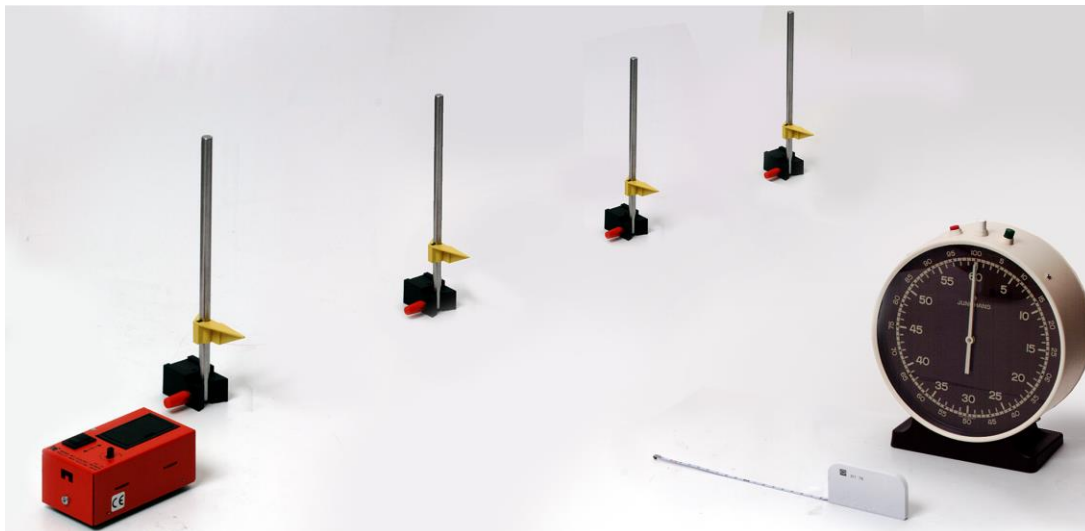


Motion  
Uniform motionRelationship between distance, time and velocity  
Trolley with electric drive

## Objects of the experiment

1. Measure the time  $t$  a body requires to cover a distance  $s$
2. Calculate velocities of a body

## Setup



## Apparatus

1 Trolley with electric drive.....	337 07
1 Set of 4 1.5 V (AA) batteries .....	685 44ET4
1 Table stop-clock.....	313 05
1 Steel tape measure, 2 m.....	311 77
4 Stand rods, 250 mm, 10 mm diam.....	301 26
4 Support blocks .....	301 25
2 Pairs of pointers.....	301 29

## Procedure

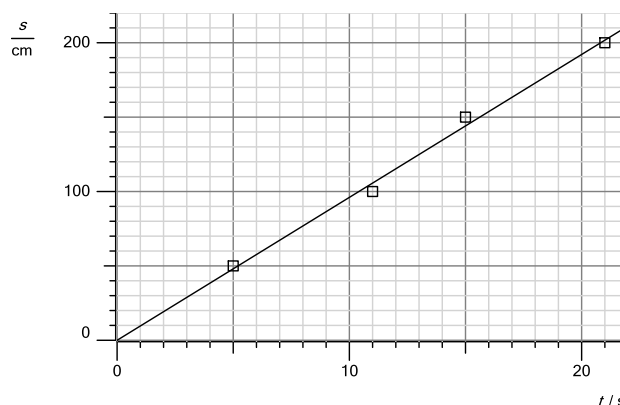
- Set up marker rods at 50 cm intervals.
- Set up a slow velocity via the rotary knob on the trolley.
- Position the trolley about 25 cm in front of the first marker.
- Activate the start switch of the trolley so that it starts to move forwards.
- When the front edge of the trolley reaches the first marker rod, press the green start button on the stop-clock.
- When it reaches the second marker, press the red stop button of the clock.
- Read off the time from the stop-clock and enter it into the table.
- Make repeat measurements of time between the first and third markers and between the first and fourth.
- In each case, calculate the velocity of the body from the distance and time.

## Measuring example

Distance $s$ in cm	Time $t$ in s	Velocity $v$ in m/s
50	5	10
100	11	9
150	15	10
200	21	9.5

## Evaluation

1. In the case of uniform motion, distance and time are proportional to one another:  $s \sim t$ .



2. The velocity of a body moving with uniform motion can be calculated from the distance covered and the time taken to cover that distance:  $v = \frac{s}{t}$ .

$$v = \frac{s}{t}$$

If a body is moving with uniform motion, its velocity is the same at all times.