

# Calculating Work

Scientifically speaking, work has special meaning. Work is the transfer of energy from one physical system to another. It is expressed by multiplying a force times the distance through which the force moves an object in a certain direction. Work is expressed as joules. Use the formula in the example box to find the work for each situation.

work = force x distance  
force is shown in newtons

$w = f \times d$   
distance is shown in meters

**1** A rock weighing 2 newtons was lifted 3 meters. How much work was done?

\_\_\_\_\_ joules

**2** A rock weighing 6.5 newtons was moved 2 meters. How much work was done?

\_\_\_\_\_ joules

**3** It took 600 newtons of force to move a car 4 meters. How much work was done?

\_\_\_\_\_ joules

**4** It took 45 newtons to lift a crate 1.5 meters. How much work was done?

\_\_\_\_\_ joules

**5** A box weighing 3.2 newtons was moved 2.5 meters. How much work was done?

\_\_\_\_\_ joules

**6** A box weighing 6.4 newtons was moved 2.5 meters. How much work was done?

\_\_\_\_\_ joules

**7** 45 joules were expended to move a box weighing 30 newtons. How many meters was it moved?

\_\_\_\_\_ meters

**8** It took 50 joules to push a crate 2.5 meters. With what force was the crate pushed?

\_\_\_\_\_ newtons