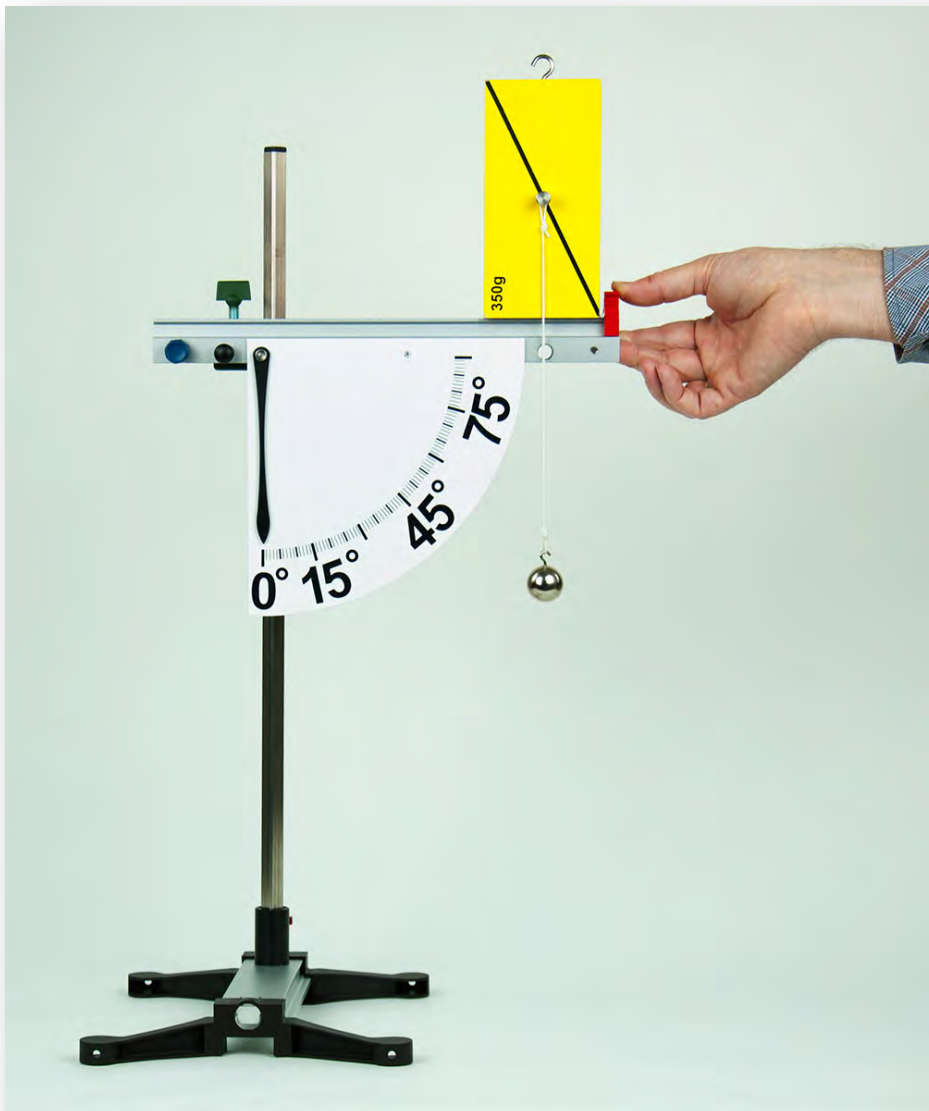




Material:

Item-no.	Qty.	Description
DS090-3K	1	Claw base "Sepp", 260 x 220 mm
DS300-50	1	Support rod, squared, L=500 mm, 12x12 mm
DS400-3K	1	Bosshead cross-pattern, Demo, green
DS130-1S	1	Inclined plane, simple (02)
DS105-1R	1	Marking slider, red
DM680-2R	1	Block for friction and stability
P7230-4E	1	Bearing pin
DM385-2S	1	Pendulum bob, steel, D=1"
DG200-1S	1	Cord, white, D=1.7 mm, L=5 m

Purpose

Tilting occurs when the vertical line of action of the weight (due to the centre of gravity) is no longer above the footprint (= area that is limited by the tipping edges).

Preparation

Insert the support rod into the sliding saddle of the claw base; afterwards mount a bosshead at the top of the support rod.

Fix the red marking slider at the end of the inclined plane and mount the inclined plane at the bosshead as shown on the image. The bearing pin is inserted into the central hole on the neutral side of the block.

Cut off a piece of cord and make loops at both ends; the total length of the cord with loops should be between 20 and 30 cm.

Put the inclined plane into horizontal position and hold it here with the hand. Place the 3 mm aluminum rod of the block next to the red marking slider. Next put the block flat on the inclined plane, the front should protrude slightly over the long side of the inclined plane. Push the block onto the aluminum rod and sliding marker.

The hook of the pendulum ball is hung in a loop of the cord. Afterwards attach the pendulum ball to the cord on the bearing pin of the block.



Experiment 1

The inclination of the inclined plane (and thus the block) is changed very slowly. We observe the displayed angle and also the position of the cord to the body.

At what angle does the body tip?



Experiment 2

The bearing pin is inserted into the central hole on the printed side

of the block. Again the inclined plane is held in a horizontal position by hand. The block is now raised and the experiment is repeated as before.

At what angle does the body tip?

Observe also the cord of the plumb line and the black line of action of the centre of gravity on the front of the body.



Result

The body's centre of gravity is now higher which means its stability is lower.

Conclusion

The body stops as long as the line of action of the center of gravity meets the base.