



What’s the matter?







**LEARNING OUTCOMES S1 WHAT THE MATTER TOPIC**

**This is what you have learned during the topic. At the end of each part of the topic, you will be asked to ‘traffic light’ your own understanding of these outcomes.**

**States of matter** You should be able to:

* Name the three states of matter
* Know the melting point and boiling point for water
* Say how particles behave in solids, liquids and gases

Know the name for

* Solid changing into a liquid
* Liquid becoming a gas
* Gas becoming a liquid
* Liquid changing into a solid
* Say how the volumes changes when liquids change into gases
* Say how the volume of a gas changes when it is heated
* Say why skin feels cool when liquids evaporate from it

**Separation** You should:

* Understand the meaning of ‘soluble’ and ‘insoluble’.
* Know what a solvent is and why they are important in cleaning
* Understand the need for a fair test when planning experiments
* Know what happens to the solid and the liquid during filtration
* Know how the air hole should be when you light a bunsen burner
* Know why the bunsen should not be used on a yellow flame to heat apparatus
* Know what happens to the solid and the liquid during evaporation
* Describe how a liquid can be separated from a solution using distillation

**Review of learning: Write a comment in your jotter reviewing your progress in understanding the work, carrying out practical work and your science skills such as thinking, planning, report writing.**

**Simple Chemicals** You should be able to

* Give a meaning for ‘element’
* Know approximately how many elements there are
* Be able to identify an element from it’s symbol
* Know where the elements are listed
* Name the 2 liquid elements
* Know how to tell metals and non-metals apart using a simple experiment
* Describe some of the differences between metals and non-metals
* Name a group of reactive metals
* Name a group of reactive non-metals
* Name a group of unreactive non-metals

**Review of learning: Write a comment in your jotter reviewing your progress in understanding the work, carrying out practical work and your science skills such as thinking, planning, report writing.**

**Compounds and Mixtures**

* Understand what is meant by ‘compound’
* Understand why it is easy to separate mixtures but difficult to separate compounds
* Know what is meant by ‘word equation’
* Give the name of a compound if you know which elements are in it
* Identify the elements in a compound from its name
* Predict what elements will be produced by passing electricity through a 2 element compound (*electrolysis)*
* Give an example of how chemists are constantly creating new compounds to meet our needs

**Review of learning: Write a comment in your jotter reviewing your progress in understanding the work, carrying out practical work and your science skills such as thinking, planning, report writing.**

**Chemicals Summary**

**States of Matter**

* The three states of matter are \_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_
* Water has a melting point of \_\_\_\_\_\_\_\_ and a boiling point of \_\_\_\_\_\_\_\_
* ****Identify which box represents a solid, a liquid or a gas
* Write the words melting, condensation, evaporation and freezing on the correct arrows.

LIQUID

GAS

SOLID

**Separation**

* Chemicals that dissolve are said to be \_\_\_\_\_\_\_\_\_\_\_\_, those that do not dissolve are \_\_\_\_\_\_\_\_\_\_\_\_
* If sandy water is filtered, the \_\_\_\_\_\_\_\_\_ will stay in the filter paper and the \_\_\_\_\_\_\_\_\_\_\_ will pass through.
* The air hole of the bunsen burner should be \_\_\_\_\_\_\_\_\_\_ when you light it. The \_\_\_\_\_\_\_\_\_\_\_flame is used to heat apparatus as it is not sooty.
* If salty water is heated in an evaporating basin, the \_\_\_\_\_\_\_\_\_ will evaporate leaving the \_\_\_\_\_\_\_\_\_ behind.
* When inky water is distilled, the water \_\_\_\_\_\_\_\_\_\_\_\_\_ and turns into \_\_\_\_\_\_\_\_\_\_ which travels down the delivery tube and condenses.
* Whisky is produced in a distillery by distillation of alcohol from a more dilute \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of alcohol and water

 **Simple chemicals**

* Elements are chemicals that cannot be broken down into anything simpler because they are made of only one type of \_\_\_\_\_\_\_\_
* There are about \_\_\_\_\_\_\_\_ elements listed in the \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_
* Each element has a symbol e.g. Mg is \_\_\_\_\_\_\_\_\_\_\_\_ and S is \_\_\_\_\_\_\_\_\_\_\_\_
* There are only 2 liquid elements, \_\_\_\_\_\_\_\_\_\_\_ a liquid metal and \_\_\_\_\_\_\_\_\_\_\_ a liquid non-metal.
* Metals conduct \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ but non-metals do not. Metals are on the \_\_\_\_\_\_\_\_\_\_\_\_ hand side of the periodic table, non-metals are on the \_\_\_\_\_\_\_\_\_\_ hand side.
* The periodic table is organised into groups. The \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_ are very reactive metals and the \_\_\_\_\_\_\_\_\_\_\_ are veryreactive non-metals. The \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_ are very unreactive non-metals.

**Compounds and Mixtures**

* If elements mix together but the atoms do not bond, the elements can easily be separated e.g. iron can be separated from a mixture of iron and sulphur with a \_\_\_\_\_\_\_\_\_\_\_
* A compound is made of 2 or more \_\_\_\_\_\_\_\_\_\_\_\_ chemically bonded together.
* A \_\_\_\_\_\_\_\_\_\_\_\_ does not have to look like, or behave like, the elements from which it is made. The ‘properties’ of the compound are different to the properties of the elements.
* A word equation describes what happens in a chemical reaction e.g. Sulphur reacts with oxygen to make sulphur dioxide.

 sulphur + oxygen → \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* Compounds with names ending in **–ide** contain \_\_\_\_\_\_\_ chemicals e.g. magnesium and oxygen make the compound \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_
* The compound iron sulphide is made of \_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_
* Compounds with names ending in **–ate** contain \_\_\_ elements one of which is always \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Copper sulphate contains \_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* The elements sodium, carbon and oxygen make \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_

Your assessments in this topic included a practical investigation, homework, the rich task on forensic science and the end of unit tests.

For each of these assessments write 2 stars and a wish.