Student Experiments

Manual

MECHANICS 1

P9160-4B

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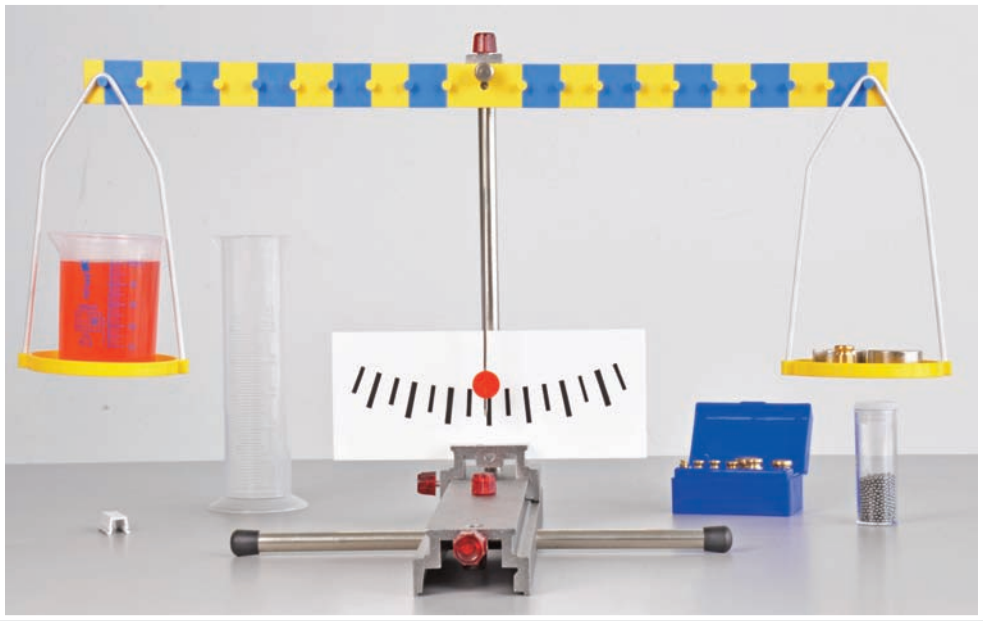
MASS AND UNITS OF MASS

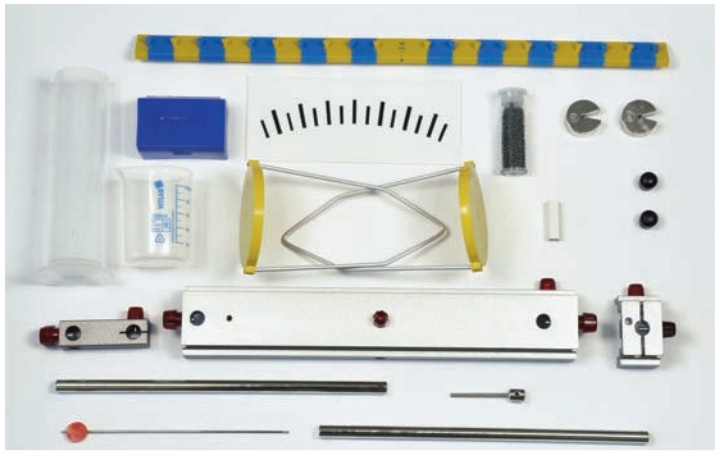
MES 1.4

Required Kit:
P9901-4A Rail stand material
P9901-4B Mechanics 1



Material:

1x Bearing pin
1x Stand rail 300mm
1x Bosshead universal
1x Slider for screens, springs and pointers
2x Support rod 250 mm
2x End-cap for rods
2x Scale pan with suspension
1x Pointer for lever rod
1x Scale with graduation
1x Sliding saddle for lever rod
1x Lead (tare) shot 50g
1x Beaker plastics 100 ml
1x Graduated cylinder plastics 100 ml
2x Slotted weight, 50 g
1x Balance weights set
1x Lever rod for balance



MASS AND UNITS OF MASS

MES 1.4

When we go to a shop and buy 1 kg of sugar, we get a certain „mass" of sugar.
1 kg is the unit of the physical quantity mass.

Preparation:

Arrange the apparatus according to the illustration. A 25 cm rod is pushed through the cross hole of the stand rail. The rod is fixed by means of the knurled screw. The caps for the rods are fixed at both ends. The second 25 cm rod is fixed vertically in the stand rail. The universal bosshead is clamped to the vertical rod.

The lever balance is fixed to the universal bosshead in the upper hole by means of the bearing pin. The pointer is screwed in the middle of the lever balance. The scale is attached to the stand rail in front of the vertical rod by means of the sliding saddle with slot.
The two scale pans are fixed at both ends of the lever balance.
The pointer must point exactly to the median line of the scale.
The lever balance can be brought into that position by means of the sliding saddle for lever balance.

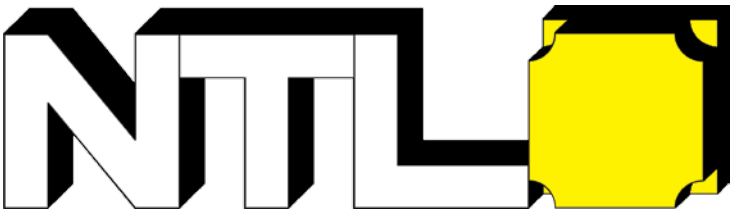
Experiment:

The beaker is put on the left scale pan. The scale pan is held by hand until balance is reached by putting masses and tare shots onto the right scale pan („taring").

2 slotted masses of 50 g arew put onto the right scale pan. Water (from the measuring cylinder) is poured into the beaker on the left scale pan until counterbalance i sreached again.
Then the water is filled into the empty measuring cylinder and ist volume is defined.

Conclusions:
1. Masses are compared by means of scales.
2. The mass of 1 ml of water is 1 g, the mass of 1 l of water is 1 kg.

Result: The mass of 100 ml of water is 100 g.



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