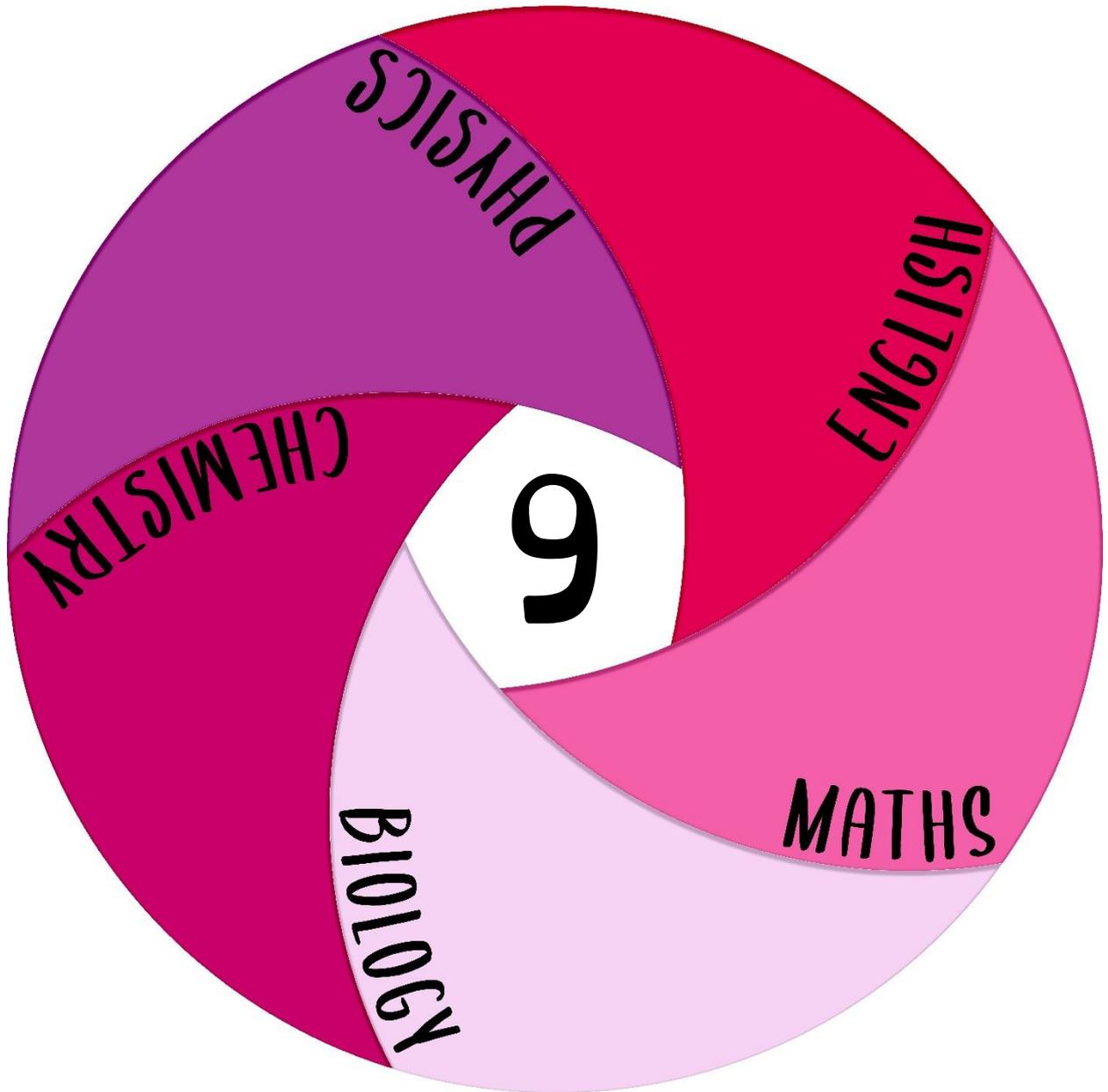


Name: \_\_\_\_\_

Tutor: \_\_\_\_\_

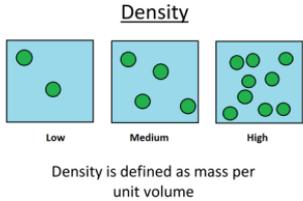
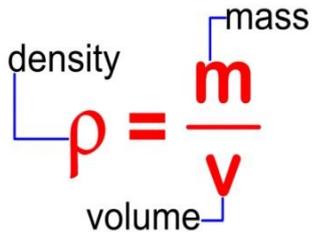
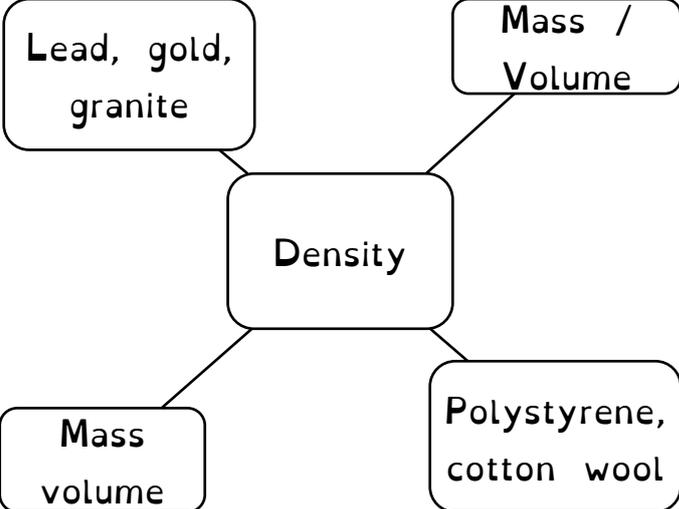
Tutor Group: \_\_\_\_\_





# VOCABULARY ACTIVITIES

## "Density"

Define	Draw	In a sentence	Symbol
Density - the mass of matter per unit volume		Iron has a higher density than wood.	
Antonyms	Synonyms	Etymology	Simile
Dispersion Lightness	Concentration Compactness Tightness	From the Latin word 'densus' meaning 'thick' or 'dense'	As dense as marble
Play:	Draw a Word Map	Gesture	
Ideas include: Pictionary Taboo Charades 20 questions			

# ENGLISH

Key Word	Meaning or Example in a Sentence
<b>Sentence Making</b>	
Adjectives	
Noun	
Adverb	
Verb	
Pronoun	
Passive	
Active	
Clause	
Subordinate	
Complex	
Simple	
Compound	
Dialogue	
Speech	

# ENGLISH

Key Word	Meaning or Example in a Sentence
Subject	
Object	
Exclamation	
Statement	
Paragraph	
Exclamation	
Comma	
Colon	
Semi-colon	
Question mark	

## Language Techniques

Alliteration	
Imagery	
Simile	
Metaphor	
Onomatopoeia	

# ENGLISH

Key Word	Meaning or Example in a Sentence
