S2 Chemistry Topic

23/01/2025

In this Unit you will learn about:

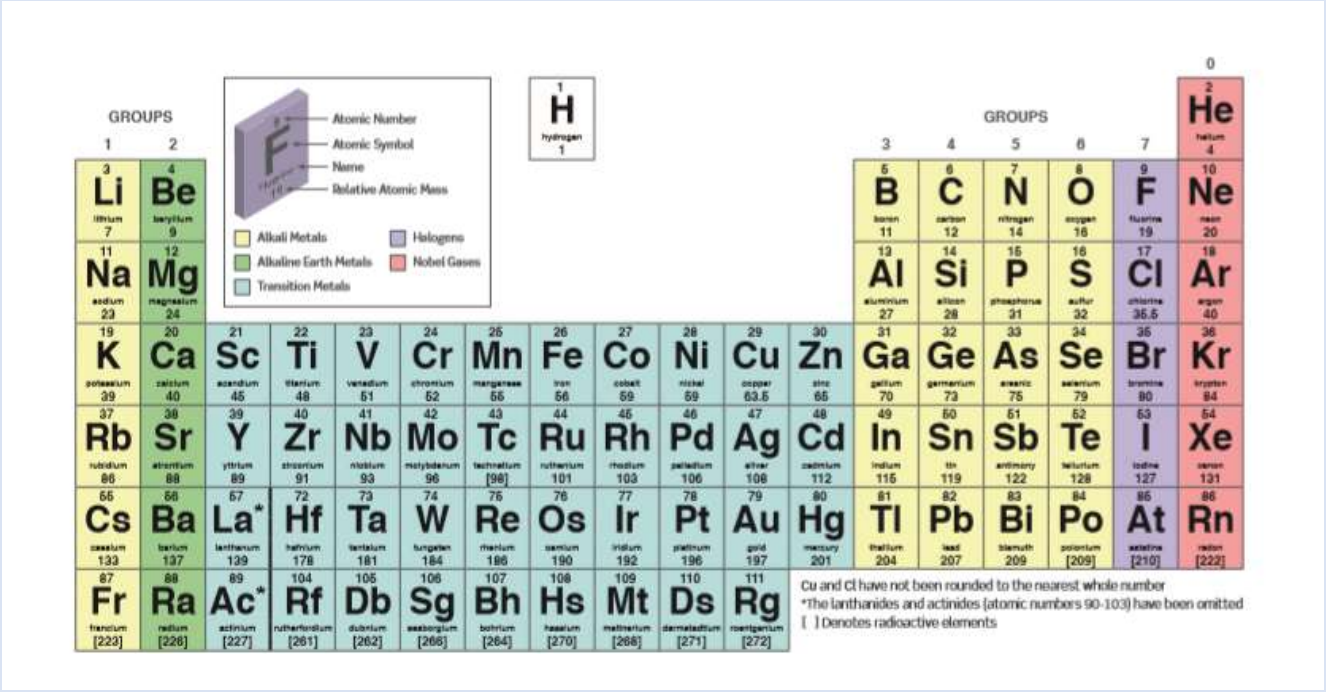
1. The Periodic Table

2. Metals

3. Elements, Compounds and Mixtures

The Periodic Table

23/01/2025



The Periodic Table

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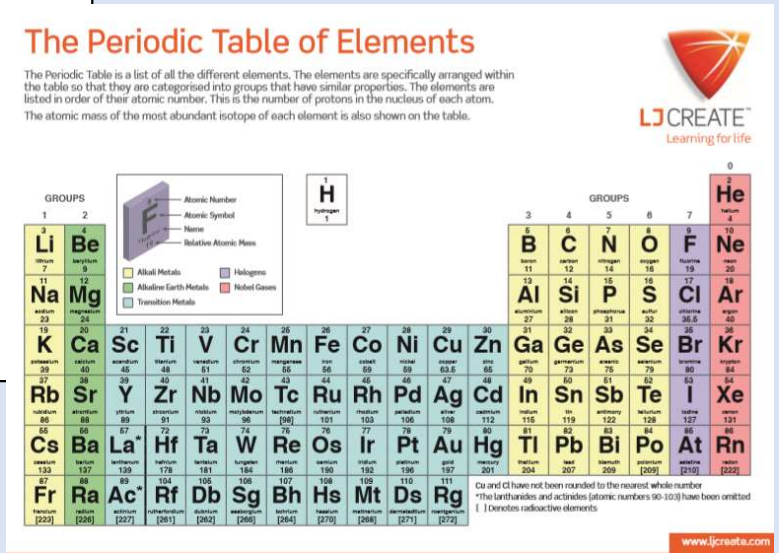
Starter:

1. What do you know about the Periodic table ?

2. Name any elements that you have heard of.

3. What do you think makes an “element” different from other chemical substances?



The Periodic Table

23/01/2025

Learning Intentions:

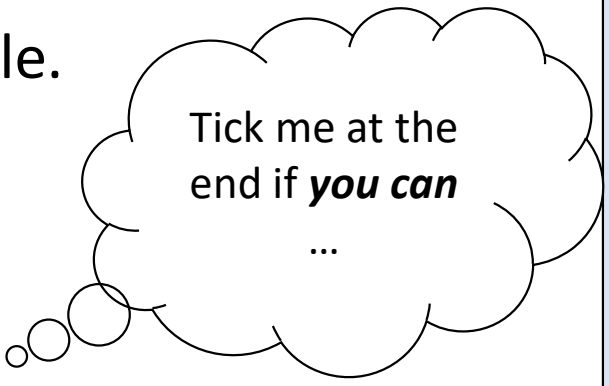
- To learn that the periodic table organises elements by atomic number.
- To understand that an element is made of one type of atom.
- To learn to write symbols for elements using the periodic table.

The Periodic Table

23/01/2025

Success Criteria

- ❑I can state that the periodic table organises elements by atomic number.
- ❑I can describe an element as being made of one type of atom.
- ❑I can write symbols for elements using the periodic table.



The Period Table

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The Periodic Table was first proposed by the Russian Chemist Dimitri Mendeleev.

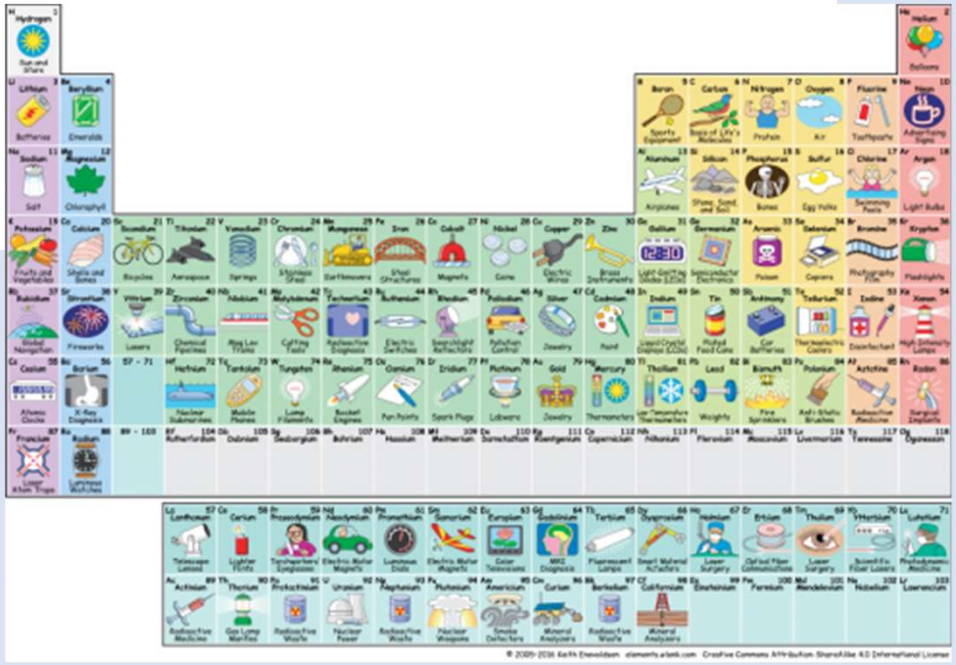
Everything in the world is made of the 118 Elements in the Periodic table

Elements are arranged by atomic number.

He even left gaps for elements he said hadn't been developed yet!

Uses of the Elements

- Visit the Large periodic table on the wall upstairs in Science.
- Take your booklet and a pencil.
- Make a note of 4 elements that you've heard of…
- Write their "use" beside their name.
- Or use the QR code to access the interactive periodic table to do this.

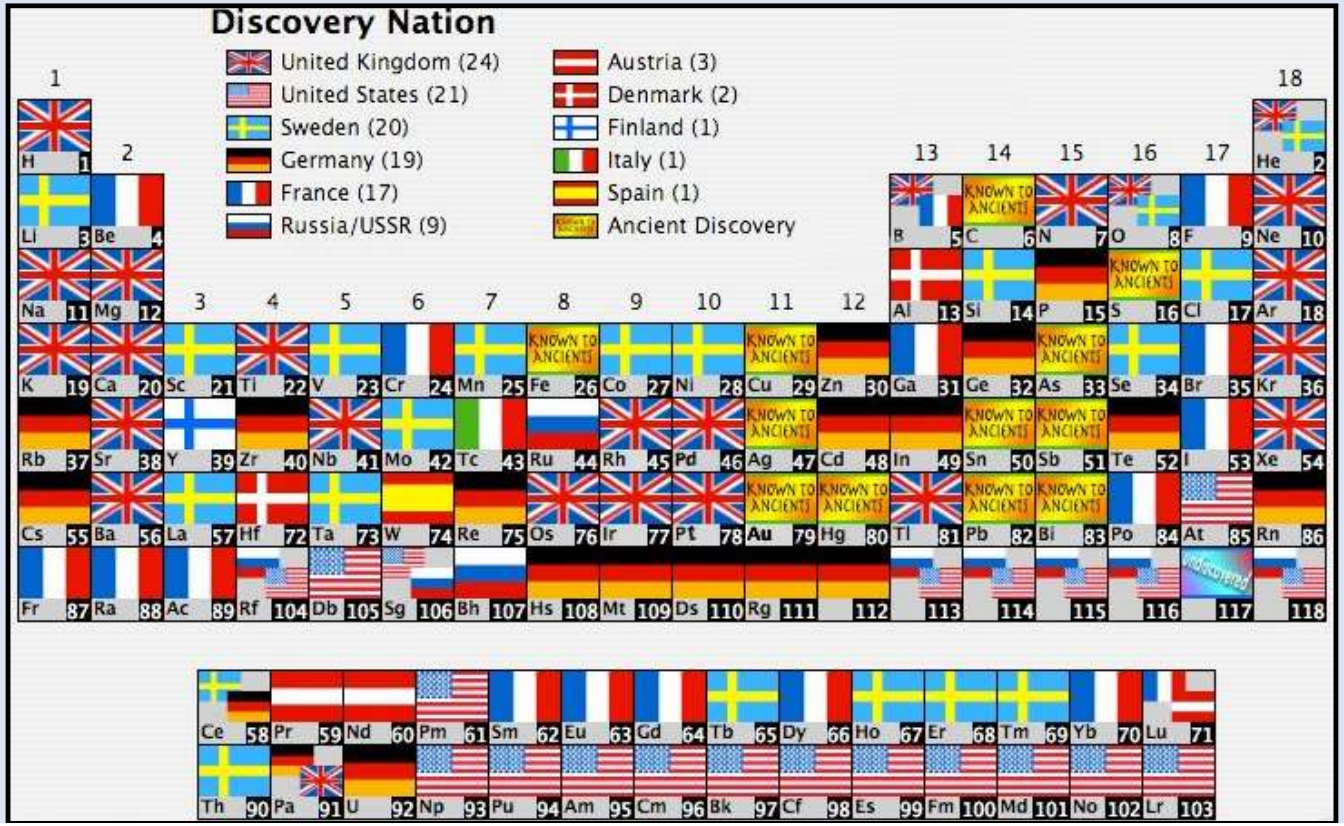


Uses of the Elements

Element	Use

Uses of the Elements

- The Periodic table is used by all Scientists around the world. The elements were discovered in a variety of countries around the world. You might notice this when reading their names.



Some Interesting Periodic Table facts

Technetium was the first to be made artificially!

The only letter not in the periodic table is the letter J!

Francium is the rarest element on earth!

Hydrogen is the most common element found in the universe. It is also the lightest element!

The phrase ‘mad hatter’ comes from the element mercury, and mercury poisoning.

Do you know anymore?

Elements

An element is a substance made up of only one type of atom.

Element

Atom

Atoms

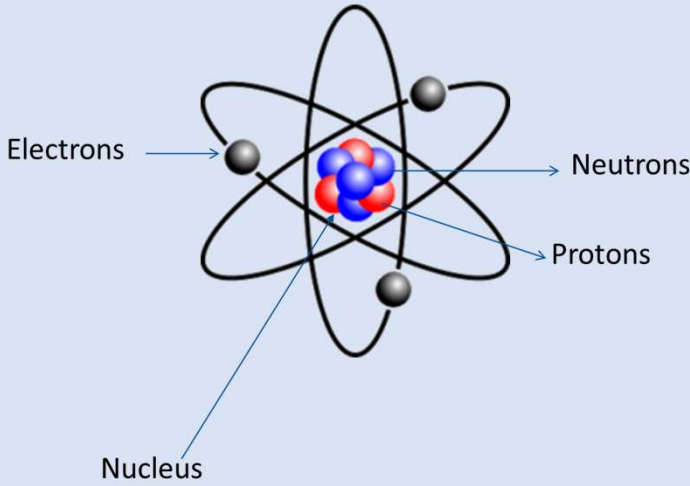
Everything that exists is made up of atoms!

(from the Greek word 'atomos' meaning uncuttable!)

An atom is the basic building block of any material.

When something is broken up into smaller and smaller pieces, there come a point that it cannot be broken down any further.

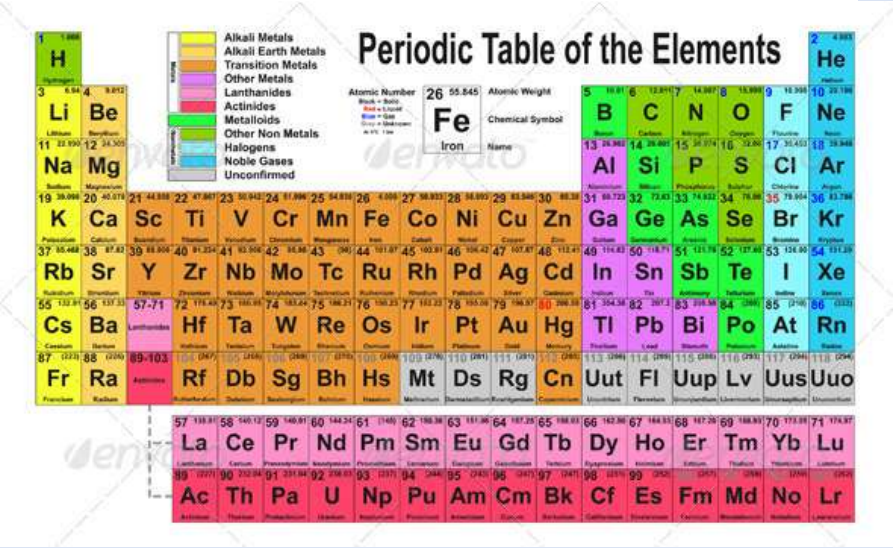
An atom was thought to be the smallest unit of matter, but it is made up of even smaller particles …



Element Symbols

- Each element has its own **unique** symbol.
- The first letter in the symbol must be CAPITAL letter.
- If there is a second letter in the symbol, this must be lower case.

