
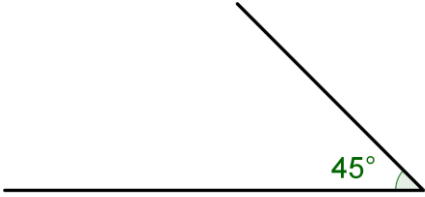

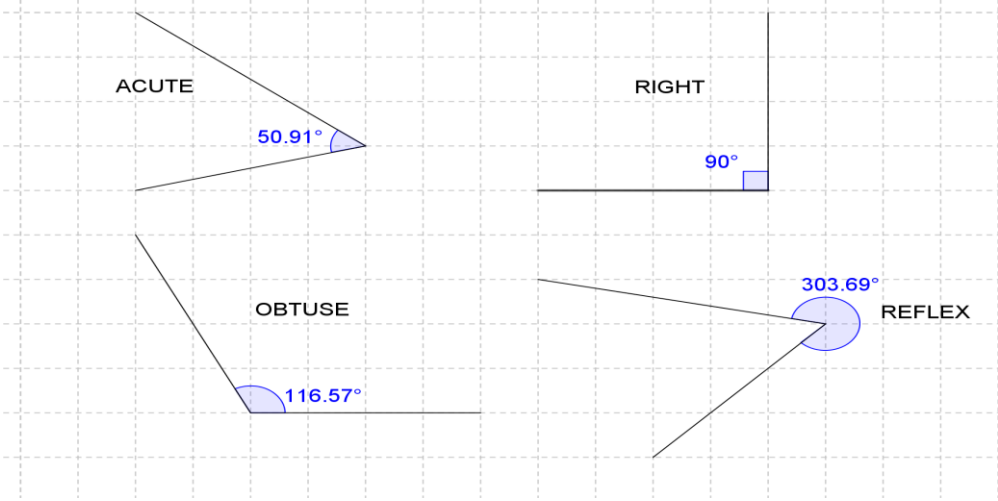
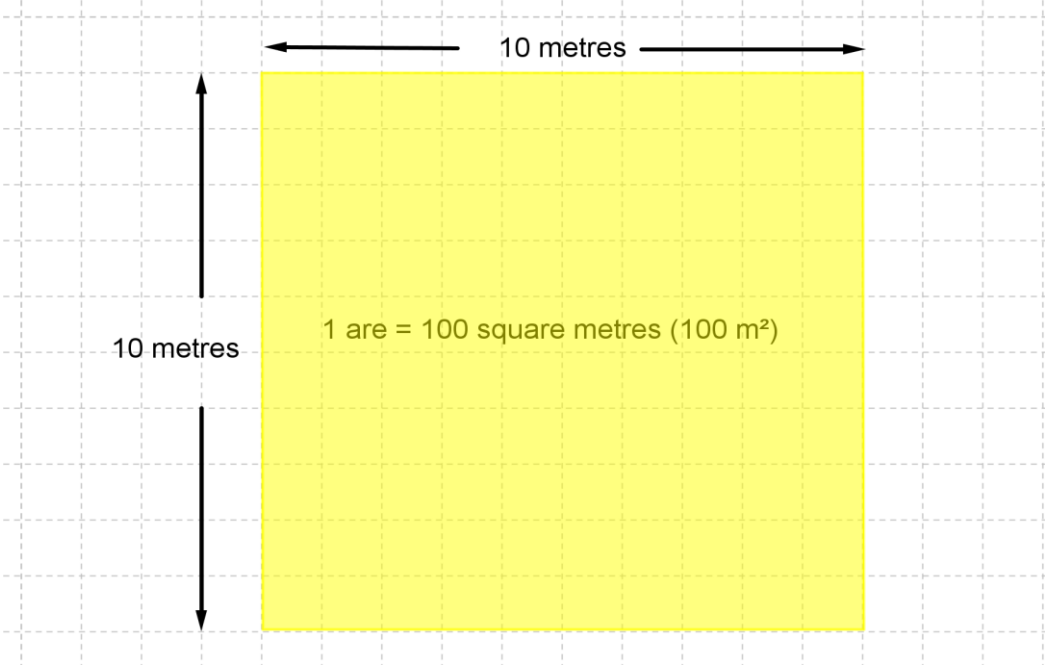



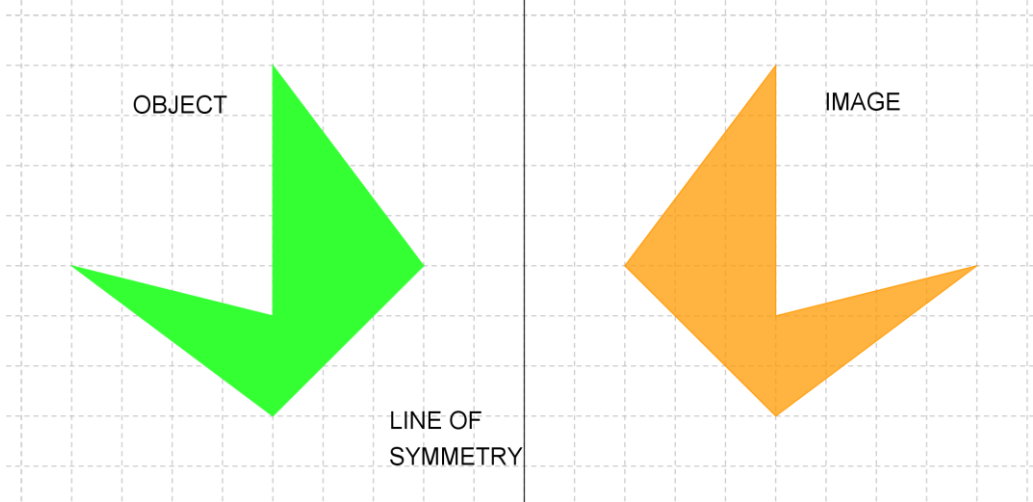
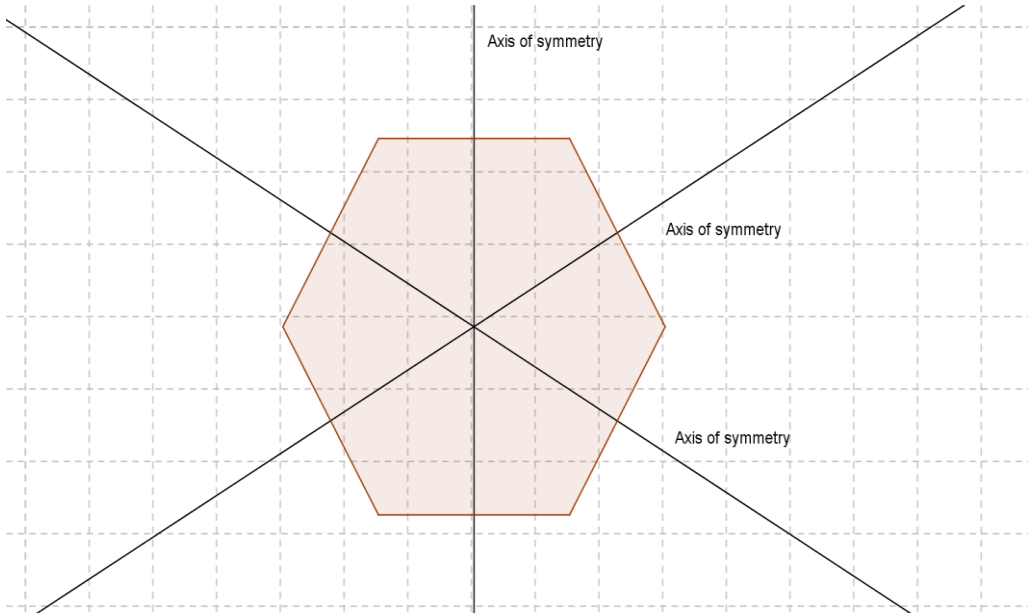
## Glossary of mathematical terms for 5<sup>th</sup>/6<sup>th</sup> class in primary and Junior Cycle

