

GRADE 8 RATIONALIZED INTEGRATED SCIENCE

LESSON NOTES COMPLETE

STRAND 1- MIXTURES, ELEMENTS AND COMPOUNDS.

ELEMENTS AND COMPOUNDS

Meaning of Atoms, Elements, molecules and Compounds.

- Matter is anything that occupies space and has mass.
- Matter is composed of pure substances and mixtures.
- The pure substances are can be element and compounds while the mixtures can either be uniform or non-uniform.
- **An element** is a substance that cannot be decomposed into simpler substances by chemical or physical means.
- An element is a pure substance which cannot be made simpler using chemical means.
- Elements are the building blocks of matter. Everything around is made up of an element or elements.
- An element is made of atoms.
- Atoms of the same element are identical.
- **A compound** is pure substance that consists of atoms of two or more elements that are chemically joined together.
- Compounds are formed when atoms of different elements react.
- Compounds can be broken down into elements through chemical reactions.
- **Sodium** and **chlorine** are elements that combine chemically to form **sodium chloride** which is a compound.

Relating common elements to their symbols.

- Pure substances either elements or compounds has a unique name and symbol.
- A symbol is a sort -hand notation for the chemical name of an element.
- Chemical symbols are used instead of names by scientists because they are much easier, convenient and universally recognized.
- Compounds are represented by a chemical formula.
- A chemical symbol is usually derived from first letter of the English name of the element. • It is also derived from Latin name of the element.

For example,

- **H** is the chemical symbol of **hydrogen**.
- **O** is the chemical symbol of **Oxygen**.

- **K** is the chemical symbol of **potassium**. For potassium the **K** is derived from Latin word **Kalium**.
- Some elements might start with same first letters, such as **Carbon**, **Calcium**, **Chlorine** and **Copper** have their names starting with letter **C**, therefore letter **C** can not be used to represent all of them as chemical symbol.
- The first letter **C** is assigned to represent Carbon, while the rest of the elements are assigned two letters from their name as follows.

Carbon represented by **C**.

Calcium represented by **Ca**.

Chlorine represented by **Cl**

Copper represented by **Cu** from Latin word *cuprum*

- The first letter of a symbol is always capitalized, while the second letter is written in small letters.
- The symbols of some elements derived from English names are as follows:

	Name of element	Chemical symbol		Name of element	Chemical symbol
1	Hydrogen	H		Nitrogen	N
2	Helium	He	8	Oxygen	O
3	Lithium	Li	9	Fluorine	F
4	Beryllium	Be	10	Neon	Ne
5	Boron	B	11	Magnesium	Mg
6	Carbon	C	12	Aluminium	Al

- The symbols of some elements derived from Latin names are as follows:

	Name of element	Latin name.	Chemical symbol		Name of element	Latin name	Chemical symbol
1	Sodium	Natrium	Na		Silver	Argentum	Ag
2	Iron	Ferrum	Fe	8	Tin	Stannum	Sn
3	Copper	Cuprum	Cu	9	Zinc	Zincum	Zn
4	Lead	Plumbum	Pb				
5	Gold	Aurum	Au				
6	Mercury	hydrargyrum	Hg				

- Compounds are combinations of two or more elements.