Personification	
Repetition	
Sibilance	
Language	
Superlative	
Hyperbole	
Comparison	
Comparative	

## Connectives

Because	
Unless	
Even though	
Hence / so	
Consequently	
Therefore	
Similarly	

# ENGLISH

Key Word	Meaning or Example in a Sentence
In contrast	
Nevertheless	
However	

# ENGLISH

<b>Persuasive Language</b>	<b>PEA Language</b>	<b>Language for Literature</b>	<b>Language for Non-Fiction and Media</b>	<b>Word Pairs and Better Choices - Some Ideas</b>
Fact	Describe	Character	Article	Nice / amazing
Statistics	Description	Protagonist	Headline	Fast / rapid
Opinion	Descriptive	Antagonist	Reporter	Nasty / cruel
Argue	Concise	Stanza	Report	Big / enormous
Dispute	emotive	Chapter	Journalist	Small / minute
Persuade	Sense / senses	Plot	Journalism	Slow / dawdling
Indicate	Demonstrates	Timeline	Diary	Pretty / gorgeous
Illustrate	Conveys	Past	Quote	Ugly / unattractive
Percentage	Suggest (s)	Future	Subheading	Short / petite
Legal	Compare (s)	Perspective	Heading	Tall / lanky
Influence	Contrast (s)	1st person	Interview	Happy / ecstatic
Affect	Implies	3rd person	Example	Sad / miserable
Convince	Proves	2nd person	Opinion	Clever / academic

