

1. The first 12 square numbers	2. Sequences	3. Standard form
$1^2 = 1$ $7^2 = 49$ $2^2 = 4$ $8^2 = 64$ $3^2 = 9$ $9^2 = 81$ $4^2 = 16$ $10^2 = 100$ $5^2 = 25$ $11^2 = 121$ $6^2 = 36$ $12^2 = 144$	<p>Sequence - a list of terms that follow a pattern or rule</p> <p>Terms - numbers, expressions or diagrams that a sequence contains</p> <p>Position – Where a term occurs in a sequence <i>e.g.</i> 3rd term</p> <p>Linear sequence - Have a constant difference between each term. <i>e.g.</i> 9, 12, 15, 18... <i>increases by 3 each time</i></p> <p>Arithmetic - another phrase used for 'linear sequence'</p> <p>Non-linear - Do <u>not</u> have a constant difference between the terms.</p> <p>Geometric sequences have terms which are multiplied by the same number to find the next term <i>e.g.</i> 3, 6, 12, 24, 48...</p> <p>Triangular numbers have a difference that increases by one each time. <i>e.g.</i> 1, 3, 6, 10, 15...</p> <p>Fibonacci - Each term is made by adding together the previous two terms <i>e.g.</i> 1, 1, 2, 3, 5, 8, 13...</p>	<p>Index – Indicates how many times to use a number in a multiplication. <i>e.g.</i> y^4 means $y \times y \times y \times y$. We say y^4 as "y to the power of 4"</p> <p>Indices - The plural of index</p> <p>Exponent - Another word for index</p> <p>Base - The number an index applies to</p> <p>Product - The result of multiplying two or more numbers</p> <p>Standard form – A convention of writing really big and really small numbers in the form $x \times 10^n$ where x is between 1 and 10. <i>e.g.</i> 8,000 can be written as 8×10^3</p> <p>Scientific Notation - Another word for Standard form.</p> <p>Examples of uses of standard form: The distance from Earth to sun is approximately 1.5×10^8 km The diameter of a Hydrogen atom is approximately 2.5×10^{-11}</p> <p>Ordinary Numbers – Numbers <u>not</u> written in standard form. <i>E.g.</i> 9.4×10^5 as an ordinary number is 940,000</p>
4. Algebra	5. Probability	6. Important formulae
<p>Expression - Contains terms that are made up of numbers, letters and operators. <i>e.g.</i> $7+3$, $a^2 + b^2$</p> <p>Equation - A statement that two things are equal, containing expressions on both sides of the equal sign. <i>e.g.</i> $5 = 2x + 1$</p> <p>Identity - An equation that holds true for all values of the variable. The \equiv symbol indicates this <i>e.g.</i> $2x + 3x \equiv 5x$</p> <p>Inequality - A statement which has a range of values</p> <p>Expand - Using multiplication to remove a pair of brackets.</p> <p>Binomial - The sum or difference of two terms <i>e.g.</i> $(x + 5)$</p> <p>Terms - A single number or variable OR numbers and variables multiplied together. <i>e.g.</i> 5, b, -4c, $3a^2$</p> <p>Coefficient – The quantity of a given variable <i>E.g.</i> $4y$ means "4 lots of y" so 4 is the coefficient of y</p>	<p>Theoretical probability - The calculated probability of an event happening. <i>E.g.</i> the probability of getting a heads when flipping a coin is $\frac{1}{2}$</p> <p>Relative frequency - How often something happens divided by number of trials. <i>E.g.</i> If a coin was flipped a hundred times and got heads 59 times, then the relative frequency of flipping heads would be $\frac{59}{100}$ (or 0.59 or 59%).</p> <p>Dependent events – Events affected by previous events. <i>E.g.</i> If you draw a coloured marble from a bag and then leave it out, then the probabilities of drawing each colour next time will be different.</p> <p>Independent Events - <u>not affected</u> by previous events.</p> <p>Mutually Exclusive events <u>can't</u> happen at the same time.</p>	<p>Areas</p> <p>Rectangle = $base \times height$</p> <p>Triangle = $\frac{1}{2} \times base \times height$</p> <p>Parallelogram = $base \times perpendicular height$</p> <p>Trapezium = $\frac{1}{2}(a + b)h$</p> <p>Circles</p> <p>Area = πr^2</p> <p>Circumference = πd</p> <p>Angles in Polygons</p> <p>Sum of interior angles = $180(n - 2)$</p> <p>Each exterior angle in a regular polygon = $\frac{360}{n}$</p> <p>Interior angle + exterior angle = 180°</p> <p>Pythagoras' theorem</p> <p>$a^2 + b^2 = c^2$</p>