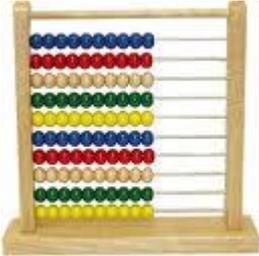
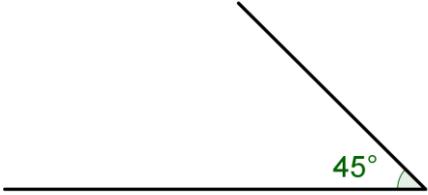
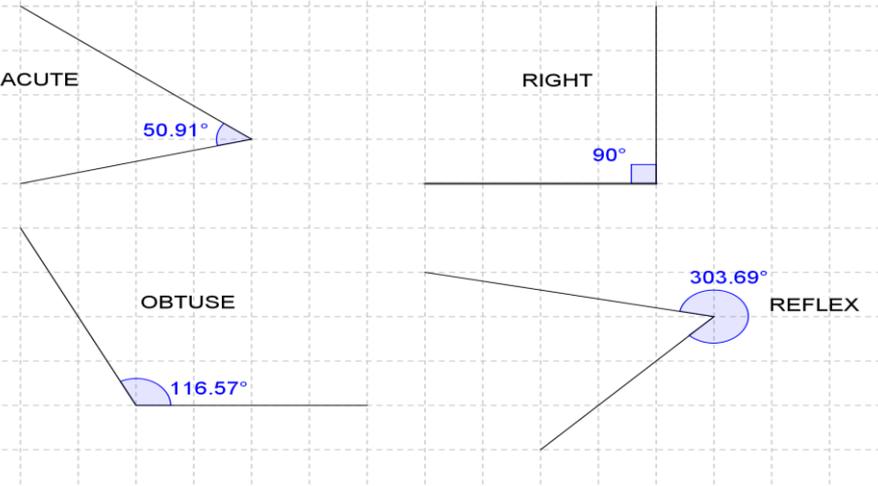
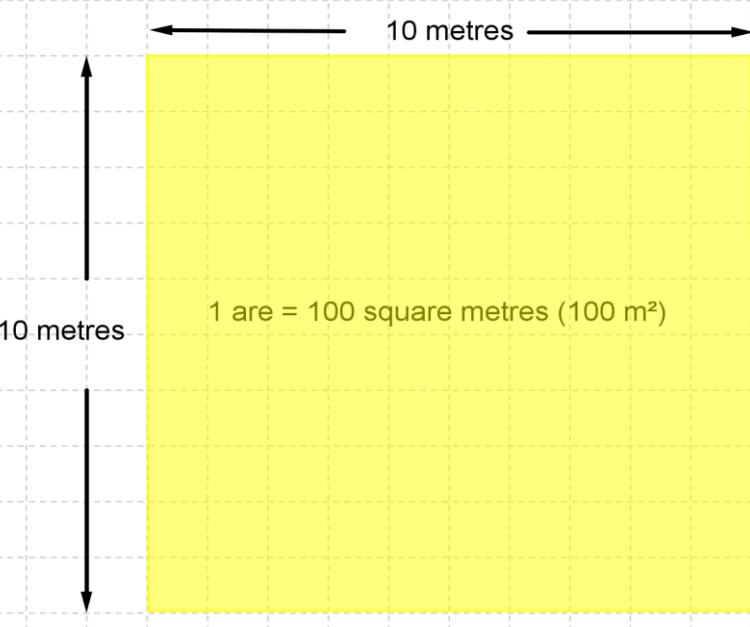


## Glossary of mathematical terms for 5<sup>th</sup>/6<sup>th</sup> class in primary and Junior Cycle

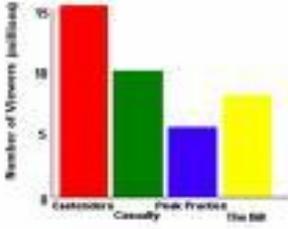
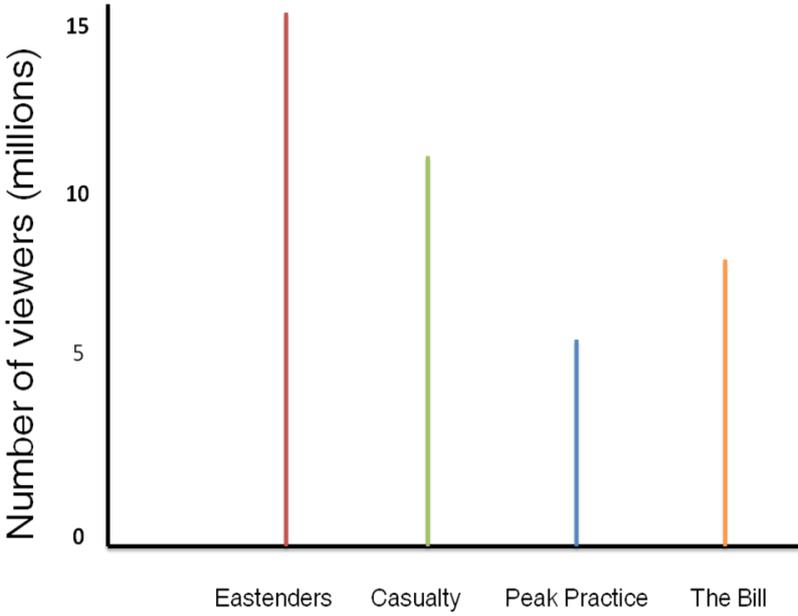
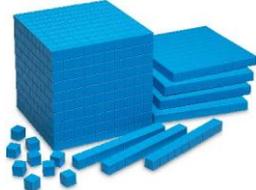
### Bridging Materials for Mathematics

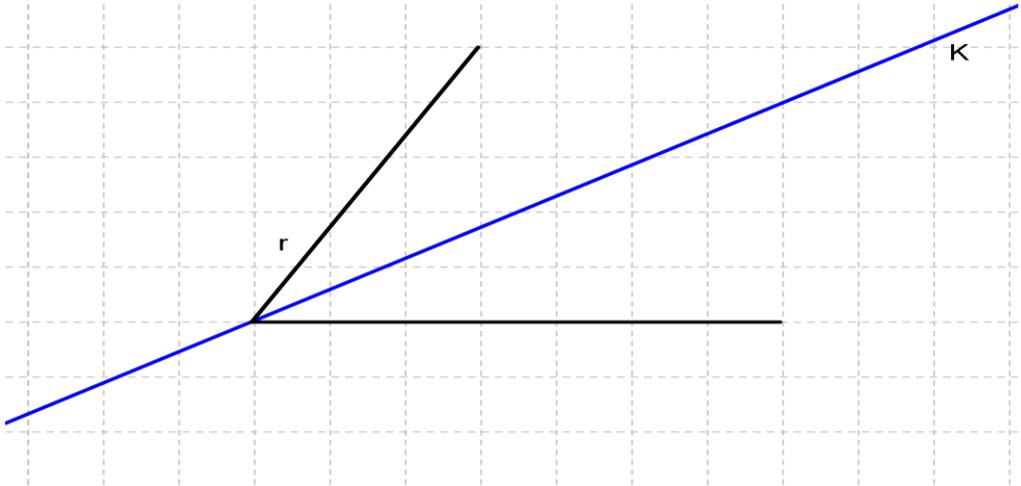
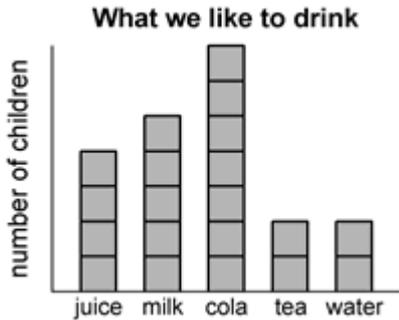
The following is a glossary of mathematical terms. The glossary is designed to inform students/parents/teachers of the vocabulary and meaning of terms in mathematics that students may have encountered in primary school and will encounter when they transfer to post-primary education. Many of these terms 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.

