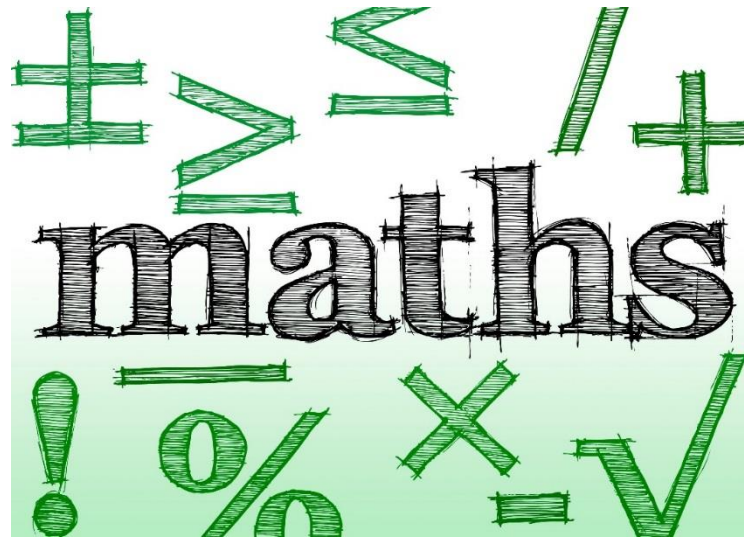


# *Year 10 Information evening*

*Maths*

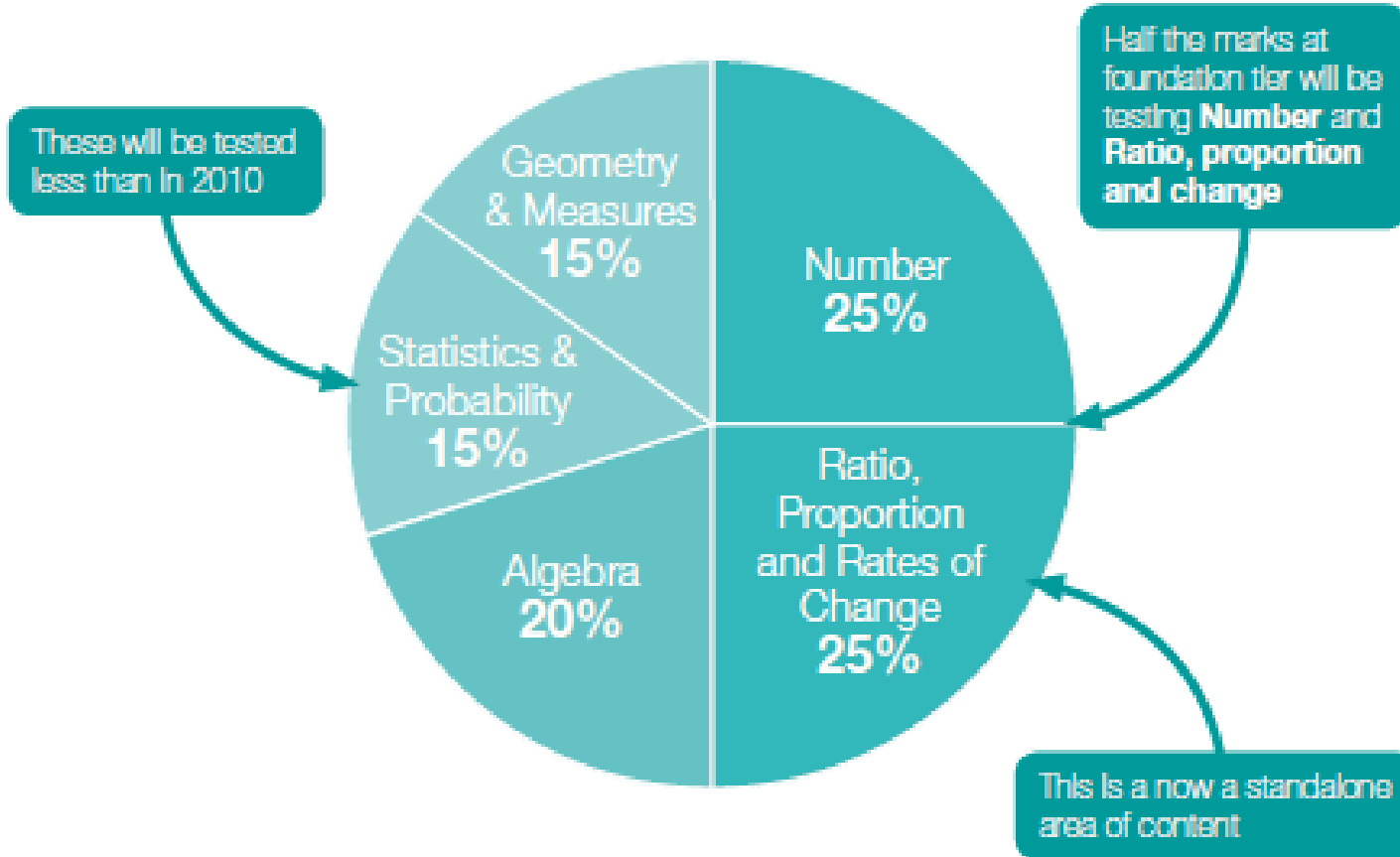
*Changes to the GCSE and how  
parents can help*

