

## Chemical Formulas

**Unit:** Nomenclature & Formulas

**MA Curriculum Frameworks (2016):** HS-PS2-6

**Mastery Objective(s):** (Students will be able to...)

- Write chemical formulas for ionic compounds when the number of atoms of each element is given.

**Success Criteria:**

- Elements are listed in the correct order.
- Subscripts give the correct number for each element.

**Tier 2 Vocabulary:** formula

**Language Objectives:**

- Explain what the subscripts mean in a chemical formula.

**Notes:**

chemical formula: a formula that describes a compound by listing how many of each element it's made of.

Some examples:

- $\text{Fe}_2\text{O}_3$  has 2 Fe (iron) atoms and 3 O (oxygen) atoms.
- $\text{CaCl}_2$  has 1 Ca (calcium) atom and 2 Cl (chlorine) atoms.
- $\text{C}_{21}\text{H}_{30}\text{O}_2$  has 21 C (carbon) atoms, 30 H (hydrogen) atoms, and 2 O (oxygen) atoms.

Elements in a chemical formula are listed with metals first, then non-metals, and almost always in order by increasing electronegativity: the least electronegative element is listed first, and the most electronegative one is listed last. (Exceptions are organic compounds and acids.)

(Note: the variable  $\chi$  is usually used for electronegativity.)

For example: a compound made from  $\text{Mg}^{2+}$  ions ( $\chi_{\text{Mg}} = 1.31$ ) and  $\text{Cl}^-$  ions ( $\chi_{\text{Cl}} = 3.16$ ) would be  $\text{MgCl}_2$ , not  $\text{Cl}_2\text{Mg}$ .

Use this space for summary and/or additional notes: