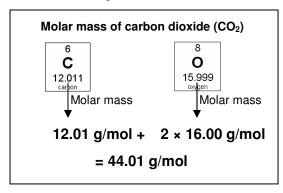
The term **mole** is used in chemistry as a method for counting or grouping atoms. In the same way that a dozen is used to count eggs, the mole is used for counting very tiny particles such as atoms and molecules. The **mass** of an object is related to its weight. Masses are reported in grams. The mass of a mole of atoms is called the **molar mass**. A mole of carbon atoms is 12.0 grams while a mole of oxygen atoms is 16.0 grams.



<u>Name</u>	Symbol	Molar Mass
carbon atom	C	12.01 g/mol
oxygen atom	O	16.00 g/mol
oxygen molecule	O_2	32.00 g/mol
potassium nitrate	KNO ₃	101.11 g/mol
calcium carbonate dihydrate	$CaCO_3 \cdot 2H_2O$	136.13 g/mol

example

What is the molar mass of iron (II) nitrate, $Fe(NO_3)_2$?

- add the masses of all the atoms:

55.85 + 2(14.01) + 6(16.00) = 179.87 g/mol

Answer the following questions.

- 1. What is the molar mass of argon (Ar)?
- 2. Find the molar mass of gold (Au).
- 3. Hydrogen peroxide, H₂O₂ is used as an antiseptic. What is its molar mass?
- 4. What is the molar mass of calcium carbonate, CaCO₃?
- 5. Lye is the common name for sodium hydroxide, NaOH. What is its molar mass?
- 6. Perfluoroethylene, C₂F₄ is polymerized into Teflon, a chemical used to coat non-stick surfaces. What is its molar mass?
- 7. Find the molar mass of acetylene C_2H_2 , the gas used in welding torches.
- 8. Vinegar contains acetic acid, HC₂H₃O₂. What is the molar mass of this substance?
- 9. What is the molar mass of magnesium sulfate, MgSO₄?
- 10. Find the molar mass of phosphorus pentachloride, PCl₅.

- 11. Bromine is diatomic. Find the molar mass of the bromine molecule, Br₂.
- 12. What is the molar mass of phosphoric acid, H₃PO₄?
- 13. Rubbing alcohol has the chemical formula C₃H₇OH. Find its molar mass.
- 14. What is the molar mass of aluminum sulfate, $Al_2(SO_4)_3$?
- 15. Vitamin C is also called ascorbic acid, C₆H₈O₆. What is its molar mass?
- 16. What is the molar mass of Freon-113 $(C_2F_3Cl_3)$?
- 17. A diatomic gas has the molar mass 38.00 g/mol. What is a possible formula?
- 18. Find the molar mass of aspirin, C₇H₆O₃.
- 19. What is the molar mass of potassium hydrogen phthalate, KHC₈H₄O₄?
- 20. A hydrocarbon has the molar mass 26.04 g/mol. What is a possible formula?