



**Material:**

Item-no.	Qty.	Description
DS101-1G	1	Support base, large, L=500 mm
DS093-04	1	Sliding saddle "Sepp", H=40 mm
DS300-50	1	Support rod, squared, L=500 mm, 12x12 mm
DS400-3K	1	Boshead cross-pattern, Demo, green
DS204-2L	1	Bearing pin with clamp insert
DM221-1H	1	Lever rod, metal, L=1000 mm

Weights on hooks

## Purpose

To demonstrate the equilibrium condition on the two-sided lever.

## Preparation

Place the sliding saddle in the centre of the large support base and insert the support rod into the sliding saddle; afterwards mount the bosshead at the top of the support rod.

Remove the bearing pin from the clamp insert and put the bearing pin through the laterally displaced central hole of the lever rod.

Now put the bearing pin back into the clamp insert and mount the clamp insert at the bosshead.

If necessary the lever rod can be balanced with the screws on the side.

## Experiment

Different equilibrium positions are established and the associated normal distances "n" and forces "F" are read (500g corresponds to approx. 5N).

"N" is the normal distance between the pivot point and the point of application of the force "F".

Calculation according to the figure:

$$10 \text{ N} \times 0.4 \text{ m} = 20 \times 0.2 \text{ m}$$

## Result

The law of the lever applies:

The product of force and normal distance is constant.

Opposing torques keep each other in balance.

## Application

for example a beam scale (see MED 01.07)