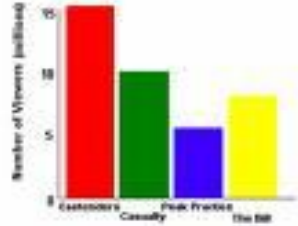

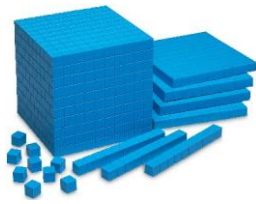
### Bridging Materials for Mathematics

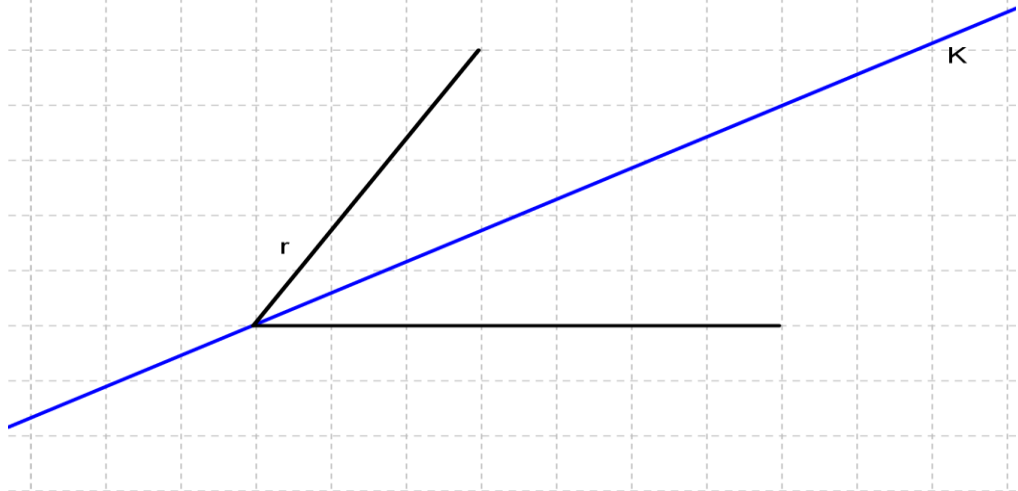
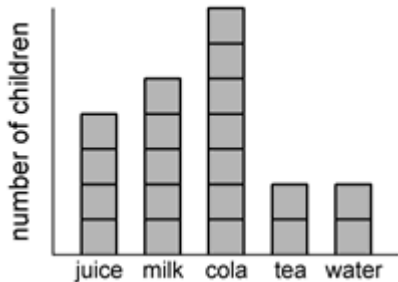

The following is a glossary of mathematical terms. The glossary is designed to inform students/parents/teachers of the vocabulary and meaning of terms in mathematics that students may have encountered in primary school and will encounter when they transfer to post-primary education. Many of these terms are used throughout the strands in junior cycle, but it is not a comprehensive list for Junior Cert. The definitions and examples here are specifically chosen for use in 5<sup>th</sup> and 6<sup>th</sup> classes in primary and junior cycle mathematics in post-primary schools in Ireland.

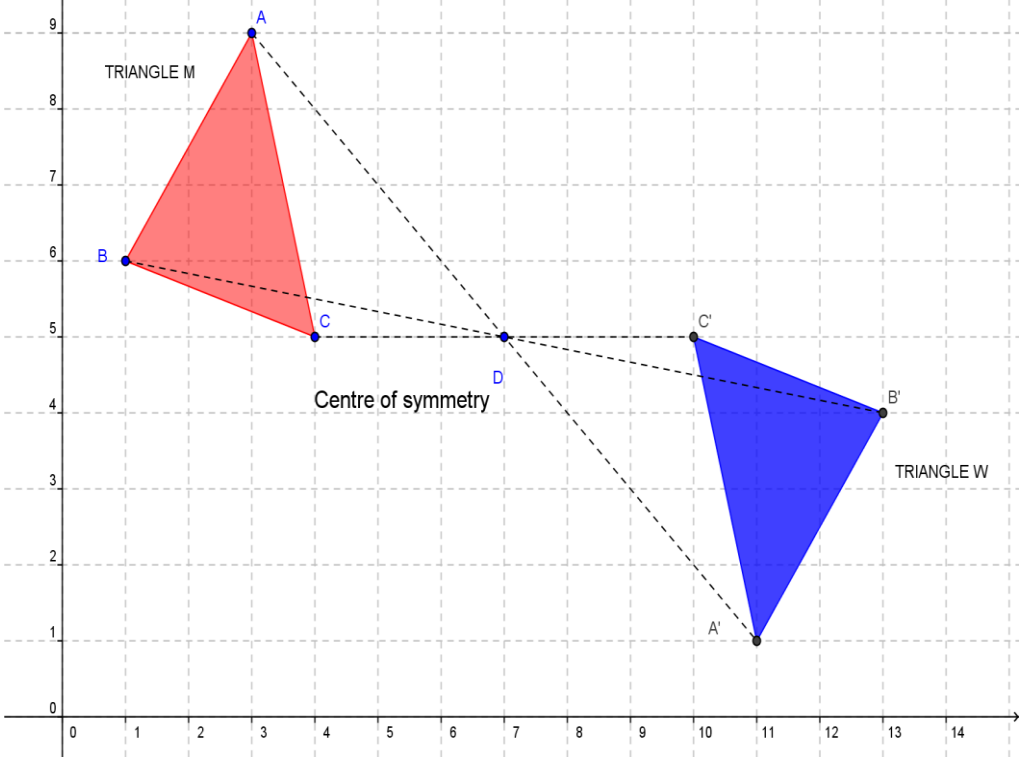

	Term	Diagram, Definition, explanation and example
A	abacus	Helps to perform calculations by sliding beads along rods. 
	acute	An angle that is greater than 0° but less than 90°. 
	algorithm	A step by step procedure that gives the solution of a particular problem. Multiplication and division in numbers are examples of how we use algorithms to find answers in an efficient way.
	analogue clock	A clock on which hours, minutes and sometimes seconds are indicated by hands on a dial.

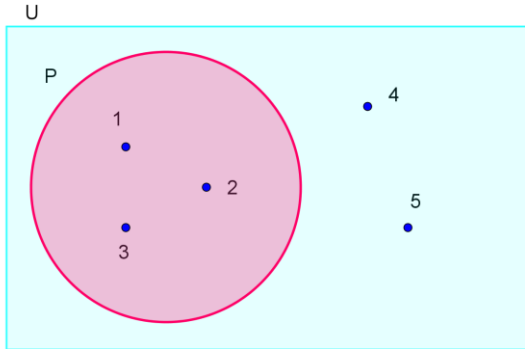
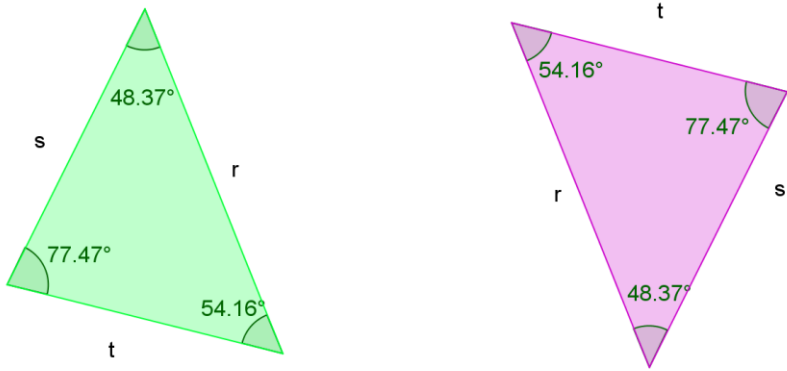
		
	angle	<p>This is made when two line segments meet at a point (vertex), or when two lines intersect. It is measured in degrees and can be acute, right, obtuse or reflex.</p> 
	are	<p>A unit of area equal to 100 square metres.</p> 
	area	<p>The amount of a plane enclosed by a 2D shape measured in square units.</p> 
	array	<p>This is an arrangement of objects (usually numbers) in rows and columns.</p>

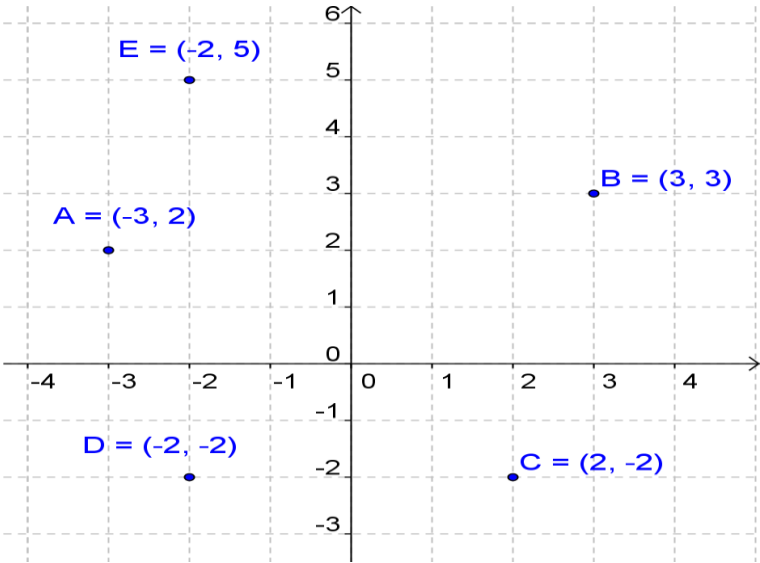

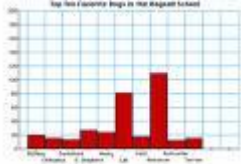
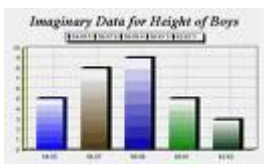


