

## Common properties of bodies

## Density

Relation between the mass and the volume of a body - Identical volume

## Object of the experiment

1. Investigating the relation between the mass and the volume in the case of bodies of equal volume and different substances

## Setup



## Measuring example

$$V_{\text{cube}} = 1 \text{ cm}^3$$

$$m_{\text{wood}} < m_{\text{Al}}$$

$$m_{\text{Al}} < m_{\text{Zn}}$$

$$m_{\text{Zn}} < m_{\text{Fe}}$$

$$m_{\text{Fe}} < m_{\text{Ms}}$$

$$m_{\text{Ms}} < m_{\text{Cu}}$$

$$m_{\text{Cu}} < m_{\text{Pb}}$$

## Evaluation

Bodies of equal volume and different substances do not have the same mass.

The greater the mass of these bodies, the greater their density.

## Apparatus

1 Cubes, set of 8 .....	666 100
1 Lever, 37.5 cm .....	340 831
2 Balance pans with stirrup, set of 2 .....	342 47ET2
1 Plug-in axles, set of 2 .....	340 811ET2
1 Vernier callipers .....	311 52
2 Stand bases MF .....	301 21
1 Stand rod, 25 cm, 10 mm diam.....	301 26
1 Stand rod, 50 cm, 10 mm diam.....	301 27

## Carrying out the experiment

- Use the vernier callipers to measure the edge length of a cube and calculate the volume (see also D 1.1.1.1).
- Determine the volume of the other 7 cubes by comparing the sizes.
- Equilibrate the balance by means of the taring rider.
- Put the Al cube on one pan and the wooden cube on the other one.
- Observe the balance and compare the masses of the two cubes.
- Repeat the experiment with other combinations of cubes.