1 dozen roses =	12 roses
1 ton of books =	2000 books
1 baker’s dozen rolls =	13 rolls
1 ream of paper =	500 sheets of paper
1 mol of dogs =	6.02×10^{23} dogs

The Mole (mol)

- *SI base unit* for the amount of a substance
- The amount of a substance that contains as many particles as there are atoms in exactly 12 grams of carbon-12

1 mol = Avogadro's number = 6.02×10^{23}

Molar Mass

- The mass of one mole of a pure substance is called the molar mass of that substance.
- Unit is expressed as g/mol

- The molar mass of an element is equal to the atomic mass of the element in atomic mass units.

ex. Nitrogen has a molar mass of 14.01 g/mol

Molar Volume of a Gas

The volume occupied by *one mole of a gas* at standard temperature and pressure (STP)

$1\ mol_{gas}$ @ STP = 22.4 L

(contains **6.02×10^{23} gas molecules)**

Formula (molar) Mass

- The mass of one mole of a compound
- Equal to the sum of the masses of every element that makes up the compound

example: Find the molar mass of $CaCl_2$.

Ca: 40.08 g

Cl: 2 x (35.45 g)

110.98 g/mol $CaCl_2$