

USING THE SEP ENERGYSMETER: ENERGY AND WORK

When a force makes something move, energy is transferred. This is called *work*. It is calculated from the formula:

$$\text{work (J)} = \text{force (N)} \times \text{distance (m)}$$

In this activity, you will use a falling mass to turn a generator to create an electrical current.

A 100 g mass is pulled towards the Earth with a force of about 1 newton. So, if it drops by 1 metre, then about 1 joule of work is done.

1. Set up the apparatus as shown below. Set the knob on the energysmeter to measure energy.
2. Turn the pulley to wind up the thread so that the 100 g mass is at the top of the metre rule.
3. Hold on to the pulley so that the mass does not fall. Now press the 'start/pause' button on the energysmeter.
4. Let go of the pulley. The mass should fall and the motor should turn round.
5. Look at the energysmeter display. How much energy was transferred from the generator to the motor?
6. Is this amount of energy bigger or smaller than the work done by the falling mass? Why?
7. Repeat the experiment to see if you get consistent readings.
8. Repeat the experiment with different amounts of work done by the falling mass. For example:
 - 100 g mass and a 0.5 m drop
 - 200 g mass and a 1 m drop

