Work, power and Energy

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WORK AND POWER

ENERGY : It is the capacity to do work

DOING WORK : Transferring energy

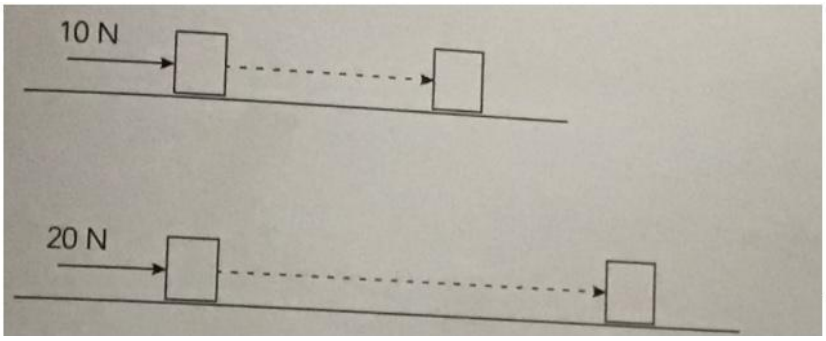
WORK DONE: The amount of energy transferred

FORMULA : Work done = Force x distance travelled

POWER : It is the rate of doing work or the rate of energy transfer

Formula : Power = $\frac{work\ done}{time\ taken}$

1. An apple falls from a tree. The force acting on the apple to make it fall is _____.As it falls, its speed _____. This shows that its _____energy store is increasing. If this measure is 2.0 J, the work done on it is _____
2. In the figure, below 20 N force does more work than the 10 N force. State two ways you can tell this



3. Using the concept of work done, explain why it is more difficult to walk on an icy surface than on a clean, dry unfrozen surface.
4. A boy pushes a heavy box along the ground. His pushing force is 75N. He pushes it for a distance of 4.0 m. Calculate the work done by the boy in pushing the box.
5. On a building site, a crane lifts a load of bricks. The lifting force is 2500 N and the bricks are raised to a height of 6.0m.
    a. Calculate the work done by the crane in lifting the bricks
    b. Calculate the energy that has been transferred to the bricks by the crane
    c. Name this energy.
6. A light bulb is labeled with its power rating 60 W
    a. How many joules of energy does it transfer in 1 s?
    b. How many joules of energy does it transfer in 1 minute ?
    c. Why would it be incorrect to say that the bulb supplies 60 J of light each second?