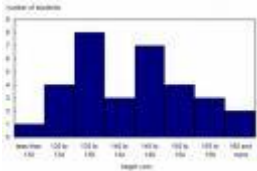
		<p>1 2 3 4 5</p> <p>2 4 6 8 10</p> <p>3 6 9 12 15</p>
	associativity	<p>This is a property of number operations. The order in which we do operations is important. <b>Multiplication is associative:</b> <math>(12 \times 3) \times 6 = 12 \times (3 \times 6)</math></p> <p><b>Division is <u>not</u> associative</b> <math>(12 \div 3) \div 6 \neq 12 \div (3 \div 6)</math>.</p>
	axial symmetry	<p>This is reflection of a plane figure in a line to form an image in a different place.</p> 
	axis of symmetry	<p>This is a line drawn through a plane figure, so that one half of the shape can be folded over along the line to fit exactly onto the other. A shape can have more than one axis of symmetry.</p> 
<b>B</b>	bar chart	<p>A diagram used to display data in rectangular bars. It is used to summarise and display information in a diagram.</p>

		
	bar-line graph	<p>A way to show and compare data by using horizontal or vertical lines. The bars in a bar chart are simply replaced by straight lines.</p> 
	base ten materials	<p>Used for teaching place value and volume. There are ten small cubes in one long, ten longs in one flat, and ten flats in one block.</p> 
	bisector	<p>A line that divides an angle or line into two equal parts.</p>


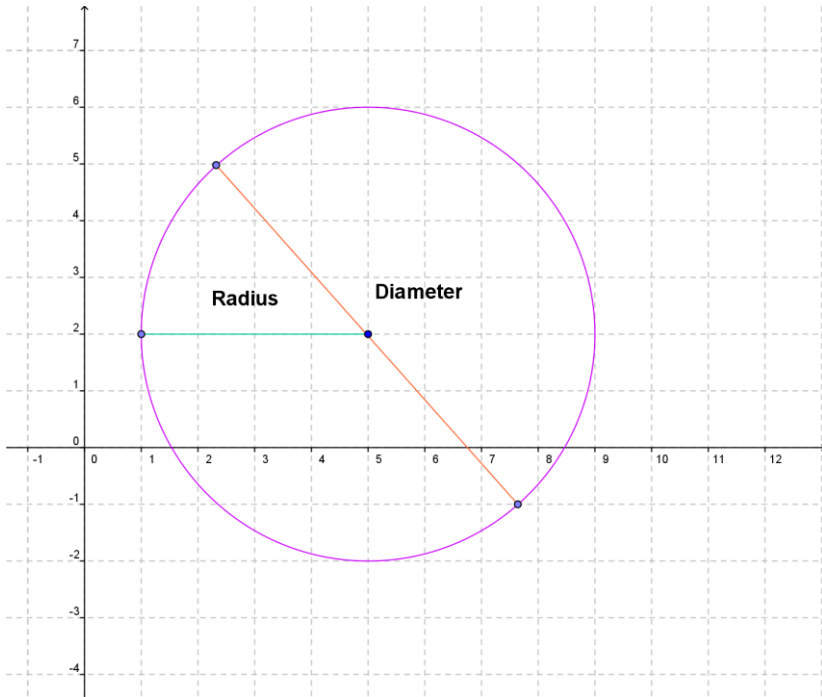

		<p>Angle r is bisected by the line segment K</p> 												
	block graph	<p>An introductory way of representing discrete data, in which each member of the population is represented by an individual square.</p> <p><b>What we like to drink</b></p>  <table><thead><tr><th>Drink</th><th>Number of children</th></tr></thead><tbody><tr><td>juice</td><td>4</td></tr><tr><td>milk</td><td>5</td></tr><tr><td>cola</td><td>7</td></tr><tr><td>tea</td><td>2</td></tr><tr><td>water</td><td>2</td></tr></tbody></table>	Drink	Number of children	juice	4	milk	5	cola	7	tea	2	water	2
Drink	Number of children													
juice	4													
milk	5													
cola	7													
tea	2													
water	2													
C	cardinal number	<p>This is the number of elements in a set. The symbol for it is #.</p> <p>Example: <math>W = \{ 3, 45, 17, \text{bear}, z \}</math>    <math>\# W = 5</math></p>												
	capacity	<p>Only containers have capacity. Capacity is the internal volume of a container or simply the amount that a container can hold.</p> <p>Example: The capacity of the bucket is twenty litres so it takes a volume of twenty litres of water to fill it.</p> 												
	central symmetry	<p>This is reflection in a point.</p> <p>Example: Triangle W (A'B'C') is the image of triangle M (ABC) by central symmetry in the point D.</p>												


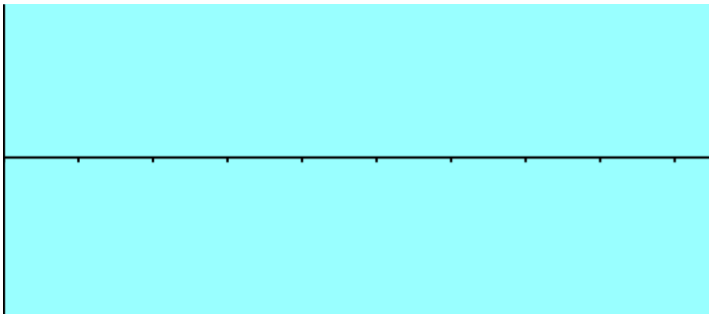

												
	circumference	<p>This is the length of the perimeter of a circle.</p> 										
	clustering strategy	<p>Estimation that is best suited to groups of numbers that ‘cluster’ around a common value.</p> <p>Example: Numbers of people who came to our concert</p> <table border="1" data-bbox="437 1516 1476 1621"><tr><td>Monday</td><td>Tuesday</td><td>Wednesday</td><td>Thursday</td><td>Friday</td></tr><tr><td>425</td><td>506</td><td>498</td><td>468</td><td>600</td></tr></table> <p>The average attendance was about 500 per night.</p> <p><math>500 \times 5 \text{ nights} = 2,500</math></p>	Monday	Tuesday	Wednesday	Thursday	Friday	425	506	498	468	600
Monday	Tuesday	Wednesday	Thursday	Friday								
425	506	498	468	600								
	commutative	<p>This is a property of the number operations addition and multiplication.</p> <p>In addition <math>1 + 2 = 2 + 1</math>, i.e. it works both ways, it is commutative.</p> <p>In subtraction or division it does not work both ways, e.g. <math>6 - 7 \neq 7 - 6</math>.</p>										
	common factor	<p>A number that divides evenly into more than one other number.</p> <p>Examples: 16 has factors <b>1,2,4,8,16</b></p> <p>20 has factors <b>1,2,4,5,10,20</b>,</p>										



		<p>36 has factors <b>1,2,3,4,6,9,12, 18,36</b></p> <p>1, 2 and 4 are the common factors and 4 is the highest common factor.</p>
	complementing	<p>As with subtraction.</p> <p>Example: There are 10 stickers in a set. I have 4. How many more do I need to make a full set?</p>
	complement of a set	<p>Elements not in a set.</p> <p>Example: The set <math>P = [1, 2, 3]</math> the complement <math>P' = [4, 5]</math></p> 
	components of number	The number 4 can be made up of $1 + 1 + 1 + 1$ , $2 + 2$ , $3 + 1$ , $1 + 3$ etc.
	composite number	<p>A number with more than two factors.</p> <p>Example: 6, 12, 51, 65</p>
	congruent	<p>2D shapes that have identical properties and are exactly the same size, shape and measure of angle.</p> 
	conjecture	<p>An unproven statement which appears correct and has not been proven to be true or false.</p> <p>Example: There is no biggest prime number.</p>
	conservation of number	Numbers can be counted in any order. The set does not need to exhibit uniformity.
	co-ordinates	These are the numbered pairs used to locate points on the plane. The plane is a flat



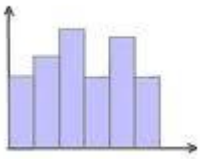
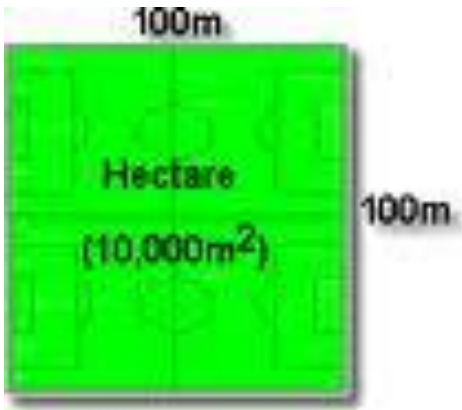

		<p>surface, often referred to as the Cartesian plane.</p> <p>There are some points shown in the four quadrants of the Cartesian plane.</p> 
	cylinder	<p>A three-dimensional shape consisting of two identical circular ends joined by one continuous curved surface.</p> 
D	data	<p>There are different types of data. (Categorical, numerical, ordinal, discrete and continuous).</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Categorical</p>  </div> <div style="text-align: center;"> <p>Numerical</p>  </div> <div style="text-align: center;"> <p>Ordinal</p>  </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> <p>Discrete</p>  </div> <div style="text-align: center;"> <p>Continuous</p>  </div> </div>
	deducting	<p>As with subtraction.</p> <p>Example: I had 10 sweets, I ate 3. How many have I left?</p>
	denominator	<p>Number below the line in a fraction.</p>


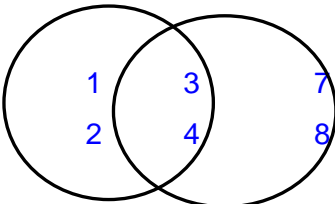
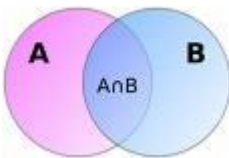



