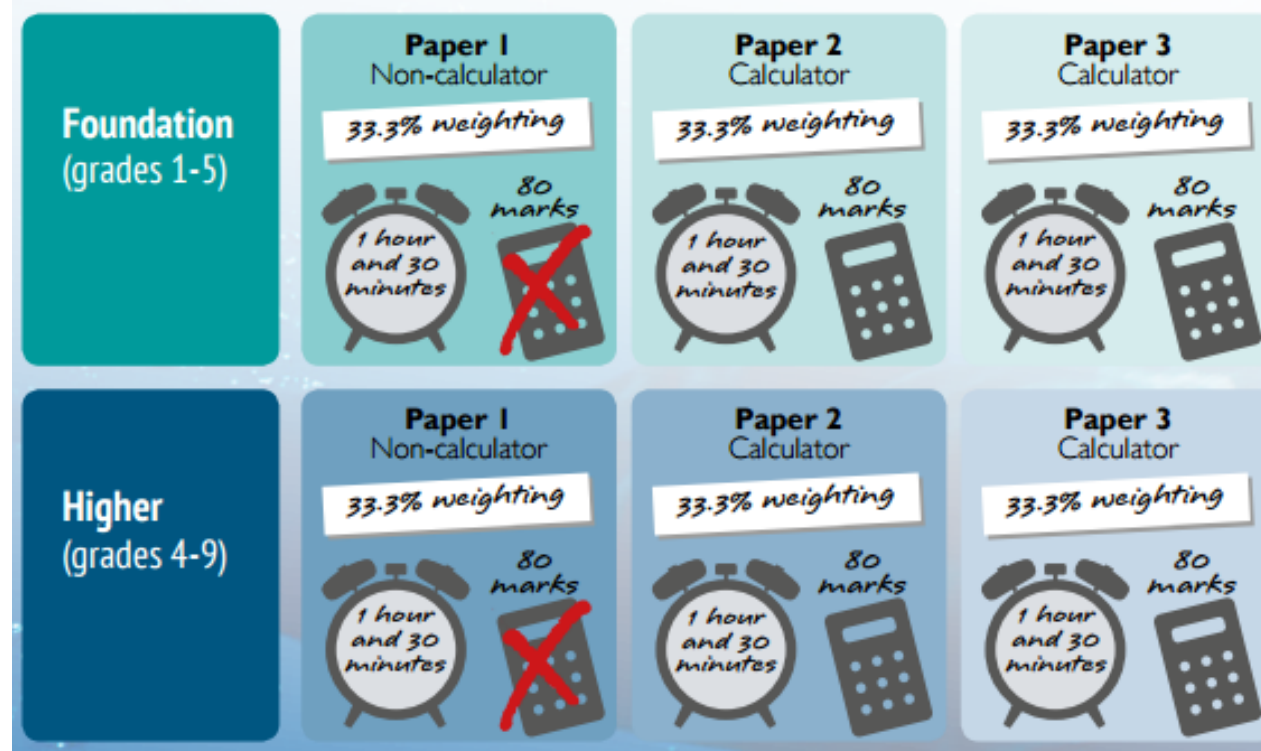
Grading Structure

- broadly the same proportion of students will achieve a grade 4 and above as currently achieve a grade C and above
- broadly the same proportion of students will achieve a grade 7 and above as currently achieve a grade A and above
- broadly the same proportion of students will achieve a grade 1 and above as currently achieve a grade G and above GCSE
- A grade 4 will continue to be a level 2 achievement. The Department for Education does not expect employers, colleges or universities to raise the bar to a grade 5 if a grade 4 would meet their requirements.