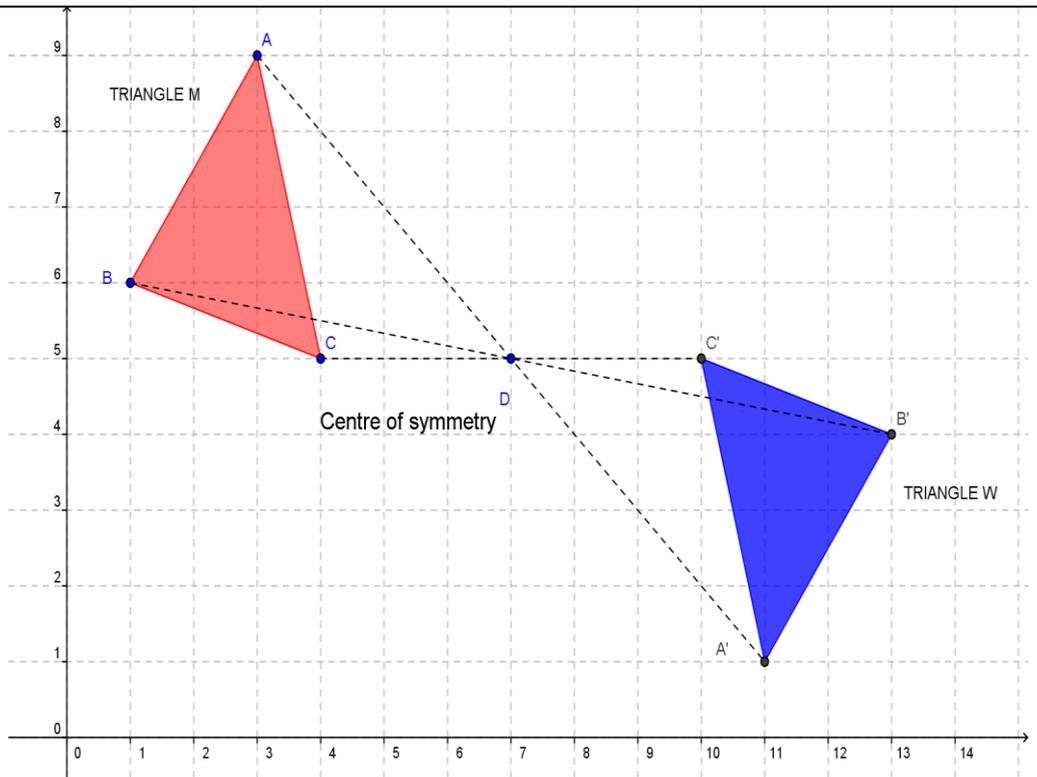
	Term	Diagram, Definition, explanation and example
A	abacus	Helps to perform calculations by sliding beads along rods. 
	acute	An angle that is greater than 0° but less than 90°. 
	algorithm	A step by step procedure that gives the solution of a particular problem. <a href="#">Multiplication and division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

	
<p>angle</p>	<p>This is made when two line segments meet at a point (vertex), or when two lines intersect. It is be measured in degrees and can be acute, right, obtuse or reflex.</p> 
<p>are</p>	<p>A unit of area equal to 100 square metres.</p> 
<p>area</p>	<p>The amount of a plane enclosed by a 2D shape measured in square units.</p> 
<p>array</p>	<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	This is a property of number operations. The order in which we do operations is important. <b>Multiplication is associative:</b> $(12 \times 3) \times 6 = 12 \times (3 \times 6)$ <b>Division is <u>not</u> associative</b> $(12 \div 3) \div 6 \neq 12 \div (3 \div 6)$ .	
axial symmetry	This is reflection of a plane figure in a line to form an image in a different place.	
axis of symmetry	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.	
<b>B</b> bar chart	A diagram used to display data in rectangular bars. It is used to summarise and display information in a diagram.	

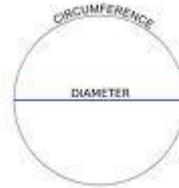
		
bar-line graph	A way to show and compare data by using horizontal or vertical lines. The bars in a bar chart are simply replaced by straight lines.	
base ten materials	Used for teaching place value and volume. There are ten small cubes in one long, ten longs in one flat, and ten flats in one block.	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

		<p>Angle r is bisected by the line segment K</p> 												
	<p>block graph</p>	<p>An introductory way of representing discrete data, in which each member of the population is represented by an individual square.</p>  <table border="1" data-bbox="783 891 1182 1211"> <caption>What we like to drink</caption> <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													
<p><b>C</b></p>	<p>cardinal number</p>	<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>												
	<p>capacity</p>	<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> 												
	<p>central symmetry</p>	<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

This is the length of the perimeter of a circle.



clustering strategy

Estimation that is best suited to groups of numbers that ‘cluster’ around a common value.

Example: Numbers of people who came to our concert

Monday	Tuesday	Wednesday	Thursday	Friday
425	506	498	468	600

The average attendance was about 500 per night.

$$500 \times 5 \text{ nights} = 2,500$$

commutative

This is a property of the number operations addition and multiplication.

In addition  $1 + 2 = 2 + 1$ , i.e. it works both ways, it is commutative.

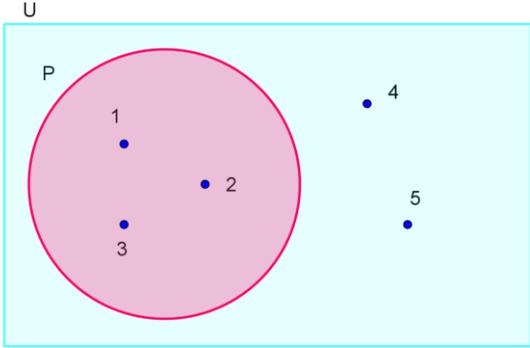
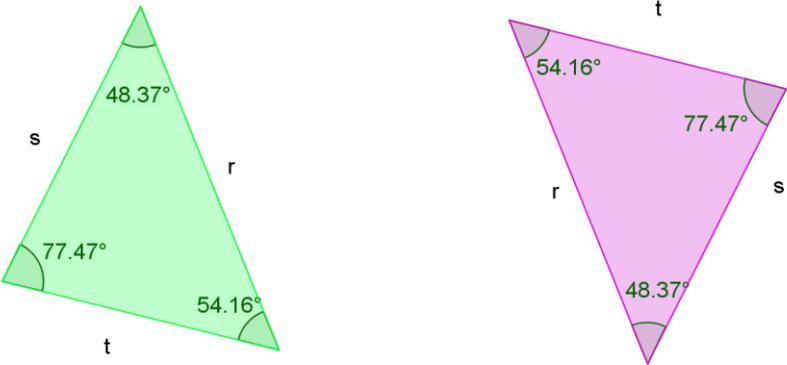
In subtraction or division it does not work both ways, e.g.  $6 - 7 \neq 7 - 6$ .

common factor

A number that divides evenly into more than one other number.

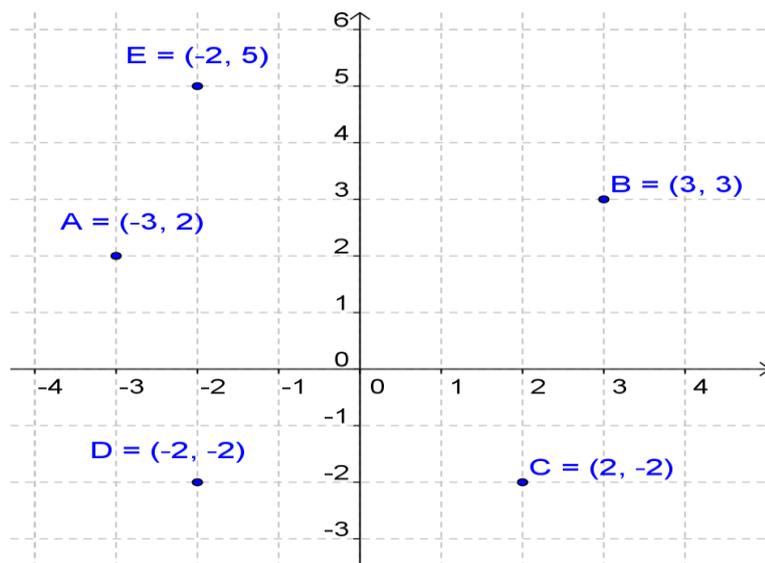
Examples: 16 has factors **1,2,4,8,16**

20 has factors **1,2,4,5,10,20**,

		<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

surface, often referred to as the Cartesian plane.

There are some points shown in the four quadrants of the Cartesian plane.



cylinder

A three-dimensional shape consisting of two identical circular ends joined by one continuous curved surface.



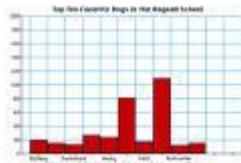
**D** data

There are different types of data. (Categorical, numerical, ordinal, discrete and continuous).

Categorical

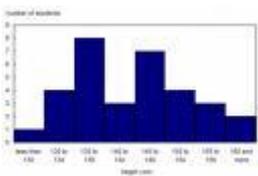
Numerical

Ordinal



Discrete

Continuous



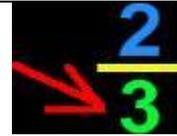
deducting

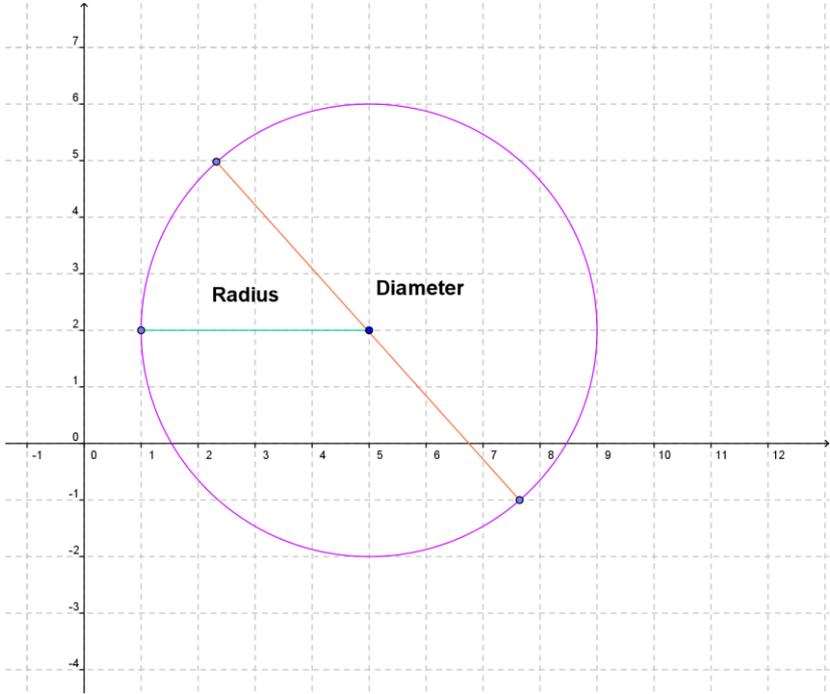
As with subtraction.

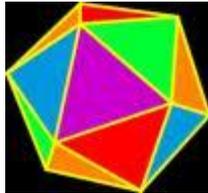
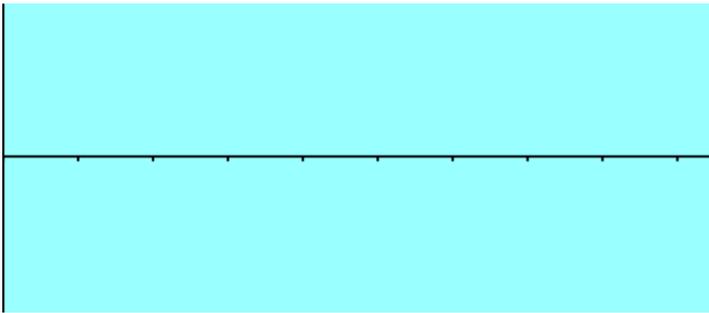
Example: I had 10 sweets, I ate 3. How many have I left?

denominator

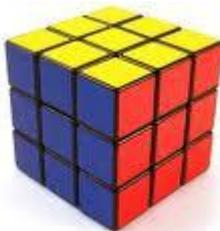
Number below the line in a fraction.



