LEARNING AS ONE NATION

Expanded Project

GC1 Q1_8

SHS LEARNING ACTIVITY

Name: _____ **Score/Mark:** _____

Grade and Section: _____ **Date:** _____

Strand: ☑ STEM ☐ ABM ☐ HUMSS ☐ ICT (*TVL Track*)

Subject: *General Chemistry 1*

Type of Activity: ☑ Concept Notes ☐ Skills: Exercise/Drill ☐ Illustration ☐ Performance Task ☐ Essay/Report ☐ Others: _____

Activity Title: **A-06. Common Cations**

Learning Target: To familiarize with the most typical cations

References: *(Author, Title, Pages)*
Chang, Chemistry 10th ed., pp. 60–61
Petrucci, Chemistry 10th ed., pp. 88-91
V. Sojo, J. Sadudaquil, and M.D.A.D. Cadeliña, CVIF-DLP Learning Activities

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**.

Before we venture in naming the compounds, let us first familiarize with the inorganic cations and anions. Guidelines for naming of the cations are the following:

1. Cations with a unique charge simply receive the name of their element.

Only 1+:	All in Group 1 of the periodic table (Li^+, Na^+, K^+, Rb^+, Cs^+), Ag^+
Only 2+:	All in Group 2 (Be^{2+}, Mg^{2+}, Ca^{2+}, Sr^{2+}, Ba^{2+}), Cd^{2+}, Zn^{2+}
Only 3+:	Al^{3+}

2. Cations with two typical charges can be named in two ways: (1) placing a Roman numeral in parentheses after the metal name and (2) ending the root of the element's Latin name with –ous and –ic (older method).

Cu^+	copper (I)	cuprous	Au^+	gold (I)	aurous
Cu^{2+}	copper (II)	cupric	Au^{3+}	gold (III)	auric
Hg_2^{2+}	mercury (I)	mercurous	Fe^{2+}	iron (II)	ferrous
Hg^{2+}	mercury (II)	mercuric	Fe^{3+}	iron (III)	ferric
Sn^{2+}	tin (II)	stannous	Co^{2+}	cobalt (II)	cobaltous
Sn^{4+}	tin (IV)	stannic	Co^{3+}	cobalt (III)	cobaltic
Pb^{2+}	lead (II)	plumbous	Cr^{2+}	chromium (II)	chromous
Pb^{4+}	lead (IV)	plumbic	Cr^{3+}	chromium (III)	chromic

3. Names of cations from nonmetal atoms end in –ium.

NH_4^+	ammonium	H_3O^+	hydronium

Exercise: What can you relate between the charges of the elements and the roots -ic and -ous?