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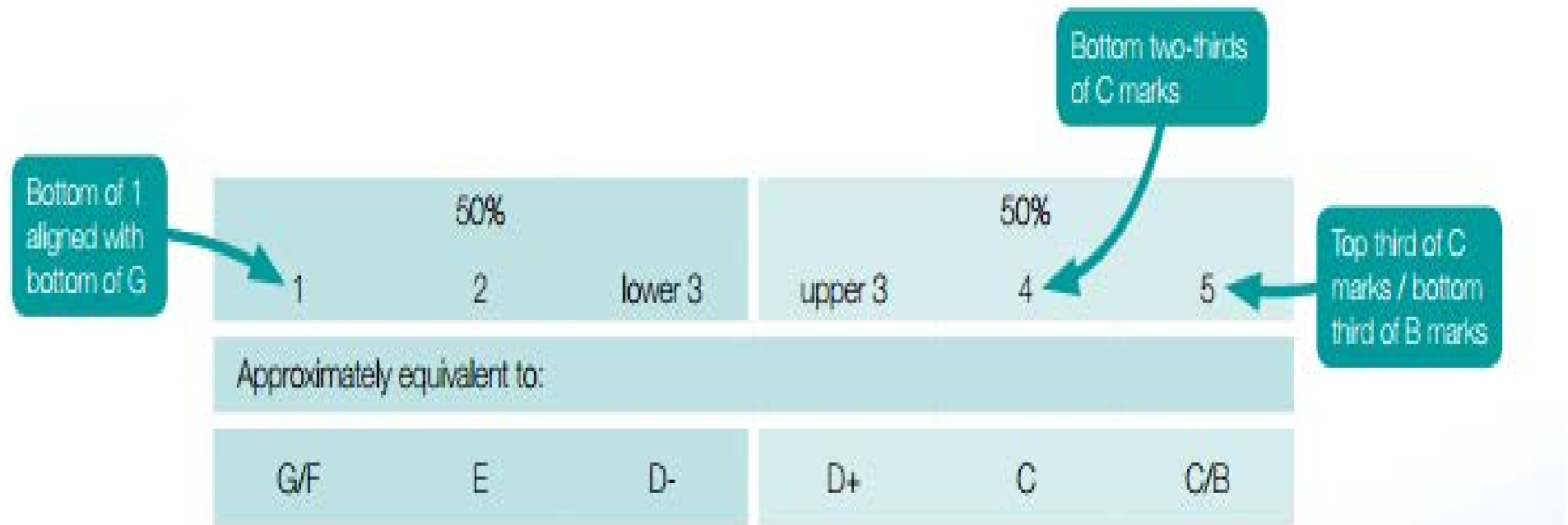
Exam Structure



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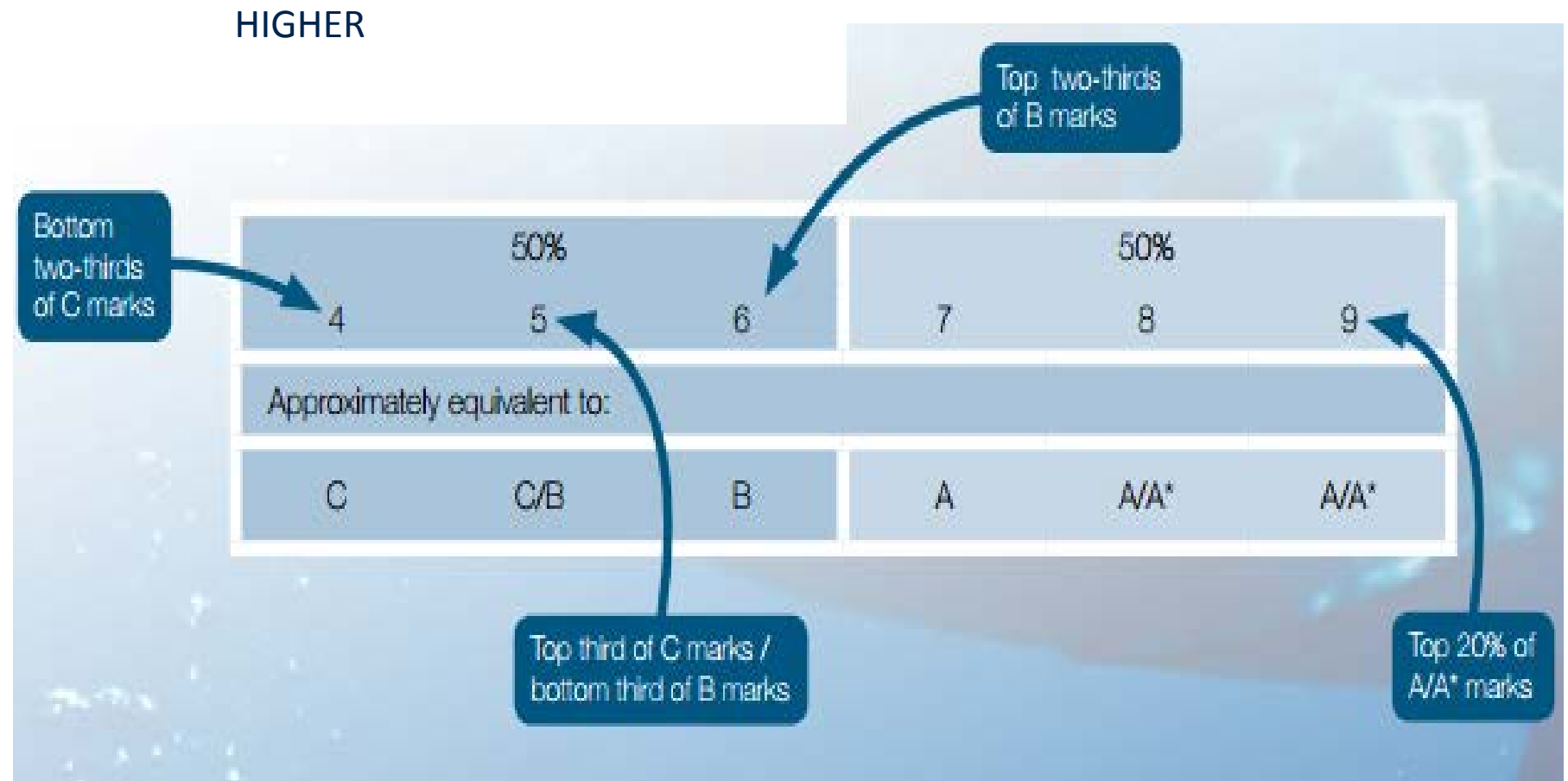
Exam Structure

FOUNDATION



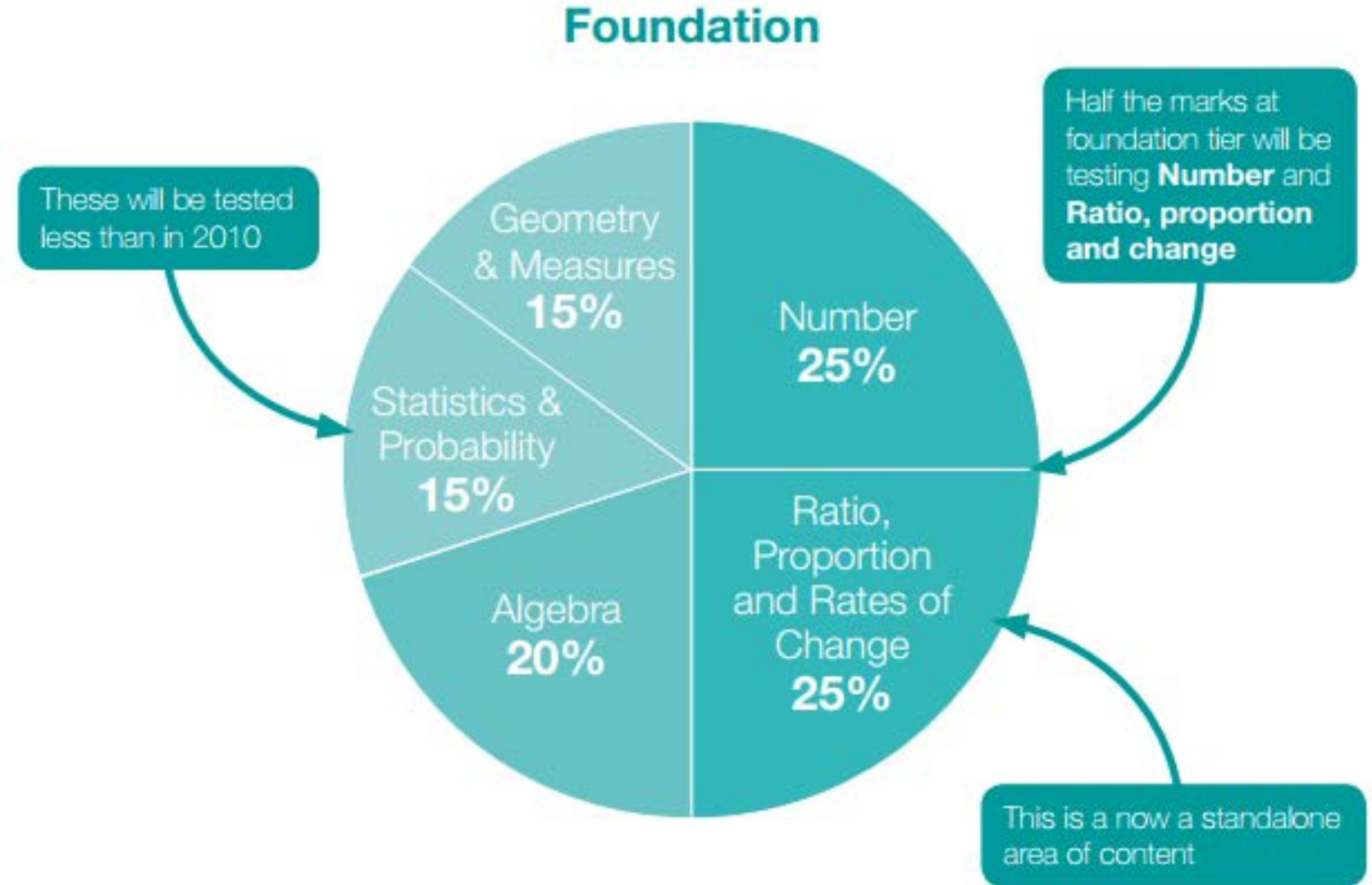
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Exam Structure



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Exam Structure

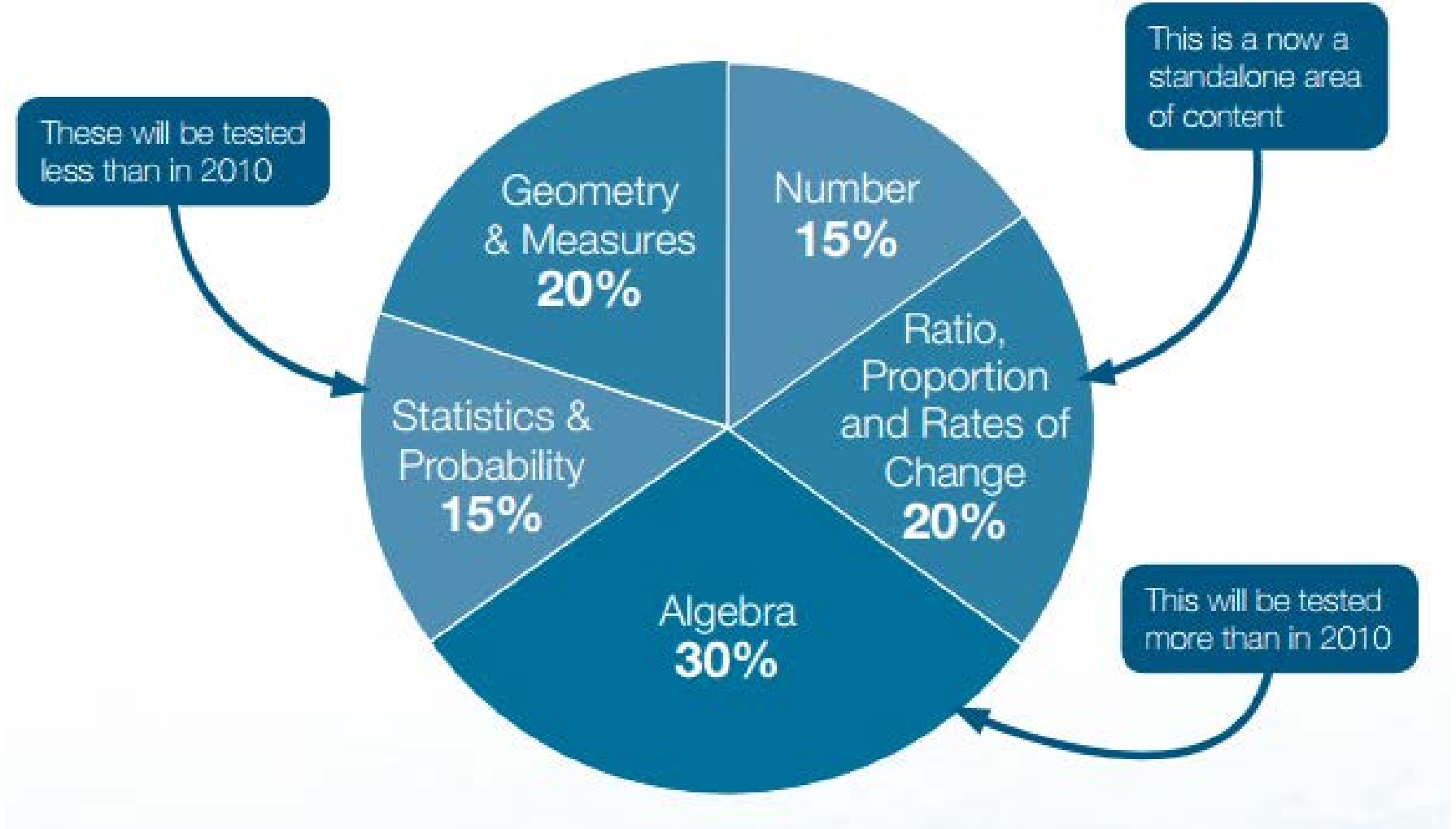


Source: Pearson

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Higher

Exam Structure



Source: Pearson



Mathematics 9-1 GCSE

Exam Content

Topics new to both tiers

- Use inequality notation to specify simple error intervals
- Identify and interpret roots, intercepts, turning points of quadratic functions graphically; deduce roots algebraically
- Fibonacci type sequences, quadratic sequences, geometric progressions
- Relate ratios to linear functions
- Interpret the gradient of a straight line graph as a rate of change
- Know the exact values of $\sin \theta$ and $\cos \theta$ for $\theta = 0^\circ, 30^\circ, 45^\circ, 60^\circ$ and 90° ; know the exact value of $\tan \theta$ for $\theta = 0^\circ, 30^\circ, 45^\circ$ and 60°

