GCSE Mathematics 2017
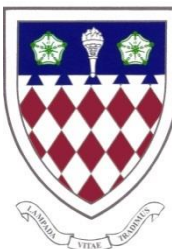
GCSE Mathematics 2017

GCSE Maths is going to change and get more demanding for everyone.

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Friendship

Why is this happening?

The changes are designed to help students emerge from GCSE mathematics with a level of confidence and fluency that will provide a genuine foundation for the rest of their learning and working lives.
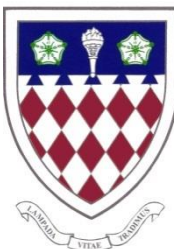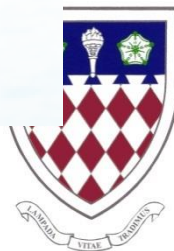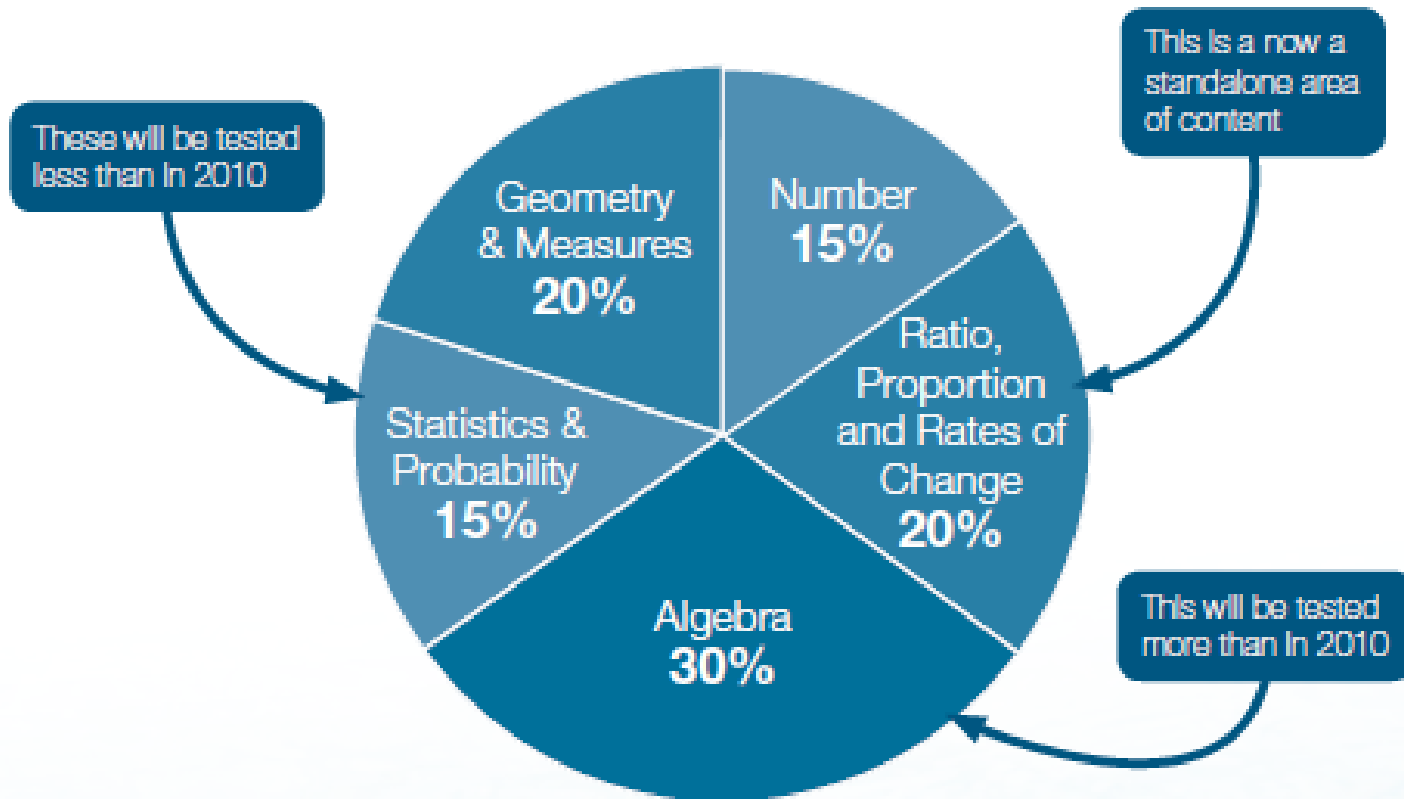
What is changing (1)

- The volume of subject content has increased.