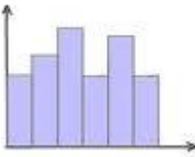
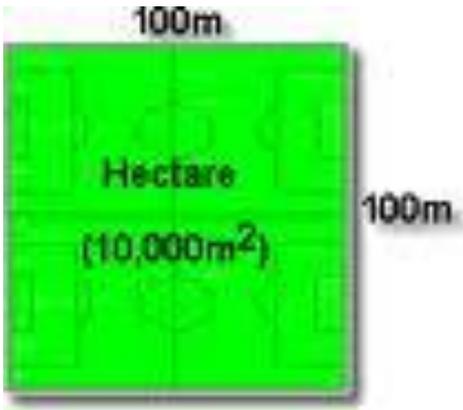
diameter		<p>A chord through the centre of a circle. It is twice the radius in length.</p> 
difference		<p>Means subtraction.</p> <p>Example: The difference between two numbers such as 22 and 17 is <math>22 - 17 = 5</math>. 5 is the difference.</p>
digit		<p>The individual symbols used to build up numerals 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>

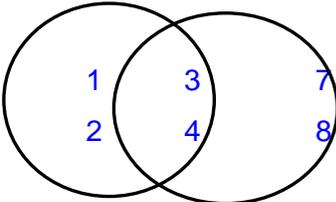
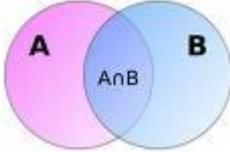
		distributive over division.
	dividend	A number or quantity to be divided <i>by</i> another number or quantity. Example: $24 \div 6 = 4$ , 24 is the dividend.
	divisor	Is the number that does the dividing. $36 \div 9 = 4$ , the number 9 is the divisor.
<b>E</b>	edge	The intersection of two surfaces; in 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.

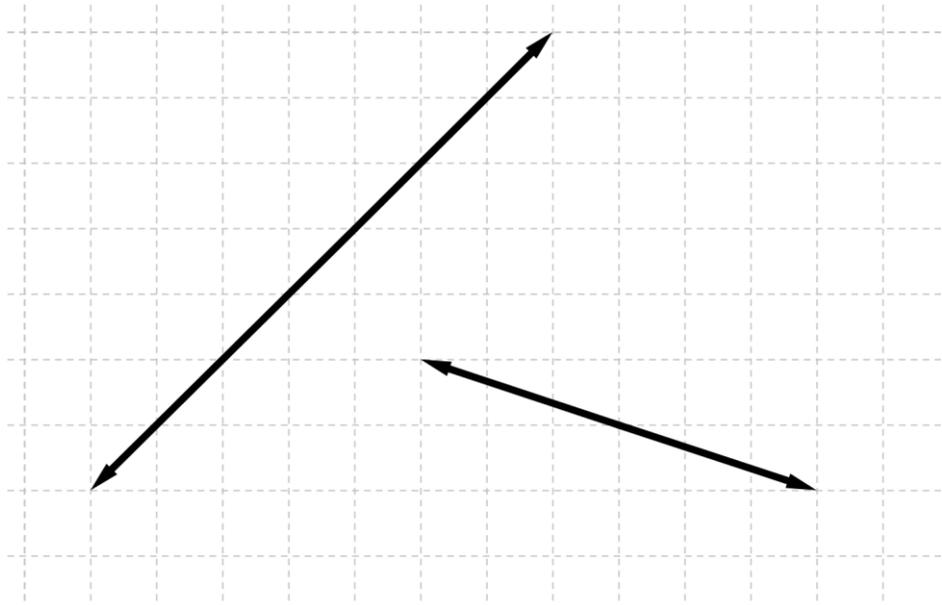
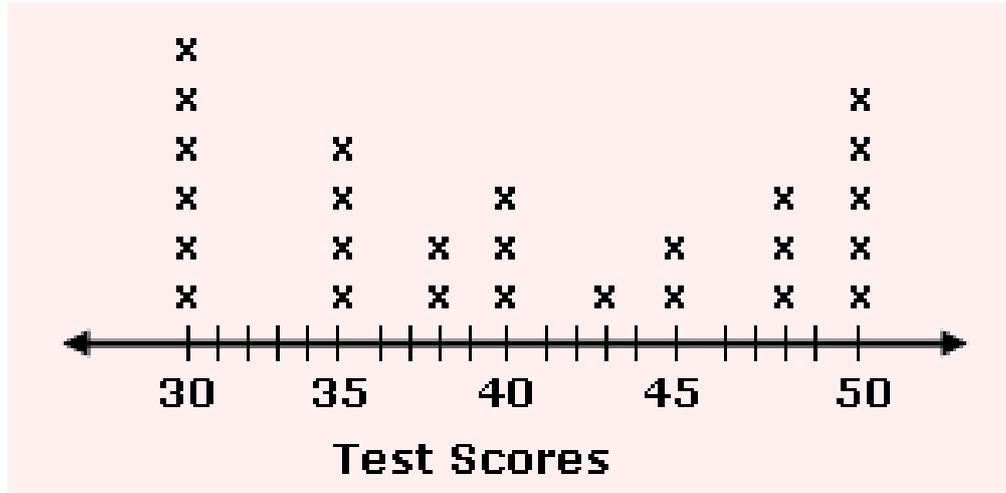


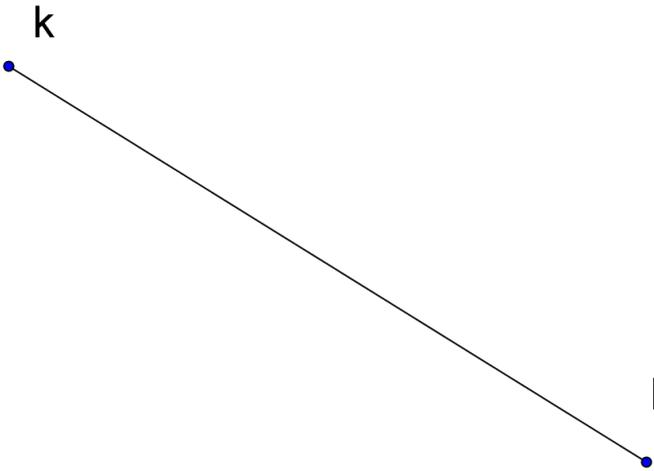
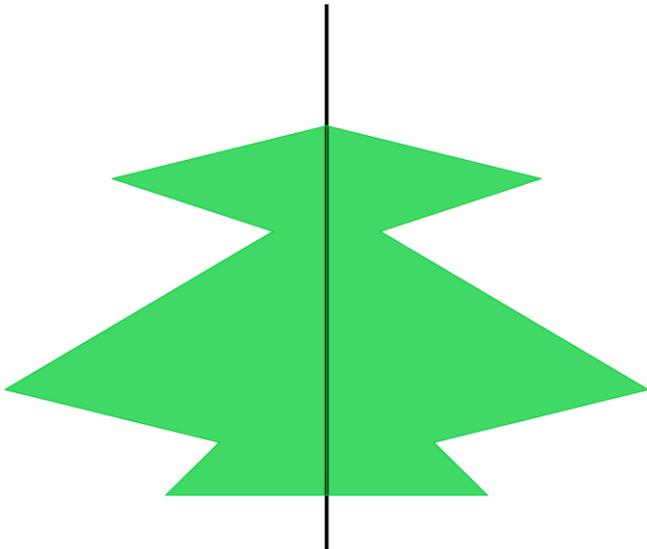
	exponential	This is an expression in which a number is raised to some power. The power is the exponent. (see power) $6^2, 8^3, 12^9$								
<b>F</b>	face	One of the plane surfaces of a polyhedron. A cube has six faces. 								
	factor	A whole number or expression that divides evenly into another number. Example: 24 has eight factors including itself and one; 1,2,3,4,6,8,12,24 Prime numbers such as 7, 11, and 23 have exactly two factors.								
	foreign exchange rate	Is the value one currency has in relation to another. Example: Foreign exchange rate. €1.00 = \$ 1.39 thus €100 = \$ 139. \$ 2085 = 2085 ÷ 1.39 = € 1500								
	formula	Is an easy way of expressing information using symbols. Example: Area of a triangle ( $\frac{1}{2} \times \text{base} \times \text{height}$ ) = $\frac{1}{2}bh$								
	frequency	Is the number of times an event occurs in an experiment. Frequencies are often summarised in a table or a histogram. 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: <table border="1" data-bbox="778 1507 1190 1615"> <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	Two numbers that are related to each other in a way that makes a calculation particularly easy. Example: 457 - 257								
	front-end strategy	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. Example : €1.54 + €6.35 + €0.99 + €2.51 = €1 + €6 + €2 = €9 54c + 35c makes €1 approx, 99c is nearly €1 and 51c is nearly 50c								

