



SHS LEARNING ACTIVITY

CHEM1-05-01

Name: _____ Score/Mark: _____

Grade and Section: _____ Date: _____

Strand: STEM ABM HUMSS ICT (*TVL Track*)Type of Activity : Concept Notes Skills: Exercise/Drill Illustration Laboratory Report Essay/Task Report Other: _____

Activity Title: 05-01.Chemical nomenclature

v03

Learning Target: To assign names to chemical compounds

Authors/References: Victor Sojo / Wikipedia: Metal; Brown, *Chemistry* 14ed.

Humans have been naming substances for a very long time, such as “water”, “vinegar”, “salt”, or “alcohol”. However, we now know that all compounds are made from the same 118 elements, so chemists have been able to develop systematic (organized) ways of naming compounds. This is called **chemical nomenclature**.

Let’s first learn some major types of compounds in **inorganic chemistry**:

Salts are typically made of a **metal** cation and a **non-metal** anion. We’re already familiar with common table salt, sodium chloride (NaCl); but there are many more **binary salts** (made of only two elements), such as barium chloride (BaCl₂), potassium fluoride (KF), aluminium sulfide (Al₂S₃), and lithium nitride (Li₃N).

Ternary salts are made of three elements. Typically, oxygen is part of the anion, in which case it is called an **oxyanion**. They include sulfates (SO₄²⁻), phosphates (PO₄³⁻), nitrates (NO₃⁻), carbonates (CO₃²⁻) and many more.

Hydroxides are a special kind of ternary salt, in which the anion is always OH⁻. They include common **bases** (or **alkalis**) such as NaOH and Ca(OH)₂.

Metal oxides are also ionic (like salts). A most familiar one is ferric oxide, Fe₂O₃, also called iron(III) oxide (because the **charge** of iron is 3+). There is also the iron(II) or “ferrous” ion, Fe²⁺, which forms ferrous oxide FeO.

Non-metal oxides have covalent bonds, such as in carbon dioxide, CO₂.

Acids have hydrogen as the proton ion, H⁺, and one of the anions from the binary or ternary salts. Some well-known ones are hydrochloric acid (HCl), sulfuric acid (H₂SO₄), nitric acid (HNO₃), and phosphoric acid.

Exercises: We didn’t really give any full examples of ternary salts above. Write the formulas for sodium sulfate, barium nitrate, and calcium phosphate. For this, you need the **charges** of the cations: Na⁺, Ba²⁺, Ca²⁺.

We also didn’t give the formula for phosphoric acid. Can you deduce it?