- The demand of that content is increasing too, with harder topics being introduced.

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Resilience
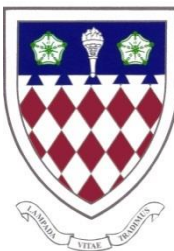
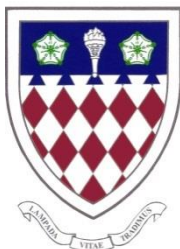# Content

What is changing (2)

- The total time for the examinations is increasing, from 3 ½ hours to 4 ½ hours.

- All exams will be sat at the end of the course.

- There is no controlled assessment.

- There are fewer marks at the lower grades and more marks at the higher grades at both Foundation Tier and Higher Tier.
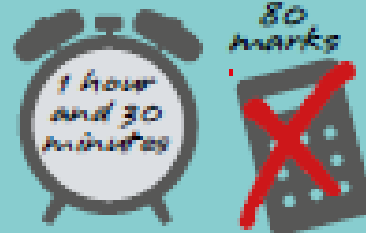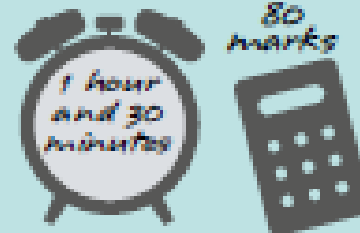
Examination papers

	Paper 1 Non-calculator	Paper 2 Calculator	Paper 3 Calculator
Foundation (grades 1-5)	33.3% weighting · 1 hour and 30 minutes · 80 marks	33.3% weighting · 1 hour and 30 minutes · 80 marks	33.3% weighting · 1 hour and 30 minutes · 80 marks
Higher (grades 4-9)	33.3% weighting · 1 hour and 30 minutes · 80 marks	33.3% weighting · 1 hour and 30 minutes · 80 marks	33.3% weighting · 1 hour and 30 minutes · 80 marks

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Successful
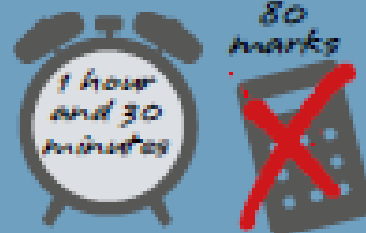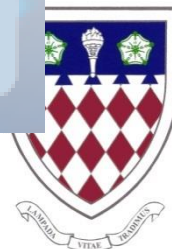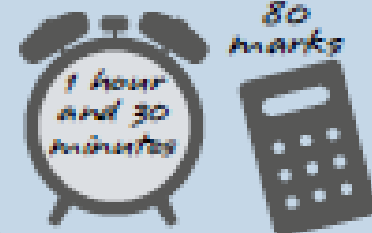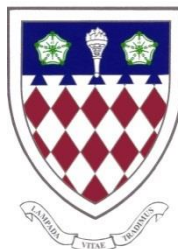
What is changing (3)

In the assessments there's a greater emphasis on problem solving and mathematical reasoning, with more marks now being allocated to these higher-order skills.

Assessment objectives

AO1 Questions that test students' memory of the content they learned in class

AO2 Questions that present a scenario and ask students to apply the correct maths

**AO3** Questions that present a problem and leave the student to solve it

Unlike AO1 and AO2, AO3 questions will often leave the students with no hints or tips on how to solve the problem. They will often be open-ended and leave the students to develop their own method of answering the question.
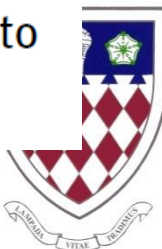
Chelsea won the Premier League Championship in 2009/10. They played 38 games and won 27 of them. What percentage of the games they played in the league did they win?

(This is a simple AO1 question. Although the information is set in a context, students just need to recall and use the correct formula in order to gain a mark.)
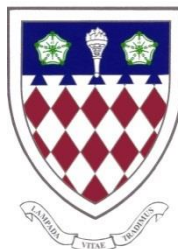
AO2

In the football season 2009/10, Chelsea played some games away from their home ground. Of these away games, they drew 4 games, lost one more than they drew and won twice as many as they lost. How many matches did they play away from home?