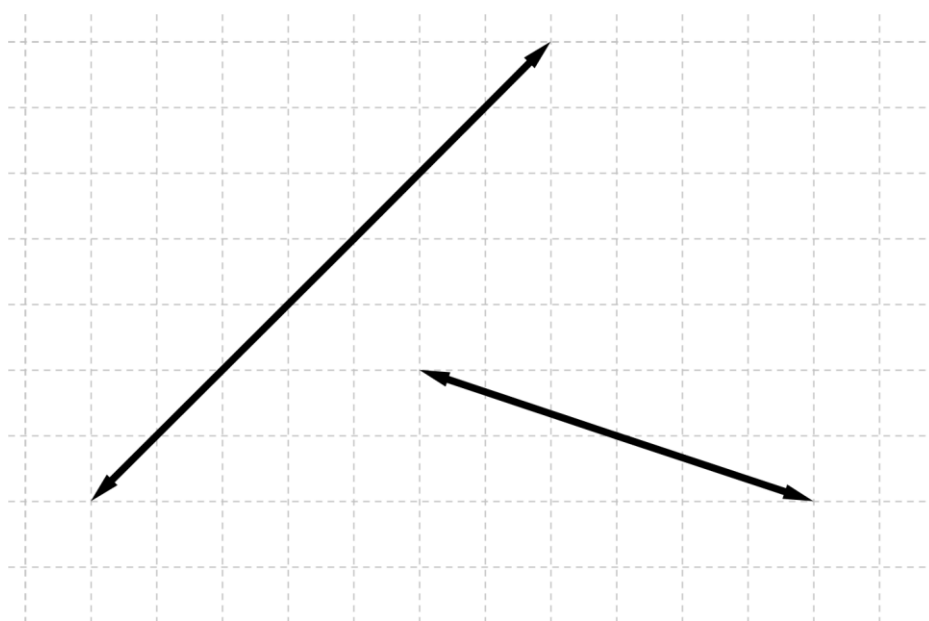
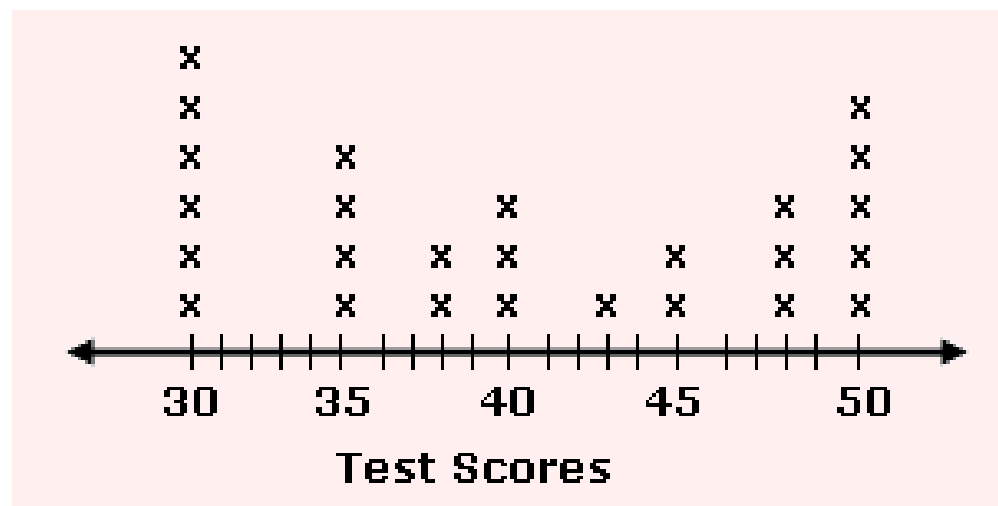
		
	diameter	<p>A chord through the centre of a circle. It is twice the radius in length.</p> 
	difference	<p>Means subtraction.</p> <p>Example: The difference between two numbers such as 22 and 17 is <math>22 - 17 = 5</math>. 5 is the difference.</p>
	digit	<p>The individual symbols used to build up numerals in a numeration system.</p> <p>0, 1, 2, 3, 4, 5, 6, 7, 8, and 9.</p>
	direct proportion	<p>When two sets are connected by a constant multiplier.</p> <p><math>A = \{12, 24, 36\}</math> <math>B = \{3, 6, 9\}</math>. Set A is in direct proportion to set B and the constant multiplier is 4.</p>
	discount	<p>A reduction (usually a percentage). This is associated with money.</p> 
	distributive	<p>This is a property of number operations.</p> <p>It describes how two operators can be used together when linked in a certain way. It does not always work.</p> <p><math>5(4+3) = 5(7) = 35</math> and this equals <math>5(4) + 5(3) = 20+15 = 35</math>, i.e. multiplication is distributive over addition.</p> <p><math>5(20 \div 5) = 5(4) = 20 \neq 5(20) \div 5(5) = 100 \div 25 = 4</math>, so multiplication is not</p>

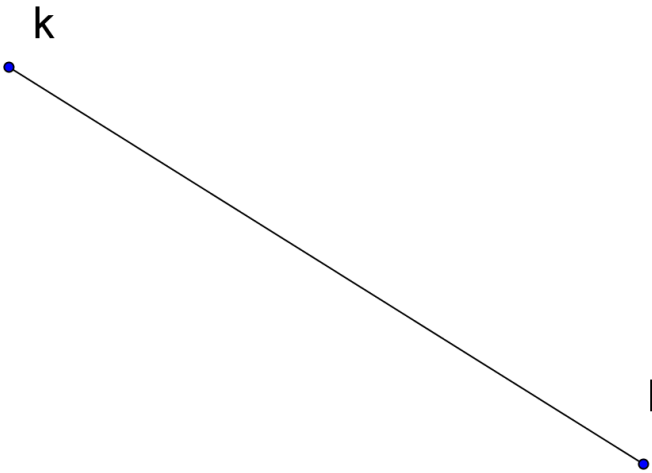
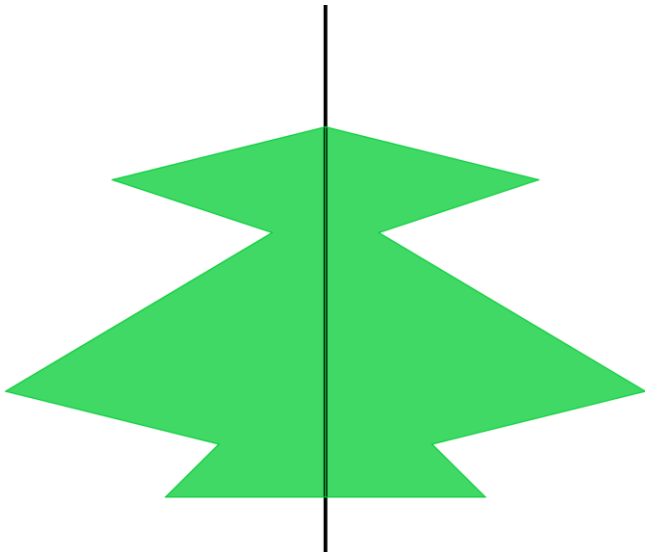

		distributive over division.
	dividend	A number or quantity to be divided <i>by</i> another number or quantity. Example: $24 \div 6 = 4$ , 24 is the dividend.
	divisor	Is the number that does the dividing. $36 \div 9 = 4$ , the number 9 is the divisor.
<b>E</b>	edge	The intersection of two surfaces; in particular, the straight line where two faces of a polyhedron meet. 
	element	An element is a member of a set. Example: $A = \{\text{dog, fridge, 17, Liverpool}\}$ . There are four elements in the set A; dog is one of the elements.
	empty number line	A number line without a scale, used to support mental and informal additions and subtraction. 
	equation	A maths statement in symbols that includes an equals sign (equality). Example: $2b + 4c = 34$
	equivalent	Has the same value as. Example: $\frac{1}{2}$ , 0.5, and 50% are equivalent.
	estimate	An approximation to an answer. 
	expanded form	When the value of each digit in a numeral is written in its entirety. Example: $246 = 2 \text{ hundreds} + 4 \text{ tens} + 6 \text{ units}$ or $200 + 40 + 6$
	experiment	This is an activity which allows information/data to be collected and recorded (often called the results of the experiment). Example: rolling a pair of dice and recording the total.

