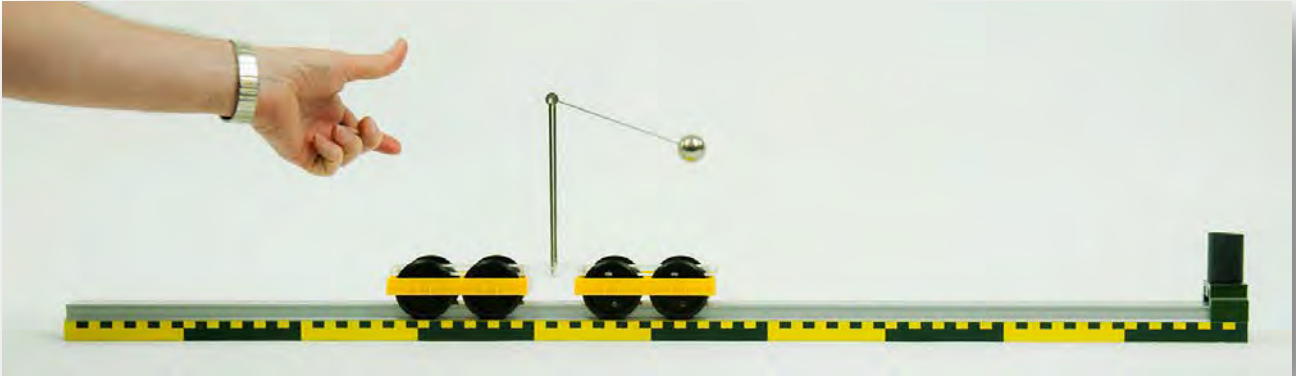


CONSERVATION OF MOMENTUM AND ENERGY

MED 08.05



Material

Item-no.	Qty.	Description
DS101-3B	1	Stand rail with scale, L=1000 mm
DM300-2A	2	Dynamics trolley, demo, 50 g
DM335-1S	1	Momentum accessory for two trolleys
DS103-1H	1	Holder for guide rail
DM362-1E	1	Baffle block

CONSERVATION OF MOMENTUM AND ENERGY

MED 08.05

Purpose

To demonstrate the conservation of momentum and energy in a closed system

Preparation

Place the stand rail on a horizontal stable surface; afterwards fix the holder for guide rail to the end of the stand rail and place the baffle block on it.



Attach the momentum accessory to the two dynamics trolleys.



Place this “momentum”-unit in the centre of the stand rail.

Experiment 1

The pendulum ball is deflected (this supplies the system with energy). With the ball raised and the car at rest, the total momentum is zero.



Release the ball and observe the movement of the dynamics trolleys.

Result

At the lowest point of the ball the potential energy has been transformed into kinetic energy of the trolley and the ball; the ball has the greatest speed and therefore the greatest momentum. However because the trolley is moving in the opposite direction the total momentum is still Zero. When the ball swings up the entire kinetic energy has turned back into potential energy; the ball and the trolley stand still thus the total momentum is still zero.

Experiment 2

Place the “momentum”-unit (two trolleys with momentum accessory) at the beginning of the stand rail.

Give the unit a short push with your finger into the direction of the baffle block



It is observed if and how the “momentum”-unit moves on.