(This is an example of an AO2 question. The students have to select and apply the correct method in the context to find the appropriate solution.)
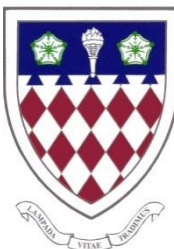
AO3

In the season 2009/10, Chelsea played 38 matches. They drew 5 of their games, lost 3/19 of their games and won the rest. If they gained 3 points for a win, 1 point for a draw and 0 points for a loss, how many points did they have at the end of the season?
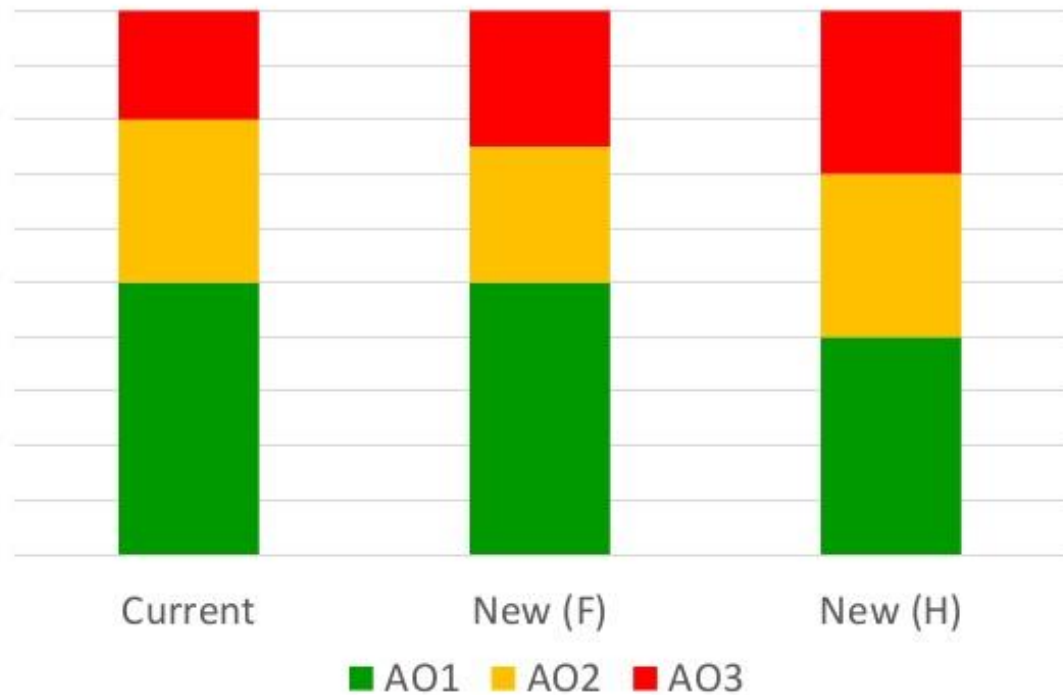
(This is an example of an AO3 question. The students will have to interpret and analyse the problem and generate a strategy to solve it. Quite often in these questions, there will be more than one way of finding an answer that is correct.)
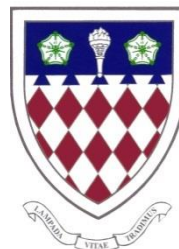
Assessment objectives

Changes to assessment objectives

Current | New (F) | New (H)

■ AO1 ■ AO2 ■ AO3
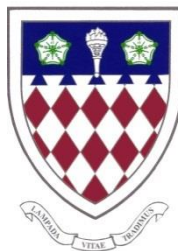
What is changing (4)

A new grading structure is being introduced, from grade 9 to 1, to replace the familiar A* to G grading scale.