# ENGLISH

<b>Persuasive Language</b>	<b>PEA Language</b>	<b>Language for Literature</b>	<b>Language for Non-Fiction and Media</b>	<b>Word Pairs and Better Choices - Some Ideas</b>
Prove	Indicates	Setting	Advertisement	Sporty / athletic
Disprove	Shows	Reader	The press	Gentle / sympathetic
Perspective	Influences	Narrator	Tabloid	Rough / abrasive
Emotive language	Compels	Theme	Broadsheet	Cruel / sadistic
Research	Directs	Poet	Feature	Kind / empathetic
Contradict	Instructs	Limerick	Glossy	Good at speaking / articulate
Support	Forces	Sonnet	Editor	Polite / respectful
Correct	Encourages	Haiku	Editorial	Loud / disruptive
Incorrect	Explore	Novella	Unbiased	
Accurate	Interpret	Novel	Caption	
Certain	Understand	Rhythm	Illustration	
Confident	Sympathetic	Rhyme	Photograph	
Absolutely	Empathise	Structure	Title	
Surely	Experience	Text		
Clearly	Share	Extract		
Strongly	Expand	Gothic		

# ENGLISH

<b>Persuasive Language</b>	<b>PEA Language</b>	<b>Language for Literature</b>	<b>Language for Non-Fiction and Media</b>	<b>Word Pairs and Better Choices - Some Ideas</b>
Atrocious	Develop	Romance		
Confusing	Explain	Dystopia / Utopia		
Harmful	Order	Historical		
Inferior	Instruct (s)	Contemporary		
Debate	Infer	Poetic		
Outrageous	Hinders	Literary		
Shocking	Prevents	Adventure		
Shameful	Effective	Mystery		
Offensive		Horror		
Unstable		Science-fiction		
Severe		Fantasy		
		Mythology		
		Fairy-tale		
		Biography		
		Autobiography		

# MATHS

Key Word	Definition
<b>Topic 1</b>	
Dodecagon	Polygon with 12 sides
Evaluate	Evaluate means work out
Power or Index	The '2' in $3^2$ is called the power or index.
Product	A product is the result of a multiplication. e.g. the product of 3 and 4 is 12.
Square root	A square root can be both positive and negative $\sqrt{25}$ is 5 and -5. This is because $5 \times 5$ and $-5 \times -5$ both give 25.
<b>Topic 2</b>	
Expression	1 or more terms, no equals sign. For example: $4a$ $5 - 8pw$ $3(w - t) + 8w$ are all expressions
Integer	A whole number. It can be positive, negative or 0.
<i>n</i> th term rule	You can use algebra to write the position-to-term rule. It is called the <i>n</i> th term because it tells you how to work out the term at position <i>n</i> (any position).
Substitute	replace

# MATHS

Key Word	Definition
<b>Topic 3</b>	
<b>Average</b>	The average of a set of data gives a typical value for the data. The mode, median and mean are different ways of describing the average of a set of data.
<b>Biased</b>	Biased means it is more likely for one outcome to happen than the other(s).
<b>Census</b>	Data collected from the whole population.
<b>Class</b>	Data is sometimes organised into classes (groups) or class intervals.
<b>Continuous Data</b>	Continuous data can be measured. It can take any value. You can use groups/classes like $0 \leq t < 10, 10 \leq t < 20, 20 \leq t < 30, \dots$ There are no gaps.
<b>Discrete Data</b>	Discrete data can be counted. It can only take specific values.
<b>Discrete Data</b>	You can use groups like <b>1 – 10, 11 – 20, 21 – 30, ...</b> Bar charts of discrete data <b>must</b> have gaps between the bars.
<b>Hypothesis</b>	A hypothesis is a statement you can test by collecting data.
<b>Mean</b>	The mean of a set of values is the total of the set of values divided by the number of values.
<b>Median</b>	The median is the middle value when the data is put in size order.

# MATHS

Key Word	Definition
Modal class	The modal class is the class/group with the highest frequency.
Mode or Modal value	The mode is the most common value.
Outlier	An outlier is a value that does not follow the trend or pattern of the rest of the data.
Population	The total number of items your survey relates to is called the population.
Primary data	Data you collect yourself.
Random	Everyone in the group has an equal chance of being picked.
Range	The range is the difference between the smallest and largest value. The larger the range the more spread out the data is. A smaller range means the data is more consistent.
Sample	Sometimes you can't survey every single item of data, so you collect a sample. A good-sized sample is between 10 and 20% of the population.
Scatter graph	A scatter graph shows two sets of data on the same graph. The shape of a scatter graph shows if there is a relationship between the two sets of data.
Secondary data	Data collected by someone else.

## Topic 4

Inverse	Opposite or backwards. These are all inverses: Doubling ( $\times 2$ ) and Halving ( $\div 2$ )
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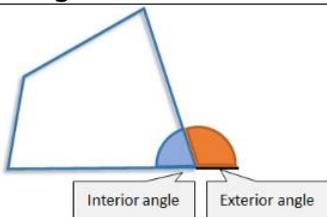
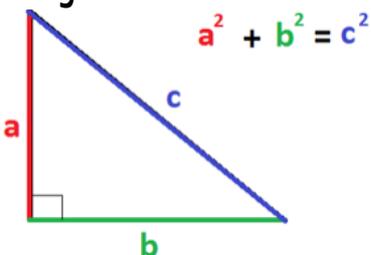
# MATHS

Key Word	Definition
	<p>Multiplying (<math>\times</math>) and Dividing (<math>\div</math>)</p> <p>Adding (<math>+</math>) and Subtracting (<math>-</math>)</p> <p>Squaring (<math>x^2</math>) and Square Rooting (<math>\sqrt{x}</math>)</p>
Reciprocal	<p>The reciprocal of a fraction is the inverse of the fraction.</p> <p>For example:</p> <p><math>\frac{1}{2}</math> is the reciprocal of 2.</p> <p><math>\frac{4}{5}</math> is the reciprocal of <math>\frac{5}{4}</math>.</p> <p><math>2\frac{1}{2}</math> is the reciprocal of <math>\frac{2}{5}</math>.</p> <p>Multiplying by 2 is inverted by multiplying by <math>\frac{1}{2}</math>.</p>
Recurring	<p>In a recurring decimal, a dot over the beginning and end of the sequences shows it recurs (repeats infinitely).</p> <p>0.4 means 0.44444...</p> <p>0.5426 means 0.542654265426...</p>
VAT	<p>VAT stands for 'value added tax'. It is a tax you pay on most purchases.</p>

## Topic 5

Accurate drawings	<p>Accurate drawings are drawn to scale, with accurate angles. Use a ruler and protractor to make accurate drawings.</p>
Angle bisector	<p>An angle bisector cuts the angle exactly in half. You use a compass to construct this.</p>
Angles in parallel lines	<p>Alternate Angles Corresponding Angles Co-interior Angles</p>

# MATHS

Key Word	Definition
Bisect	Means 'cut in half'.
Construct	Means to draw accurately using a ruler and compasses.
Dimensions	Dimensions is another way of saying lengths or widths
Elevations	The front and side view of a 3D shape. They look 2D.
Hypotenuse	The hypotenuse of a right-angled triangle is the longest side and is opposite the right angle.
Interior and exterior angles	
Perpendicular	Means 'at right angles'.
Perpendicular bisector	A perpendicular bisector is the line that cuts another line or space in half at right angles. You use a compass to construct this.
Plan view	The 'birds eye view' of a 3D shape.
Pythagoras' theorem	<p>Pythagoras' theorem shows the relationship between the lengths of the 3 sides of a right-angled triangle.</p> 
Regular polygon	A regular polygon is a straight-sided closed shape with all sides and all angles equal.

