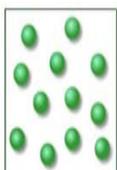


Y8 - Knowledge organiser 8.7 – Periodic table & Elements



Atoms, elements & compounds

1



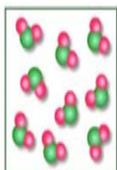
Atom

The smallest unit of an element
Ex) Na, Mg, Fe, Ar, Zn, Cu



Molecule of element

Same element chemically bonded
Ex) H₂, O₂, N₂, F₂, Cl₂, Br₂, I₂, S₈



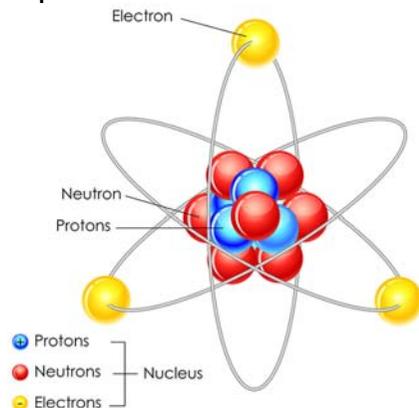
Molecule of compound

Different elements chemically bonded
Ex) H₂O, CO₂, HCl, CH₂O

Atomic Structure

2

- Proton, neutrons and electrons are sub-atomic particles.



Naming compounds

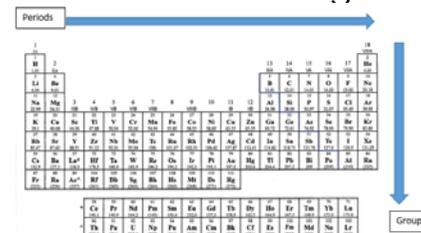
3

- Chemical formula: shows the elements present in a compounds & their proportions.
- Mono-: one
- Di-: two
- Tri-: three
- Non metals usually replace the ending with -ide.

The Periodic table

4

- Contains all the known elements arranged in rows and columns
- Metals are generally found on the left of the table, non metals on the right.



Properties

5

- As you go down a group and across a period the elements show patterns in properties.
- Physical properties: features that can be observed without changing the substance.
- Chemical properties: features of the way a substance reacts with other substances.

Special Groups

6

- Group 1 contains reactive metals called alkali metals
- Group 7 contains non metals called halogens
- Group 0 contains unreactive gases called noble gases.

Alkali metal patterns

7

- The reactivity of the element increases as you go down the group.
- The metals react with water and oxygen.
- Metals at the bottom of the group are the most reactive.

Halogen patterns

8

- The reactivity of the element decreases as you go down the group.
- The halogens darken in colour as you go down.
- The halogen at the bottom is the least reactive.

Knowledge organiser test

1. What is the smallest possible particle?
2. How many types of atom do elements contain?
3. What is a molecule?
4. What do we call the part in the centre of an atom.
5. What are the 3 particles (sub-atomic particles) that make up an atom?
6. What does the chemical formula tell us about a compound?
7. What 2 sub-atomic particles are found in the nucleus?
8. What are columns called in the periodic table?
9. What are rows called in the periodic table?
10. What side of the periodic table are metals found?

Answers

1. An atom
2. 1
3. 2 or more atoms joined together
4. The nucleus
5. Protons, neutrons and electrons
6. The elements that make up a compound and how many of each element there is
7. Protons and neutrons
8. Groups
9. Periods
10. The left hand side

Knowledge organiser test

1. What can you tell me about elements in the same group?
2. What are physical properties?
3. What are in group 1?
4. What information can you tell me about the noble gasses?
5. What happens to the reactivity of alkali metals as you go down the group?
6. What happens to the reactivity of halogens as you go down the group?
7. What is produced when the alkali metals react with water?
8. What does group 7 contain?
9. What is a column in the periodic table called?
10. What is a row in the periodic table called?

Answers

1. They react in similar ways
2. Features of a substance that can be observed without changing it.
3. The alkali metals
4. They are very unreactive **or** they are in group 8 **or** they have a full outer shell
5. Increases
6. Decreases
7. Metal hydroxide + hydrogen
8. Halogens
9. Group
10. Period