Friendship
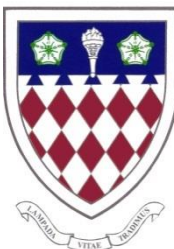
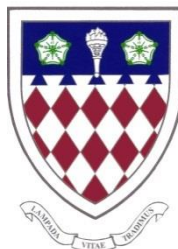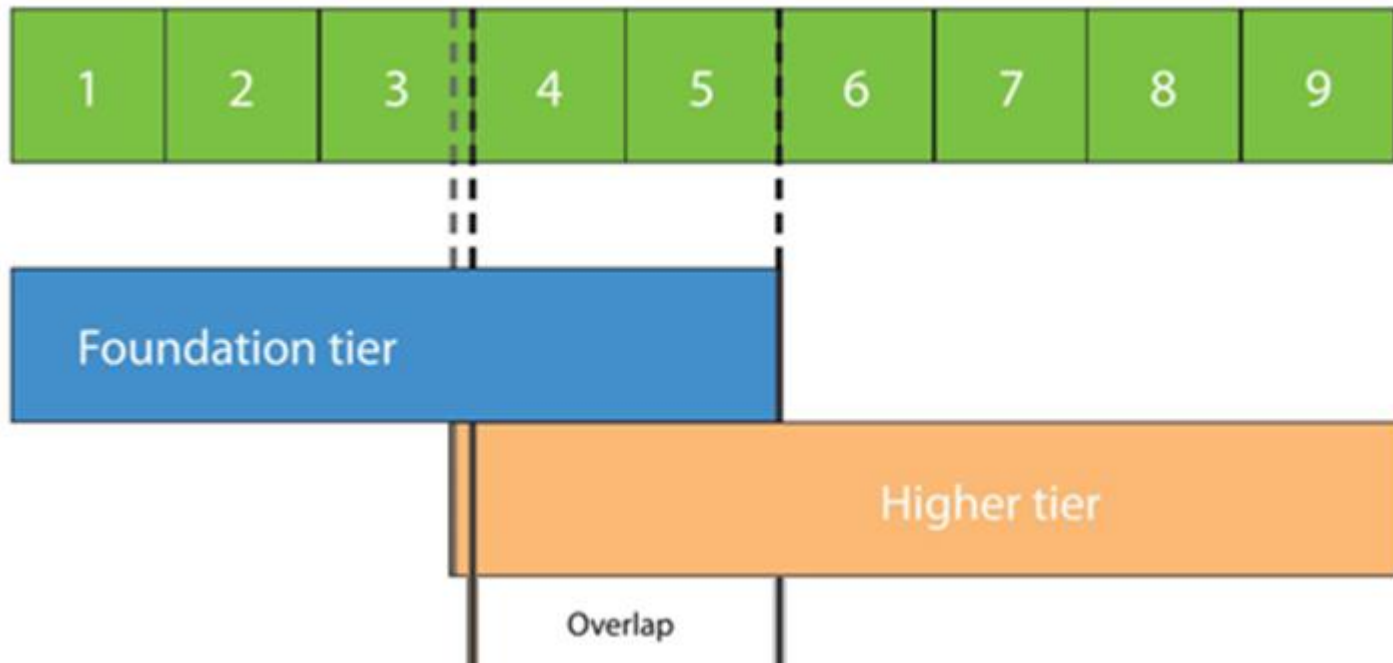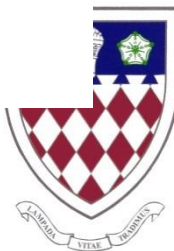# Illustration of grades and tiering in the new GCSE mathematics