										
	exponential	<p>This is an expression in which a number is raised to some power. The power is the exponent. (see power)</p> <p><math>6^2</math>, <math>8^3</math>, <math>12^9</math></p>								
F	face	<p>One of the plane surfaces of a polyhedron.</p> <p>A cube has six faces.</p> 								
	factor	<p>A whole number or expression that divides evenly into another number.</p> <p>Example: 24 has eight factors including itself and one;1,2,3,4,6,8,12,24</p> <p>Prime numbers such as 7, 11, and 23 have exactly two factors.</p>								
	foreign exchange rate	<p>Is the value one currency has in relation to another.</p> <p>Example: Foreign exchange rate. €1.00 = \$ 1.39    thus    €100 = \$ 139.</p> <p>\$ 2085 = <math>2085 \div 1.39 = \text{€ } 1500</math></p>								
	formula	<p>Is an easy way of expressing information using symbols.</p> <p>Example: Area of a triangle (<math>\frac{1}{2} \times \text{base} \times \text{height}</math>) = <math>\frac{1}{2}bh</math></p>								
	frequency	<p>Is the number of times an event occurs in an experiment. Frequencies are often summarised in a table or a histogram.</p> <p>Example: in nine soccer matches played on a school pitch during a tournament the number of goals scored was recorded as 0, 1, 1, 0, 2, 2, 0, 2, 0. This information could be summarised in a frequency table:</p> <table><tr><td>Number of goals</td><td>0</td><td>1</td><td>2</td></tr><tr><td>Frequency</td><td>4</td><td>2</td><td>3</td></tr></table>	Number of goals	0	1	2	Frequency	4	2	3
Number of goals	0	1	2							
Frequency	4	2	3							
	friendly numbers	<p>Two numbers that are related to each other in a way that makes a calculation particularly easy.</p> <p>Example:457 - 257</p>								
	front-end strategy	<p>Estimation that has its strongest application in addition. The left-most digits (front-end) are the most significant in forming an initial estimate and can be used on their own in the earlier stages to establish a rough estimate.</p> <p>Example :<math>\text{€}1.54 + \text{€}6.35 + \text{€}0.99 + \text{€}2.51 =</math></p> <p><math>\text{€}1 + \text{€}6 + \text{€}2 = \text{€}9</math></p> <p>54c + 35c makes €1 approx, 99c is nearly €1 and 51c is nearly 50c</p>								

		Overall estimate is €11.50 (€9 + cent estimate of €2.50)
<b>G</b>	geoboard	<p>Used for learning about co-ordinates as well as making 2D shapes using elastic bands.</p> 
	geostrips	<p>Used to construct 2D shapes.</p> 
<b>H</b>	highest common factor (hcf)	<p>The highest common factor is the largest whole number than divides into two or more whole numbers (see common factor).  <a href="#">Example: hcf of 16, 28 and 36 = 4</a></p>
	histogram	<p>This is a diagram which represents data in rectangles. They have bases of the same width and data is represented by the area of the rectangle.</p> 
	hectare	<p>A unit of area equal to 100 ares.</p> 
	hexagon	<p>A six-sided polygon.</p> 
<b>I</b>	improper	<p>A fraction in which the number above the line (numerator) is larger than the number</p>

	fraction	below (denominator).  Example: $\frac{5}{3}$
	index	Often referred to as the power. It is the number of times the number is multiplied by itself. The plural of index is indices.  Examples: $2^3$ , $4^8$ , $17^3$ , $20^2$
	integers	Are whole numbers, plus and minus, including zero. The set of integers is represented by the letter Z.  Examples: -12, -6, 8, 0, 257, - 4398 are integers.
	interest rate	Percentage of total earned on an investment or paid on a loan.  Example: €100 invested in a bank for 1 year at an interest rate of 10% will accumulate to €110.  
	intersection	Is the overlap of sets, where we see the elements that are common in two or more sets. The symbol used is $\cap$ .  Example: <div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 10px;">A</div>  <div style="margin-left: 10px;">B</div> </div> <div style="text-align: center; margin-top: 10px;"> <math>A \cap B = \{3, 4\}</math>  </div>
	inverse	In many cases it means 'the opposite'.  The inverse of addition is subtraction. The additive inverse of a number is the number you add to it to give zero. The additive inverse of -8 is 8. The multiplicative inverse is the number you multiply by to give 1. The multiplicative inverse of 7 is $\frac{1}{7}$ .
	inverse proportion	When two numbers or sets of numbers are related and an increase in one corresponds to a decrease in the other. The product of the two numbers remains constant.  Example: A = {40, 24, 15} B= {3, 5, 8} as $40 \times 3 = 120$ , $24 \times 5 = 120$ and $15 \times 8 = 120$ .
<b>J</b>		
<b>K</b>	kilogram	Unit of mass (1000 grams)


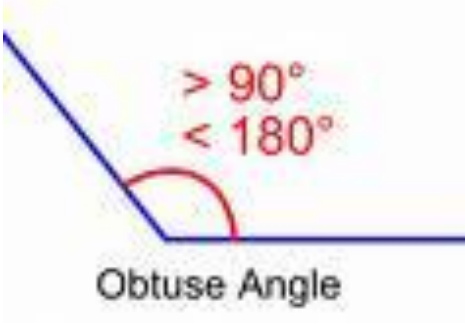
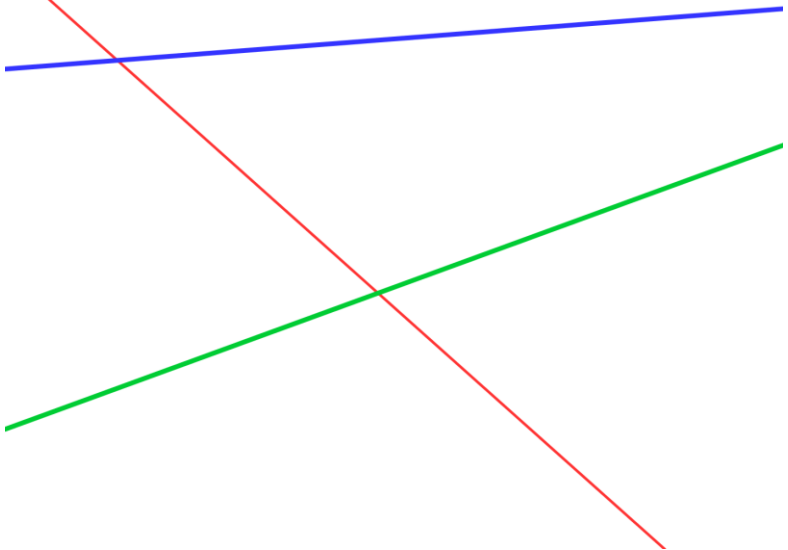

		<div></div> <div>1 kg = 1000 g</div>
L	line	<div>Is short for straight line. It is a subset of the points on the plane. It goes on forever in both directions.</div> <div></div>
	line plot	<div>Is a graph where the data is plotted in lines.</div> <div>Example: The results of 26 students who completed a test are shown in the line plot.</div> <div></div>
	line segment	<div>A part of a line.</div> <div>It has endpoints, by which it is identified or named. The line segment [AB] is illustrated.</div>



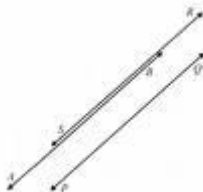


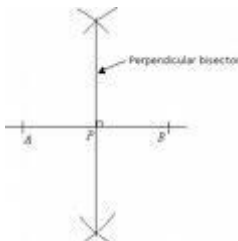















































































































		
	line symmetry	<p>A shape has line symmetry if one half of the shape can be folded exactly onto the other half.</p> 
	litre	<p>Unit of capacity for measuring liquids.</p> <p>1 litre =1000ml</p> 
	lowest common	<p>This is the smallest number that given denominators will divide into evenly.</p> <p>It can be found by listing the multiples of these denominators in increasing order,</p>


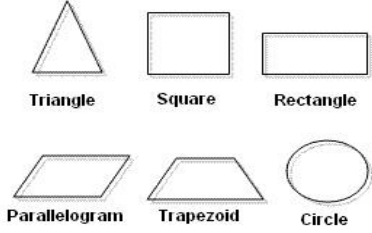


	multiple (lcm)	<p>until a common number is reached.</p> <p>Example :To find what the lcm of 8, 9, and 12 is we could list their multiples:</p> <p>8,16, 24, 32, 40, 48, 56, 64, <b>72</b>, 80, 88, ...</p> <p>12, 24, 36, 48, 60, <b>72</b>, 84, 96, ...</p> <p>9,18, 24, 36, 45, 54, 63, <b>72</b>, 81, 90, ...</p>
<b>M</b>	magnitude	<p>Of anything is the measure of its size.</p> <p>Example: The magnitude of an earthquake is measured on the Richter scale from 0 to 10.</p> 
	mean	<p>This is the simple average of a given set of data.</p> <p>The mean of 8,7,12,0, 3 = <math>8 + 7 + 12 + 0 + 3 = 30 \div 5 = 6</math></p>
	median	<p>This is the middle value (or two values) of a set of data arranged in order.</p> <p>Example: 18, 3, 7, 8, 16, 2, 3 becomes 2, 3, 3, <u>7</u>, 8, 16, 18 and 7 is the median.</p> <p>-16, 2, -7, 2, 23, -9, 100, 0 becomes -16, -9, -7, <u>0, 2</u>, 2, 23, 100. <math>(0+2) \div 2 = 1</math></p>
	millilitre	<p>One thousandth of a litre, written as 1 ml.</p> 
	millimetre	<p>One thousandth of a metre, written 1 mm.</p> 
	minus	<p>This can be an operation or a property.</p> <p>Example: <math>12 - 8 = 4</math> is the operation of minus. -39 is described as negative thirty nine or minus thirty nine and this is a property.</p>
	mixed numbers	<p>Written as a whole number part and a fraction part.</p> <p>Example:</p> $7 + \frac{3}{8} = 7\frac{3}{8}$
	mode	<p>This is the most commonly occurring value in a set of data.</p>

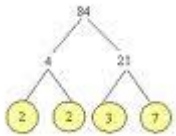

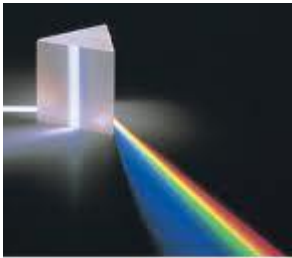





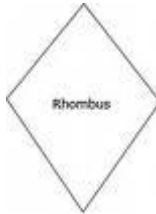
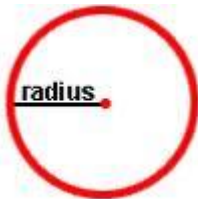

		Example: 12, <u>34</u> , 25, 17, <u>34</u> , 56, 12, 67, 43, 68, 93, <u>34</u> , 33, 21, 25 the mode is 34																								
	multiple	Of a number is made by multiplying it by another number. Example: The multiples of 7 are 7, 14, 21, 28, 35, 42.....																								
<b>N</b>	natural numbers	The set of counting numbers starting at 1. They are represented by the letter N. Example: $N = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, \dots\}$																								
	notation board	Used for learning about place value. <div data-bbox="837 459 1133 683" data-label="Table"> <table> <tr> <th>hundreds</th><th>tens</th><th>units</th></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> </table> </div>	hundreds	tens	units																					
hundreds	tens	units																								
	negative	This is a property of a number often referred to as the sign of it. A negative number is less than zero (see minus). Example: - 20																								
	net	This is the plan of a 3D object. Example: A cube with the net beside it. <div data-bbox="877 952 1093 1176" data-label="Image"> </div>																								
	null set	This is a set that contains no elements. Example: $T = \{\text{The number of Irish people 5 m tall}\}$ . $T = \{ \}$ The symbols used to show the null set are shown below. <div data-bbox="630 1344 805 1568" data-label="Image"> </div> <div data-bbox="1165 1400 1340 1568" data-label="Image"> </div>																								
	number line	A straight line, on which points are used to represent numbers, emphasising particularly the order of numbers and their position in relation to each other. <div data-bbox="494 1702 1476 1803" data-label="Figure"> </div>																								
	number sentence	An equation or statement of inequality. Examples: $4 - x = 11$ , $4x^2 < 12$ or $2 + 5 = 7$																								
	numerator	Number above the line in a fraction.																								

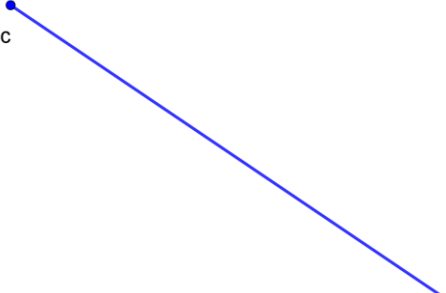
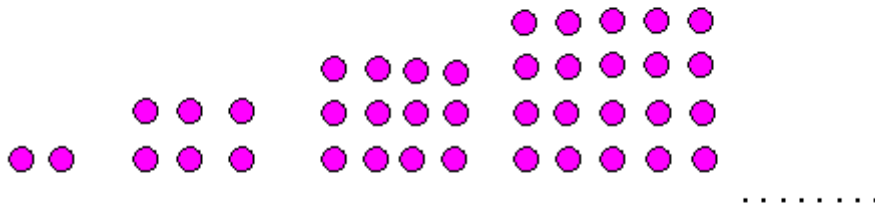
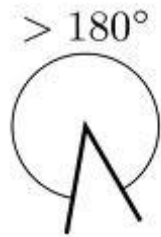
		
O	obtuse	<p>An angle that is greater than <math>90^\circ</math> but less than <math>180^\circ</math>.</p> 
	oblique lines	<p>Lines that are neither parallel nor perpendicular. They would form either an acute or obtuse angle if they intersected.</p> 
	octahedron	<p>A 3D shape with eight faces.</p> 
	ordinal number	<p>A number denoting relative position in a sequence.</p> <p>Example: first, second, third.....</p>
	outcome	<p>This is the result of an experiment.</p> <p>Example: Roll a die as an experiment and the outcome is a number between 1 and 6.</p>

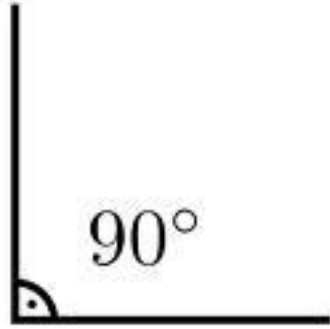
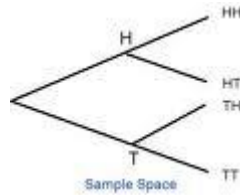
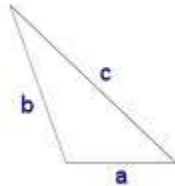
																
P	parallel	<p>A line is parallel to another line if they are an equal distance apart and they never meet.</p> <div></div>														
	perimeter	<p>The sum of the length of the sides of a figure or shape.</p>														
	perpendicular	<p>Two lines are perpendicular if they meet at right angles (<math>90^\circ</math>).</p> <div></div>														
	perpendicular bisector	<p>A line that divides another line into two equal parts and is at <math>90^\circ</math> to it.</p> 														
	pictogram	<p>A way of representing discrete data, in which each member of the population is represented by an individual picture or icon arranged in rows or columns.</p> <div><div><div>Pictogram</div><div>as of Aug 26, 2003</div></div><table><tr><td>City</td><td></td></tr><tr><td>Boston</td><td></td></tr><tr><td>Dallas</td><td></td></tr><tr><td>Los Angeles</td><td></td></tr><tr><td>Orlando</td><td></td></tr><tr><td>Seattle</td><td></td></tr><tr><td>St Louis</td><td></td></tr></table><div>* Each TV equals 200000 units</div></div>	City		Boston	            	Dallas	   	Los Angeles	 	Orlando	   	Seattle		St Louis	            
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Boston	            															
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	pie chart	<p>A diagram in the shape of a circle or disc that is used to represent data.</p> <p>The 360° of the disc is divided in ratio into pieces of the pie.</p> 
	place holder	<p>The role of zero in the place-value system of numeration.</p> <p>Example: In the numeral 507 the 0 holds the tens place to indicate that there are no tens here.</p>
	place value	<p>The position of a digit in a numeral determines its value.</p> <p>For example, '6' can represent six, sixty, six hundred, six tenths, and so on, depending on where it is written in the numeral.</p> <p>6    60    600    0.6</p>
	plane figure	<p>This is a 2D shape.</p> <p>Examples:</p> 
	plus	<p>This is the operation of addition or a property of a number.</p> <p>Examples: Addition <math>4 + 15 = 19</math></p> <p>or</p> <p>the number plus six <math>+6</math>, which can be written as 6</p>
	polygon	<p>A two-dimensional (2D) closed shape made up entirely of straight edges. It does not have to be regular.</p> <p>Examples:</p> 
	polyhedron	<p>A three-dimensional (3D) shape made up entirely of flat surfaces. It does not have to be regular</p> <p>Examples:</p> 

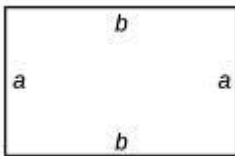
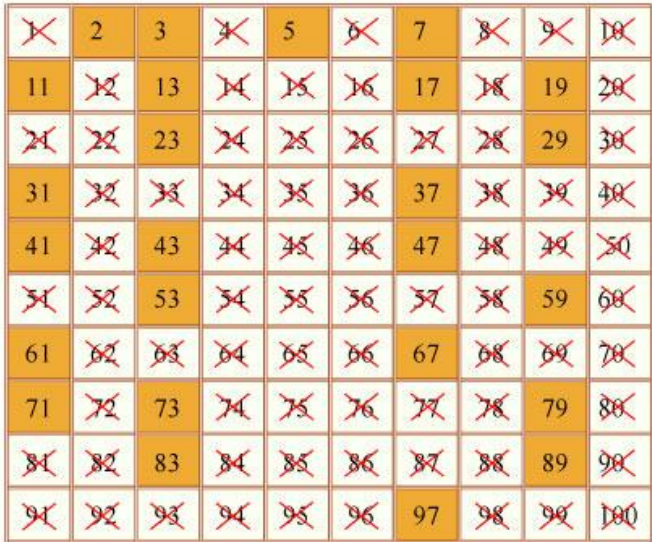
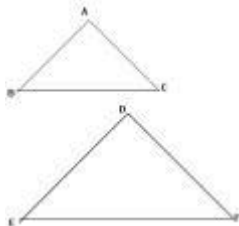

	<p>prime factor</p>	<p>A factor that is a prime number. There are different methods used to find prime factors.</p> <p>Example:</p> <div style="display: flex; justify-content: space-around; align-items: center;">  <div style="text-align: right;"> <math display="block">\begin{array}{r} 2 \overline{)1050} \\ 3 \overline{)525} \\ 5 \overline{)175} \\ 5 \overline{)35} \\ 7 \end{array}</math> <p>Prime Factors: 2,3,5,5,7</p> </div> </div>
	<p>prime number</p>	<p>A number with exactly two factors, itself and 1.</p> <p>Examples: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, .....</p>
	<p>prism</p>	<p>A shape made up of two identical polygons at opposite ends, joined up by parallel lines.</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>
	<p>probability</p>	<p>This is the study of chance; its value varies between 0 and 1.</p> <p>Example: The probability of a fair coin landing on heads = 0.5</p> <div style="text-align: center;">  </div>
	<p>product</p>	<p>The result when you multiply two numbers.</p> <p>Example: <math>21 \times 8 = 168</math></p>
	<p>profit</p>	<p>This is the measure of gain in a financial transaction.</p> <div style="text-align: center;">  </div>
	<p>protractor</p>	<p>A geometric instrument for measuring angles.</p> <div style="text-align: center;">  </div>
	<p>positive</p>	<p>A positive number is one which is greater than zero.</p> <p>Example: <math>\sqrt{2}</math> , <math>5\frac{1}{2}</math> , 7.09, 16</p>

