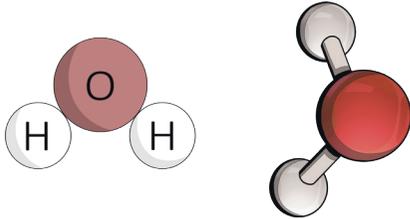
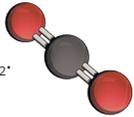
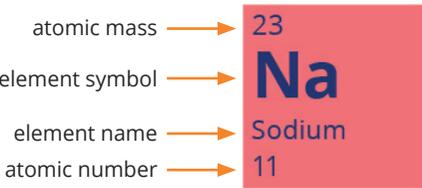
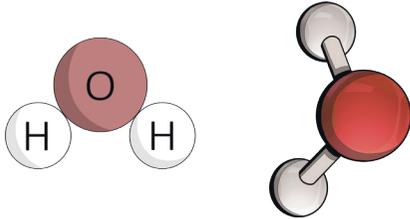
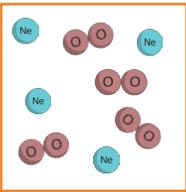
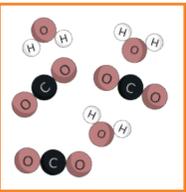
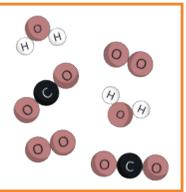


Atoms and the Periodic Table Knowledge Organiser

Key Words		Elements	Compounds	Compound Formulae	
atom	The smallest part of an element that can exist.	An element is a substance that cannot be broken down into other substances. The smallest part of an element that can exist is an atom.	A compound is a substance made when two or more elements are chemically bonded together.	The formula of a compound tells you:	
bond	An attraction between atoms or molecules that enables the formation of chemical compounds.	Each element is represented by a symbol. The first letter of the symbol is always capitalised, any following letters are lower case.	A compound can be represented by a diagram. The atoms are shown touching each other or joined by a stick that represents a bond.	<ul style="list-style-type: none"> which elements the compound is made from. how many atoms of each element there are. 	
chemical formula	A series of chemical symbols showing the number of atoms of each element in a compound.	The symbols for the elements are arranged on the periodic table.			
chemical reaction	A process that involves rearrangement of atoms to produce new substances.			Carbon dioxide has the formula CO ₂ .	
chemical symbol	A letter or series of letters used to represent an element, e.g. C for carbon, Na for sodium.		Water is a compound made from one oxygen atom and two hydrogen atoms. Its formula is H ₂ O.	C is the symbol for carbon. There are no subscript numbers after the C, so we know there is only one atom of carbon in the compound.	
compound	A substance made up of two or more different elements chemically bonded together.			O is the symbol for oxygen. There is a subscript 2 after the O, so we know there are two atoms of oxygen in the compound.	
element	A substance made of only one type of atom.				
group	A column of the periodic table that contains elements with similar chemical properties.				
metal	An element or substance which is typically shiny, malleable and ductile. It typically conducts heat and electricity well.				
mixture	A substance consisting of two or more substances not chemically combined together.				
non-metal	An element or substance that is not a metal.				
period	A row on the periodic table.				
trend	The general direction in which a set of data changes, i.e. increasing or decreasing.				
		Mixtures	Compounds vs Mixtures		
		A mixture is a substance consisting of two or more substances not chemically combined together. You can have mixtures of elements, mixtures of compounds or mixtures containing both.			
		In a particle diagram of a mixture, not all of the molecules shown will be touching each other or be joined by sticks representing the bonds.			
					
					
					
		mixture of elements	mixture of compounds	mixture of elements and compounds	
			Compounds	Mixtures	
			The different elements are chemically joined together.	The different substances are not chemically joined together.	
			The substance has different properties to the elements it is made from.	Each substance keeps its own properties.	
			The elements can only be separated using chemical reactions.	Each substance can be separated easily using separating techniques like filtration, distillation, evaporation and chromatography.	
			You cannot vary the amount of each element. So, the compound water always has one oxygen atom and two hydrogen atoms per molecule.	You can vary the amount of each substance. So, you can add a teaspoon of salt to water, or a cup of salt to water, and it would still be a mixture of salt water.	



