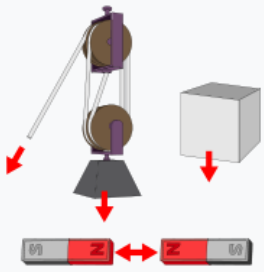
## Pracovný list

**Predmet:** Fyzika
**Názov tematického celku:** Práca, výkon, energia
**Názov učebnej látky:** Práca
**Trieda:** kvinta

## Repeat:

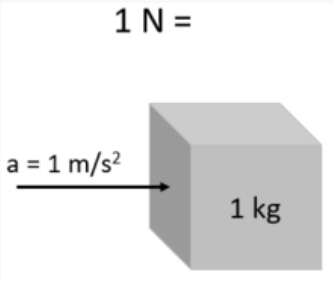
### *Force*



Forces can be described as a push or pull on an object. They can be due to phenomena such as gravity, magnetism, or anything that might cause a mass to accelerate.

| | |
|---|---|
| **Common symbols** | *F*→, *F*, **F** |
| **SI unit** | newton (N) |

### Newton




Visualization of one newton of force

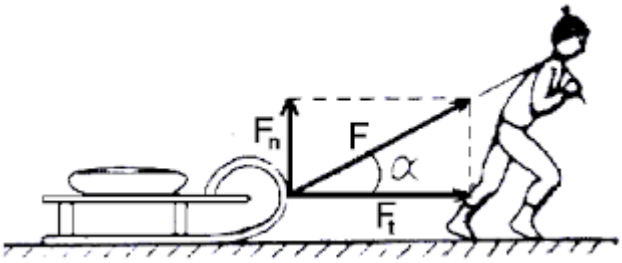
**General information**

| | |
|---|---|
| **Unit system** | SI derived unit |
| **Unit of** | Force |
| **Symbol** | N |
| **Named after** | Sir Isaac Newton |

**Conversions**

| | |
|---|---|
| *1 N in ...* | *... is equal to ...* |
| **SI base units** | 1 kg·m·s$^{-2}$ |

Spolufinancované z programu Európskej únie Erasmus+




## Work (physics)

In physics, a force is said to do **work** if, when acting, there is a displacement of the point of application in the direction of the force.

For example, when a ball is held above the ground and then dropped, the work done on the ball as it falls is equal to the weight of the ball (a force) multiplied by the distance to the ground (a displacement).

When the force is constant and the angle between the force and the displacement is θ, then the work done is given by

$$W = F\,s\cos\theta.$$

Work transfers energy from one place to another,

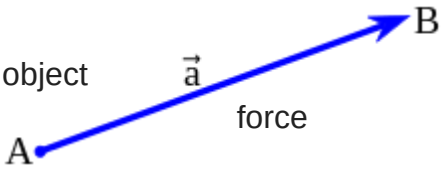
or one form to another.

The work ***W*** done by a constant force of magnitude ***F*** on a point that moves a displacement in a straight line in the direction of the force is the product


. $W = F\,s$

For example, if a force of 10 newtons (F = 10 N) acts along a point that travels 2 metres (s = 2 m), then .

***W = F s***




This is approximately the work done lifting a 1 kg object from ground level to over a person's head against the force of gravity.

(If angle between force and displacement is $0^O$,

then the work done is given by ***W = F s***)

| | |
|---|---|
| **Common symbols** | *W* |
| **SI unit** | joule (J) |
| **In SI base units** | 1 $kg \cdot m^2 \cdot s^{-2}$ |

The SI unit of work is the joule (J), which is defined as the work expended by a force of one newton through a displacement of one metre.

Excercise:

1. What is work in the physics?

2. Say one example when object give work

3.Let calculate work given by your teatcher, when she stay under table.