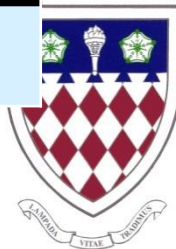# Grade mappings

Successful
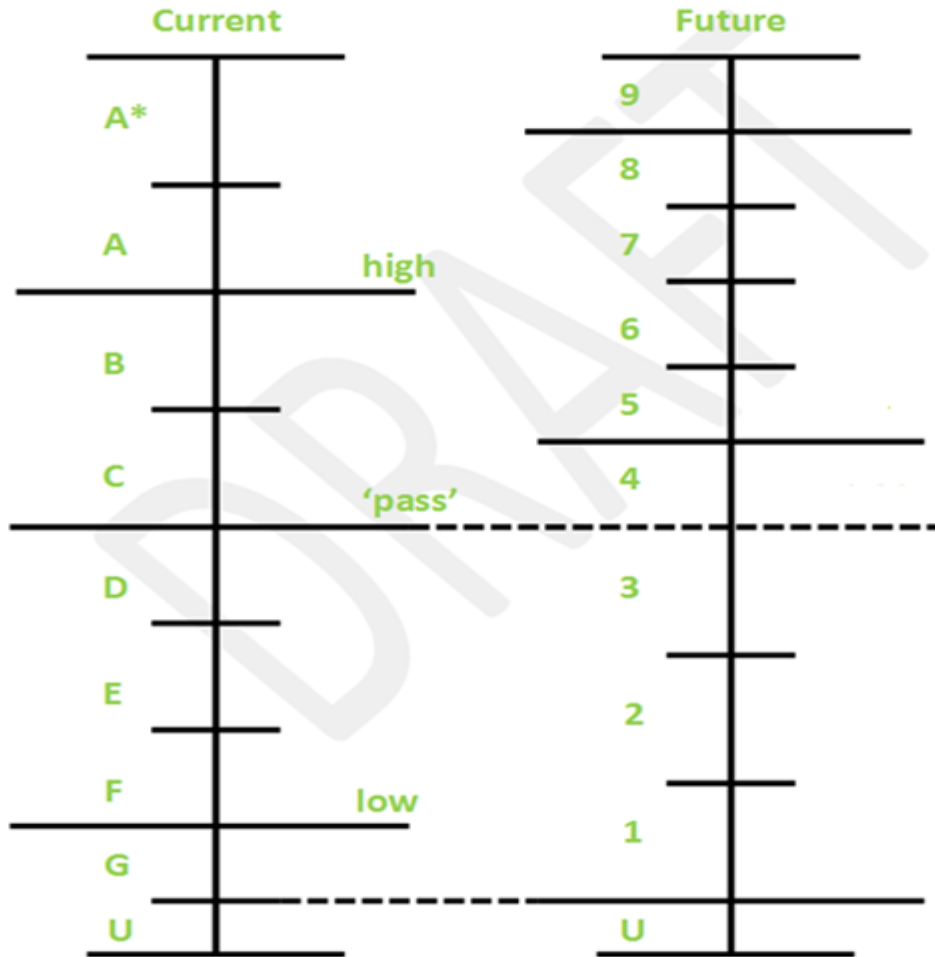
New grade distributions

Edexcel	2016 (Actual)		2017 (Estimated)		
Grade	%	Cumulative %	Grade	%	Cumulative %
A*	6.4	6.4	9	3.4	3.4
			8	6.0	9.4
A	10.5	16.9	7	7.5	16.9
B	18.7	35.6	6	12.4	29.3
			5	15.9	45.2
C	29.2	64.8	4	19.6	64.8
D	18.6	83.4			

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What is changing (5)

Students will be required to memorise formulae – fewer formulae will be provided in examinations.

Achievement
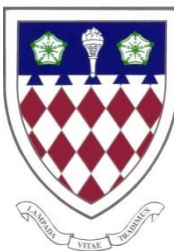
Formulae removed

Changes to the provision of formulae

Area of trapezium $= \frac{1}{2}(a+b)h$
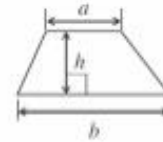
Volume of prism = area of cross-section × length
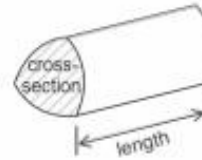
In any triangle ABC

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

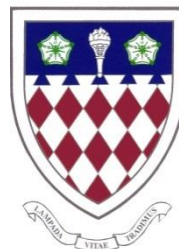Sine rule $\quad \frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$
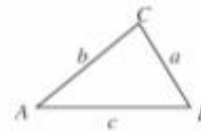
Cosine rule $\quad a^2 = b^2 + c^2 - 2bc\cos A$

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

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

Formulae provided

Changes to the provision of formulae

Volume of sphere = $\frac{4}{3}\pi r^3$

Surface area of sphere = $4\pi r^2$

Volume of cone = $\frac{1}{3}\pi r^2 h$

Curved surface area of cone = $\pi r l$

Kinematics formulae

Where a is constant acceleration, u is initial velocity, v is final velocity, s is displacement from the position when $t = 0$ and t is time taken:
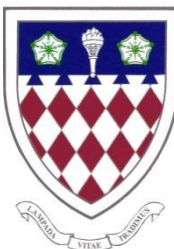
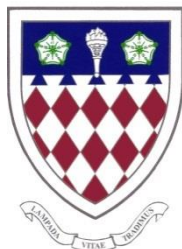$$v = u + at$$

$$s = ut + \frac{1}{2}at^2$$

$$v^2 = u^2 + 2as$$
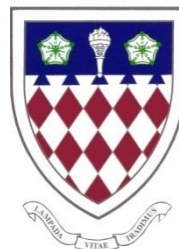
Need more challenge?

AQA GCSE Further mathematics for those aiming for grade 8 or 9.

Help!

- New text books.

- MyMaths website.

- MathsWatch DVD (£3.60).

- Talk to your teachers for support.

- Mathematics Clinic every Wednesday.

- 18 Past Papers + mark schemes (£5)

New text books

Spalding High School   Successful

MyMaths website

Spalding High School   Successful

Finally?

What can you do to support your daughter in maths?

1. Encourage your daughter whenever possible. Revision prior to every assessment is a vital part of developing skills for the final examination series.

2. Make the most of technology available to us today; graphing tools, mymaths and mathswatch, check out the numeracy apps to boost confidence and speed up calculations

3. Homework is a vitally important part of developing skills independently, it provides consolidation and enrichment opportunities. So your continued support with a quiet place to work, preferably in a social media free-zone to aid concentration and encouragement when questions are tough is always appreciated.