- For Example, the symbol for Helium is He.



Element Symbols

Write down the symbol for:

Oxygen

Helium

Magnesium

Lithium

Hydrogen

Element Symbols

A few elements have symbols that come from the Latin name for the element.

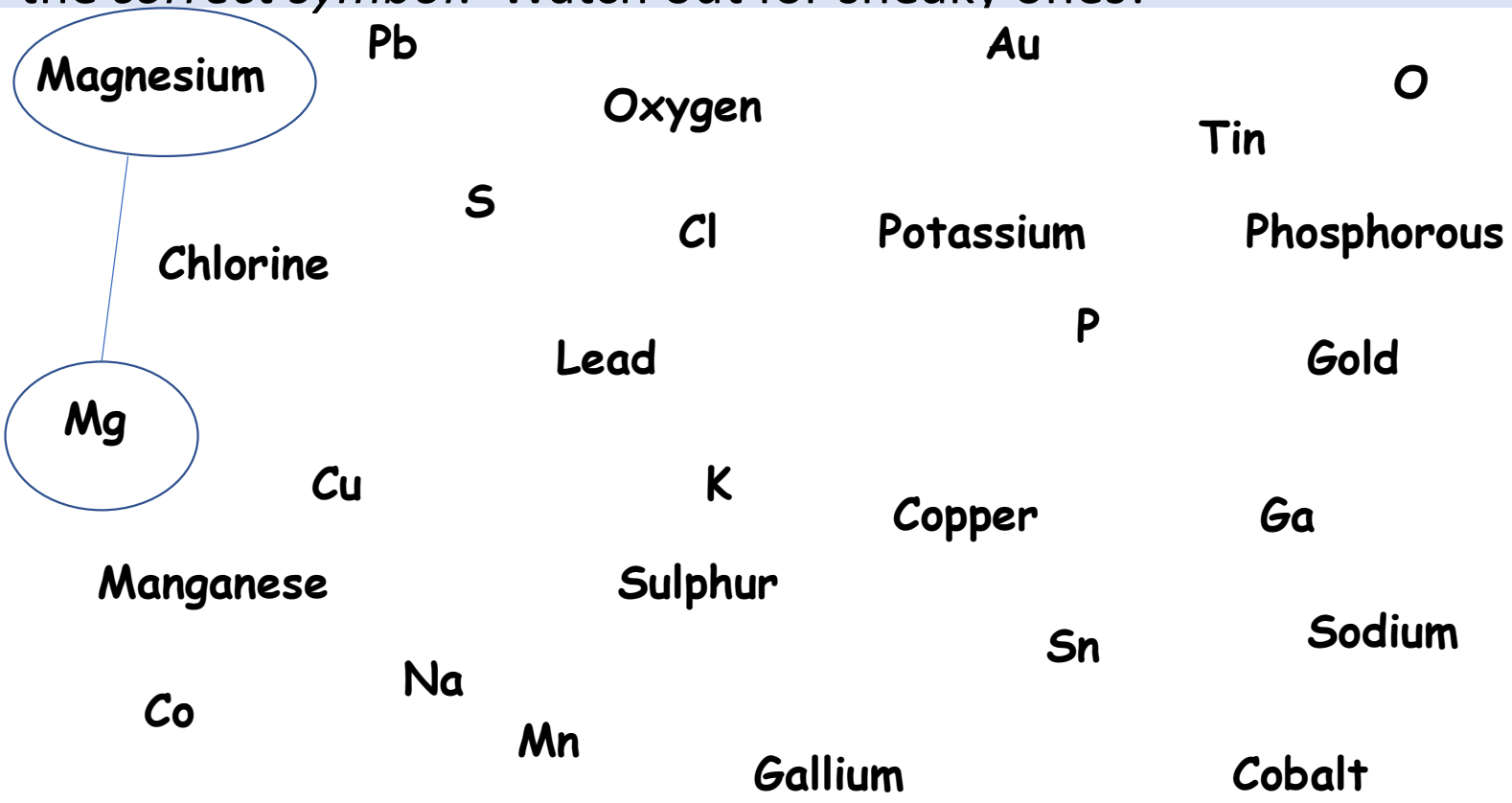
- Write the symbol for:
  - Silver
  - Gold
  - Iron

- Can you find out what the Latin word **is** for:
  - Silver
  - Gold
  - Iron

Element Symbols

Activity – Matching elements to their Symbol

Use your Periodic Table to match the name and symbol. Circle the element name and connect to the *correct symbol*. Watch out for sneaky ones!



Element Symbols – Extension (cartoon elements)

Use the laminated periodic tables to write the element symbol and create the name of a cartoon character

Cartoon Elements

Use the periodic table to find the symbols for the groups of elements below. Each group should spell a different cartoon character

Tungsten, oxygen, oxygen, dysprosium Woody

Phosphorus, iodine, nitrogen, nobelium, carbon, hydrogen, iodine, oxygen Pinnochio

Rhenium, platinum, argon Reptar

Sulphur, hydrogen, rhenium, potassium Shrek

Argon, iodine, aluminium Ariel

Tin, oxygen, oxygen, phosphorus, yttrium Snoopy

Carbon, hydrogen, iodine, phosphorus Chip

Fluorine, lithium, potassium

Samarium, iodine, thorium, erbium, sulphur

Plenary – Element Bingo

Write 6 elements from atomic number 1-20 on your bingo card.

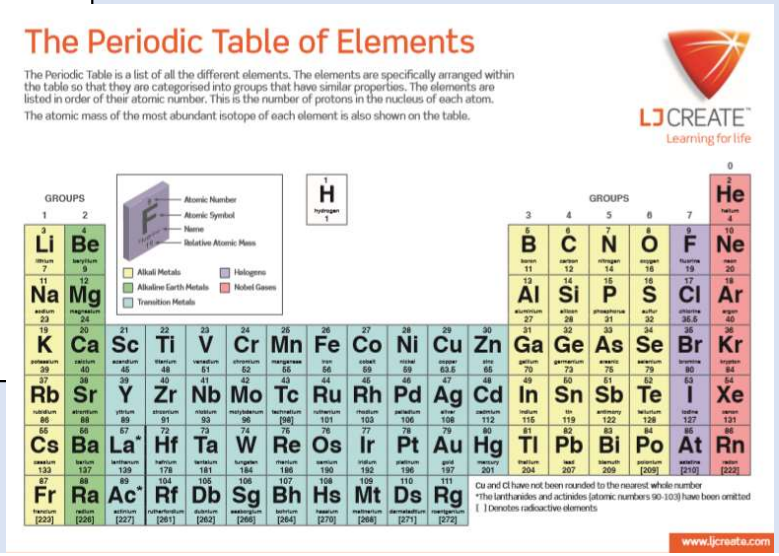
The Periodic Table

23/01/2025

Starter:

- Use the periodic table to help you answer the following questions:

1. Write the symbol for sulfur
2. Write the symbol for Sodium?
3. Which element has the symbol O?
4. Is HE the correct symbol for Helium?



The Periodic Table

Learning Intentions:

To learn:

- some of the ways elements can be categorised in the Periodic table.
- about the position of metal and non-metals elements in the periodic table.
- that a row is known as a period in the periodic table.
- that a column is known as a group in the periodic table.

The Periodic Table

Success Criteria

- ❑ I can state that the metal elements are found on the left-hand side of the periodic table.
- ❑ I can state that the non-metal elements are found on the right-hand side of the periodic table.
- ❑ I can use the periodic table to find information about elements.

Categorising the elements

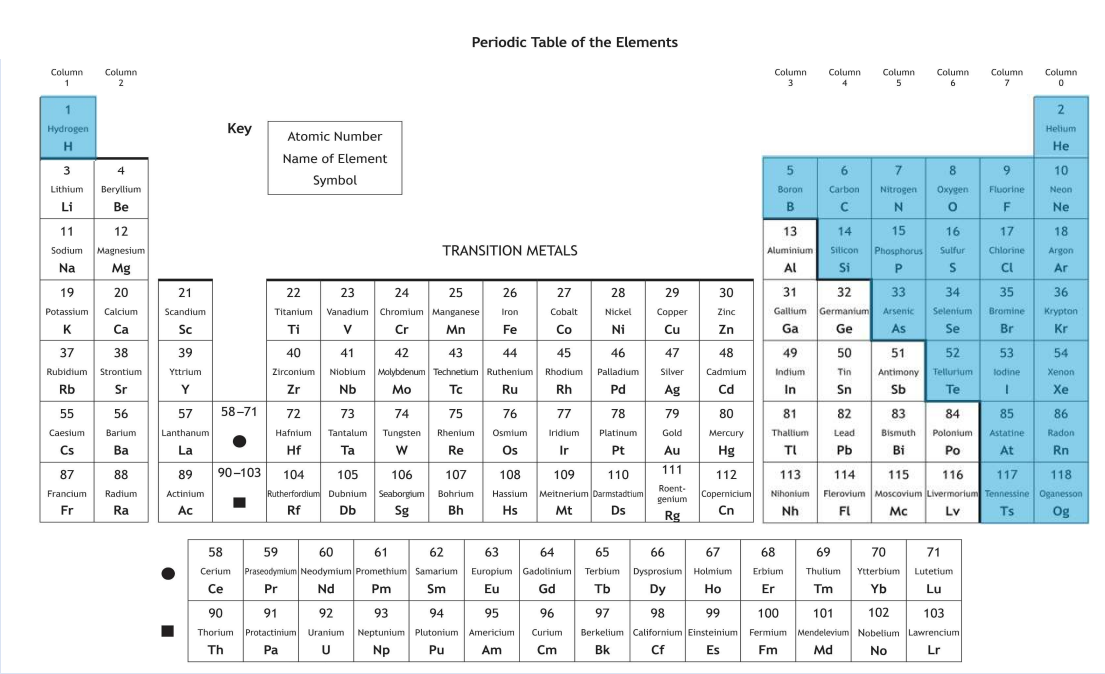
The elements can be categorised in different ways. For example,

- Metals and non-metals
- Solids, liquids and gases

Metals and Non-metals

Page 9

- Use the laminated periodic table which categorises the elements as metals/non-metals.
- Use this to find out if an element is a metal or non-metal.
- Complete column 1 of the table



Key

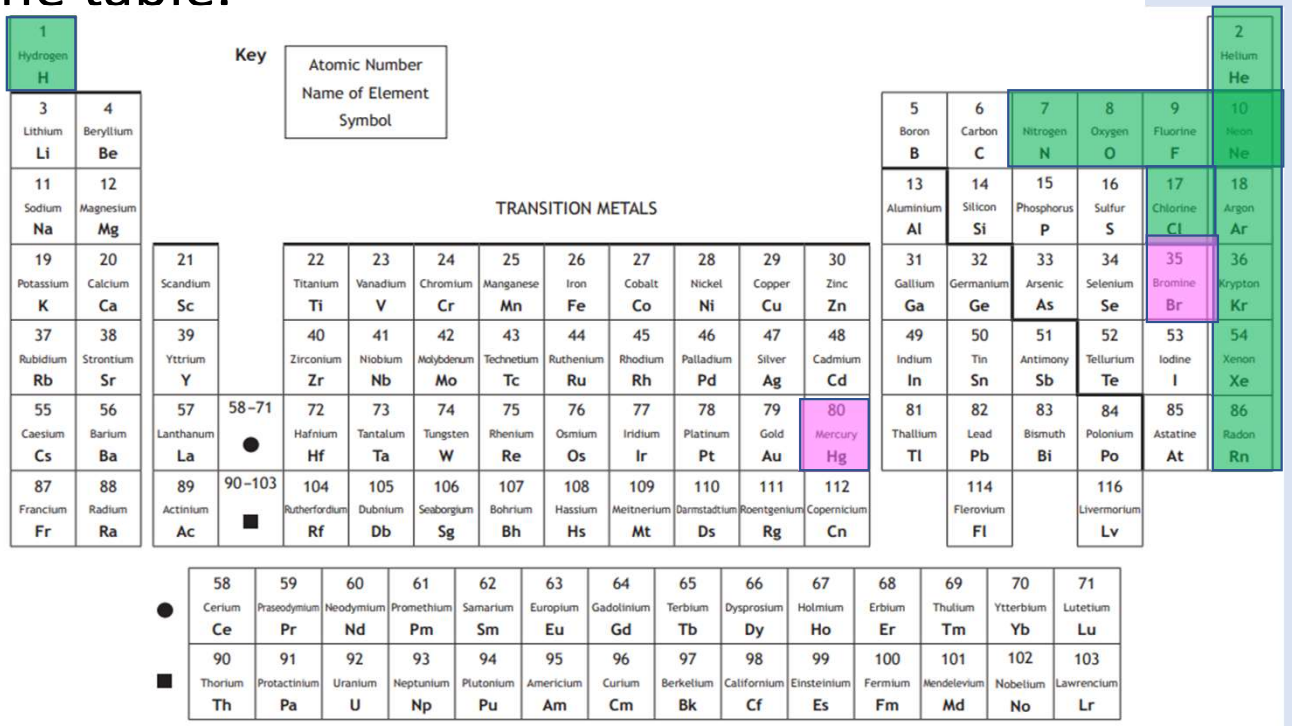
Metal

Non-metal

Solids, liquids and gases

Page 9

- Use the laminated periodic table which categorises the elements as solids/liquids/gases.
- Use this to find out if an element is a solid, liquid or gas.
- Complete column 2 of the table.



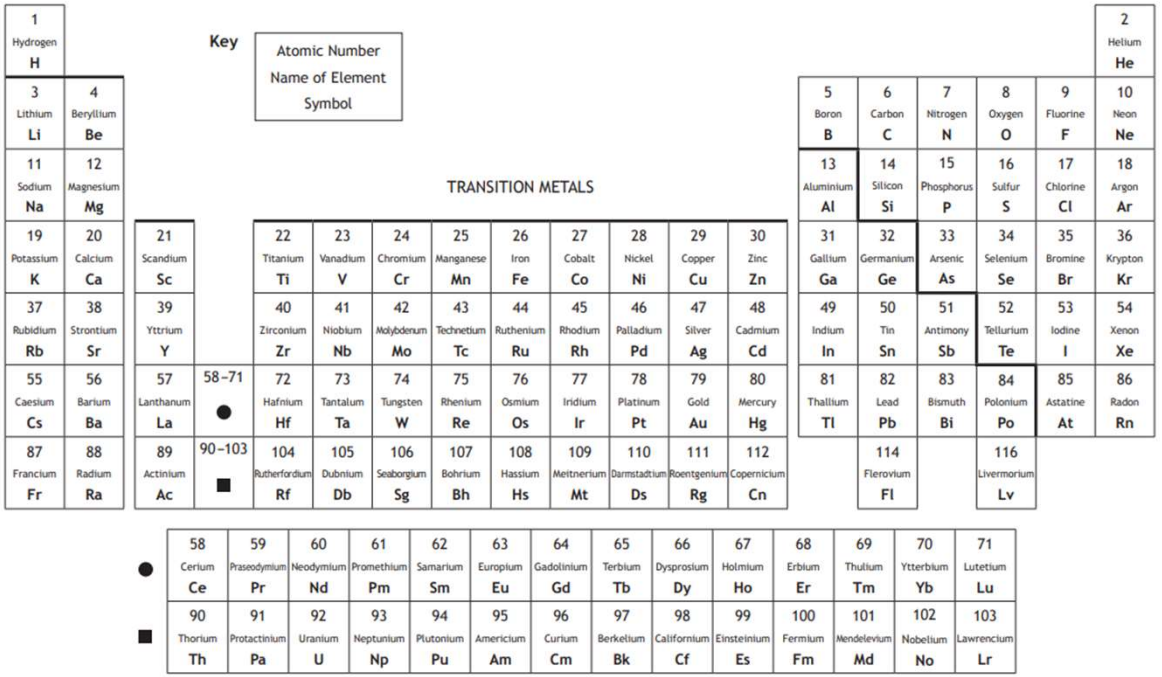
Categorising elements

use both of your Periodic Tables to decide if the Element is a metal or a non-metal and a solid/liquid/gas.