# MATHS

Key Word	Definition
Scale	The scale shows the ratio of the measurements on the drawing to the measurements in real life. $1 : 40$ means for every 1 cm on the drawing, there are 40 cm in real life.
Sketch	A sketch is a simple useful drawing. It does not have to be drawn to scale.

## Topic 6

Distance-time graph	In a distance-time graph, the vertical axis represents the distance from the starting point. The horizontal axis represents the time taken.
Gradient	The steepness of a graph is called the gradient.
Line segment	A straight line between two points is called a line segment. It has a definite beginning and end point.
Midpoint	The midpoint of a line segment is a point exactly in the middle.
y - intercept	The y-intercept of a line is where it crosses the y axis.

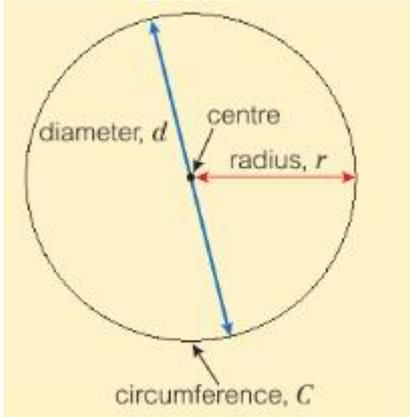
## Topic 7

Area units	$1m^2 = 10000cm^2$ $1cm^2 = 100mm^2$
Direct proportion	When two quantities are in direct proportion, as one increases or decreases, the other increases or decreases at the same rate. Two quantities in direct proportion have a straight-line graph through zero.
Further measures	$1 \text{ tonne} = 1,000 \text{ kg}$ $1 \text{ hectare (ha)} = 10,000 \text{ cm}^2$

# MATHS

Key Word	Definition
	<p>1 litre = 1,000 ml</p> <p>1 litre = 1,000 cm<sup>3</sup></p>
Imperial unit conversions	<p>1 foot = 30 cm</p> <p>1 mile = 1.6 km</p> <p>1 kg = 2.2 pounds</p> <p>1 litre = 1.75 pints</p> <p>1 gallon = 4.5 litres</p> <p>1 inch = 2.5 cm</p>
Inverse proportion	When two quantities are in inverse proportion, as one increases the other decreases at the same rate.
Proportion	A proportion compares a part with a whole. You can write proportion as a fraction, a decimal or a percentage.
Unitary method	In the unitary method you find the value of one item before finding the value of more.

## Topic 8

Area	<p>Area is the space a 2D shape occupies.</p> <p>The units used for area are square units such as <math>cm^2</math> which you read as 'square centimetres'</p>	
Circle		
Circumference	The perimeter of the circle.	 <p>The diagram shows a circle with a center point. A blue line segment passes through the center from one side of the circle to the other, labeled 'diameter, d'. A red line segment extends from the center to the edge of the circle, labeled 'radius, r'. An arrow points to the outer edge of the circle, labeled 'circumference, C'.</p>
Diameter	<p>The length across the circle, passing through the centre.</p> <p>It is double the radius.</p>	
Radius	The length from the centre to the outside.	

# MATHS

Key Word	Definition
Compound shape	You can split a compound shape up into other shapes to work out the area.
Congruent	<p>Shapes are congruent if they are the same shape and size.</p> <p>For example, these shapes are congruent:</p>  <p>In congruent shapes, corresponding sides and corresponding angles are equal.</p>
Formula	You can use a formula to work out an unknown value by substituting the value that you do know into the formula.
Formula	You can use a formula to work out an unknown value by substituting the value that you do know into the formula.
Substitute	Means 'replace'.

