VOLUME AND SURFACE AREA

Anything which occupies space and has definite shape is called a "solid".

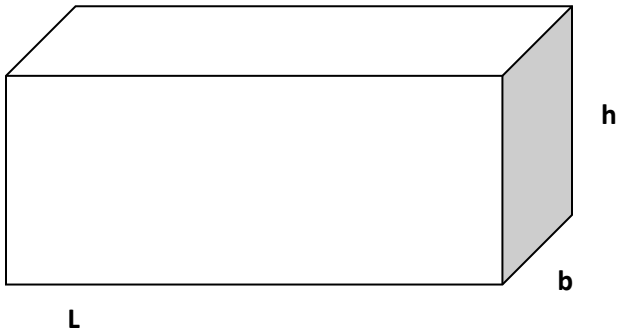
Space occupied by a solid is called its "volume".

The sum of areas of all the faces of a body is called its "surface area".

Area = A ; Volume = V ; Total Surface Area = TSA ; Lateral surface Area = LSA ; Curved Surface Area = CSA

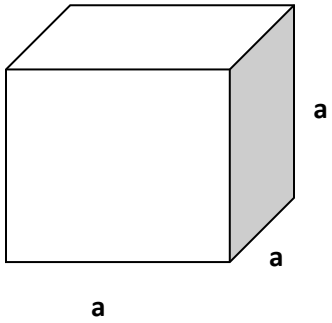
CUBOID:

- **A rectangular solid having six faces, each of which is a rectangle is called cuboid.**
- **V = length × breadth × height = l×b×h**
- **TSA = 2 [(l*b)+(b*h)+(h*l)]**



CUBE:

- **A rectangular solid having six faces, each of which is a square called cube.**
- **V =** $(edge)^3 = a^3$
- **TSA =** $6a^2$



APPLICATIONS:

❖ **For a room:**
> Area of each wall along length = l × h
> Area of each wall along length = b× h
> Area of 4 walls of room = 2lh + 2bh =2(l + b) × h
> Area of roof = l × b

❖ **For a box:**
> Space occupied by it = its external volume
> Its capacity = its internal volume
> Volume of the material in it = its external volume- its internal volume

❖ **For a closed box:**
If l, b, h are the external length breadth and height respectively and x is the wall thickness then
> Its internal length = = l – 2x
> Its internal breadth = b – 2x
> Its internal height = h – 2x

Volume of a material in a hollow body = External volume - Internal Volume