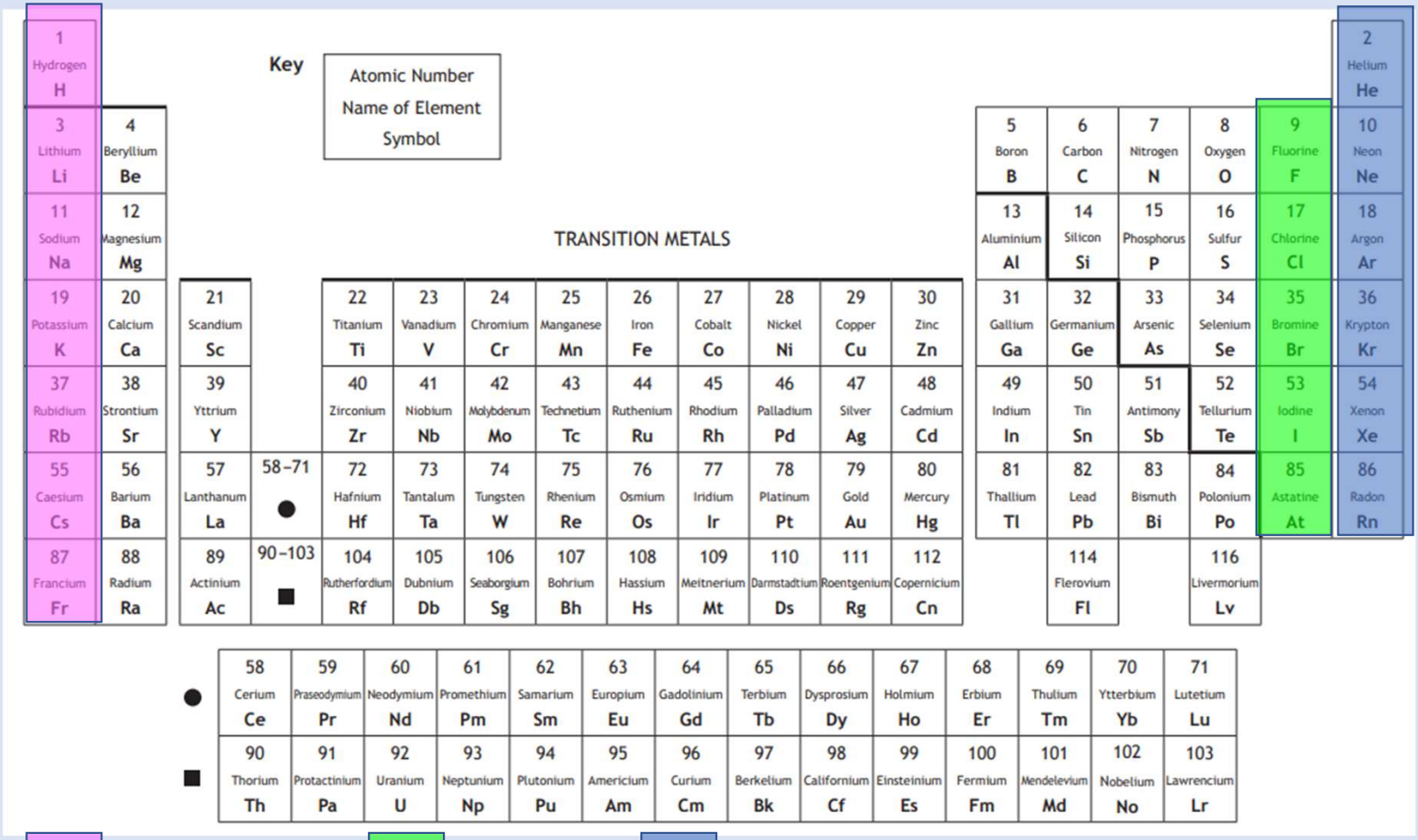
Element	Metal/non-metal	Solid/liquid/gas
Oxygen		
Aluminium		
Sodium		
Helium		
Bromine		
Mercury		
Hydrogen		

Groups and Periods

- In the Periodic Table , each row is called a <u>Period</u> and each column is called a <u>Group.</u>



Groups in the Periodic table

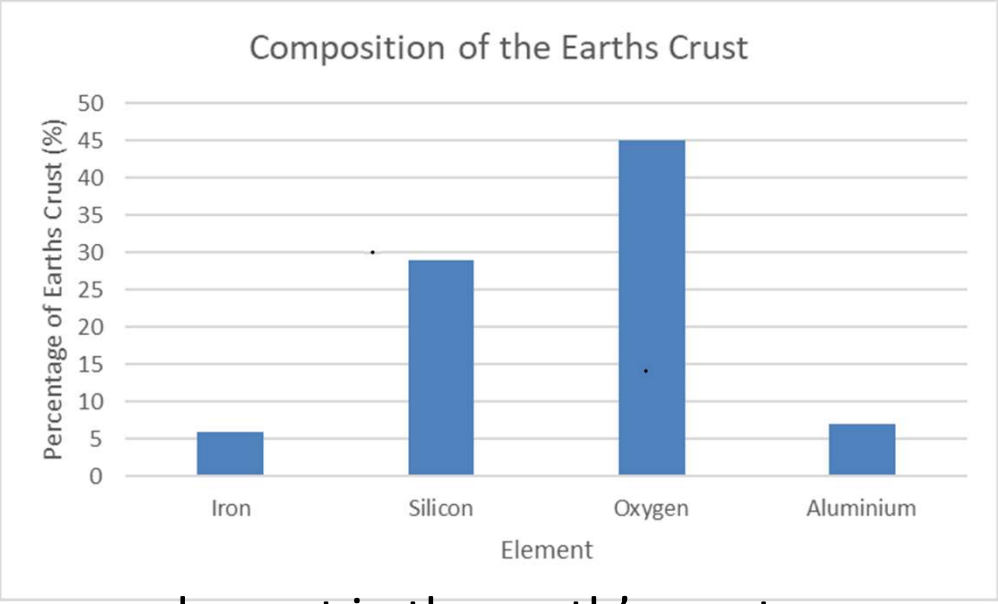


Alkali metals Halogens Noble gases

Skills – Interpreting a graph

Page ?

The graph shows the composition of elements in the earths crust. Use the graph to answer the questions in your booklet.



1. Name the most common element in the earth's crust.
2. State the percentage of the earths crust that is made from Iron.
3. State the element that makes up 7% of the earth's crust?

Plenary – Spot the errors

Use your coloured in Periodic table in your booklet to help you answer these questions. Circle the error and make the correction.

Example: hydrogen has the symbol h (H) and is a gas.

1. Nitrogen has the symbol N and is a metal element.

2. Carbon has the symbol ca and is a non-metal element.

3. Lithium has the symbol li and is a metal element.

4. Sodium has the symbol Na and is a liquid metal.

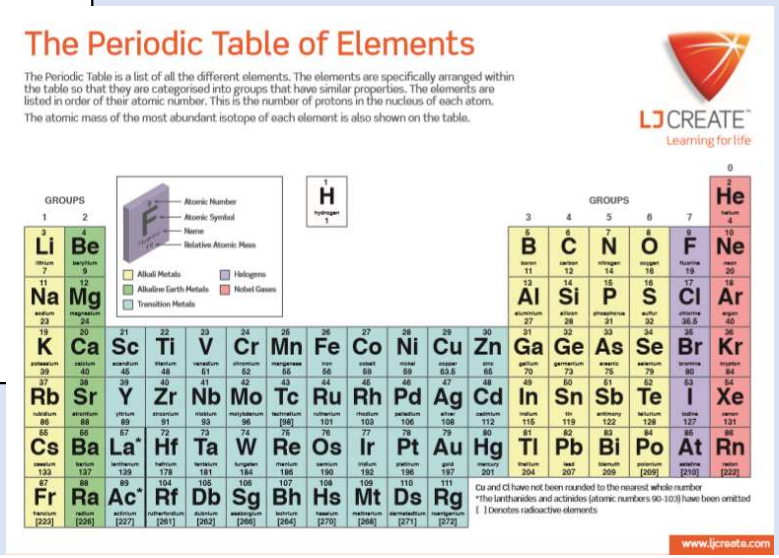
Reactivity of Metals

23/01/2025

Starter:

- Using your periodic table:

1. Give an example of a metal.
2. Give an example of a non-metal gas.
3. Give an example of a liquid metal.
4. Write symbol for each of your elements



Reactivity of Metals

23/01/2025

Learning Intentions:

- To learn that metals do not all react in the same way.
- To learn about the different reactivity of metals with water.

Reactivity of Metals

23/01/2025

Success Criteria

- ❑ I can state that metals have different reactivities.
- ❑ I can perform an experiment safely.
- ❑ I can describe my observations in an experiment.

Reactivity of Metals

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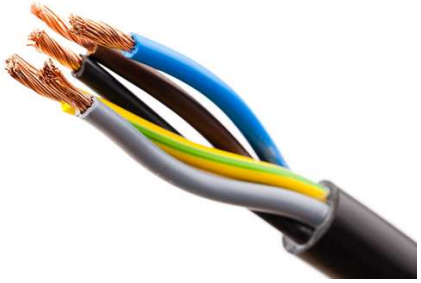
Think about the metals we see in the world around us.












Reactivity of Metals with Water

One way that we can experimentally show that metals have different reactivities is to react them with water and compare the results.

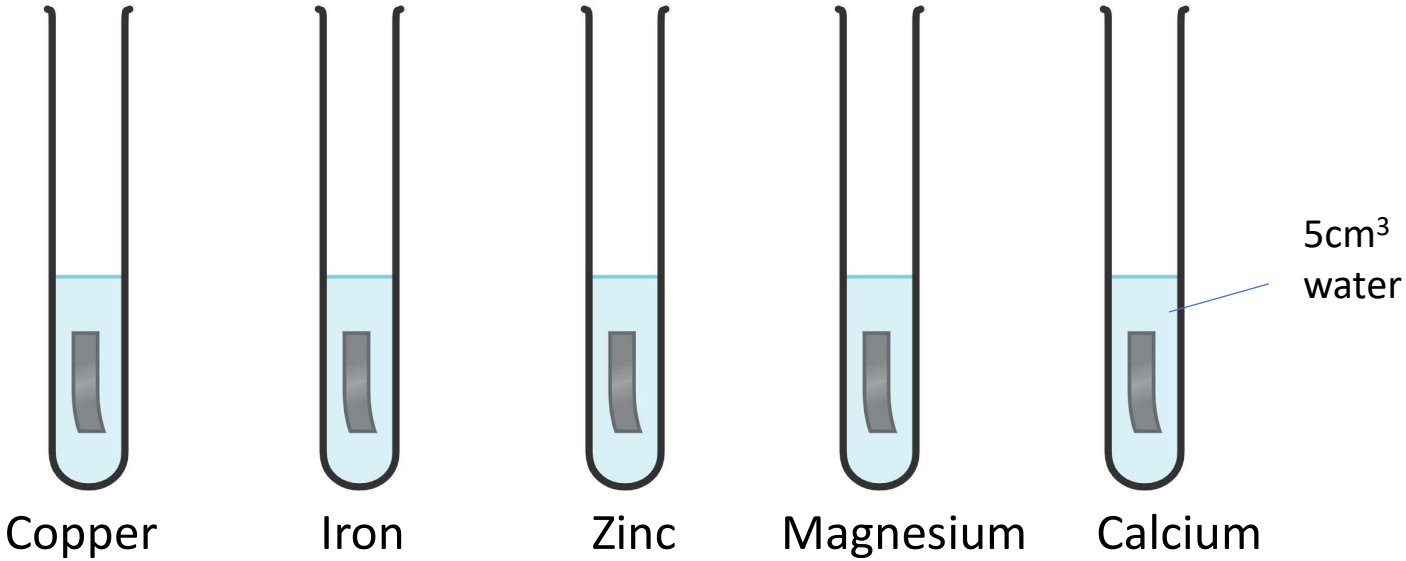
Think about the metals you use at home that come into contact with water. Do you see them react?

Reactivity of Metals with Water - Part 1 Pupil experiment

<u>Aim</u>

To find out which metal is most reactive with water.

<u>Method Part 1:</u> *Draw method*



Reactivity of Metals with Water - Part 1 Pupil experiment

Results: (Record your observations)

Metal	**What do you see?**	**Order of reactivity**
copper		
iron		
zinc		
magnesium		
calcium		
lithium (teacher)		
sodium (teacher)		
potassium (teacher)		

Reactivity of Metals with Water - Part 1 Pupil experiment

Metal	**What do you see?**	**Order of reactivity**
copper	No reaction	
iron	No reaction	
zinc	No reaction	
magnesium	No reaction	
calcium	Fizzing, bubbling, ‘pops’ with a lit splint	
lithium (teacher)		
sodium (teacher)		
potassium (teacher)		

Remaining metals will be reacted with water by your teacher next lesson.

Reaction of Metals with Water

23/01/2025

Starter:

1State the symbol for

a. Magnesium
b. Calcium
c. Zinc
d. Iron
e. Copper

2. When these metals were added to water which ones reacted?

Reaction of Metals with Water

Learning Intentions:

Continue to learn about the different reactivity of metals with water.

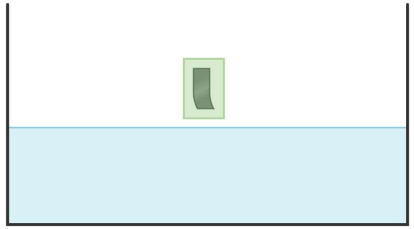
Reaction of Metals with Water

Success Criteria

- ❑ I can state that metals have different reactivities.
- ❑ I can identify patterns of reactivity.
- ❑ I can perform an experiment safely.
- ❑ I can describe my observations in an experiment.

Reaction of Metals with Water- part 2 teacher demo

Method Part 2: *Draw method*



Watch your teacher demonstrate the reaction of the alkali metals with water

Reactivity of Metals with Water - Part 2 Teacher demo

Metal	**What do you see?**	**Order of reactivity**
copper	No reaction	
iron	No reaction	
zinc	No reaction	
magnesium	No reaction	
calcium	Fizzing, bubbling, ‘pops’ with a lit splint	
lithium (teacher)	Fizzing gas given off	
sodium (teacher)	Fizzes, metal balls fizzes in the water	
potassium (teacher)	Catches fire, burns with a lilac flame	

Record your results and number the elements in order to most reactive (1) to least reactive (8)

Reactivity of Metals with Water

Complete your lab report by writing your conclusion.