## Topic 9

Experimental probability	<p>You can estimate the probability of an event using the results of an experiment.</p> <p>This is called finding the experimental probability.</p> <p>Experimental probability = <math>\frac{\text{frequency of event}}{\text{total frequency}}</math></p>
Independent	Two events are independent if one happening does not affect the probability of the other.
Mutually exclusive	<p>Two events are mutually exclusive if they cannot happen at the same time.</p> <p>The temperature outside being 30 degrees and it also snowing are mutually exclusive events.</p>

# MATHS

Key Word	Definition
Sample space diagram	A sample space diagram shows all the possible outcomes of two events.
Theoretical probability	The theoretical probability of an event is the probability of an event happening based on the number of outcomes.
Tree diagram	A tree diagram shows two or more events and their probabilities.

## Topic 10

Diagonal	A diagonal is a line joining two opposite vertices (corners)
Enlargement	<p>An enlargement is a type of transformation. You multiply all the side lengths of a shape by the same number.</p> <p>The number that the side lengths are multiplied by is called the <b>scale factor</b>.</p>
Equilateral	A triangle with all sides and angles equal.
Isosceles	A triangle with 2 lengths and 2 angles the same
Object and image	The original shape is called the object. The enlarged shape is called the image
Parallelogram	A parallelogram has two pairs of parallel sides. Rhombus, square and rectangle are all types of parallelogram.
Quadrilateral	Square, rectangle, rhombus, kite, parallelogram and trapezium are all types of quadrilateral.
Similar	Enlargement produces similar shapes. The angles and proportions are the same.

# BIOLOGY

Key Word	Definition
<b>Reproduction</b>	
Alleles	Different forms of the same gene sometimes referred to as variants
Asexual reproduction	Involves only one individual and the offspring is identical to the parent. There is no fusion of gametes or mixing of genetic information.
Bases (DNA)	nitrogenous compounds that make up part of the structure of DNA and RNA. They are represented by the letters A, T, C, and G.
Carriers	individuals who are heterozygous for a recessive allele linked to a genetic disorder. Carriers have one healthy allele so are not affected themselves, but they can pass on the affected allele to their offspring
Cystic Fibrosis	an inherited disorder that affects the lungs, digestive, and reproductive system and is inherited through a recessive allele.
Dominant Allele	the phenotype will be apparent in the offspring even if only one of the alleles is inherited.
Genetic Engineering	the process by which scientists can manipulate and change the genotype of an organism.
Genotype	the genetic makeup of an individual for a particular characteristic, for example hair or eye colour
Heterozygote	individual with different alleles for a characteristic
Homozygote	individual with two identical alleles for a characteristic

# BIOLOGY

Key Word	Definition
Meiosis	two stage process of cell division that reduces the chromosome number of daughter cells. It is involved in making gametes for sexual reproduction
Mutation	a change in the genetic material of an organism
Natural Selection	the process by which evolution takes place. Organisms produce more offspring than the environment can support. Only those that are most suited to their environment will survive to breed and pass on their useful characteristics to their offspring
Nucleotide	a molecule made up of a sugar, a phosphate group, and one of four different bases. They are key units in the structure of DNA and RNA
Phenotype	the physical appearance / biochemistry of an individual for a particular characteristic
Polydactyly	a dominant inherited disorder that results in babies born with extra fingers and/or toes
Punnett Square Diagram	a way of modelling a genetic cross and predicting the outcome using probability
Recessive	a phenotype that will only show up in the offspring if both of the alleles coding for that characteristic are inherited
Sex Chromosomes	carry the information that determines the sex of an individual
Sexual Reproduction	involves the joining (fusion) of male and female gametes producing genetic variation in the offspring

