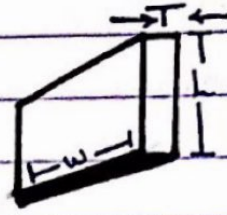


Experiment 1: Density of a Metal and Distance between its Atoms:

NOTE: in Metal, the atoms are spherical and identical



$$V = w \times T \times L$$

* To calculate (Estimate) Number of atoms (N) in piece of Material:

(العدد التقريبي للذرات في قطعة المادة)

$$N = n(N_A) = \frac{M}{A_w} N_A$$

M → (الكتلة) Mass

N_A → Avogadro's Number

A_w → Atomic Mass

الكتلة الذرية

if we assumed that every Atom is inside a box of edge (a), we can describe the law of N in another way:

$$N = \frac{M}{\rho a^3} \quad \text{density} \leftarrow \rho, \text{ volume} \leftarrow a^3, \text{ mass} \leftarrow M$$

from equations (1) and (2):

$$a = \sqrt[3]{\frac{A_w}{\rho N_A}}$$

UNC. ?

Mass: Estimated by The Balance scale.

$$\text{Volume: } \frac{\Delta V}{V} = \frac{\Delta T}{T} + \frac{\Delta L}{L} + \frac{\Delta w}{w}$$