*Mr B.Warr - Head of Mathematics*



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# *Changes to Foundation tier*



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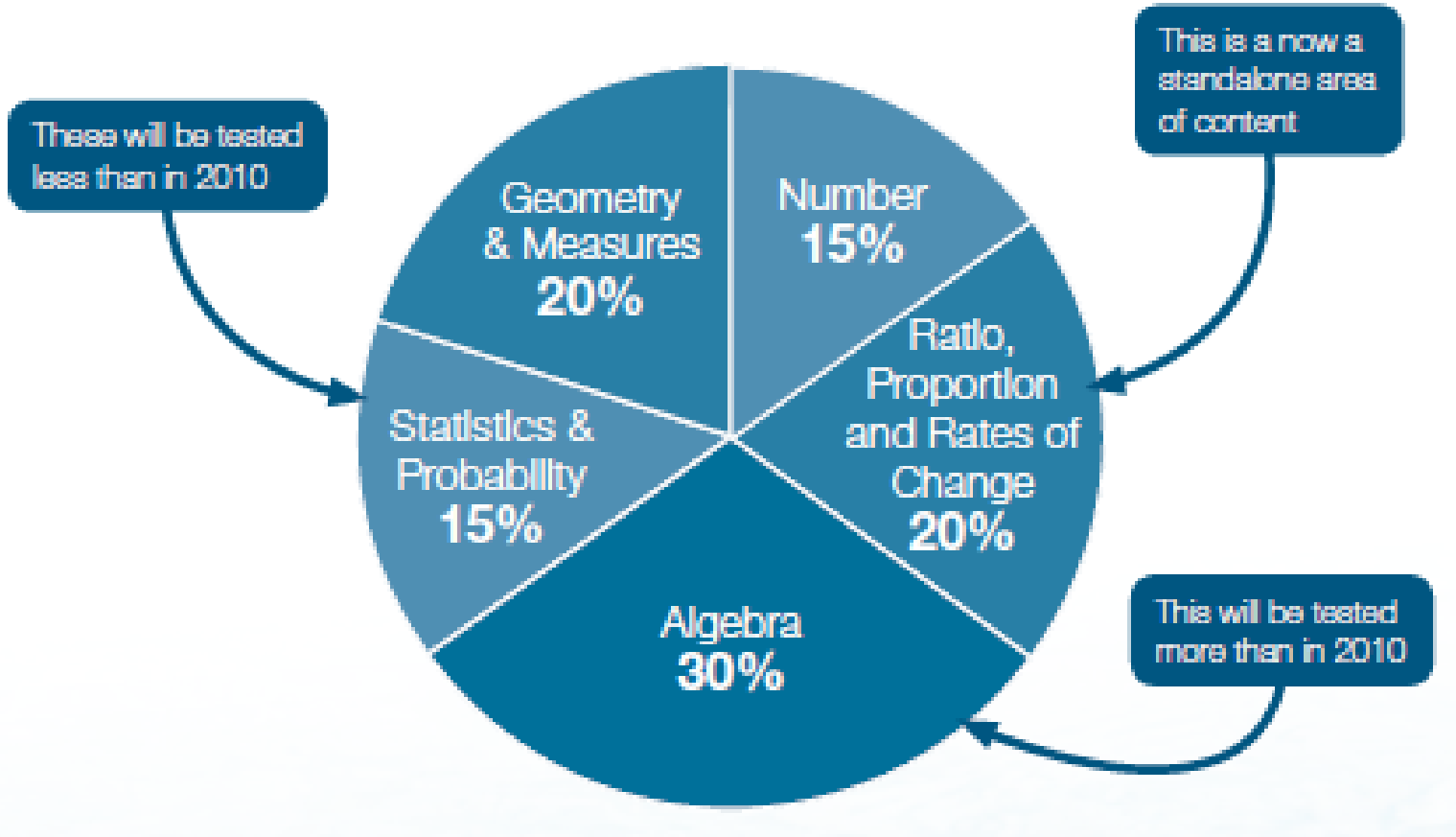
## Topics new to Foundation tier (previously Higher tier only in 2010)

- 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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# *Changes to Higher tier*

## Higher



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## 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

*Some students likely to sit AQA Further Maths qualification as well.*

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## 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  $90^\circ$ ; know the exact value of  $\tan \theta$  for  $\theta = 0^\circ, 30^\circ, 45^\circ$  and  $60^\circ$

## Omitted topics

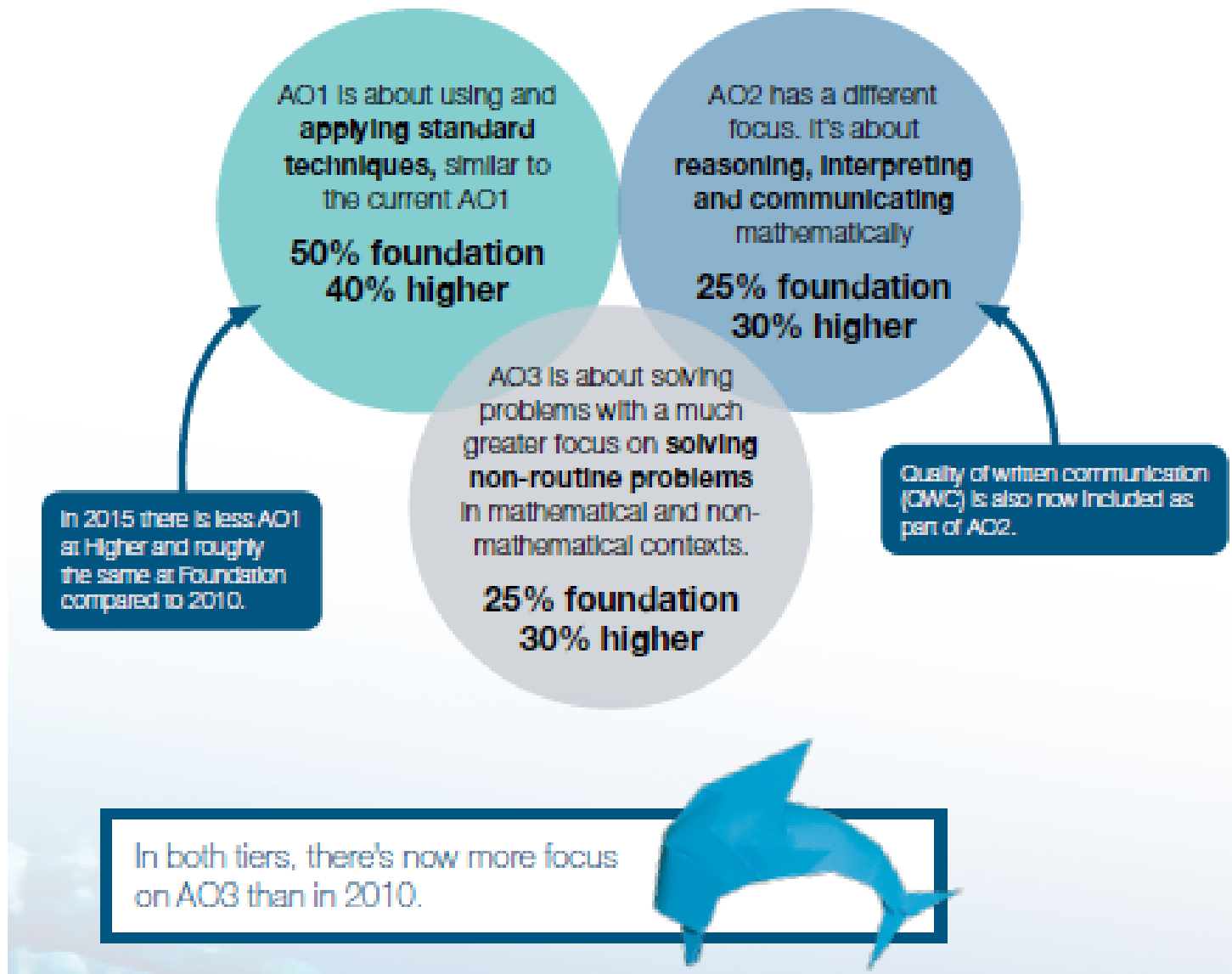
- Trial and improvement
- Tessellations
- Isometric grids
- Imperial units of measure
- Questionnaires
- 3D coordinates
- Rotation and enlargement of functions