# CHEMISTRY

Key Word	Definition
<b>Building for the Future</b>	
<b>Acid</b>	a substance with a pH between 1 and 6, e.g. lemon juice
<b>Acid rain</b>	rain which is more acidic than normal rain due to polluting gases such as sulphur dioxide.
<b>Alloy</b>	a mixture of metals, or a metal and carbon
<b>Base</b>	a substance with a pH between 8 and 12, eg. copper oxide
<b>Chemical weathering</b>	when rocks are worn away due to chemical reactions with acid rain
<b>Compound</b>	when elements are chemically joined together
<b>Deposited</b>	when the rock that has been worn away, gets carried by wind or water and then gets left behind
<b>Element</b>	a substance that can't be split into anything simpler by chemical reactions. The periodic table contains all of the elements.
<b>Eroded</b>	rock which has been worn away
<b>Metals</b>	elements that are shiny and conduct electricity and heat. Usually have high melting and boiling points
<b>Mixture</b>	a substance containing two or more elements that are not chemically joined
<b>Neutralisation equation</b>	a reaction between an acid and a base which makes a solution of pH 7. A salt and water are produced.

# CHEMISTRY

Key Word	Definition
Physical weathering	when rocks are worn away by physical processes like temperature
Properties	words to describe how a material behaves and what it's like, e.g. strong
Rust	iron oxide. A flaky red compound formed when iron reacts with oxygen
Salt	formed when an acid and base react. Many salts are chlorides, sulphates or nitrates
Semi-metals	an element that has some metallic and non-metallic properties
Sustainable	an action that allows things to continue in the future

## Sculpture Park

Corrode	when a substance wears away because it has reacted with a substance such as an acid
Displacement reaction	a reaction where one element takes the place of another compound
Galvanising	coating a metal (usually iron or steel) with zinc, to protect it from corrosion
Oxidised	when a substance reacts with oxygen to form an oxide
Plating	coating a metal with a thin layer of another metal
Reactive	a substance that reacts with many other substances, or reacts very easily
Reactivity Series	a list of metals which shows them in order of their reactivity, with the most reactive at the top

# CHEMISTRY

Key Word	Definition
<b>Sacrificial Protection</b>	attaching a more reactive metal to a metal that you wish to protect the more reactive metal corrodes first
<b>Tarnish</b>	when a shiny metal gets a dull coating due to the reaction with oxygen
<b>Universal Indicator</b>	a liquid that will turn a different colour when mixed with a substance. It will tell you how weak or strong the acid or alkali is
<b>Unreactive</b>	a substance that does not react

# PHYSICS

Key Word	Definition
<b>Satellites and Space</b>	
Artificial Satellite	a satellite made by humans
Electromagnetic Spectrum	a family of waves that includes light, infrared, microwaves and radio waves
Elliptical	oval shaped. The shape of a planets orbit around the sun
Galaxy	millions of stars grouped together, e.g. The Milky Way
Light Year	the distance light can travel in one year
Mass	the amount of matter something is made of. Measured in kilograms (kg) Mass stays the same, regardless of what planet you are on.
Newtons	the unit of force (N)
Orbit	the path an object takes as it travels around something
Planet	a large object orbiting the sun, e.g. the Earth
Satellite	anything that orbits a planet or moon
Solar System	a star with planets and other objects orbiting it
Star	a huge ball of gas that gives out light and heat energy

# PHYSICS

Key Word	Definition
Universe	all the galaxies and the space between them. Everything!
Weight	the amount of force with which gravity pulls you down. Measured in Newtons. Weight can change if you are on a different planet

## Under Pressure!

Compress	squeeze together
Dam	a wall built to hold back water
Equilibrium	when an object is balanced, so clockwise moment equals anticlockwise moments. It will remain stationary or rotate at a constant speed
Fluid	a liquid or gas
Hydraulic System	a system that works by transmitting pressure through pipes containing a liquid
Hydroelectricity	electricity generated by falling water turning turbines and generators
Moment	the turning effect of a force. Measured in Newton metres (Nm)
Pascal	unit of pressure (Pa)
Pivot	a point about which something turns. Sometimes called a fulcrum
Pressure	the force on a certain area. Measured in Pascals (Pa) or Newtons per square metre ( $\text{N/m}^2$ )