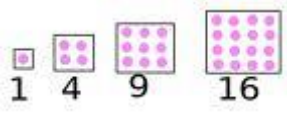
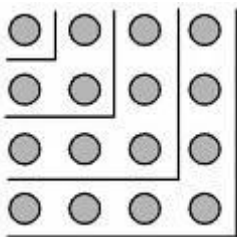


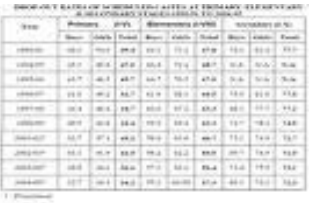
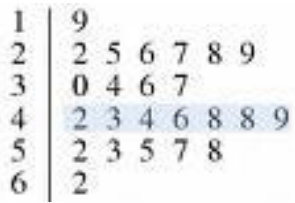
	power	This is how often a number is multiplied by itself. It is also known as the index. Example: $3^4 = 3 \times 3 \times 3 \times 3 = 81$
Q	quadrilateral	A shape with four sides. Example: A rhombus is a four-sided shape with all of its sides equal in length. 
	quotient	Is the result of a division. Example: $\frac{24}{8} = 3$
R	radius	A line joining the centre of a circle to the edge of the circle. It is half the diameter in length. 
	range	This is the difference between the smallest and the largest piece of data in a set. Example: The range of four people with heights of 160 cm, 155 cm, 180 cm, 178 cm is $180 - 155 = 25$ cm
	ratio	Is a comparison of two or more quantities. Example: When making concrete you mix 9 parts of gravel with 2 parts cement.  The ratio of gravel to cement is 9:2
	rational numbers	This is a set of numbers which includes whole numbers, minus numbers, zero, fractions and decimals. They are represented by the letter Q. Examples: -97, 128, 0, $\frac{3}{7}$ , $-\frac{12}{19}$ , 0.529, -17.64
	ray	Is a line that is finite in one direction but infinite in the other.

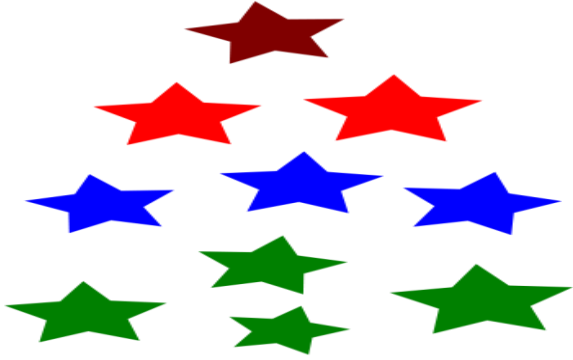

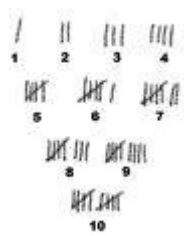
		
rectangular number	<p>There can be found by using the unit dots to make triangles or the product of consecutive natural numbers.</p> <div data-bbox="435 607 1525 1135" data-label="Figure"> <p style="text-align: center;"><b>Building the Rectangular Numbers</b></p>  <p style="text-align: center;">.....</p> <p> <b>Shape 1</b>   <b>Shape 2</b>   <b>Shape 3</b>   <b>Shape 4</b> ..... <b>Shape n</b>  <b>1 x 2</b>   <b>2 x 3</b>   <b>3 x 4</b>   <b>4 x 5</b> ..... <b>n x (n+1)</b> </p> </div>	
reflex angle	<p>An angle that is greater than <math>180^\circ</math> but less than <math>360^\circ</math> (see angle)</p> 	
regrouping/ renaming	<p>This is when a numeral is reconfigured into its equivalent but different form.</p> <p>Example: 372 can be regrouped/renamed as 36 tens and 12 units.</p> $1 \text{ m } 11 \text{ cm} = 1 \frac{11}{100} \text{ m} = 1.11 \text{ m}$ <p>Note: We use addition with regrouping/renaming when the sum of the numbers along the same column is greater than 9.</p> <p>Regrouping/renaming takes place in subtraction if any of the digits in the larger number is smaller than any of the digits involved in the smaller number.</p>	
relative frequency	<p>The number of times an event happens divided by the total number of experiments.</p> <p>How often the number 5 occurs when rolling a biased die twenty times.</p>	

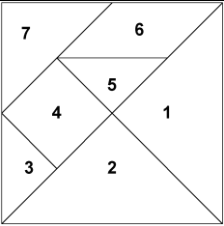

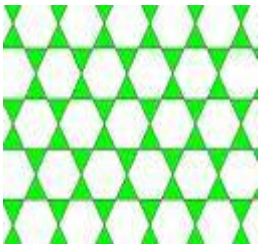
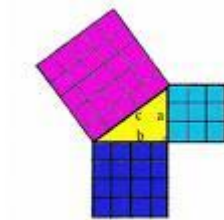
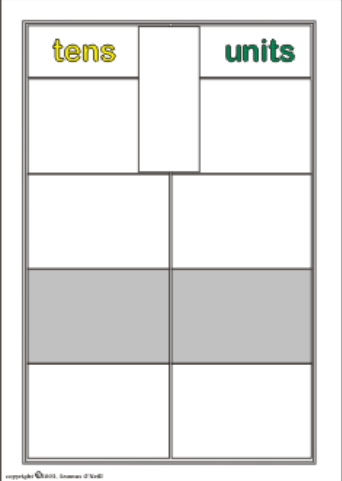
	right angle	<p>An angle of <math>90^\circ</math>.</p> 
	rounding	<p>The process of approximating an answer to an appropriate degree of accuracy; this can be done by rounding up or rounding down.</p> <p>Example: €25.37 rounded up to the nearest ten cent is €25.40</p> <p>€24.14 rounded down to the nearest ten cent is €24.10;</p>
<b>S</b>	sample space	<p>Is the list of all possible outcomes of an experiment.</p> <p>Example: When tossing two coins the sample space is given in the diagram</p> 
	scalene triangle	<p>A triangle with three sides of different length and, therefore, three different-sized angles.</p> 
	sequence	<p>A set of numbers written in order according to a rule.</p> <p>Examples: 1, 2, 4, 8, 16, 32, 62.....</p> <p>1, 2, 3, 5, 8, 13, 21.....</p>
	set	<p>A well defined collection of objects.</p> <p>Example: <math>S = \{ \text{dog, cat, elephant, giraffe} \}</math></p>
	set diagram	<p>The simplest picture of a population sorted into subsets; each subset is represented by an enclosed region (such as a circle) with the names of the items of individuals rather than just one.</p>
	side	<p>The straight edges of a closed two-dimensional shape.</p>

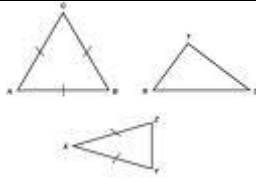
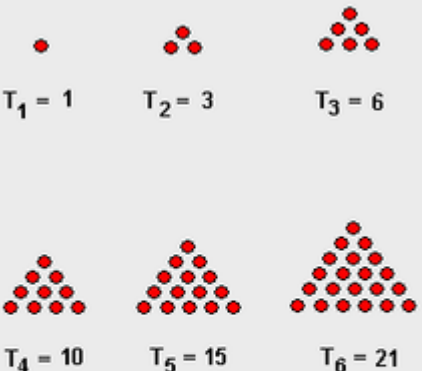


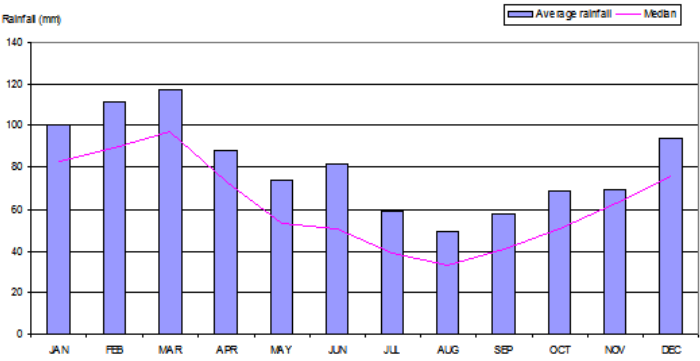



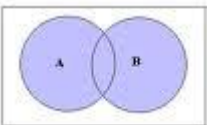
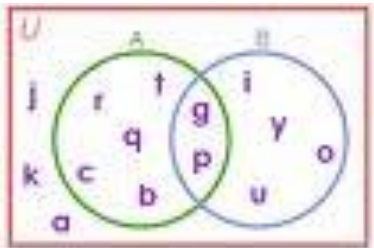

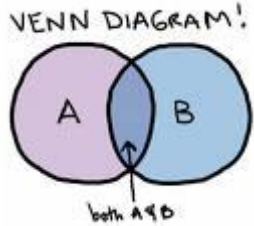
		
Sieve of Eratosthenes	A way to identify and record prime numbers. Using a 100 square, Eratosthenes's sieve drains out composite numbers and leaves prime numbers behind.	
similar	2D shapes that are identical in every way except for size. <a href="#">Example: similar triangles</a>	
simple random sample	When data is collected from an experiment without bias.	
spreadsheet	A computer application that shows worksheets in columns and rows.	

