

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”

$$\Delta K = W$$

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

$$W = F \Delta x \quad \text{---> Work}$$

Homework

A cyclist is moving at a constant speed of 10 m/s on a flat road. There is an air resistance force acting on him which is $F=100$ Newtons, directed backwards (called air drag).

- What is the total work done by the air drag force in 1 minute?
- What is the work done by the bicyclist over the same time (assuming there is no other losses except of the air drag)?

