**WORKSHEET ENERGY SUPPORT CLASS SCIENCE Y8**25/05/2016

[ROLLERCOASTER ANIMATION](http://www.agtijmensen.nl/Applets%20simulaties/Rollercoaster/mck05_int_rollercoaster.swf)

 **Kinetic energy (Ek)** is a form of mechanical energy which is associated to the movement of a body. The kinetic energy of a body depends on its velocity (v) and its mass (m).

 

So naturally, to calculate velocity or mass instead, you would rearrange this to:

$$v=\sqrt{\frac{2Ek}{m}}$$

 m= 2Ek/v

• **Potential energy (Ep)** (gravitational energy) is a form of mechanical energy which is associated to the position of a body. The potential energy of a body depends on its mass (m) and the height (h) at which it is situated (Ep = 0 on the ground).

 

where g = 9,8 m/s2 (acceleration of gravity) unless told it is 10 m/s2 in an exam.

• The **total mechanical energy** is the sum of both energies:

**Em = Ec + Ep**

Some exercises to practice with:

# At what height does a body of 300 kg need to be in order for it to have 150 joules of Ep?

1. Calculate the mass of a ball if it moves with a velocity of 72 km/h and its kinetic energy is 500J.
2. a) A steel ball has a mass of 2500 g. How much Ep does is have if we raise it to 4m?

b) If we let it fall, what velocity will it have when it reaches the ground?