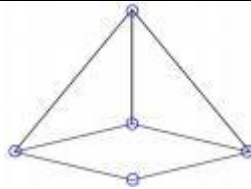
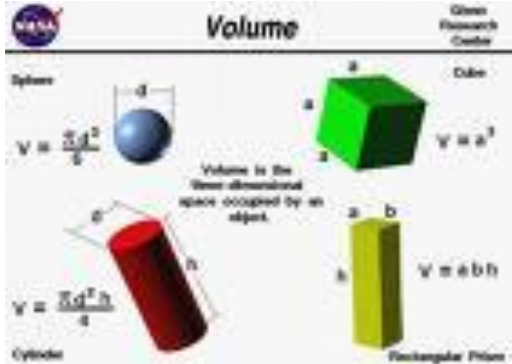
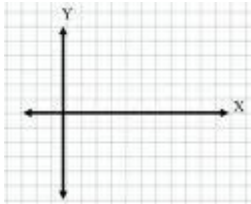
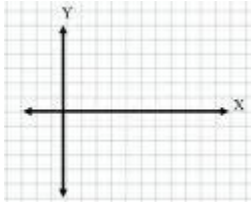
		<div><div>F16</div><div><math>f(x)</math> <math>\Sigma</math> =</div></div> <table><tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th><th>F</th></tr><tr><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>2</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>3</td><td>Date</td><td>Start time</td><td>End time</td><td>Pause</td><td>Sum</td><td>Comment</td></tr><tr><td>4</td><td>2007-05-07</td><td>9,25</td><td>10,25</td><td>0</td><td></td><td>1 Task 1</td></tr><tr><td>5</td><td>2007-05-07</td><td>10,75</td><td>12,50</td><td>0</td><td>1,75</td><td>Task 1</td></tr><tr><td>6</td><td>2007-05-07</td><td>18,00</td><td>19,00</td><td>0</td><td></td><td>1 Task 2</td></tr><tr><td>7</td><td>2007-05-08</td><td>9,25</td><td>10,25</td><td>0</td><td></td><td>1 Task 2</td></tr><tr><td>8</td><td>2007-05-08</td><td>14,50</td><td>15,50</td><td>0</td><td></td><td>1 Task 3</td></tr><tr><td>9</td><td>2007-05-08</td><td>8,75</td><td>9,25</td><td>0</td><td>0,5</td><td>Task 3</td></tr><tr><td>10</td><td>2007-05-14</td><td>21,75</td><td>22,25</td><td>0</td><td>0,5</td><td>Task 3</td></tr><tr><td>11</td><td>2007-05-14</td><td>22,50</td><td>23,00</td><td>0</td><td>0,5</td><td>Task 3</td></tr><tr><td>12</td><td>2007-05-15</td><td>11,75</td><td>12,75</td><td>0</td><td></td><td>1 Task 3</td></tr><tr><td>13</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>14</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>15</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>16</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>17</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>18</td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>		A	B	C	D	E	F	1							2							3	Date	Start time	End time	Pause	Sum	Comment	4	2007-05-07	9,25	10,25	0		1 Task 1	5	2007-05-07	10,75	12,50	0	1,75	Task 1	6	2007-05-07	18,00	19,00	0		1 Task 2	7	2007-05-08	9,25	10,25	0		1 Task 2	8	2007-05-08	14,50	15,50	0		1 Task 3	9	2007-05-08	8,75	9,25	0	0,5	Task 3	10	2007-05-14	21,75	22,25	0	0,5	Task 3	11	2007-05-14	22,50	23,00	0	0,5	Task 3	12	2007-05-15	11,75	12,75	0		1 Task 3	13							14							15							16							17							18						
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square number	<p>In order to square a number, multiply it by itself.</p> <div></div>																																																																																																																																						
square root	<p>Of a number, when multiplied by itself will give the first number.</p> <div></div> <p><math>\sqrt{16} = 4, 4 \times 4 = 16;</math>      <math>11 = \sqrt{11} \times \sqrt{11}</math></p>																																																																																																																																						
statistics	<p>The study of information which is collected as data.</p> <div></div>																																																																																																																																						
stem and leaf plot	<p>This is a diagram used to represent data.</p> <div></div>																																																																																																																																						
subitise	<p>Tell at a glance, without counting, the number of items in a set.</p>																																																																																																																																						

		
	subset	<p>A subset is set which contains some or all elements of another set. The null set is a subset of every set.</p> <p>Example: Set A= {Kerry, Tyrone, Dublin, Galway}, K is a subset of A and could be K= {Kerry, Tyrone, Galway}.</p>
	subtraction	<p>An operation in maths when the difference of two numbers is found (see difference).</p> <p>Example: <math>21 - 13 = 8</math>; <math>-12 - 4 = -16</math>; <math>63 - (-12) = 63 + 12 = 75</math>.</p>
	subtrahend	<p>The number to be subtracted from another number.</p> <p>Example: <math>10 - 4</math> (4 is a subtrahend)</p>
	substitute	<p>To replace a variable with a number in order to calculate the value of an expression or to allow further algebraic manipulation.</p> <p>Example: <math>x^2 + 3x + 4</math>, substitute <math>x = 5</math>, <math>x^2 + 3x + 4 = 5^2 + 3(5) + 4 = 25 + 15 + 4 = 44</math></p>
	survey	<p>A method of collecting data often by asking questions of a population or a sample of a population.</p> 
T	tally	<p>A tally is made by recording a series of single strokes. Usually every fifth stroke is a bar to the other four for easy counting.</p> 
	tangram	<p>A Chinese puzzle made up of seven simple geometric shapes, 2 large triangles, 1 medium triangle, 2 small triangles, 1 square and 1 parallelogram which are capable of being recombined in many different figures.</p>

		
	tessellation	<p>Shapes tessellate if they fit together exactly, form a repeating pattern, and make an angle of 360 at the points of contact.</p> <p>Examples:</p> <div style="display: flex; justify-content: space-around;">   </div>
	theorem	<p>This is a statement in geometry that can be proved using previously accepted theorems or axioms.</p> <p>Example: The theorem of Pythagoras</p> 
	transition board	<p>A simple device to aid children's conceptual understanding of addition and subtraction.</p> 
	triangle	<p>A three-sided shape.</p> <p>Example: An equilateral triangle had 3 sides of equal length, an isosceles triangle has 2 equal sides and a scalene triangle has no sides of equal length.</p>

		
	triangular numbers	<p>These are numbers that can be drawn as equilateral triangles.</p> <p>Example: The first of these numbers are 1, 3, 6, 10, 15, 21.....</p> <div data-bbox="742 499 1227 1160">  <p><math>T_1 = 1</math>      <math>T_2 = 3</math>      <math>T_3 = 6</math></p> <p><math>T_4 = 10</math>      <math>T_5 = 15</math>      <math>T_6 = 21</math></p> <div data-bbox="842 1014 1112 1097"> <math display="block">T_n = \frac{n(n+1)}{2}</math> </div> </div>
	trapezium	<p>This is a four-sided figure with one set of parallel sides.</p> <div data-bbox="592 1272 817 1438">  </div> <div data-bbox="1091 1227 1377 1467">  </div>
	trend graph	<p>Represents the general movement in the course of time of a statistically detectable change.</p> <div data-bbox="592 1592 1377 2036">  </div>

	trundle wheel	<p>An instrument for measuring distance by counting the number of clicks as the wheel revolves. The circumference of the wheel is one metre.</p> 
U	union	<p>This is an operation that joins together the elements of two or more sets. The symbol used is <math>\cup</math>.</p> 
	universal set	<p>The universal set contains all elements of all sets under discussion. The symbol for universal set is U.</p> 
V	variable	<p>A symbol that represents a value in an algebraic expression.</p> <p>Example: <math>y + 7 = 12</math>.</p> <p><math>Y = 5</math></p>
	Value Added Tax (VAT)	<p>A government tax added to most goods or services. It is usually charged as a percentage of the net cost.</p> 
	venn diagram	<p>A Venn diagram is a picture of a number of sets together.</p> 
	vertex	<p>Is a point or corner on a 3D shape or where two shapes meet.</p>

		
	volume	<p>The amount of space taken up by a 3D object.</p> 
<b>W</b>	weight	The gravitational pull exerted on an object.
	whole numbers	<p>These can sometimes mean the Natural numbers (N) but are better described as the integers (Z).</p> <p>-5, -3, 0, 17, 213, 488</p>
<b>X</b>	x-axis	<p>In a graph this is the horizontal axis.</p> <p>Drawn on the Cartesian plane it is infinitely long in both directions.</p> 
<b>Y</b>	y-axis	<p>In a graph this is the vertical axis.</p> <p>Drawn on the Cartesian plane it is infinitely long in both directions.</p> 
<b>Z</b>		