Interchange of KE and GPE
5 October

Lesson Aims:

All learners:

1. Conservation of energy.

Most learners:

1. The interchange of GPE and KE and conservation of energy.
2. Calculations with interchange of KE and GPE.

Some learners:

1. Complete all tasks.

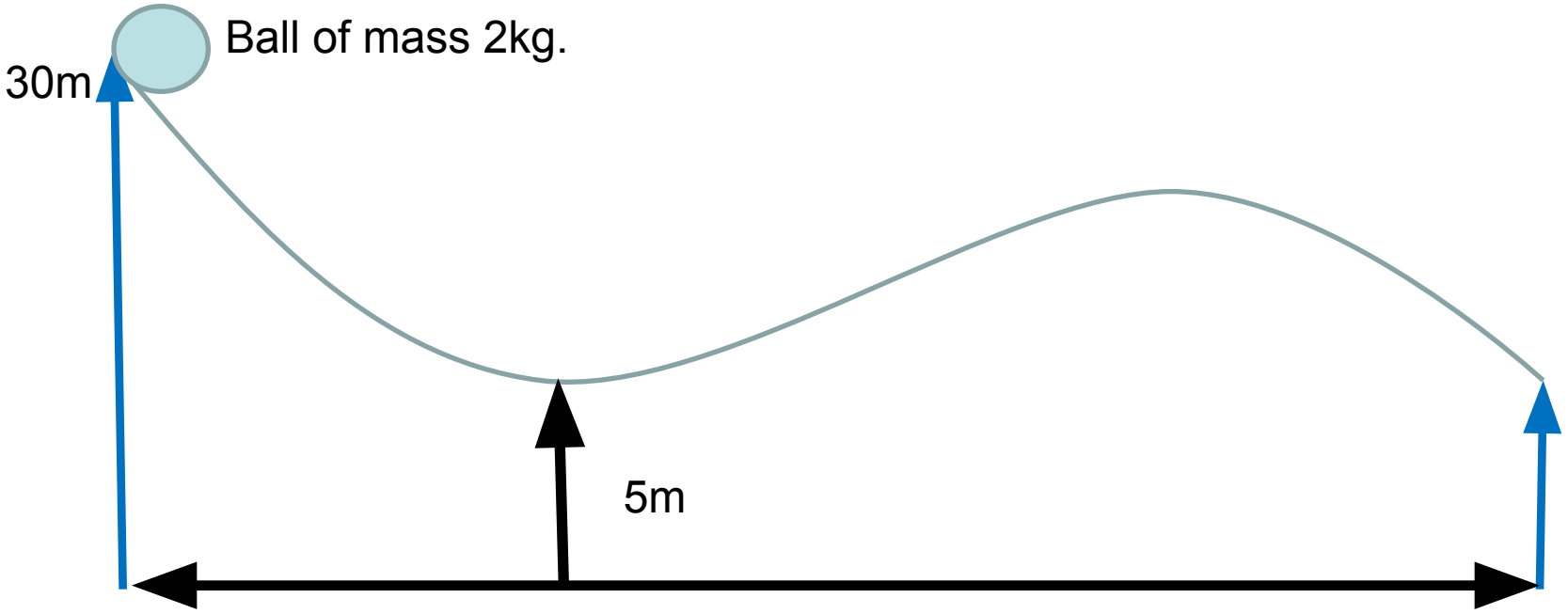
Starter !!

1. Usain Bolt runs at 10 m/s. His mass is 90kg. Calculate his kinetic energy.
2. A ball is moving at 4 m/s. Its kinetic energy is 4J. How much kinetic does it have if the speed is doubled?
3. A monkey of mass 30kg climbs a tree of height 50m. How much gravitational energy does it gain?

