Work and Kinetic Energy

Applying a force on an object through a certain displacement increases its **energy.** In this case, we say that **work** was performed on the object.

(Work = Force x Displacement)

Any moving object has some energy associated with its movement. We call this the **Kinetic Energy**.

"Change in kinetic energy is equal to the mechanical work done by all forces"

$$\Delta K = W$$

$K = \frac{m\,v^2}{2}$ ---> Kinetic Energy

$W = F\,\Delta x$ ---> Work

In order to do work, a force must be along the displacement of the object

Homework

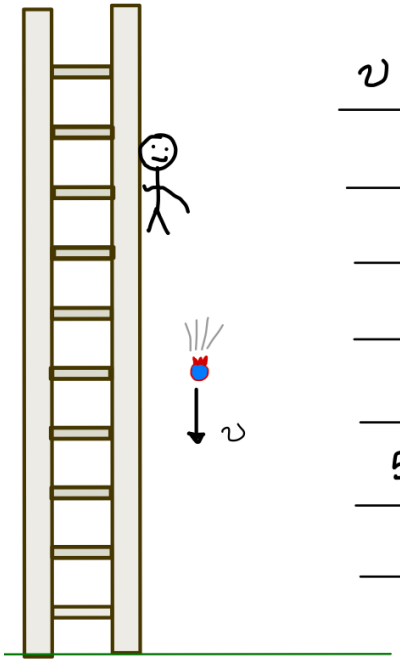
Problem 1.

Now, Bob drops a m=0.5kg balloon. We want to see how the velocity and the kinetic energy change as the balloon falls.

a) Using your knowledge of kinetic energy, fill all the spaces in the table below. Then, plot your results in the graph on the right.

b) If Bob dropped the balloon from a height of 3m, what will be its speed right before it hits the ground?

Hint: First, you might want to calculate the potential energy of the balloon before Bob drops it. This potential energy will completely transform into kinetic energy right before hitting the ground, which you can then use to find the speed.



v (m/s)	KE (J)
1	
2	
	1.56
	4
5.5	
6