Conclusion: *Answer your aim*

Reaction of Metals with Acid

23/01/2025

Starter:

1) Why is jewellery made from silver and gold?
2) Why are your water pipes not made from gold?
3) Why do you think magnesium is not a good metal to make the forth road bridge?

Reaction of Metals with Acid

Learning Intentions:

To learn about the different reactivity of metals with acid.

Reactivity of Metals with Acid

Success Criteria

- ❑ I can state that some metals react with acids.

Reactivity of Metals with Acid

Acid rain is a pollution problem which can corrode buildings and damage trees and lakes.




Strong acids react with some metals.

Reactivity of Metals with Acid

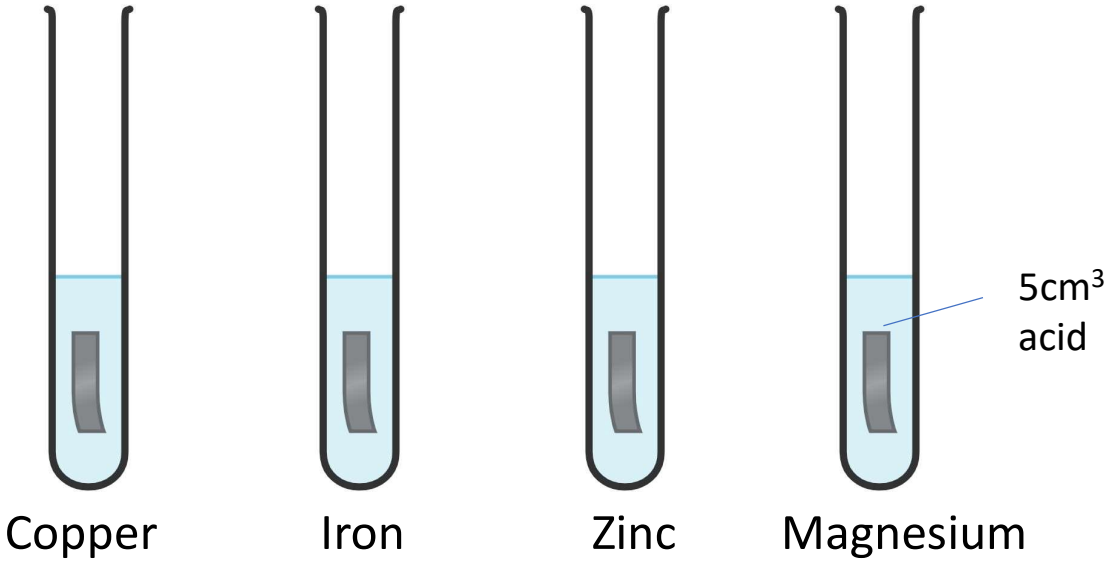
By reacting metals with an acid, we can compare the reactivity of the metal.

Reactivity of Metals with Acid

Aim

To find out which metal is most reactive with acid.

Method: *Draw method*



Reactivity of Metals with Acid

Results:

Metal	What do you see?	Order of reactivity
Magnesium	Some fizzing giving off hydrogen gas. Test tube gets warm.	
Zinc	Little bit of fizzing giving off hydrogen gas.	
Iron	Some bubbles of hydrogen gas	
Copper	No reaction.	

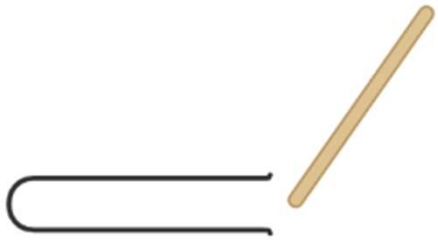
Conclusion: *Answer your aim*

Testing for Hydrogen (optional)

We can prove that the gas formed was Hydrogen by testing the gas with a lit splint. If Hydrogen is present this will burn with a sqeaky pop.

1. Collect the gas formed when metal reacts with Hydrochloric acid

2. Test the gas with a lit splint



Plenary

Predict what would happen if sodium reacted with acid.

Extension – Word equations

<u>Word equation</u>:

reactive metal + acid ⟶ metal salt + hydrogen

Hydrochloric acid + copper ⟶ copper chloride + hydrogen

Hydrochloric acid + zinc ⟶ _____ + hydrogen

Hydrochloric acid + magnesium ⟶ _____ + _____

Starter – True or false

1. Copper makes a good electrical wire because it can conduct electricity. _____
2. Sodium would make a poor cooking pot because it is so reactive. _____
3. Potassium makes a good metal for jewellery because its unreactive. _____

Learning Intentions:

To learn about the conductivity of different materials.

Properties of elements

Success Criteria

- ❑ I can state that substances that do not conduct electricity are known as insulators.
- ❑ I can state that metals are good conductors of electricity.

Conductors

Conductivity is a property that some elements have. It is another way that we can categorise elements in the periodic table.

Conductors of electricity have uses in Electronics, computing and Communication.

Substances that do not conduct electricity are known as insulators.

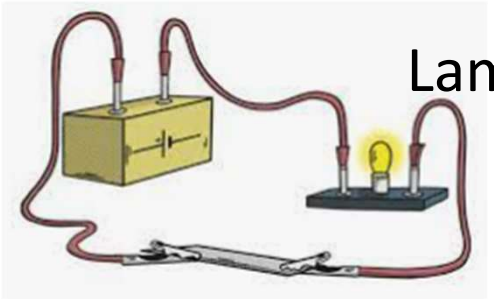
Conductors

Aim

To test the conductivity of a set of substances and determine if they are conductors or insulators.

Conductors

Method



Draw a circuit diagram for your method

Conductors

Results

Conductors	Insulators

Determine which elements are metals/non-metals to help you make a conclusion for your experiment.

Conductors

Conclusion

Conductors	Insulators

Plenary

Complete the passage using word from the word bank

_____ are good conductors of electricity. Metals can be found on the _____ side of the periodic table. _____ are not conductors of electricity, these are described as _____. These are found on the _____ side of the periodic table. The exception to this is _____ which is a conductor.

Word bank

Left	Right	graphite	Non-metal	Metals	Insulator

Starter

1. Put these metals in order of reactivity: Copper, Potassium, Magnesium

2. Complete the word equation:

_____ + hydrochloric acid → Magnesium chloride + hydrogen

3. Describe how you could prove that Hydrogen was produced.

Identifying Elements

23/01/2025

Learning Intentions:

- To learn that when metal elements are burned they produce a specific colour, this is called a flame test.
- Flame tests can be used to identify metal elements.

Identifying Elements

Success Criteria

- ❑ I can use flame colours to identify elements.

Identifying Elements

When elements are burned, they produce specific colours. The colours they produce can be used to identify the element. Astronomers use a similar technique to identify which elements are present in distant stars.

Today you will test some metal samples and observe the flame colour. You can then use this information to identify the metal present in 3 unknown samples.

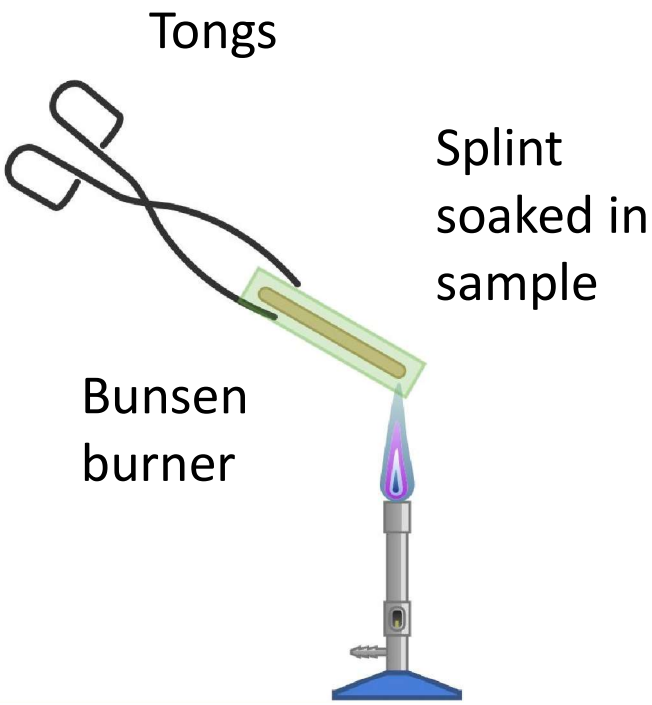
Identifying Elements

Aim

To identify the metal present in 3 unknown samples, using flame colour data.

Identifying Elements

Method



Identifying Elements

Results

Metal	Colour
Unknown 1	
Unknown 2	

Identifying Elements

Conclusion

In conclusion unknown sample A was found to contain_____. Whilst unknown sample B contains _____.

Starter:

1. What is the name of the “chart” that shows all the known elements?
2. Why is this “chart” laid out in a particular way?
3. What term describes a vertical column?

Elements, Compounds and Mixtures 23/01/2025

Learning Intentions

To learn about elements, compounds and mixtures and the differences between them.

Elements, Compounds and Mixtures 23/01/2025

Success Criteria

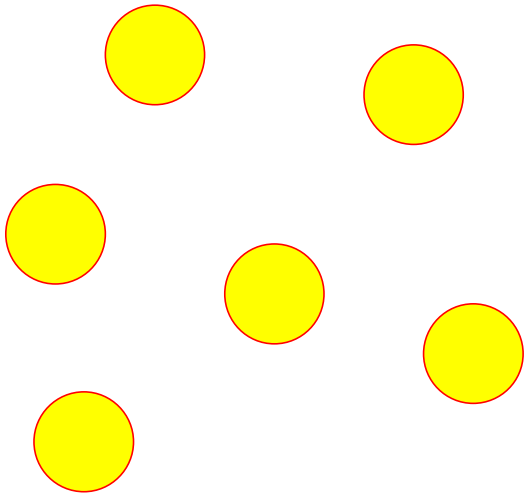
- ❑ I can state that an element is composed of only 1 type of atom.
- ❑ I can state that a mixture is composed of two or more substances that are not chemically linked.

Elements

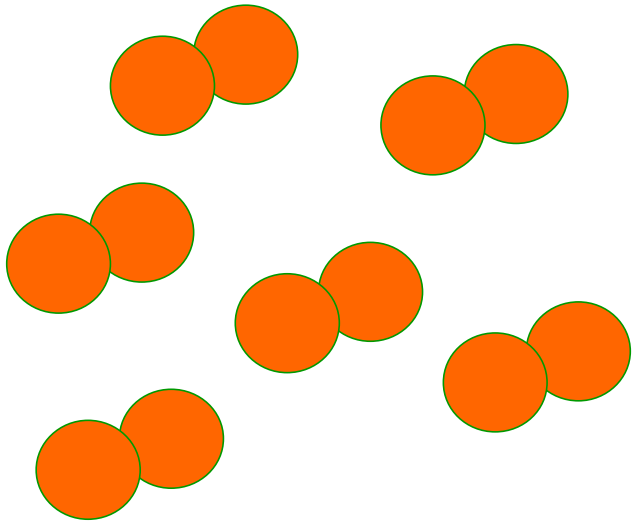
23/01/2025

An element is a substance made up of only one type of atom.

Elements are found in the Periodic Table.



Element 1

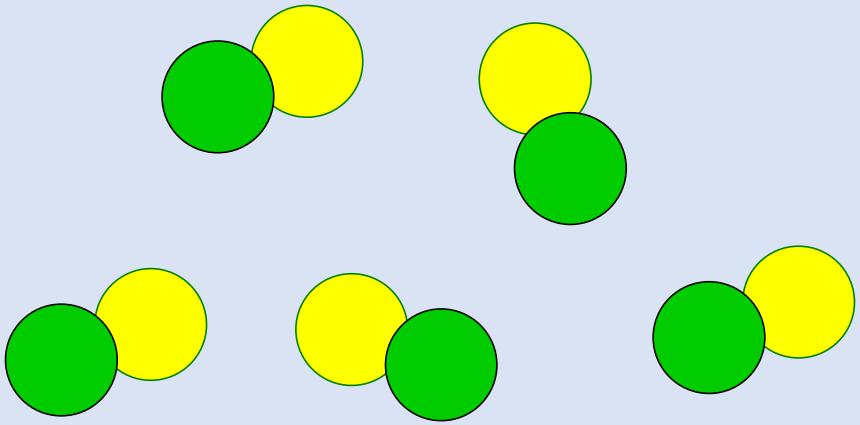


Element 2

Compounds

23/01/2025

A compound is made of two or more atoms that are chemically linked to each other



Compound

Mixtures

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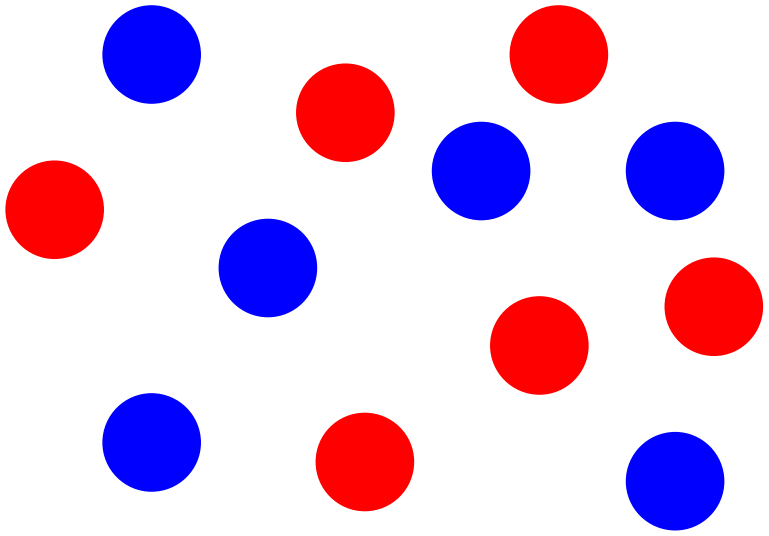
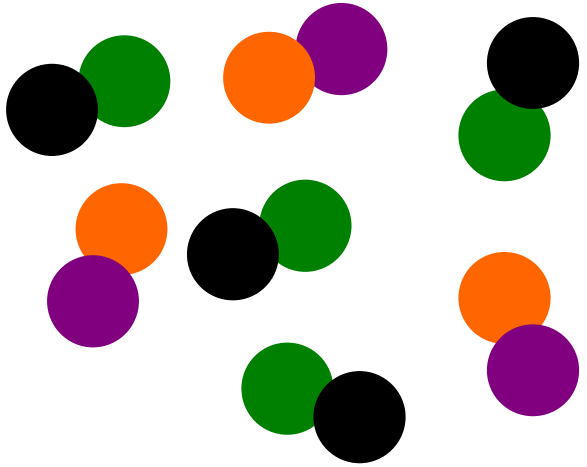
Contains atoms and/or compounds that are mixed but **not** chemically joined together.