Overall estimate is €11.50 (€9 + cent estimate of €2.50)

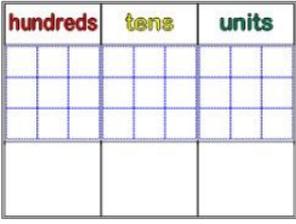
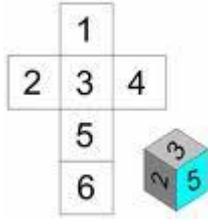
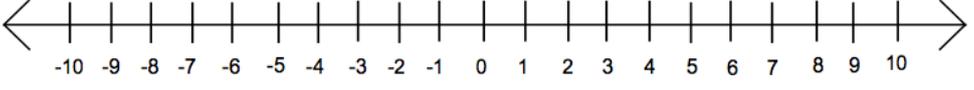
<b>G</b>	geoboard	Used for learning about co-ordinates as well as making 2D shapes using elastic bands. 
	geostrips	Used to construct 2D shapes. 
<b>H</b>	highest common factor (hcf)	The highest common factor is the largest whole number than divides into two or more whole numbers (see common factor). Example: hcf of 16, 28 and 36 = 4
	histogram	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. 
	hectare	A unit of area equal to 100 ares. 
	hexagon	A six-sided polygon. 
<b>I</b>	improper	A fraction in which the number above the line (numerator) is larger than the number

	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> $A \cap B = \{3, 4\}$ 
	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)

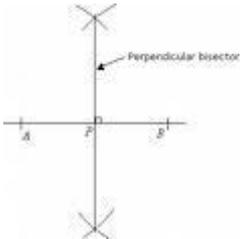
		 <p>1 kg = 1000 g</p>																		
L	line	<p>Is short for straight line. It is a subset of the points on the plane. It goes on forever in both directions.</p> 																		
	line plot	<p>Is a graph where the data is plotted in lines.</p> <p>Example: The results of 26 students who completed a test are shown in the line plot.</p>  <p>The line plot shows the following distribution of test scores:</p> <table border="1"> <thead> <tr> <th>Test Score</th> <th>Number of Students (X's)</th> </tr> </thead> <tbody> <tr> <td>30</td> <td>5</td> </tr> <tr> <td>35</td> <td>4</td> </tr> <tr> <td>38</td> <td>2</td> </tr> <tr> <td>40</td> <td>3</td> </tr> <tr> <td>43</td> <td>1</td> </tr> <tr> <td>45</td> <td>2</td> </tr> <tr> <td>48</td> <td>2</td> </tr> <tr> <td>50</td> <td>3</td> </tr> </tbody> </table>	Test Score	Number of Students (X's)	30	5	35	4	38	2	40	3	43	1	45	2	48	2	50	3
Test Score	Number of Students (X's)																			
30	5																			
35	4																			
38	2																			
40	3																			
43	1																			
45	2																			
48	2																			
50	3																			
	line segment	<p>A part of a line.</p> <p>It has endpoints, by which it is identified or named. The line segment [AB] is illustrated.</p>																		

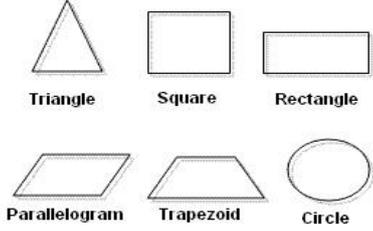
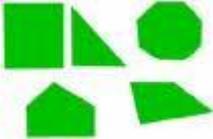
		
line symmetry	A shape has line symmetry if one half of the shape can be folded exactly onto the other half.	
litre	Unit of capacity for measuring liquids. 1 litre =1000ml	
lowest common		This is the smallest number that given denominators will divide into evenly. It can be found by listing the multiples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

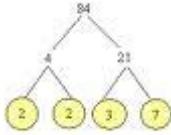
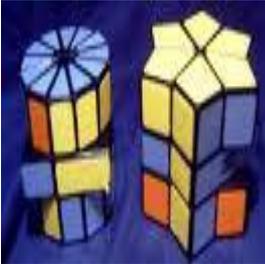
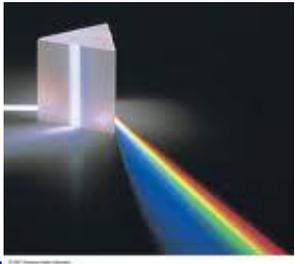
	multiple (lcm)	<p>until a common number is reached.</p> <p>Example :To find what the lcm of 8, 9, and 12 is we could list their multiples:  8,16, 24, 32, 40, 48, 56, 64, <b>72</b>, 80, 88, ...  12, 24, 36, 48, 60, <b>72</b>, 84, 96, ...  9,18, 24, 36, 45, 54, 63, <b>72</b>, 81, 90, ...</p>
<b>M</b>	magnitude	<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.  -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>

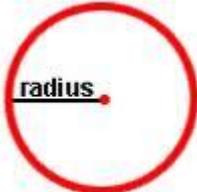
		Example: 12, <u>34</u> , 25, 17, <u>34</u> , 56, 12, 67, 43, 68, 93, <u>34</u> , 33, 21, 25 the mode is 34
	multiple	Of a number is made by multiplying it by another number. Example: The multiples of 7 are 7, 14, 21, 28, 35, 42.....
<b>N</b>	natural numbers	The set of counting numbers starting at 1. 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. 
	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. 
	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. 
	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. 
	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.

