

POTENTIAL ENERGY – DEFORMATION WORK

MED 10.04



Material

Item-no.	Qty.	Description
DM372-5G	2	Flat weight, 500 g
P7240-1G	1	Support rod, round, L=500 mm, D=10 mm
DG250-1P	1	Plasticine, pack

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Purpose

To demonstrate the conversion of potential energy into deformation work.

Preparation

A flat weight is fixed at one end of the support rod. Place the flat weight on the table, thus the support rod will be in vertical position.

Form two equally sized balls out of the plasticine and place them left and right of the support rod on the flat weight.



Experiment 1

Place the second flat weight on the support rod and move it carefully on the plasticine balls.

Afterwards remove the upper flat weight and observe the deformation of the plasticine balls.



Result

The weight is not sufficient to significantly deform the balls.



Experiment

Place the second flat weight again on the support rod and let it drop on the plasticine balls.

Result

The impact of the flat weight presses the balls flat, the deformation is significantly larger than in the previous experiment.

The lifting work done is stored as potential energy in the raised weight and is returned as deformation work when it hits the balls.



Note

One application is e.g. B. a forging hammer.

Much of the energy goes into internal energy. If you hit a nail hard it becomes very hot. The workpiece does not cool down as quickly due to the blows of the forging hammer.