

Chemical Formulas

Unit: Nomenclature & Formulas

NGSS Standards/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:

- Fe_2O_3 has 2 Fe (iron) atoms and 3 O (oxygen) atoms.
- 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 χ is usually used for electronegativity.)

For example: a compound made from Mg^{2+} ions ($\chi_{\text{Mg}} = 1.31$) and Cl^- ions ($\chi_{\text{Cl}} = 3.16$) would be MgCl_2 , not Cl_2Mg .

Use this space for summary and/or additional notes: