The Practise Ground

Class 11 Chemistry

The Mole Concept

The bridge between mass, particles and volume

1

$$n = m / M$$

Moles from mass

m = given mass (g), M = molar mass (g/mol)

2

$$N = n \times 6.022 \times 10^{23}$$

Particles from moles

Avogadro's number: 6.022×10^{23} particles per mole

3

$$V = n \times 22.4\ L$$

Gas volume at STP

1 mole of any ideal gas occupies 22.4 L at STP

4

$$C = n / V$$

Molarity (concentration)

Moles of solute per litre of solution (mol/L)

n	m	M	V	C
moles	**mass**	**molar mass**	**volume**	**molarity**
mol	g	g/mol	litre (L)	mol/L

Method

Convert everything to moles first: it links mass, particles and volume.

Check units: grams for mass, litres for volume.

Quick example

36 g of water (M = 18 g/mol)

n = 36 / 18 = 2 mol

Molecules = $2 \times 6.022 \times 10^{23} = 1.204 \times 10^{24}$

Think you've got it? Test yourself.

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