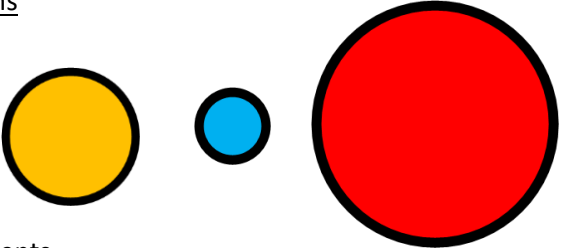
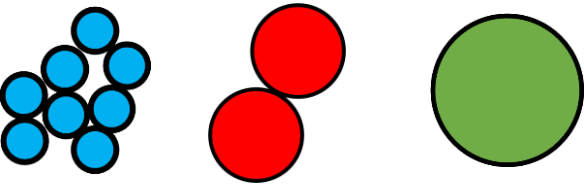
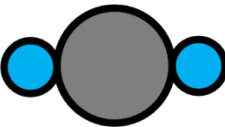
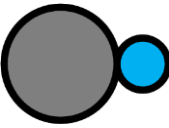
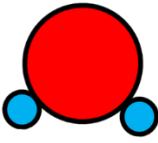
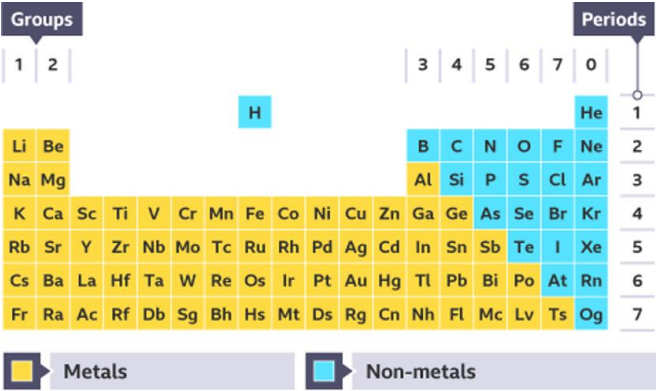


<p style="text-align: center;">Lesson 1 Atoms & Elements</p>	<p style="text-align: center;">Lesson 2 Compounds & Making Compounds</p>	<p style="text-align: center;">Lesson 3 Formula</p>
<p>An atom is the smallest particle of an element.</p> <p>An element is a pure substance made from just one type of atom.</p> <p><u>Atoms</u></p>  <p><u>Elements</u></p>  <p><u>Element symbols</u></p> <p>Oxygen = O Sodium = Na Chlorine = Cl Carbon = C Sulfur = S Hydrogen = H Iron = Fe</p>	<p>A compound is a pure substance that is made from more than one element.</p> <p>In a compound, elements are chemically bonded together, which makes it very difficult to separate them.</p> <p>Compounds are not found on the periodic table. For example, water isn't on the periodic table because it is a compound, not an element.</p> <p>Elements in a compound have different properties to the pure elements on their own.</p> <p>Carbon Dioxide CO₂</p>  <p>Carbon Monoxide CO</p>  <p>Water H₂O</p> 	<p>sodium + chlorine → sodium chloride</p> <p>copper + sulfur → copper sulfide</p> <p>RULE: If two elements combine the product will end in 'ide'</p> <p>copper + sulfur + oxygen → copper sulfate</p> <p>RULE: If there are more than two elements and one is oxygen, the product will end in 'ate'</p> <p>When a compound is made, the atoms of the elements bond together in a fixed ratio. This means that each compound can be represented by a chemical formula.</p> <p>For example, the formula of water is H₂O and the formula of carbon dioxide is CO₂.</p> <p>CO₂ 1 atom of carbon bonds to 2 atoms of oxygen</p> <p>CO 1 atom of carbon bonds to 1 atom of oxygen</p> <p>NaCl 1 atom of sodium bonds to 1 atoms of chlorine</p> <p>CaCO₃ 1 atom of calcium bonds to 1 atoms of carbon and 3 atoms of oxygen</p>

<p style="text-align: center;">Lessons 4 Periodic Table & Development</p>	<p style="text-align: center;">Lesson 5 Group 1</p>	<p style="text-align: center;">Lesson 6 Group 7</p>
<p>There are 118 chemical elements. They are listed on the periodic table in a specific order.</p>  <p>Elements in vertical columns are known as groups.</p> <p>Horizontal rows are called periods.</p> <p>Our modern Periodic Table was developed by a Russian scientist called Dimitri Mendeleev</p>	<p>Group 1 are very reactive metals.</p> <p>They are called the Alkali metals.</p> <p>lithium - Li sodium - Na potassium - K rubidium - Rb caesium - Cs francium - Fr</p> <p>Physical properties are the features of a substance which can be observed without changing the substance itself.</p> <p>Examples:</p> <ul style="list-style-type: none"> • Melting point • Boiling point • Electrical conductivity <p>Going down the group melting and boiling point of the Alkali Metals decreases.</p> <p>Chemical properties are the features of the way a substance reacts with other substances.</p> <p>Elements in the same group have similar chemical properties.</p> <p>Going down the group the Alkali Metals become more reactive.</p>	<p>Group 7 are reactive non-metals.</p> <p>They are called the Halogens.</p> <p>fluorine - F chlorine - Cl bromine - Br iodine - I astatine – At</p> <p>Going down the group melting and boiling point of the Halogens increases.</p> <p>Displacement reaction - The more reactive element will displace a less reactive element from its compounds.</p> <p style="text-align: center;">fluorine + potassium chloride → potassium fluoride + chlorine</p> <p>chlorine is displaced because it is less reactive than fluorine</p> <p>Going down the group the Halogens become less reactive.</p>

<p style="text-align: center;">Lesson 7 Group 0</p>	<p style="text-align: center;">Lesson 8 Metals & Non-Metals</p>	<p style="text-align: center;">Lesson 9 Properties of Metals</p>
<p>Group 0 are unreactive gases.</p> <p>They are called the Noble gases.</p> <p>helium – He neon – Ne argon – Ar krypton – Kr xenon – Xe radon – Rn</p> <p>Going down the group melting and boiling point of the Noble gases increases.</p> <p>Noble gases are unreactive because they have a full outer shell of electrons.</p> <p>helium is used in balloons as it is less dense than air.</p> <p>neon is used in advertising lights.</p> <p>argon and krypton are used in double glazed windows.</p>	<p>The majority of elements are metals and they are found on the left and in the middle of the periodic table.</p> <p>Most metals share a lot of properties:</p> <ul style="list-style-type: none"> • They have high melting and boiling points meaning they are solid at room temperature • They are good conductors of heat and electricity • They are shiny in their appearance • They are malleable <p>Other common properties of metals are:</p> <ul style="list-style-type: none"> • They are hard and strong • Have a high density • They are sonorous <p>Conductor: A material which allows heat or electricity to move easily through it.</p> <p>Malleable: Capable of being hammered or pressed into a new shape without breaking</p> <p>Sonorous: Able to make a ringing sound when hit.</p> <p>Non-metals have properties in common with each other.</p> <ul style="list-style-type: none"> • Poor conductors of heat and electricity • Dull in their appearance • Weak and brittle <p>Some other common properties of non-metals are:</p> <ul style="list-style-type: none"> • Generally low melting and boiling points, meaning they are gases and liquids at room temperature • Not sonorous <p>Brittle: Something which is brittle is easily broken or shattered.</p> <p>An element doesn't have to have every property of metals for you to classify it as a metal! As long as it has most metal properties, you can be confident that it is a metal.</p>	