Ch. 3 & 7 – The Mole

II. Molarity
(p. 412-415)

I II III IV

A. Molarity

- Concentration of a solution.

substance being dissolved

$$Molarity\ (M) = \frac{moles\ of\ solute}{liters\ of\ solution}$$

total combined volume

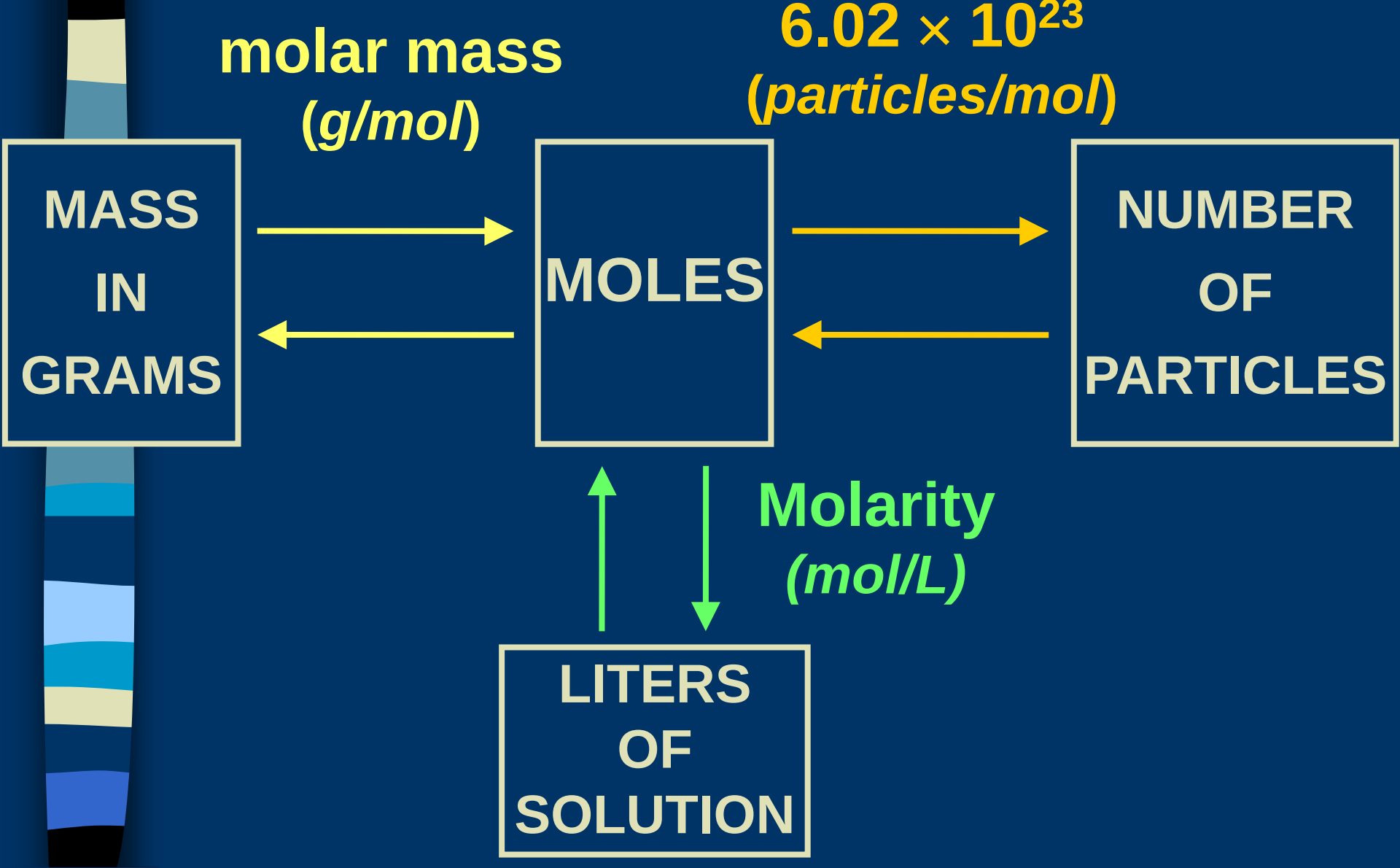
A. Molarity

$2M\ HCl$ What does this mean?

$$M = \frac{mol}{L}$$

$$2M\ HCl = \frac{2\ mol\ HCl}{1\ L}$$

B. Molarity Calculations



B. Molarity Calculations

- How many grams of NaCl are required to make 0.500L of 0.25*M* NaCl?

$$0.500\ \cancel{L} \times \frac{0.25\ \cancel{mol}}{1\ \cancel{L}} \times \frac{58.44\ g}{1\ \cancel{mol}}$$

$$0.25M = \frac{0.25\ mol}{1\ L}$$

= 7.3 g NaCl

B. Molarity Calculations

- Find the molarity of a 250 mL solution containing 10.0 g of NaF.

$$\frac{10.0\ \cancel{g} \mid 1\ \text{mol}}{\mid\ 41.99\ \cancel{g}} = 0.238\ \text{mol NaF}$$

$$M = \frac{\text{mol}}{L}$$

$$M = \frac{0.238\ \text{mol}}{0.25\ \text{L}} = 0.95M\ \text{NaF}$$