2 elements mixed



2 compounds mixed

Element, Compound or Mixture

23/01/2025

For the following slides, decide if the picture is showing:

An element

A compound

A mixture

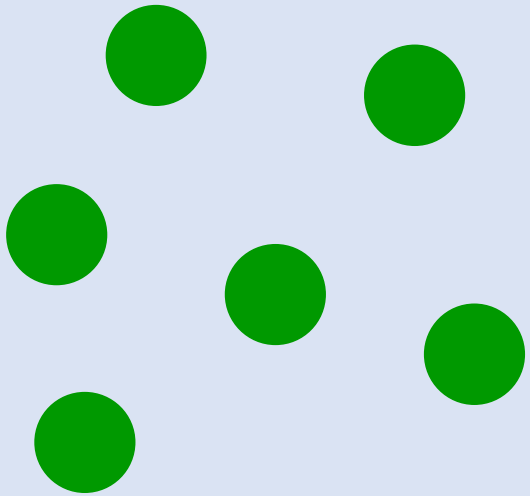
If it is a mixture, what is it a mixture of..?

Complete the table in your booket.

Element, Compound or Mixture

23/01/2025

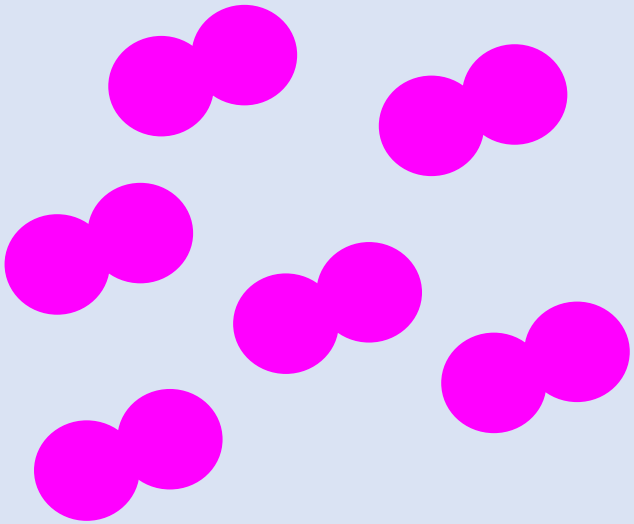
1



Element, Compound or Mixture

23/01/2025

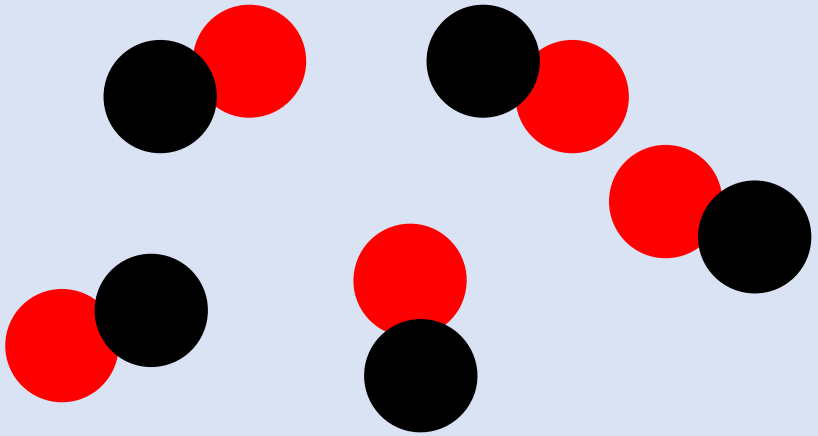
2



Element, Compound or Mixture

23/01/2025

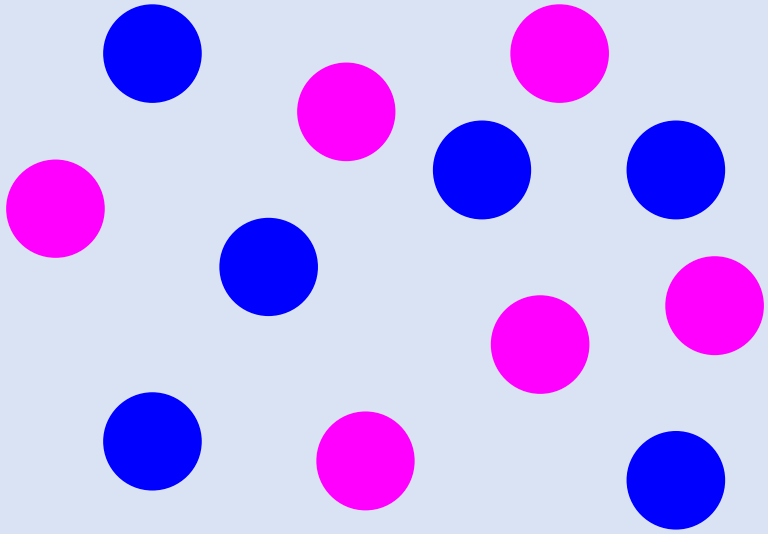
3



Element, Compound or Mixture

23/01/2025

4



Element, Compound or Mixture

23/01/2025

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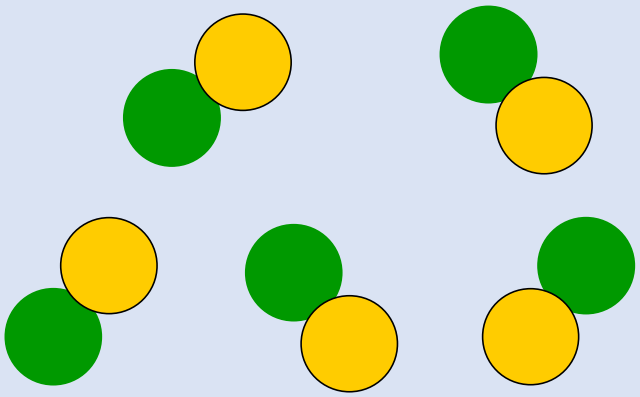

Element, Compound or Mixture

23/01/2025

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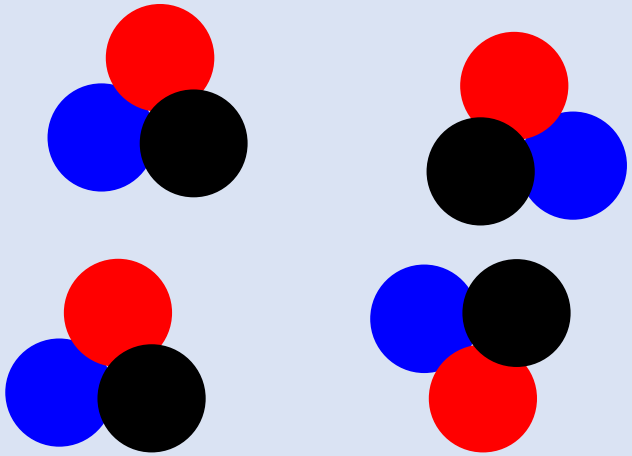
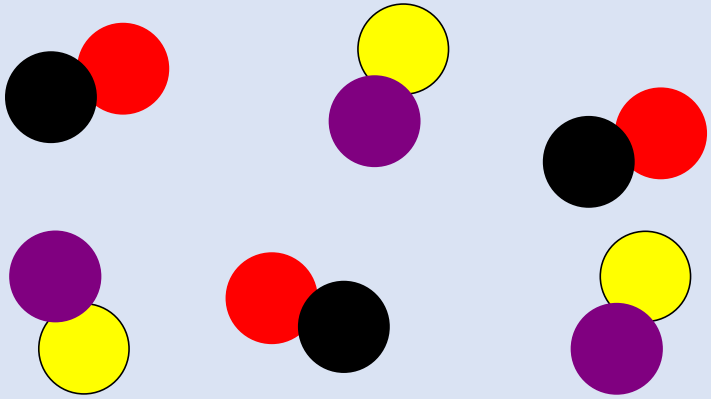


Element, Compound or Mixture

23/01/2025

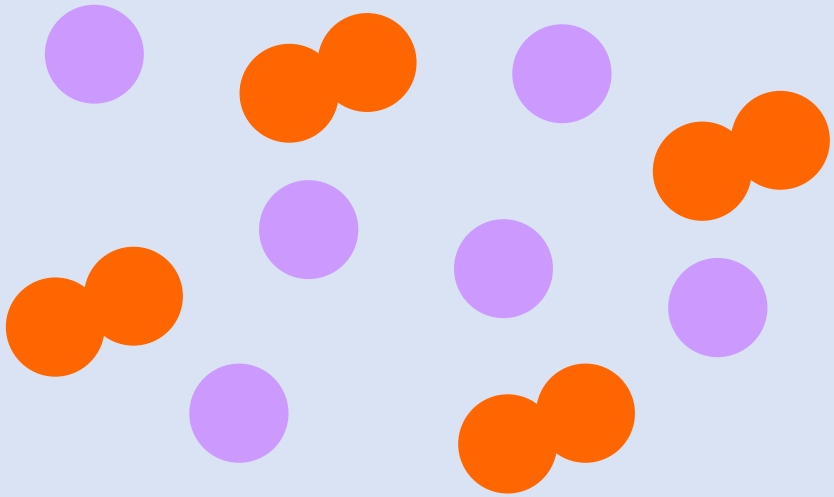
7



Element, Compound or Mixture

23/01/2025

8



Element, Compound or Mixture

23/01/2025

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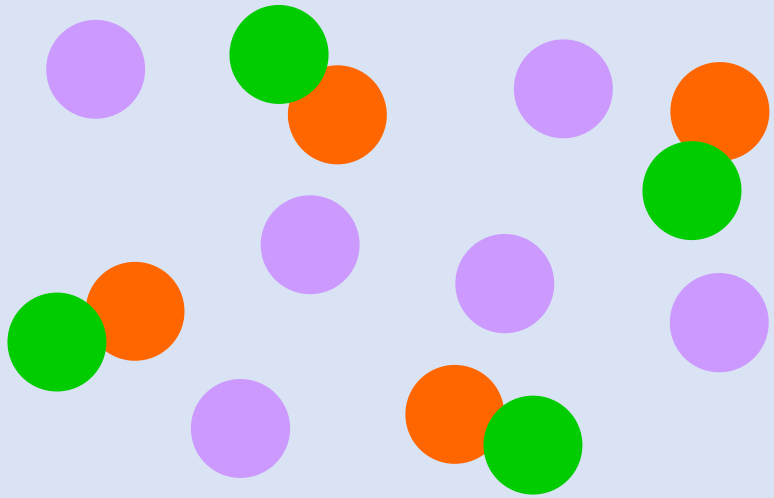
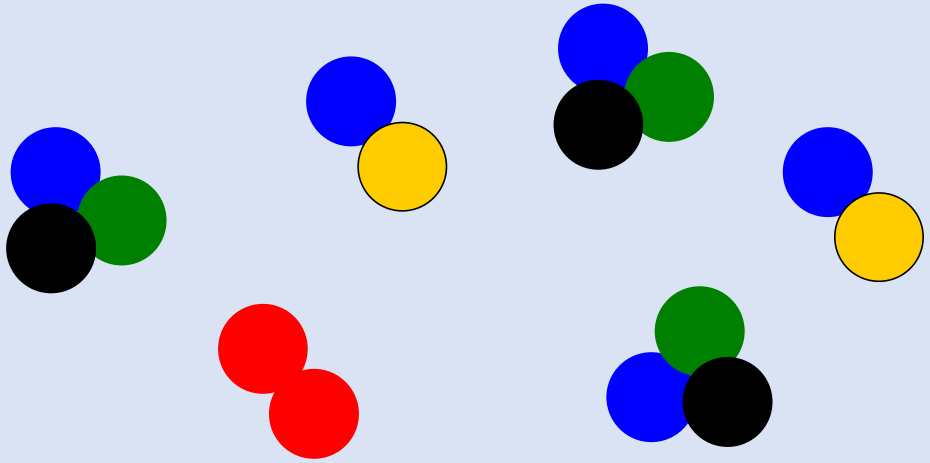


Element, Compound or Mixture

23/01/2025

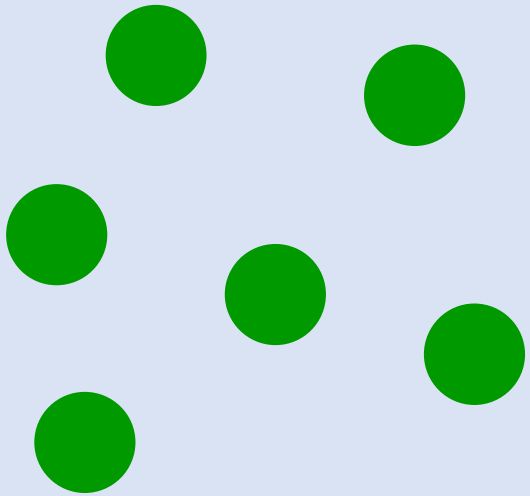
10



Answers – Check your work

23/01/2025

1

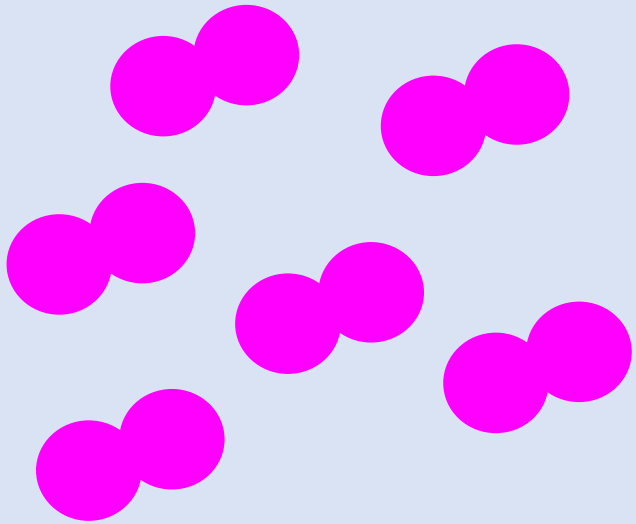


An element

Answers – Check your work

23/01/2025

2



An element

Answers – Check your work

23/01/2025

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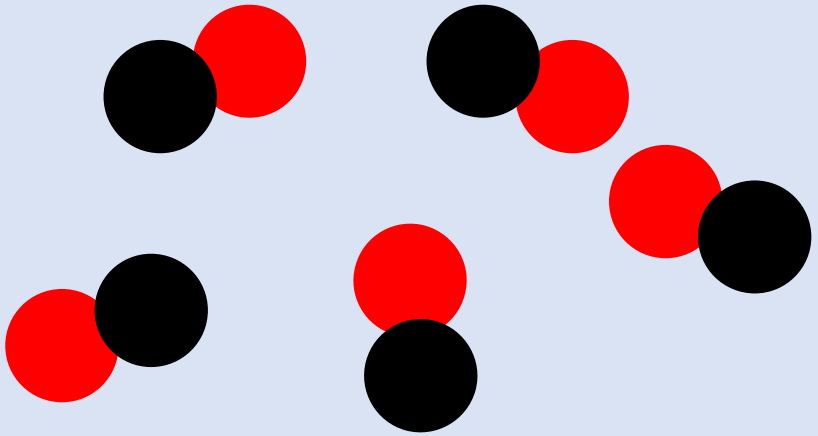
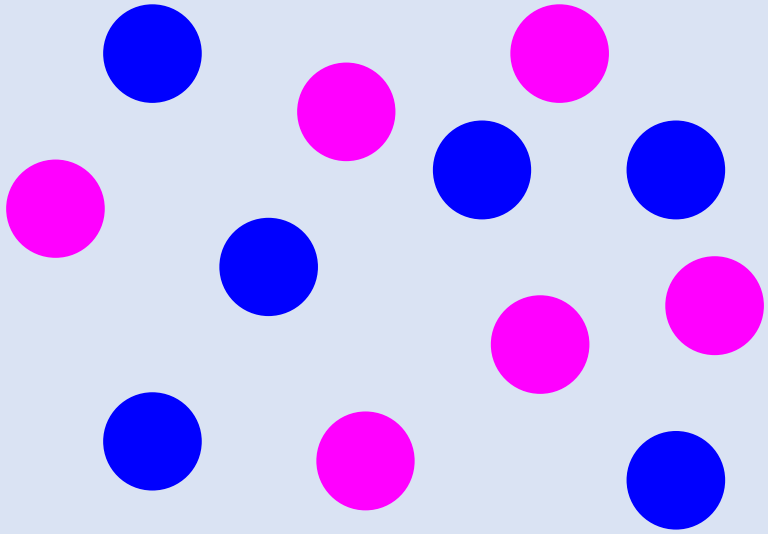


A compound

Answers – Check your work

23/01/2025

4

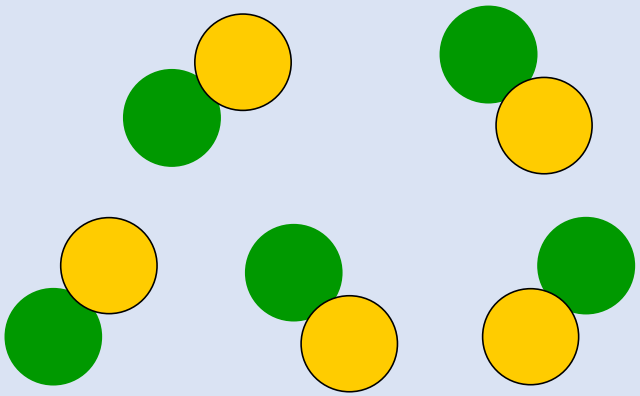


A mixture of two element s

Answers – Check your work

23/01/2025

5

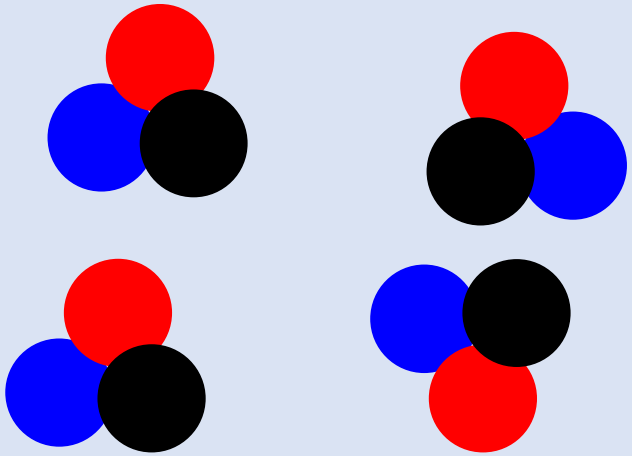


A compound

Answers – Check your work

23/01/2025

6

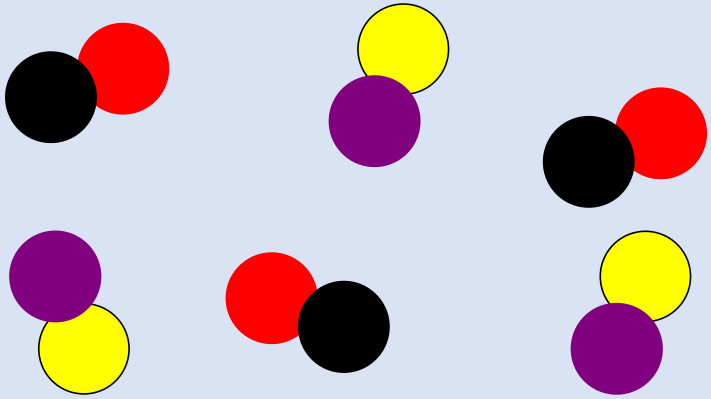


A compound

Answers – Check your work

23/01/2025

7

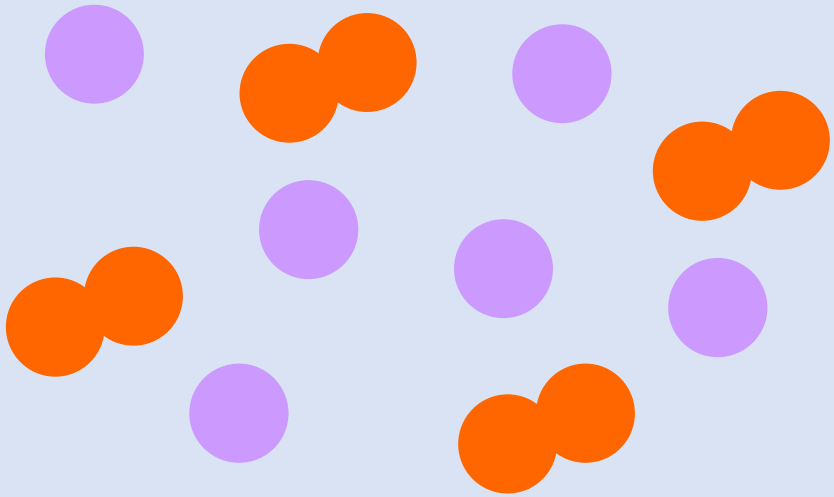


A mixture of two compounds

Answers – Check your work

23/01/2025

8

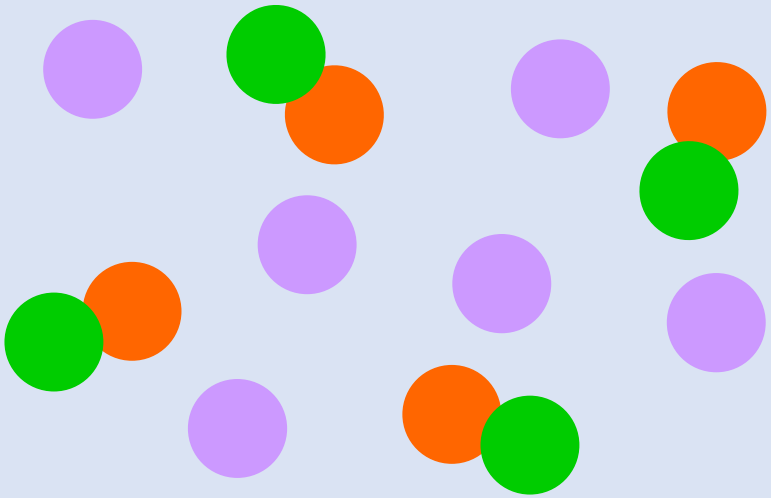


A mixture of two element s

Answers – Check your work

23/01/2025

9

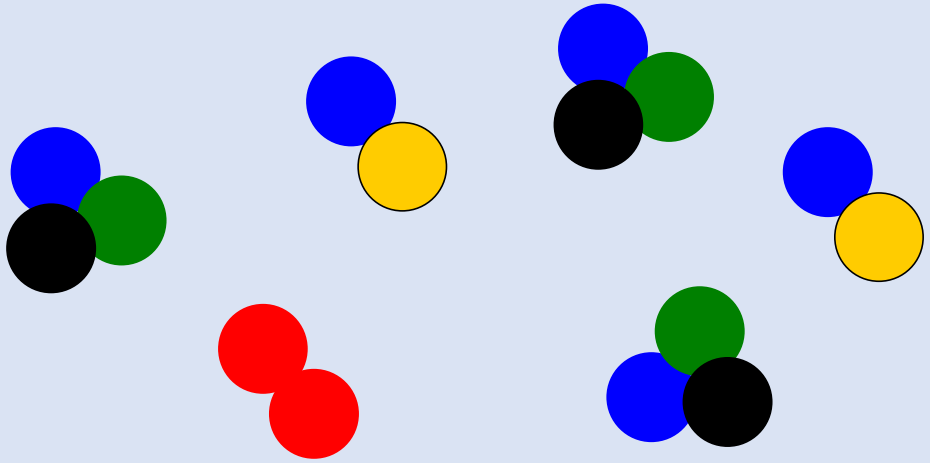


A mixture of an element and a compound

Answers – Check your work

23/01/2025

10



A mixture of an element and two compounds

Mixtures

23/01/2025

Element
Mixture
Compound

You have already learned about Elements of the Periodic Table.

How can we make a mixture?

Separating Mixtures

23/01/2025

- Mixtures contain 2 or more substances that are **not** chemically joined.
- Mixtures can be separated easily as the atoms are not chemically joined.

Activity: Collect a tube containing an iron and sulfur mixture and a magnet.

- Record what happens when the magnet is held close to the container?

Separating Mixtures

23/01/2025

- The mixture of Iron and Sulfur can be separated using a _____.

- Mixtures can be separated when there is a **difference** in **properties** between the two substances.

Plenary

23/01/2025

Match the word with the meaning!

1. An element is..	
2. A mixture is..	
3. A compound is..	

a) not chemically joined and can be separated

b) two or more atoms of different elements joined together chemically

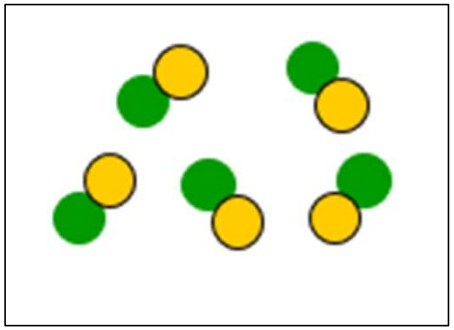
c) made of only one type of atom

Compounds

23/01/2025

Starter:

1. Does this particle diagram show and element, compound or a mixture?



2. Explain your answer to question 1.

Compounds

23/01/2025

Learning Intentions

- To learn that compounds are made of elements that are chemically linked to each other.
- Compounds cannot be separated into their parts easily.

Compounds

23/01/2025

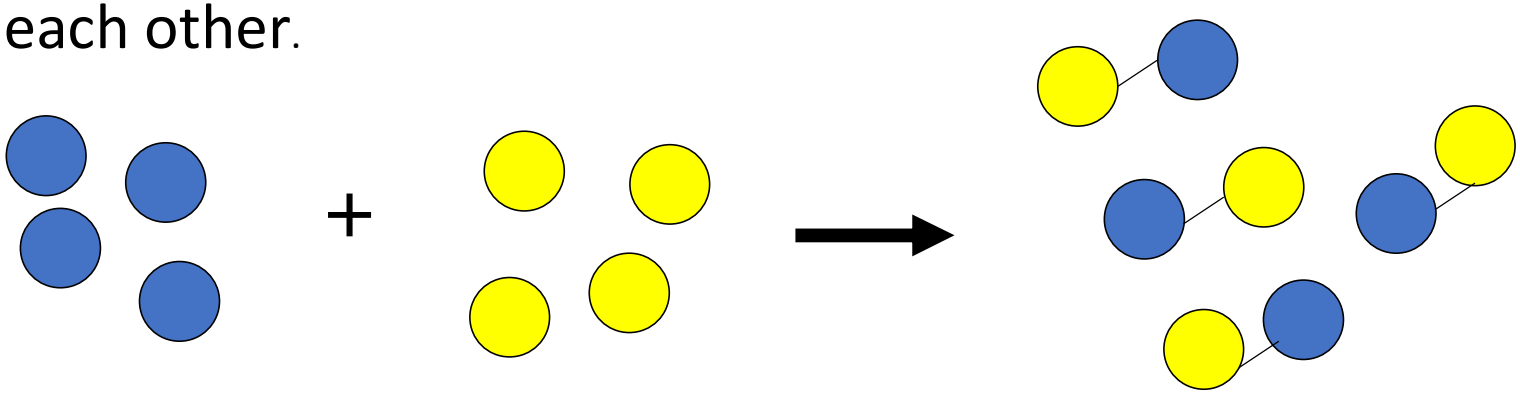
Success Criteria

- ❑ I can state that a compound is made of two or more elements that are chemically connected to each other.
- ❑ I can state that compounds are not easily separated in their parts.

Making a Compounds

23/01/2025

Making a compound often needs energy to make the elements **react** and **connect** to each other.



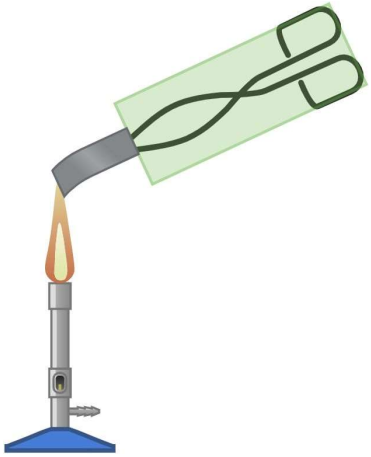
Making a compound

23/01/2025

Aim

To make compounds and write word equations.

Method *Draw method*



1. Light a Bunsen burner on a safety flame.
2. Use a blue flame for burning the magnesium and copper.
3. Using tongs, burn a piece of Magnesium ribbon in oxygen
4. Using tongs, burn a piece of Copper in oxygen

Making a compound

23/01/2025

Results

Element	Starting Colour	End Colour	Compound Formed
Magnesium			
Copper			

Word Equation

Copper + Oxygen → Copper oxide

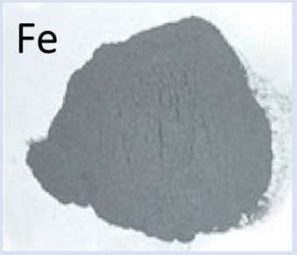
Write the word equation for Magnesium reacting with Oxygen

Plenary

23/01/2025

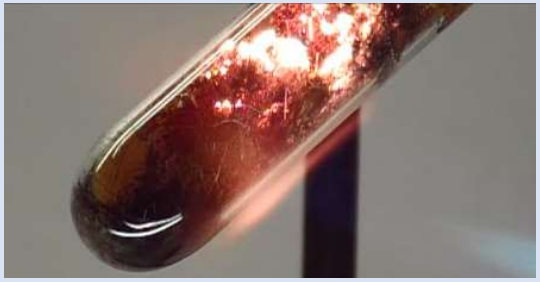
State 2 differences between a compound and a mixture

Element



Mixture

Compound



Naming Compounds

23/01/2025

Starter:

1. Magnesium costs £3.00 per meter. One meter of Magnesium can be cut into 20 x 5cm strips.

   Calculate the cost per strip (you can use a calculator).

2. Calculate the cost if 240 strips are needed by the science department.

Naming Compounds

23/01/2025

Learning Intentions

To learn how to name elements in compounds.

Success Criteria

- ❑ I can name a compound made from 2 elements.
- ❑ I can name a compound made from 3 elements where one element is oxygen.

Naming Compounds with 2 Elements 23/01/2025

Compounds containing two elements end with -ide

Metal name goes first, followed by the non metal element. The non-metal element takes the ending ide.

Example:

Compound	Elements
lithium chloride	lithium and chlorine
magnesium oxide	magnesium and oxygen

Naming Compounds with 2 Elements 23/01/2025

Name the following compounds made from the following elements.