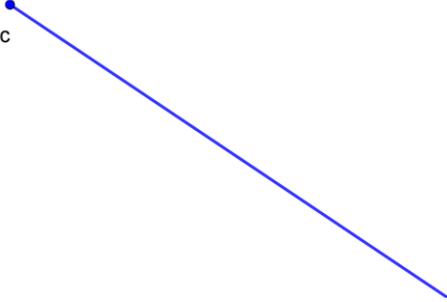
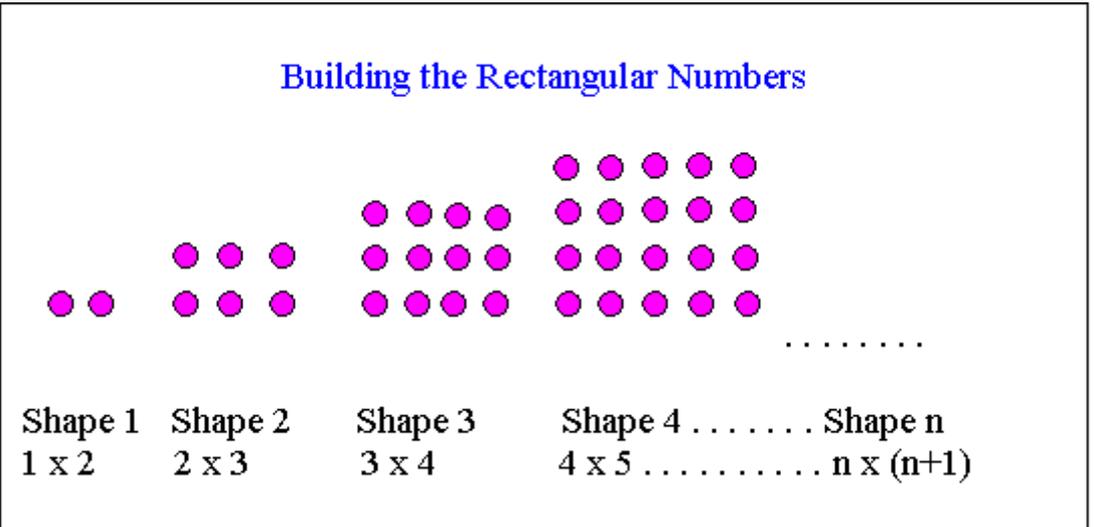
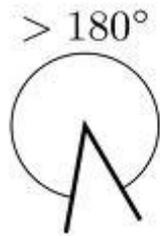


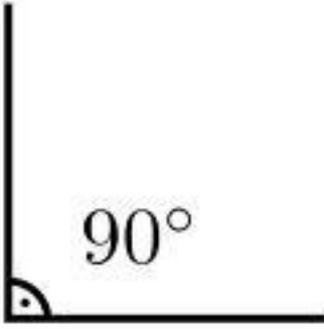
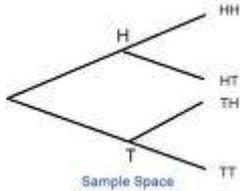
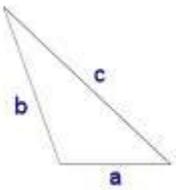
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---|
| <b>P</b> | parallel  
   
   
   | <p>A line is parallel to another line if they are an equal distance apart and they never meet.</p>    
   
   
   
   |      |  |        |  
   
   
  |
|          | perimeter   
   
   
   | The sum of the length of the sides of a figure or shape.  
   
   
   
   |      |  |        |  
   
   
  |
|          | perpendicular   
   
   
   | <p>Two lines are perpendicular if they meet at right angles (90°).</p>    
   
   
   
   |      |  |        |  
   
   
  |
|          | perpendicular bisector  
   
   
   | <p>A line that divides another line into two equal parts and is at 90° 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 style="text-align: center;"> <p>Pictogram<br/>as of Aug 26, 2003</p> <hr/> <table> <thead> <tr> <th>City</th> <th></th> </tr> </thead> <tbody> <tr> <td>Boston</td> <td>                       </td></tr></tbody></table></div> | City |  | Boston |                        |
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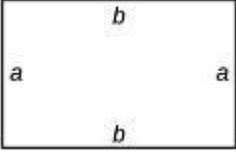
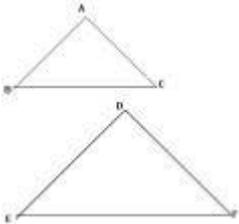
pie chart	<p>A diagram in the shape of a circle or disc that is used to represent data.</p> <p>The 360° of the disc is divided in ratio into pieces of the pie.</p> 
place holder	<p>The role of zero in the place-value system of numeration.</p> <p>Example: In the numeral 507 the 0 holds the tens place 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: center;">  </div> <div style="text-align: center;"> <pre> 2   1050     525     175     35     7 ----- Prime Factors: 2,3,5,5,7 </pre> </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 style="border: 1px solid black; padding: 10px; text-align: center;"> <p><b>Building the Rectangular Numbers</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/renameing when the sum of the numbers along the same column is greater than 9.</p> <p>Regrouping/renameing 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>

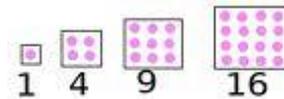
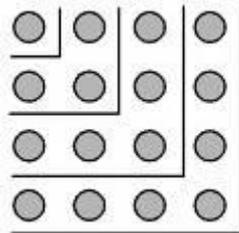
	right angle	An angle of $90^\circ$ .  
	rounding	The process of approximating an answer to an appropriate degree of accuracy; this can be done by rounding up or rounding down. Example: €25.37 rounded up to the nearest ten cent is €25.40 €24.14 rounded down to the nearest ten cent is €24.10;
<b>S</b>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