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# Changes to Examinations

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

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## Formulae sheets

Students will need to memorise many of the formulae currently given in the formulae sheets at the front of the exam papers. These are:

- Volume of a prism
- Area of a trapezium
- The Quadratic equation (Higher tier only)
- The sine rule, cosine rule, and area of a triangle (Higher tier only).

Here's the formulae sheet that will be provided:

**Formulae Sheet**

*Perimeter, area, surface area and volume formulae*

Where  $r$  is the radius of the sphere or cone,  $l$  is the slant height of a cone and  $h$  is the perpendicular height of a cone:

Curved surface area of a cone =  $\pi rl$   
Surface area of a sphere =  $4\pi r^2$   
Volume of a sphere =  $\frac{4}{3}\pi r^3$   
Volume of a cone =  $\frac{1}{3}\pi r^2 h$

*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:

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

Pearson Baccarat Level 1/Level 2 GCSE (9-1) in Mathematics  
Sample Assessment Materials – Issue 1 – September 2014 © Pearson Education Limited 2014

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***What can you do to help?***

***Be positive***



***“I was never very good at Maths...”***

***“I always hated Maths when I was at school...”***

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- Please trust us when we advise students to study Foundation tier instead of higher – this is the trickiest part of the new specification for us and we have the best interest of the students at heart. Universities do not ask if a student achieved a grade 5 at Higher or Foundation – a 5 is a 5!
- Encourage students to get into the habit of revising now. We subscribe to the best resource your child can use for revision – Mathswatch. Logon at [www.vle.mathswatch.com](http://www.vle.mathswatch.com) Speak to a member of the maths team if your child does not have their login and password.
- Work through problems at home with your child. They may need the help - and you may learn something!
- If your child struggles with maths do they know their tables? Times tables unlock many areas of mathematics – such as arithmetic, fractions and factors. Learning them is not an onerous task and can be done relatively quickly.

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- Encourage your child to ask for help with topics that they do not understand
- Download copies of old exam papers and get your child to go through them. The specifications change but the maths doesn't. **The only way to get better at maths is to do maths.**
- Buy CGP revision guides as early as possible – students then get into the habit of referring to them early in their GCSE course. We will buy them a workbook.
- Invest in a scientific calculator and a maths set now. The sooner students get used to a calculator's functions the better.
- Any questions? Please email me at [info@tpstrust.co.uk](mailto:info@tpstrust.co.uk)

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