Element 1	Element2	Name of compound
iron	sulphur	
magnesium	nitrogen	
sodium	chlorine	
tin	oxygen	
aluminium	bromine	
nickel	iodine	
zinc	sulphur	
lithium	nitrogen	

Compounds with 2 Elements

23/01/2025

Identify the elements in the following compounds?

1. Sodium fluoride
2. Lithium bromide
3. Calcium oxide
4. Aluminium chloride
5. Phosphorus sulphide
6. Caesium chloride

Naming Compounds with 3 Elements 23/01/2025

Compounds containing two element AND oxygen end in -ite or –ate

First part of the name comes from the metal, then the non-metal, then add the suffix ate at the end for Oxygen.

Example:

Compound	Elements
copper sulfate	copper, sulfur and oxygen
sodium sulfite	sodium, sulfur and oxygen

Naming Compounds with 3 Elements 23/01/2025

Which elements are in the following compounds?

Element 1	**Element 2**	**Element 3**	**Name of Compound**
Potassium	Nitrogen	Oxygen	
Sodium	Sulfur	Oxygen	
Beryllium	Phosphate	Oxygen	
Aluminium	Chloring	Oxygen	
Phoshporus	Oxygen	Sulfur	
Caesium	Nitrogen	Oxygen	
Oxygen	Copper	Sulfur	

Compounds with 3 Elements

23/01/2025

Which elements are in the following compounds?

1. Sodium nitrate
2. Lithium sulphate
3. Calcium phosphate
4. Aluminium chlorate
5. Phosphorus sulfite
6. Caesium nitrite

Plenary

23/01/2025

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Fill in the blanks in the tables below – to check your understanding

Elements in the compound	Compound Name
Sodium, chlorine	
Beryllium, oxygen	
Potassium, Nitrogen, oxygen	

Elements in the compound	Compound Name
	Magnesium fluoride
	Zinc oxide
	Copper sulfate

Separating Compounds

23/01/2025

Starter

Name the compound made from the following elements?

1. Sodium and chlorine _____

2. Iron and nitrogen _____

3. Magnesium, sulfur and oxygen _____

4. Copper, nitrogen and oxygen _____

Separating Compounds

23/01/2025

Learning Intentions

- To learn about different techniques to separate compounds.

Success Criteria

- ❑ I can state that it is not easy to separate compounds into elements.
- ❑ Energy is often need to break apart elements in a compound.

Separating Compounds

23/01/2025

- The connections between elements in a compound are called chemical bonds.
- These are strong and often require energy to be used to break these connections.
- The energy can be supplied as heat, light or electricity.

Separating Compounds

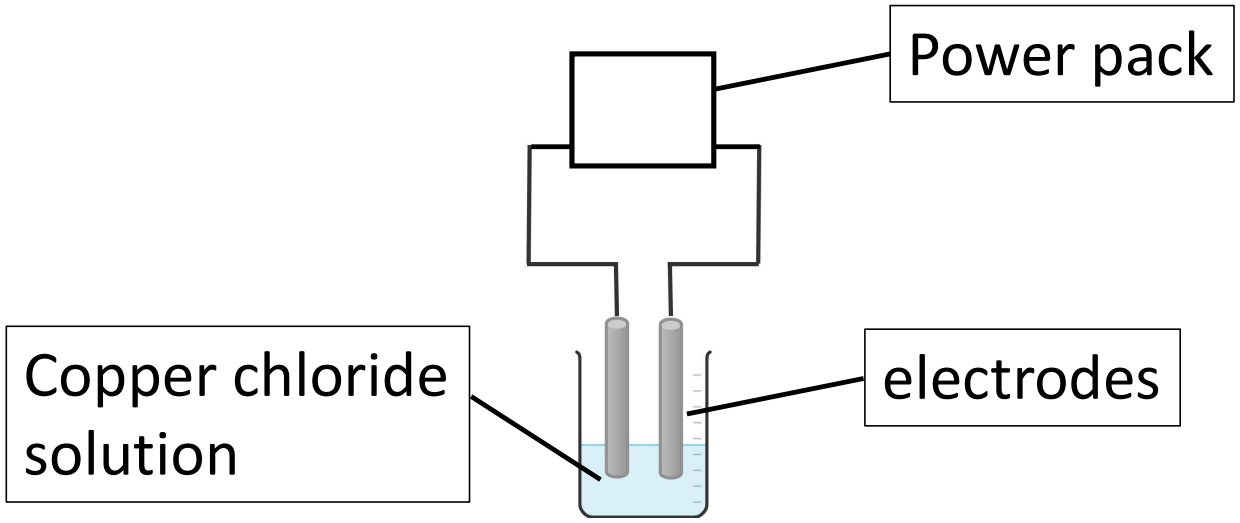
23/01/2025

Page 27

Aim

To find out if Copper Chloride can be separated into the elements copper and chlorine using electricity.

Method *Draw and label method.*



1. Connect the cables to D.C Supply Power.
2. Apply a voltage of 6 V across the circuit.
3. Observe what happens at either carbon electrode.

Results

	Observations	
	Before the experiment	After the experiment
POSITIVE carbon rod		
NEGATIVE carbon rod		

Conclusion

When copper chloride is electrolysed, a brown solid (_____) forms at the _____ electrode and bubbles of a gas which smells like the swimming pool (____) is produced at the_____ electrode.

Plenary

23/01/2025

Page 28

1. Complete the word equation:

Copper chloride ⟶ _____ + Chlorine

2. Identify the compound in the word equation.

3. Identify the elements.

4. Is it easy to break apart compounds?

Separation Techniques

23/01/2025

Page 29

Starter

1. How would you separate salt from sea water?
2. How would you separate sand from sea water?
3. Describe the meaning of the word soluble.
4. Describe the meaning of the word insoluble.

Separation Techniques

23/01/2025

Learning Intentions

- to use different separation techniques.
- To learn how to plan your own experiment
- To safely perform an experiment.
- To separate salt from salt water.

Separation Techniques

23/01/2025

Success Criteria

- ❑ I can plan my experiment.
- ❑ I can safely perform a filtration experiment.
- ❑ I can safely perform an evaporation experiment.

Purification

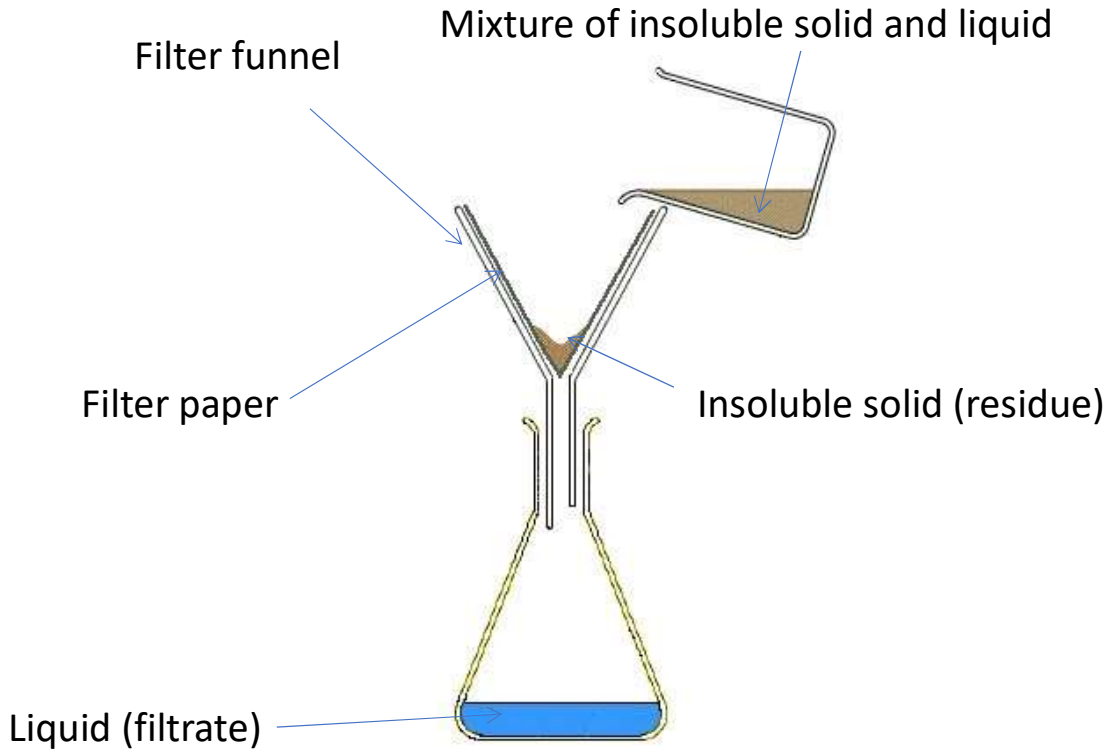
23/01/2025

- A pure substance is made up of only one component.
- The differences in properties will determine the method of purification that can be used.
- Filtration is used to separate an insoluble solid from a liquid.
- Evaporation is used to remove a liquid from a soluble solid.

Filtration

23/01/2025

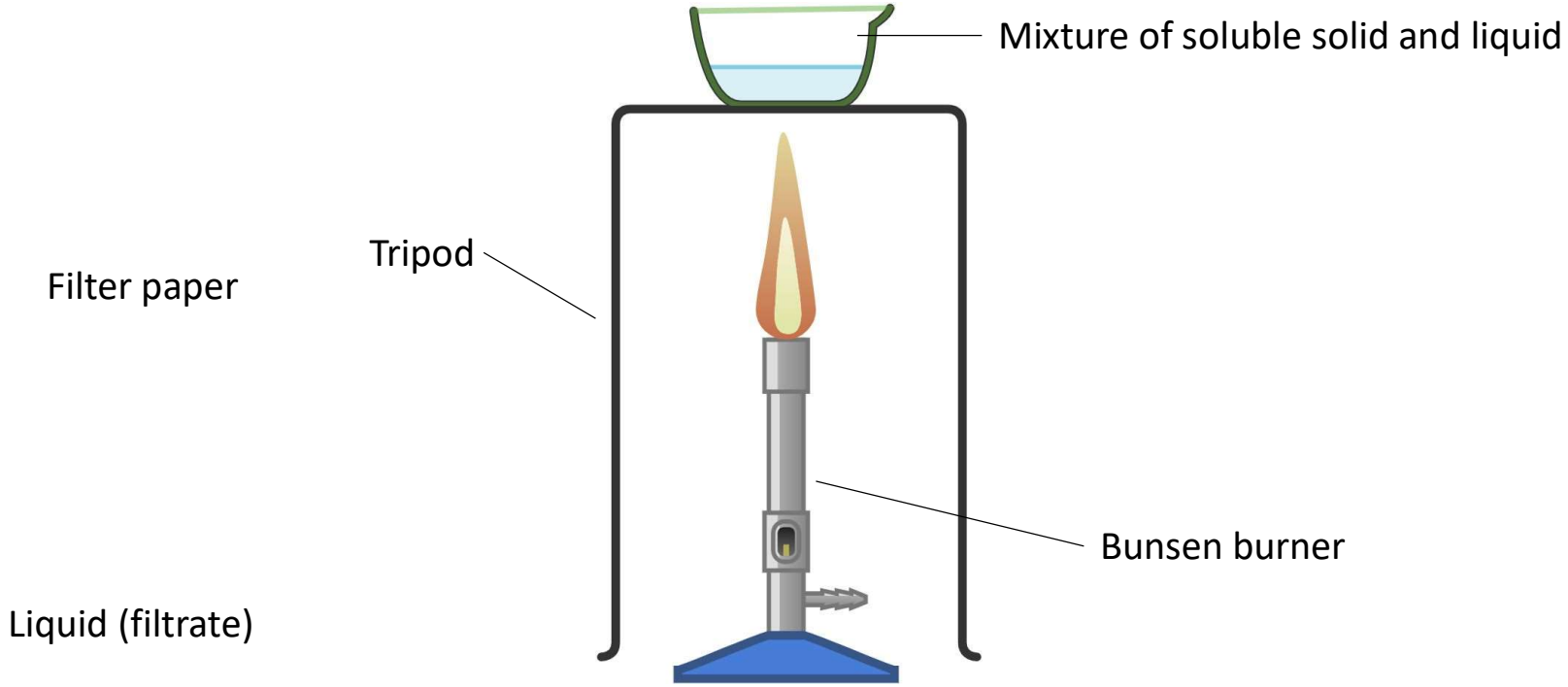
Filtration is used to separate an insoluble solid from a liquid. Solid is collected in the filter paper and the liquid is collected in the flask.



Evaporation

23/01/2025

Evaporation is used to remove a liquid from a soluble solid.



Investigation

23/01/2025

Page 31

Aim

To investigate how to make pure salt from rock salt (solid that contains sand, salt).

You will investigate the best way to make a pure sample of salt.

Purification of Salt from

23/01/2025

Aim

To investigate how to make pure salt

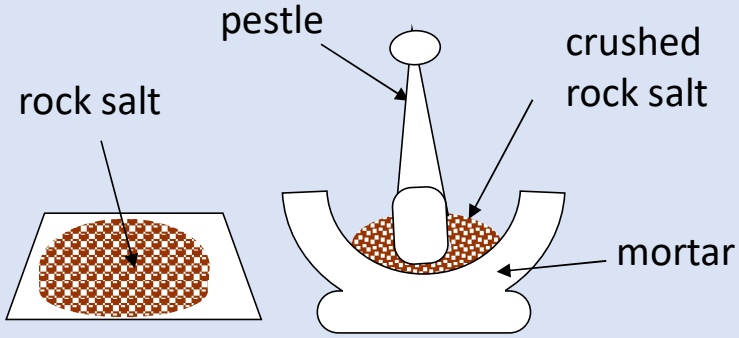
Method

Results

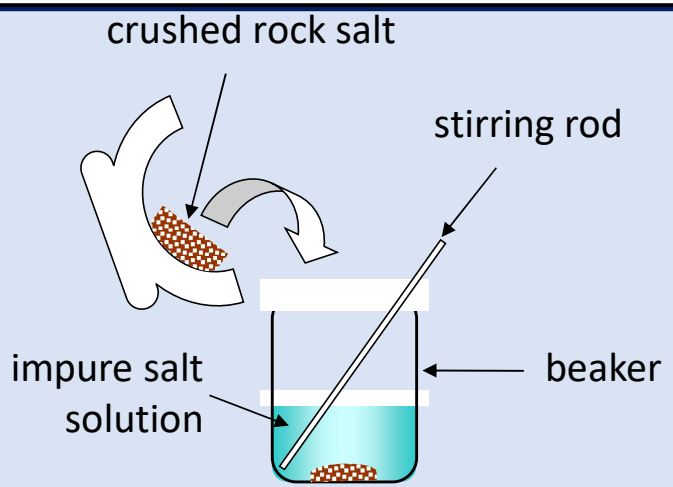
Conclusion: *How can you make pure salt (use the word soluble or insoluble)? What techniques did you use?*

Method

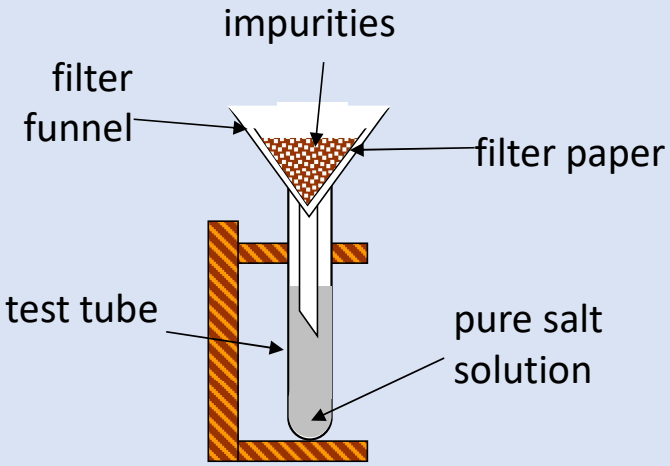
Step 1: Collect and crush a small amount of rock salt



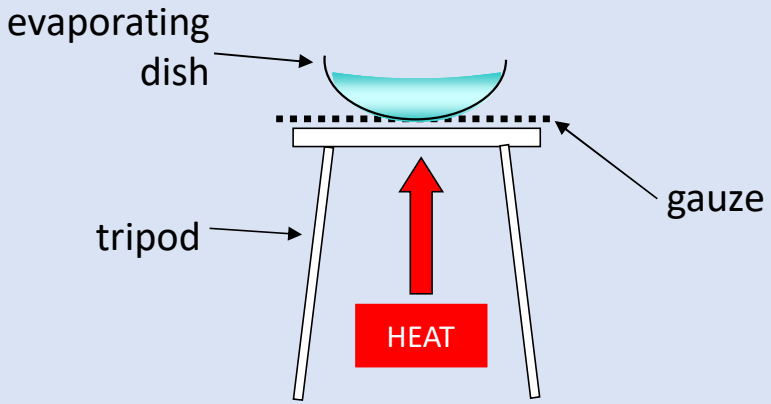
Step 2: Dissolve the salt in 50ml of water



Step 3: Filter the impure salt solution.