																																																																																																						
Sieve of Eratosthenes	of	<p>A way to identify and record prime numbers. Using a 100 square, Eratosthenes's sieve drains out composite numbers and leaves prime numbers behind.</p> <table border="1" data-bbox="624 456 1278 994"> <tr><td><del>1</del></td><td>2</td><td>3</td><td><del>4</del></td><td>5</td><td><del>6</del></td><td>7</td><td><del>8</del></td><td><del>9</del></td><td><del>10</del></td></tr> <tr><td>11</td><td><del>12</del></td><td>13</td><td><del>14</del></td><td><del>15</del></td><td><del>16</del></td><td>17</td><td><del>18</del></td><td>19</td><td><del>20</del></td></tr> <tr><td><del>21</del></td><td><del>22</del></td><td>23</td><td><del>24</del></td><td><del>25</del></td><td><del>26</del></td><td><del>27</del></td><td><del>28</del></td><td>29</td><td><del>30</del></td></tr> <tr><td>31</td><td><del>32</del></td><td><del>33</del></td><td><del>34</del></td><td><del>35</del></td><td><del>36</del></td><td>37</td><td><del>38</del></td><td><del>39</del></td><td><del>40</del></td></tr> <tr><td>41</td><td><del>42</del></td><td>43</td><td><del>44</del></td><td><del>45</del></td><td><del>46</del></td><td>47</td><td><del>48</del></td><td><del>49</del></td><td><del>50</del></td></tr> <tr><td><del>51</del></td><td><del>52</del></td><td>53</td><td><del>54</del></td><td><del>55</del></td><td><del>56</del></td><td><del>57</del></td><td><del>58</del></td><td>59</td><td><del>60</del></td></tr> <tr><td>61</td><td><del>62</del></td><td><del>63</del></td><td><del>64</del></td><td><del>65</del></td><td><del>66</del></td><td>67</td><td><del>68</del></td><td><del>69</del></td><td><del>70</del></td></tr> <tr><td>71</td><td><del>72</del></td><td>73</td><td><del>74</del></td><td><del>75</del></td><td><del>76</del></td><td><del>77</del></td><td><del>78</del></td><td>79</td><td><del>80</del></td></tr> <tr><td><del>81</del></td><td><del>82</del></td><td>83</td><td><del>84</del></td><td><del>85</del></td><td><del>86</del></td><td><del>87</del></td><td><del>88</del></td><td>89</td><td><del>90</del></td></tr> <tr><td><del>91</del></td><td><del>92</del></td><td><del>93</del></td><td><del>94</del></td><td><del>95</del></td><td><del>96</del></td><td>97</td><td><del>98</del></td><td><del>99</del></td><td><del>100</del></td></tr> </table>	<del>1</del>	2	3	<del>4</del>	5	<del>6</del>	7	<del>8</del>	<del>9</del>	<del>10</del>	11	<del>12</del>	13	<del>14</del>	<del>15</del>	<del>16</del>	17	<del>18</del>	19	<del>20</del>	<del>21</del>	<del>22</del>	23	<del>24</del>	<del>25</del>	<del>26</del>	<del>27</del>	<del>28</del>	29	<del>30</del>	31	<del>32</del>	<del>33</del>	<del>34</del>	<del>35</del>	<del>36</del>	37	<del>38</del>	<del>39</del>	<del>40</del>	41	<del>42</del>	43	<del>44</del>	<del>45</del>	<del>46</del>	47	<del>48</del>	<del>49</del>	<del>50</del>	<del>51</del>	<del>52</del>	53	<del>54</del>	<del>55</del>	<del>56</del>	<del>57</del>	<del>58</del>	59	<del>60</del>	61	<del>62</del>	<del>63</del>	<del>64</del>	<del>65</del>	<del>66</del>	67	<del>68</del>	<del>69</del>	<del>70</del>	71	<del>72</del>	73	<del>74</del>	<del>75</del>	<del>76</del>	<del>77</del>	<del>78</del>	79	<del>80</del>	<del>81</del>	<del>82</del>	83	<del>84</del>	<del>85</del>	<del>86</del>	<del>87</del>	<del>88</del>	89	<del>90</del>	<del>91</del>	<del>92</del>	<del>93</del>	<del>94</del>	<del>95</del>	<del>96</del>	97	<del>98</del>	<del>99</del>	<del>100</del>
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similar		<p>2D shapes that are identical in every way except for size.</p> <p>Example: <a href="#">similar triangles</a></p> 																																																																																																				
simple random sample		<p>When data is collected from an experiment without bias.</p> 																																																																																																				
spreadsheet		<p>A computer application that shows worksheets in columns and rows.</p>																																																																																																				

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3	<b>Date</b>	<b>Start time</b>	<b>End time</b>	<b>Pause</b>	<b>Sum</b>	<b>Comment</b>
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						
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square number

In order to square a number, multiply it by itself.



square root

Of a number, when multiplied by itself will give the first number.



$$\sqrt{16} = 4, 4 \times 4 = 16; \quad 11 = \sqrt{11} \times \sqrt{11}$$

statistics

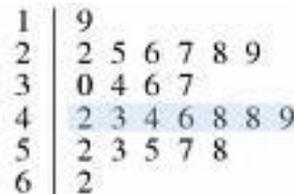
The study of information which is collected as data.

PROBABILITY TABLE OF NUMBERS FROM 1000 TO 10000

Year	Mean	Std. Dev.	Skewness	Kurtosis	Max.	Min.	Range	Sum	Count
10000	5000	2236	0	3	10000	0	10000	10000	1
10001	5000	2236	0	3	10001	0	10001	10001	1
10002	5000	2236	0	3	10002	0	10002	10002	1
10003	5000	2236	0	3	10003	0	10003	10003	1
10004	5000	2236	0	3	10004	0	10004	10004	1
10005	5000	2236	0	3	10005	0	10005	10005	1
10006	5000	2236	0	3	10006	0	10006	10006	1
10007	5000	2236	0	3	10007	0	10007	10007	1
10008	5000	2236	0	3	10008	0	10008	10008	1
10009	5000	2236	0	3	10009	0	10009	10009	1
10010	5000	2236	0	3	10010	0	10010	10010	1
10011	5000	2236	0	3	10011	0	10011	10011	1
10012	5000	2236	0	3	10012	0	10012	10012	1
10013	5000	2236	0	3	10013	0	10013	10013	1
10014	5000	2236	0	3	10014	0	10014	10014	1
10015	5000	2236	0	3	10015	0	10015	10015	1
10016	5000	2236	0	3	10016	0	10016	10016	1
10017	5000	2236	0	3	10017	0	10017	10017	1
10018	5000	2236	0	3	10018	0	10018	10018	1
10019	5000	2236	0	3	10019	0	10019	10019	1
10020	5000	2236	0	3	10020	0	10020	10020	1

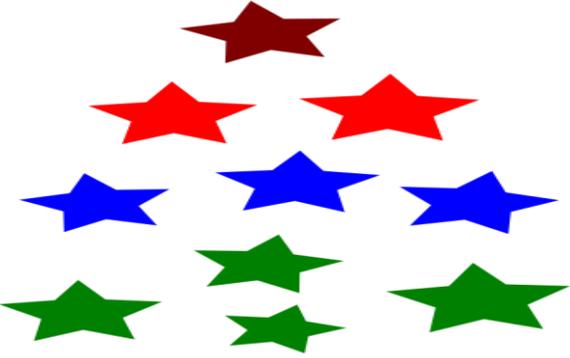
stem and leaf plot

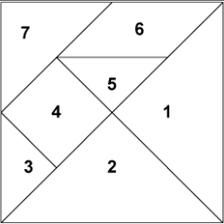
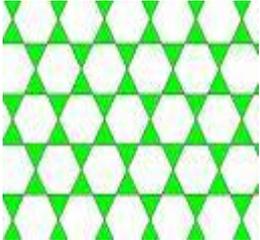
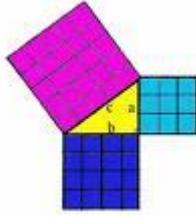
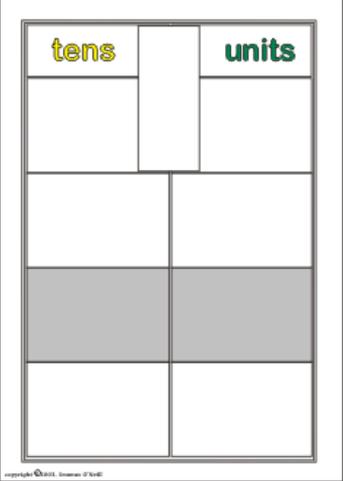
This is a diagram used to represent data.

