

# Ensuring Success in Year 11: Mathematics

<b>Qualification:</b>	GCSE Mathematics
<b>Exam board details and website link:</b>	The examination board is Edexcel. <a href="https://qualifications.pearson.com/en/qualifications/edexcel-gcses/mathematics-2015.html">https://qualifications.pearson.com/en/qualifications/edexcel-gcses/mathematics-2015.html</a>
<b>Scheme of Assessment (number of papers / duration etc):</b>	This is assessed by three 90 minute papers that each have a total of 80 marks. Paper 1 is a non-calculator paper and Paper 2 and Paper 3 are both calculator papers. Almost any topic can appear on a non-calculator or calculator paper.
<b>How to access past / sample exam papers, mark schemes, examiners reports, etc:</b>	Examiners reports and past/sample papers can be accessed via the Edexcel website. <a href="https://qualifications.pearson.com/en/qualifications/edexcel-gcses/mathematics-2015.html">https://qualifications.pearson.com/en/qualifications/edexcel-gcses/mathematics-2015.html</a>  Most of the past examination papers together with mark schemes and written solutions can be found in the Maths Genie website. <a href="https://www.mathsgenie.co.uk/papers.html">https://www.mathsgenie.co.uk/papers.html</a>
<b>Where/how to access revision materials:</b>	Revision materials can be found at the following locations: 1) Maths Genie <a href="https://www.mathsgenie.co.uk/gcse.html">https://www.mathsgenie.co.uk/gcse.html</a> 2) Corbett Maths <a href="https://corbettmaths.com/contents/">https://corbettmaths.com/contents/</a> 3) The GCSE Maths tutor <a href="https://www.youtube.com/@TheGCSEMathsTutor">https://www.youtube.com/@TheGCSEMathsTutor</a> 4) MathsWatch <a href="https://www.mathswatch.co.uk/">https://www.mathswatch.co.uk/</a>
<b>Optional revision guides / texts to purchase:</b>	<a href="https://www.cgpbooks.co.uk/secondary-books/gcse/math/mxhs44-gcse-maths-edexcel-complete-revision">https://www.cgpbooks.co.uk/secondary-books/gcse/math/mxhs44-gcse-maths-edexcel-complete-revision</a> PLEASE CHECK WITH YOUR CHILDS MATHS TEACHER IF YOU WISH TO PURCHASE
<b>Suggested revision techniques:</b>	Watch the instructional videos from Corbett Maths, Maths Genie, The GCSE Math tutor or MathsWatch and then try the resource booklets on Maths genie, the practice questions on Corbett Maths or interactive question on MathsWatch.
<b>Useful exam tips / Common mistakes to avoid</b>	Read the question carefully. Show all your working so that you pick up method marks. Don't leave questions blank, try the first step.

## Year 11 Mock Information

<b>Number of papers and duration</b>	3 papers, each 90 minutes. Paper 1 is a non-calculator paper and Paper 2 and 3 are calculator papers
<b>Topics / information to revise</b>	<b><u>Instructional videos and worksheets are on the next pages of this document</u></b>
<b>Where/how to access revision materials:</b>	Revision materials can be found at the following locations: 1) Maths Genie <a href="https://www.mathsgenie.co.uk/gcse.html">https://www.mathsgenie.co.uk/gcse.html</a> 2) Corbett Maths <a href="https://corbettmaths.com/contents/">https://corbettmaths.com/contents/</a> 3) The GCSE Maths tutor <a href="https://www.youtube.com/@TheGCSEMathsTutor">https://www.youtube.com/@TheGCSEMathsTutor</a> 4) MathsWatch <a href="https://www.mathswatch.co.uk/">https://www.mathswatch.co.uk/</a>

# List of all GCSE Maths topics with the MathsWatch video clip number

## Subject Content

Number

Algebra

Ratio, Proportion, Rates of Change

Geometry and Measures

Probability and Statistics

*Grades that will be examined:*

Higher	1	2	3	4	5	6	7	8	9
Foundation	1	2	3	4	5				

*You will find some formulas and information in this insert.*

It will be very helpful to learn it all, off-by-heart for your exam.

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

Circumference of a circle =  $2\pi r$



## Grade 1

Place Value . . . . .	1
Ordering Integers . . . . .	2
Ordering Decimals . . . . .	3
Reading Scales. . . . .	4
Simple Mathematical Notation . . . . .	5
Interpreting Real-Life Tables. . . . .	6
Introduction to Algebraic Conventions . . . . .	7
Coordinates . . . . .	8
Simple Geometric Definitions . . . . .	9
Polygons. . . . .	10
Symmetries. . . . .	11
Tessellations and Congruent Shapes. . . . .	12
Names of Angles. . . . .	13
The Probability Scale . . . . .	14
Tally Charts and Bar Charts . . . . .	15
Pictograms . . . . .	16

### Addition/Subtraction

(+ +) becomes +	eg. 5 - (-3) = 5 + 3
(- -) becomes +	
(+ -) becomes -	eg. 5 + (-3) = 5 - 3
(- +) becomes -	

### Multiplication/Division

(+) × (+) becomes +	eg. (-5) × (-3) = 15
(-) × (-) becomes +	
(+) × (-) becomes -	eg. (-5) × 3 = -15
(-) × (+) becomes -	

## Grade 2

<p>Adding Integers and Decimals . . . . . 17</p> <p>Subtracting Integers and Decimals. . . . . 18</p> <p>Multiplying Integers. . . . . 19</p> <p>Dividing Integers. . . . . 20</p> <p>Inverse Operations . . . . . 21</p> <p>Money Questions . . . . . 22</p> <p>Negatives in Real Life. . . . . 23</p> <p>Introduction to Fractions . . . . . 24</p> <p>Equivalent Fractions . . . . . 25</p> <p>Simplifying Fractions. . . . . 26</p> <p>Half-Way Values . . . . . 27</p> <p>Factors, Multiples and Primes . . . . . 28</p> <p>Introduction to Powers/Indices . . . . . 29</p> <p>Multiply and Divide by Powers of 10. . . . . 30</p> <p>Rounding to the Nearest 10, 100 etc . . . . . 31</p> <p>Rounding to Decimal Places. . . . . 32</p> <p>Simplifying - Addition and Subtraction . . . . . 33</p> <p>Simplifying - Multiplication . . . . . 34</p> <p>Simplifying - Division. . . . . 35</p> <p>Function Machines . . . . . 36</p> <p>Generating a Sequence - Term to Term . . . . . 37</p> <p>Introduction to Ratio . . . . . 38</p> <p>Using Ratio for Recipe Questions. . . . . 39</p> <p>Introduction to Percentages . . . . . 40</p> <p>Value for Money . . . . . 41</p> <p>Introduction to Proportion . . . . . 42</p>	<p>Properties of Solids. . . . . 43</p> <p>Nets . . . . . 44</p> <p>Angles on a Line and at a Point . . . . . 45</p> <p>Measuring and Drawing Angles . . . . . 46</p> <p>Drawing a Triangle Using a Protractor . . . . . 47</p> <p>Reflections . . . . . 48</p> <p>Rotations. . . . . 49</p> <p>Translations . . . . . 50</p> <p>Plans and Elevations . . . . . 51</p> <p>Perimeters . . . . . 52</p> <p>Area of a Rectangle . . . . . 53</p> <p>Area of a Triangle . . . . . 54</p> <p>Area of a Parallelogram . . . . . 55</p> <p>Area of a Trapezium . . . . . 56</p> <p>Frequency Trees. . . . . 57</p> <p>Listing Outcomes . . . . . 58</p> <p>Calculating Probabilities . . . . . 59</p> <p>Mutually Exclusive Events . . . . . 60</p> <p>Two-Way Tables . . . . . 61</p> <p>Averages and the Range . . . . . 62</p> <p>Data - Discrete and Continuous . . . . . 63</p> <p>Vertical Line Charts. . . . . 64</p> <p>Frequency Tables and Diagrams . . . . . 65</p>
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### Prime Numbers

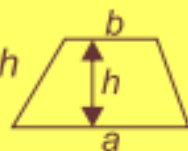
2, 3, 5, 7, 11, 13, 17, 19, 23, 29, . . .

Each prime number has  
exactly two factors.

$$\text{Area of a triangle} = \frac{b \times h}{2}$$



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



## Grade 3

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### The Laws of Indices

$$x^a \times x^b = x^{a+b}$$

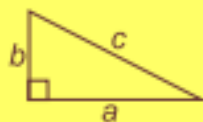
$$x^a \div x^b = x^{a-b}$$

$$(x^a)^b = x^{ab}$$

$$x^{-a} = \frac{1}{x^a}$$

### Pythagoras

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



### Trigonometry



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### Fractional Indices

$$x^{\frac{a}{b}} = (b\sqrt{x})^a$$

### Surds

$$\sqrt{a} \times \sqrt{a} = a$$

$$\sqrt{a \times b} = \sqrt{a} \times \sqrt{b}$$

### Quadratic Formula

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

$$\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$$

### Sine Rule

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

### Histograms

frequency  
density

$$= \frac{\text{frequency}}{\text{class width}}$$

### Cosine Rule

$$a^2 = b^2 + c^2 - 2bc \cos A$$