Atoms and the Periodic Table Knowledge Organiser

Key Words		The Periodic Table	Properties of Metals	Properties of Non-Metals						
boiling point	The temperature at which a substance changes from liquid to gas (evaporates). It is also the temperature at which a substance changes from gas to liquid (condenses).	<p>Elements are arranged into groups based on their properties. Those with similar properties are found in the same group.</p> <p>Metals are found on the left of the stepped line, and non-metals on the right. However, some elements, particularly those close to the line have properties of both.</p>	<ul style="list-style-type: none"> shiny good conductor of heat good conductor of electricity sonorous oxides form alkaline solutions high density malleable ductile 	<ul style="list-style-type: none"> dull poor conductor of heat poor conductor of electricity not sonorous oxides form acidic solutions low density brittle 						
brittle	Hard but easily broken.									
conduction	The transfer of heat or electricity through a material.									
density	The mass of a substance divided by its volume. The more dense a substance is, the heavier it feels for its size.									
displacement reaction	A reaction in which a more reactive substance displaces a less reactive substance.									
ductile	Can be stretched into wires.									
dull	Not shiny.									
magnetic material	A material that can be attracted by a magnet or made into a magnet.									
malleable	Can be hammered or pressed into different shapes.									
melting point	The temperature at which a substance changes from solid to liquid (melts). It is also the temperature at which a substance changes from liquid to solid (freezes).									
reactivity	A measure of how easily a substance reacts with another substance.		<table border="1"> <thead> <tr> <th colspan="2">Properties of Alkali Metals</th> <th>Properties of Halogens</th> <th>Properties of Noble Gases</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> solids at room temperature (melting and boiling points decrease moving down the group) very reactive (reactivity increases moving down the group) good conductors of heat and electricity soft shiny when cut low density </td> <td> <ul style="list-style-type: none"> some solids, a liquid and some gases at room temperature (melting and boiling points increase moving down the group) very reactive (reactivity decreases moving down the group) poor conductors of heat and electricity solids are brittle low density </td> <td> <ul style="list-style-type: none"> gases at room temperature (the melting and boiling points increase as you move down the group) unreactive (however reactivity increases slightly as you move down the group) poor conductors of heat and electricity low density </td> </tr> </tbody> </table>	Properties of Alkali Metals		Properties of Halogens	Properties of Noble Gases	<ul style="list-style-type: none"> solids at room temperature (melting and boiling points decrease moving down the group) very reactive (reactivity increases moving down the group) good conductors of heat and electricity soft shiny when cut low density 	<ul style="list-style-type: none"> some solids, a liquid and some gases at room temperature (melting and boiling points increase moving down the group) very reactive (reactivity decreases moving down the group) poor conductors of heat and electricity solids are brittle low density 	<ul style="list-style-type: none"> gases at room temperature (the melting and boiling points increase as you move down the group) unreactive (however reactivity increases slightly as you move down the group) poor conductors of heat and electricity low density
Properties of Alkali Metals				Properties of Halogens	Properties of Noble Gases					
<ul style="list-style-type: none"> solids at room temperature (melting and boiling points decrease moving down the group) very reactive (reactivity increases moving down the group) good conductors of heat and electricity soft shiny when cut low density 	<ul style="list-style-type: none"> some solids, a liquid and some gases at room temperature (melting and boiling points increase moving down the group) very reactive (reactivity decreases moving down the group) poor conductors of heat and electricity solids are brittle low density 			<ul style="list-style-type: none"> gases at room temperature (the melting and boiling points increase as you move down the group) unreactive (however reactivity increases slightly as you move down the group) poor conductors of heat and electricity low density 						
shiny	A surface which reflects light.									
sonorous	Makes a ringing sound when dropped.									
unreactive	A substance which does not react chemically.									