Interchange of Kinetic energy and Gravitational Energy

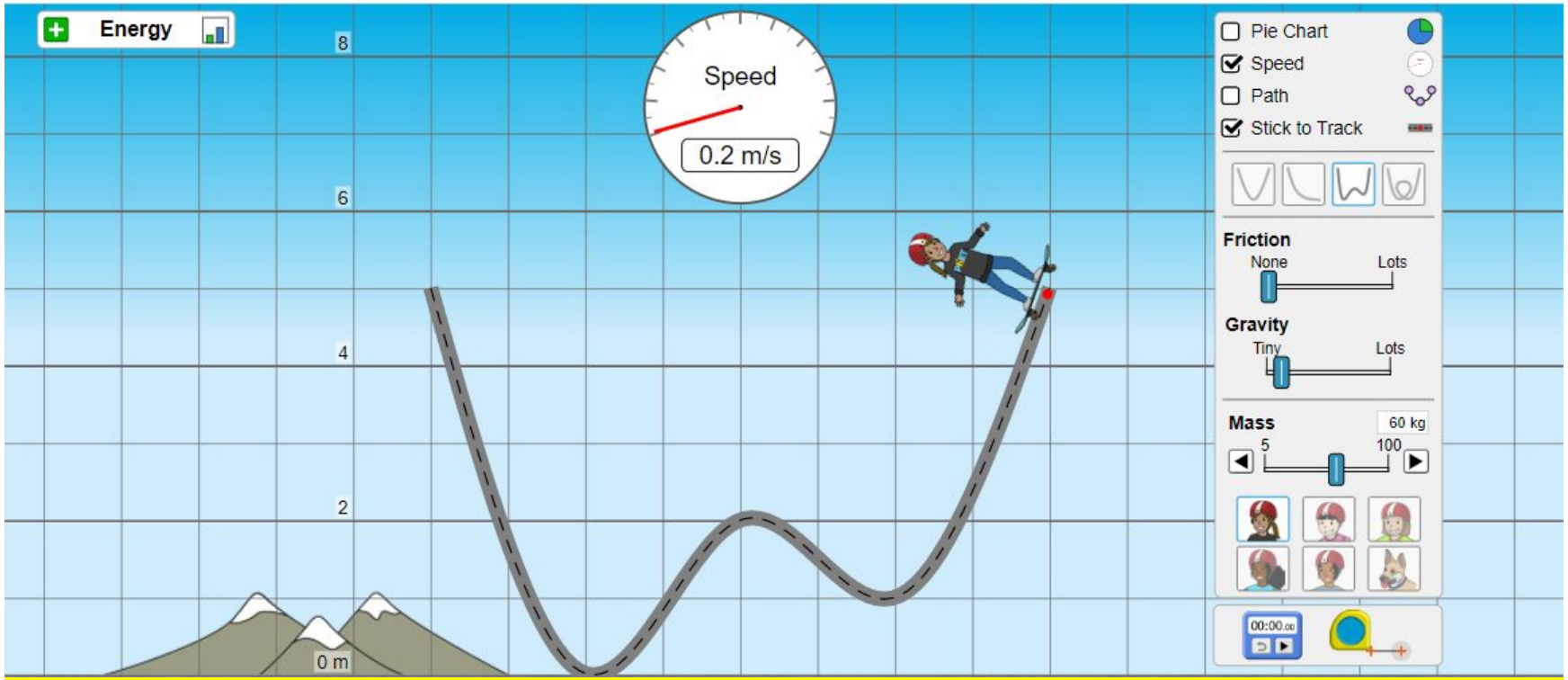
energy-skate-park_en.jar

https://phet.colorado.edu/sims/html/energy-skate-park/latest/energy-skate-park_all.html



a. Calculate the GPE of the ball at the start.
b. Calculate the GPE and KE when at 5m above the ground.
c. Calculate the speed of the ball at this point.

Example !!



1. If g = 10 N/kg calculate the GPE at the start [mass = 60kg].
2. What is the GPE at 2m?
3. What is the kinetic energy at 2m?
4. What is the speed at 2m?

A small block of wood passes through point P at a speed of 2.00 ms^{-1} and slides down a smooth curved track.

(a) Calculate the speed of the block as it passes point Q, 12.0 m vertically below P.