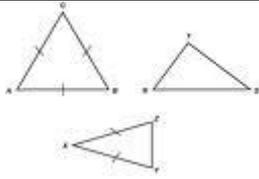
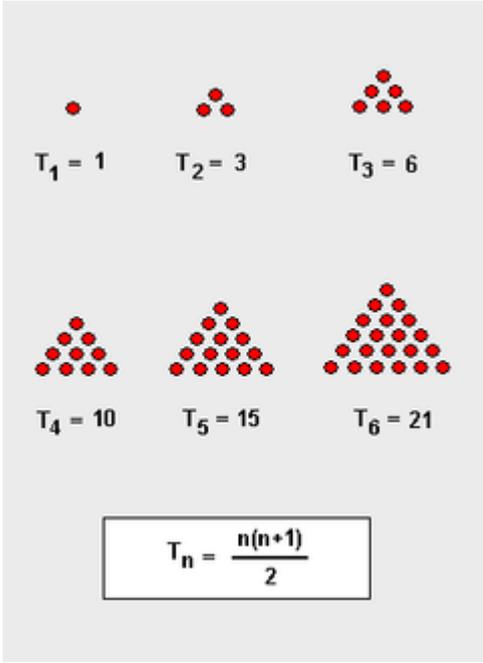
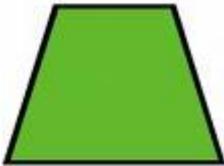
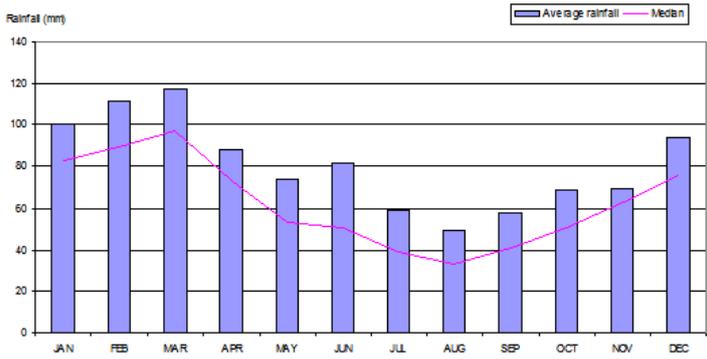


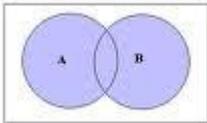
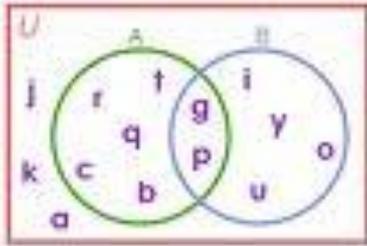
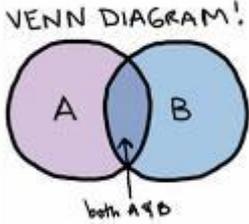
subitise

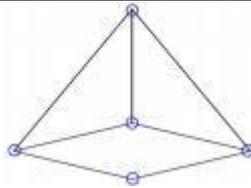
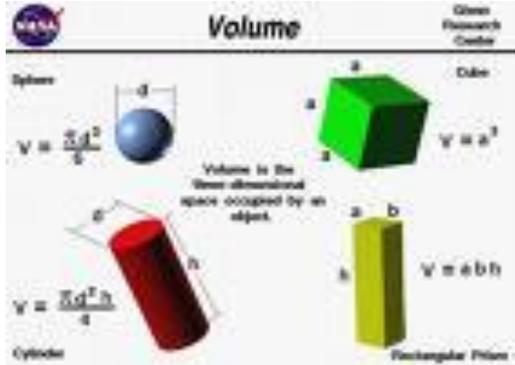
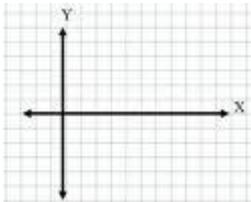
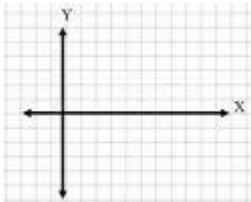
Tell at a glance, without counting, the number of items in a set.

		
	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> 
<b>T</b>	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: <a href="#">The theorem of Pythagoras</a></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>

																																								
<p>triangular numbers</p>	<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="742 497 1225 1160" style="border: 1px solid gray; padding: 10px; text-align: center;">  </div>																																							
<p>trapezium</p>	<p>This is a four-sided figure with one set of parallel sides.</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>																																							
<p>trend graph</p>	<p>Represents the general movement in the course of time of a statistically detectable change.</p> <div data-bbox="593 1590 1375 2033" style="border: 1px solid black; padding: 10px;"> <p style="text-align: center;"><b>Average Monthly Rainfall Paterson-Tocal 1902-2006</b></p>  <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <caption>Estimated data from the Average Monthly Rainfall graph</caption> <thead> <tr> <th>Month</th> <th>Average Rainfall (mm)</th> <th>Median (mm)</th> </tr> </thead> <tbody> <tr><td>JAN</td><td>100</td><td>80</td></tr> <tr><td>FEB</td><td>110</td><td>95</td></tr> <tr><td>MAR</td><td>118</td><td>95</td></tr> <tr><td>APR</td><td>88</td><td>60</td></tr> <tr><td>MAY</td><td>75</td><td>55</td></tr> <tr><td>JUN</td><td>82</td><td>50</td></tr> <tr><td>JUL</td><td>60</td><td>40</td></tr> <tr><td>AUG</td><td>50</td><td>35</td></tr> <tr><td>SEP</td><td>58</td><td>40</td></tr> <tr><td>OCT</td><td>68</td><td>50</td></tr> <tr><td>NOV</td><td>70</td><td>65</td></tr> <tr><td>DEC</td><td>92</td><td>75</td></tr> </tbody> </table> </div>	Month	Average Rainfall (mm)	Median (mm)	JAN	100	80	FEB	110	95	MAR	118	95	APR	88	60	MAY	75	55	JUN	82	50	JUL	60	40	AUG	50	35	SEP	58	40	OCT	68	50	NOV	70	65	DEC	92	75
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	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>		