Source: Pearson



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Exam Structure

Source: Pearson

Topics new to Foundation tier (previously Higher tier only in 2010)

- Index laws: zero and negative powers (numeric and algebraic)
- Standard form
- Compound interest and reverse percentages
- Direct and indirect proportion (numeric and algebraic)
- Expand the product of two linear expressions
- Factorise quadratic expressions in the form $x^2 + bx + c$
- Solve linear/linear simultaneous equations
- Solve quadratic equations by factorisation
- Plot cubic and reciprocal graphs, recognise quadratic and cubic graphs
- Trigonometric ratios in 2D right-angled triangles
- Fractional scale enlargements in transformations
- Lengths of arcs and areas of sectors of circles
- Mensuration problems
- Vectors (**except** geometric problems/proofs)
- Density
- Tree diagrams

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Exam Content

Topics new to Higher tier

- Expand the products of more than two binomials
- Interpret the reverse process as the 'inverse function'; interpret the succession of two functions as a 'composite function' (using formal function notation)
- Deduce turning points by completing the square
- Calculate or estimate gradients of graphs and areas under graphs, and interpret results in real-life cases (**not** including calculus)
- Simple geometric progressions including surds, and other sequences
- Deduce expressions to calculate the n th term of quadratic sequences
- Calculate and interpret conditional probabilities through Venn diagrams

Omitted topics

- Trial and improvement
- Tessellations
- Isometric grids
- Imperial units of measure
- Questionnaires
- 3D coordinates
- Rotation and enlargement of functions

Source: Pearson

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Exam Content

Students will need to memorise many of the formulae currently given in the formulae sheets:

- Volume of a prism
- Area of a trapezium
- Quadratic Equation (Higher only)
- Sine rule, cosine rule and area of a triangle (Higher only)
- Plus the formulae that already needed to be memorised: area and circumference of a circle, area of a parallelogram and area of a triangle

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Exam Content

Equations given in the Higher paper:

- The three kinematics formulae
- Curved surface area of a cone
- Surface area of a sphere
- Volume of a sphere
- Volume of a cone



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How you can support your children

- Make sure they have the correct equipment at all times
- Identify key areas for improvement
- Work on these through the many resources available already



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How you can support your children

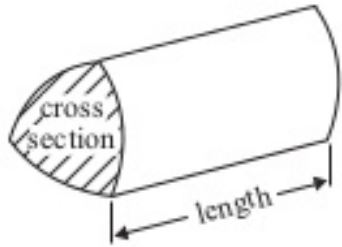
- **Mathswatch** www.vle.mathswatch.com login: TSmith@heathside password: Triangle
- **MyMaths** www.mymaths.co.uk login: heathside password: triangle
- **Collins Connect** <https://connect.collins.co.uk>
- **Maths Made Easy** <http://www.mathsmadeeasy.co.uk/gcsemathspastpapers.htm>
- **GCSE Maths Revision** <http://gcsemathsrevision.weebly.com>



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Equations that need to be memorised

Volume of prism = area of cross section \times length

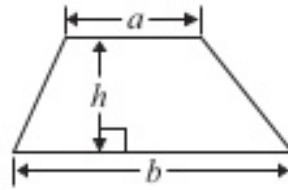


The Quadratic Equation

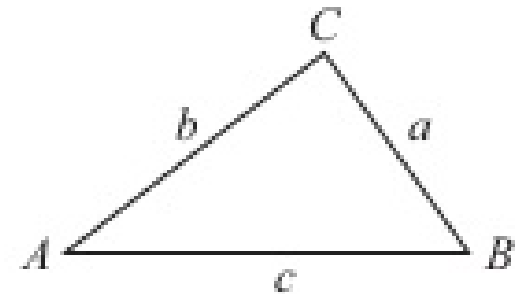
The solutions of $ax^2 + bx + c = 0$
where $a \neq 0$, are given by

$$x = \frac{-b \pm \sqrt{(b^2 - 4ac)}}{2a}$$

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



In any triangle ABC



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 = $\frac{1}{2} ab \sin C$