Step 4: Evaporate half the water from the pure salt solution



Purification of Salt from 23/01/2025

Results

Purification step	Observations

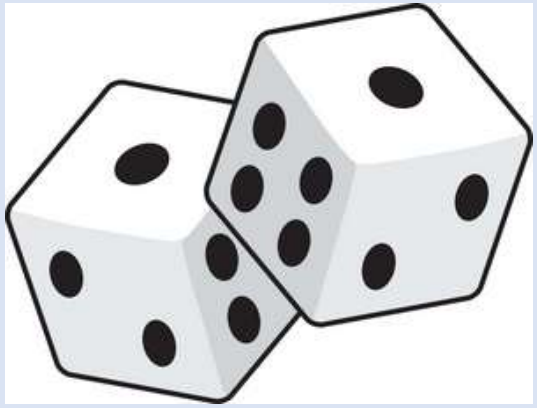
Conclusion

The Plenary Dice

1. Write down everything that you can remember from this lesson.

2. Write down two things you want to know more about

3. You will be given a key word, you must write everything you know about this word.



4. Write a question regarding today's lesson, then you may get to choose someone to answer your question.

5. Describe this lesson in 5 words

6. Name a skill that you have used in this lesson.

Put the picture cards in order

Separation Techniques

23/01/2025

Starter

1. How would you separate salt from sea water?
2. How would you separate sand from sea water?
3. Describe the meaning of the word soluble.
4. Describe the meaning of the word insoluble.

Separation Techniques

23/01/2025

Learning Intentions

- To learn about Chromatography as a separation technique.

Separation Techniques

23/01/2025

Success Criteria

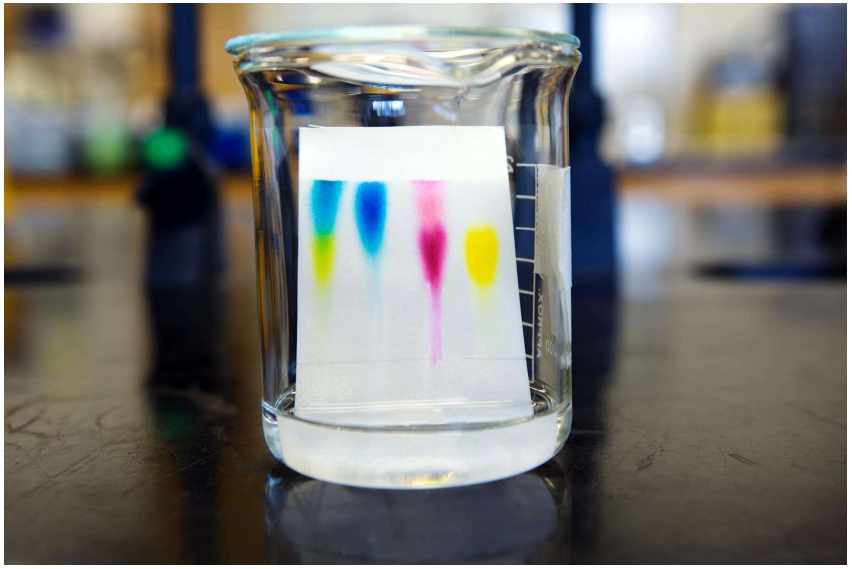
- ❑ I can perform a chromatography experiment.
- ❑ I can state that chromatography can be used to separate mixture in solution.

Chromatography

23/01/2025

Chromatography means colour writing!

It is used to separate a mixture of coloured or non-coloured substances that are soluble in the same solvent.

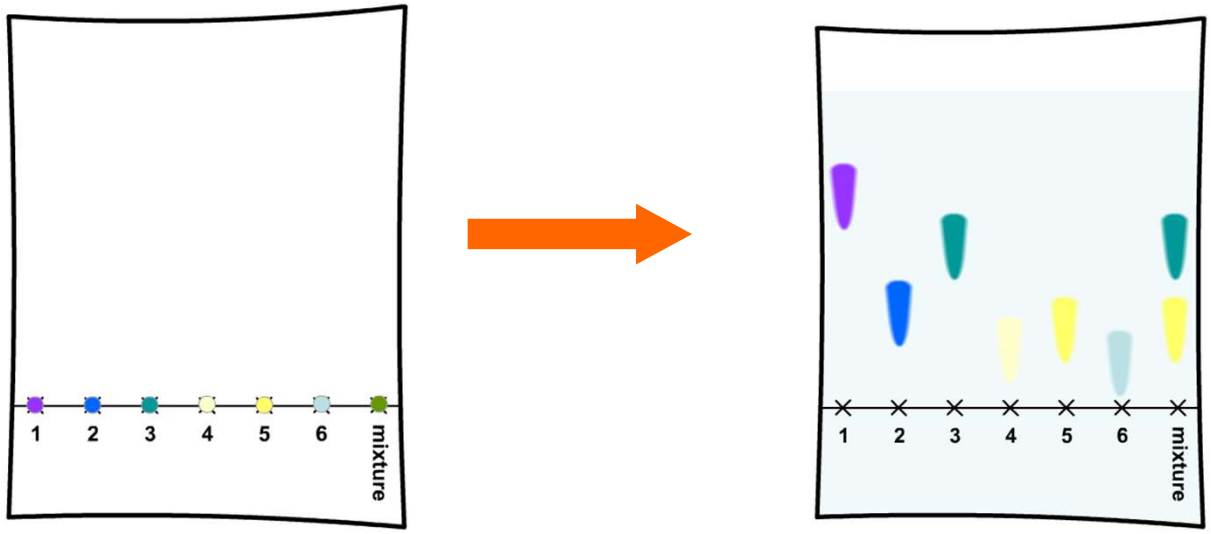


Chromatography

23/01/2025

Chromatography means colour writing!

It is used to separate a mixture of substances that are soluble in the same solvent.

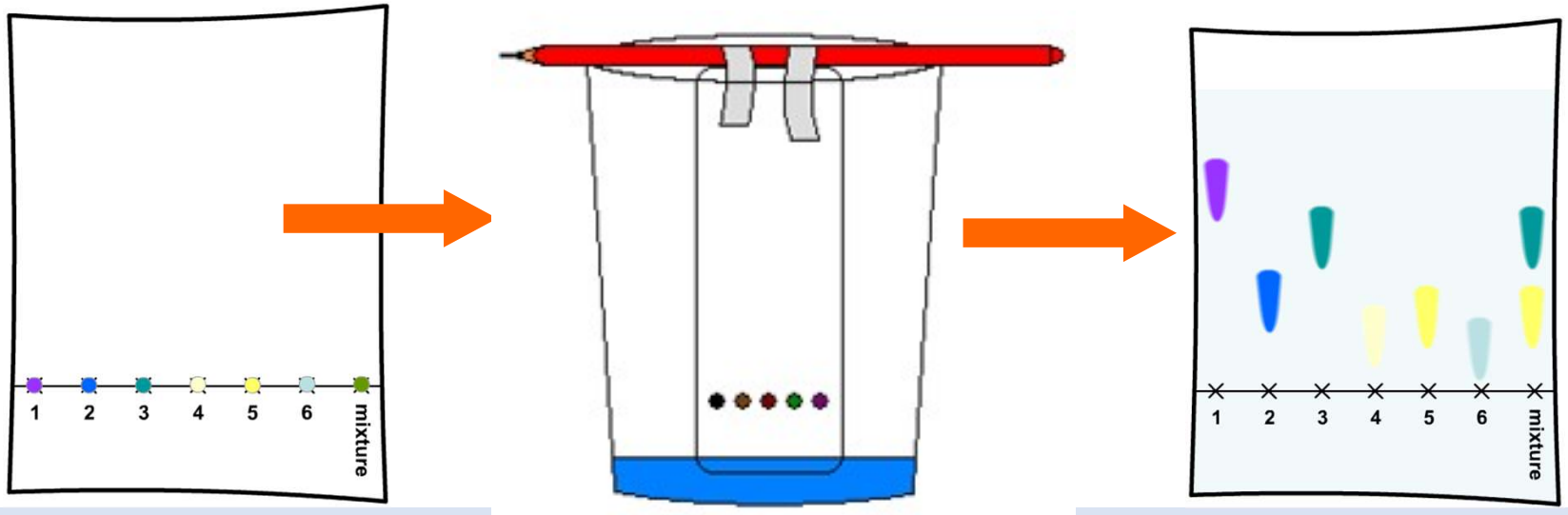


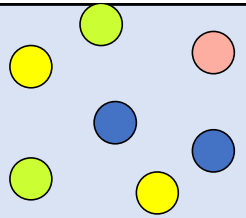
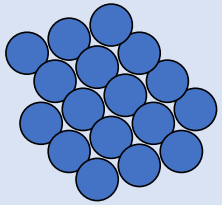
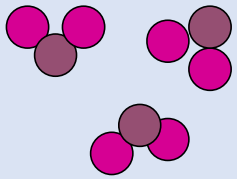
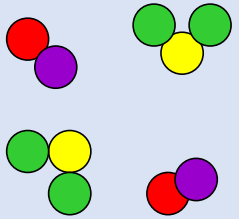
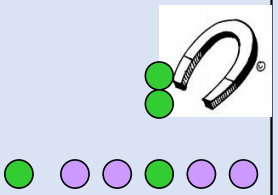
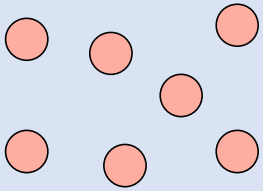
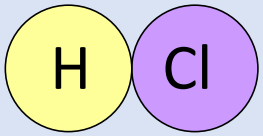
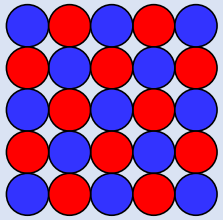
Chromatography

23/01/2025

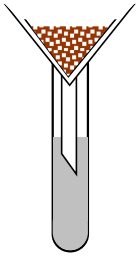
You have two investigations to carry out:

1. Identify the mixture of dye in pens. Which pen contains the most dyes?

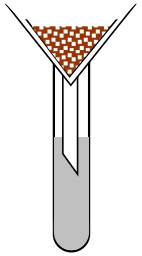


Na		 salt	Carbon dioxide		
	Contains only 1 type of atom		2 or more elements chemically combined	Components not combined together	
Has a symbol		$CuSO_4$	Has a formulae		Iron and sulphur in test tube
O_2			Magnesium chloride		Can be easily separated
Cannot be broken down	iron 				

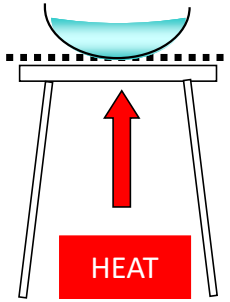
Element	Compound	Mixture



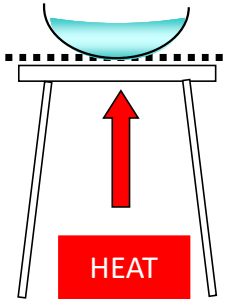
Filtration – used to separate s_____ from a s_____ . The solid gets stuck in the f_____ p_____, and the s_____ passes through.



Filtration – used to separate s_____ from a s_____ . The solid gets stuck in the f_____ p_____, and the s_____ passes through.



Evaporation – used to separate the solutThe liquid e_____ and leaves the s_____ behind.



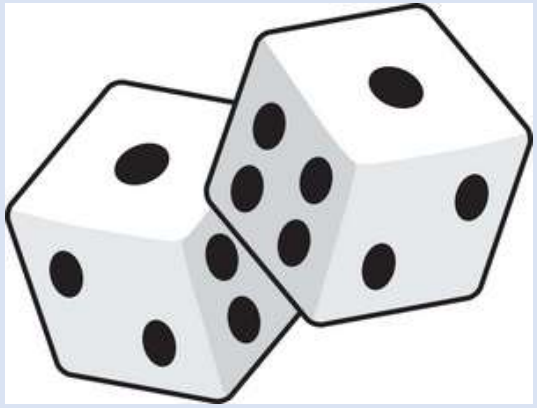
Evaporation – used to remove l_____ from a m_____ of liquid and d_____ s_____. The liquid e_____ and leaves the s_____ behind.

The Plenary Dice

1. Write down everything that you can remember from this lesson.

2. Write down two things you want to know more about

3. You will be given a key word, you must write everything you know about this word.



4. Write a question regarding today's lesson, then you may get to choose someone to answer your question.

5. Describe this lesson in 5 words

6. Name a skill that you have used in this lesson.

Plenary:

List 3 things you found out/learnt today

List 3 things your neighbour has learnt today

60 second challenge – sum up knowledge of text, or write down all the words you can think of to describe…

The answer is XYZ – now write the question. N.B. the question must begin with the words 'What is…'

Spot missing words in cloze summary of learning

True or false – hold up card/whiteboard to show whether statement on OHT is true or false

Change role – student as teacher. What questions would you ask the class and why?

Getting to know you

Spin the colour generator and answer **one** question about yourself from the table below.

Colour	Choose a question		
Purple	What is one of your hobbies?	When is your birthday?	What was your favourite part of today?
Blue	What is your favourite book?	Do you have any brothers and/or sisters?	What is your favourite subject in school?
Green	What's you favourite TV show/movie?	Do you have any pets? What kind?	What job would you like to do in the future?
Yellow	What's your favourite colour?	If you could have a super power what would it be?	What is your favourite memory from last school year?
Red	What's one of your favourite foods?	If you could travel anywhere, where would it be?	What did you enjoy doing this summer?

http://thewessens.net/ClassroomApps/Main/spin.html?topic=utilities&id=4

Name the Equipment Extension