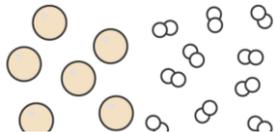
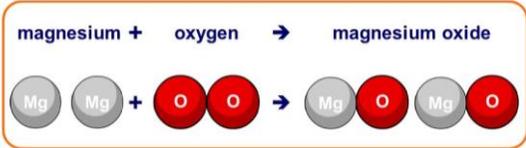
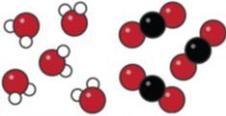


Year 7 Science Knowledge Organiser: C3 Chemical reactions 1

Unit overview: This unit explores the periodic table, chemical formula and chemical reactions. You will use your knowledge to predict reactions between particular substances and present these reactions using word and symbol equations.

Key content/ ideas/ concepts	Keywords/ Glossary
<p><u>Atoms:</u> Everything is made from atoms, including you. Atoms are tiny particles that are far too small to see, even with a microscope. To make diagrams simpler we often draw atoms as circles:</p> 	<p><u>Chemical and physical changes</u> Changes of state are physical changes not chemical changes. The change can be reversed in a physical change so the material recovers its original properties. This does not happen with a chemical change. In a chemical reaction atoms rearrange to make new substances.</p>
<p><u>Elements:</u> There are over a hundred different elements. The periodic table lists the element. The atoms in a particular element are the same as each other, and they are different from the atoms of all other elements. For example, lead and gold are elements. A piece of pure gold contains only gold atoms. A piece of pure lead contains only lead atoms.</p> 	<p><u>Word equations:</u></p> <p style="text-align: center;">REACTANTS → PRODUCTS</p> <p>Eg magnesium + oxygen → magnesium oxide</p> <div style="border: 1px solid orange; padding: 5px; margin: 10px auto; width: fit-content;"> <p style="text-align: center; margin: 0;">magnesium + oxygen → magnesium oxide</p>  </div>
<p><u>Compounds:</u> A compound is a substance that contains atoms of two or more different elements, and these atoms are chemically joined together. For example, water is a compound of hydrogen and oxygen. Each of its molecules contains two hydrogen atoms and one oxygen atom.</p> 	<p><u>Symbol equation:</u> $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$</p> <p><u>Conservation of mass:</u> The number of atoms in the reactants must equal the number of atoms in the products. Count the atoms in the equation above. What do you notice? This is why we write balanced symbol equations to represent chemical reactions.</p>
<p>Wider reading http://www.bbc.co.uk/schools/gcsebitesize/geograp/energy_resources/energy_rev1.shtml</p>	

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KNOW IT	GRASP IT	THINK IT
1. Write a definition of an atom.	1. Describe the various ways to identify that a chemical reaction has taken place.	1. Explain why endothermic reactions take in energy and reduce the temperature of the surroundings.
2. Write a definition of an element.	2. Explain why scientists use chemical symbols for elements.	2. Explain why exothermic reactions give out energy and increase the temperature of the surroundings.
3. Write a definition of compound.	3. Describe the temperature change during an exothermic reaction.	3. Explain the trends of the group 1 metals
4. Give four examples of physical changes.	4. Describe the temperature change during an endothermic reaction.	4. Explain the trends of the group 7 elements
5. Give four examples of chemical changes.	5. Write a word equation for the reaction between iron and oxygen.	5. Explain the difference between chemical and physical reactions
6. Identify what is meant by the term physical change	6. Describe the law of conservation of mass.	6. Explain the difference between reversible and irreversible reactions.
7. Identify what is meant by the term chemical change	7. Describe what happens to bonds during chemical reactions.	7. Explain the term activation energy.
8. Describe what a word equation is.	8. Write a symbol equation for a combustion reaction with methane.	8. Explain why Dimitri Mendeleev left gaps in his periodic table.
9. Describe what happens to atoms in a chemical reaction.	9. Write a symbol equation for a reaction between hydrogen and oxygen.	9. Write a guide on how to balance equations.
10. Describe where you can find the chemical symbol of an element.	10. Describe the changes you would see during the oxidation of iron.	10. Explain the differences between iron oxide and aluminium oxide.
Total score	Total score	Total score