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Worksheet: Work and Energy

1. What is power?
2. The kinetic energy of an object of mass m moving with a velocity of 5 m/s is 25 J. What will be its kinetic energy when its velocity is doubled? What will be its kinetic energy when its velocity is increased three times?
3. Define 1 J of work.
4. A pair of bullocks exerts a force of 140 N on a plough. The field being ploughed is 15 m long. How much work is done in ploughing the length of the field?
5. A mass of 10 kg is at a point A on a table. It is moved to a point B. If the line joining A and B is horizontal, what is the work done on the object by the gravitational force? Explain your answer.
6. The potential energy of a freely falling object decreases progressively. Does this violate the law of conservation of energy? Why?
7. Certain force acting on a 20 kg mass changes its velocity from 5 m/s to 2 m/s. Calculate the work done by the force.
8. A lamp consumes 1000 J of electrical energy in 10 s. What is its power?
9. A battery lights a bulb. Describe the energy changes involved in the process
10. What is the kinetic energy of an object?
11. A force of 7 N acts on an object. The displacement of the object is 8 m in the direction of the force. What is the work done by the force?
12. What are the various energy transformations that occur when you are riding a bicycle?
13. Write an expression for the kinetic energy of an object.
14. When do we say that work is done?
15. Write an expression for the work done when a force is acting on an object in the direction of its displacement.
16. An object is thrown at an angle to the ground. It moves in a curved path and falls back to the ground. The starting and ending points are at the same height. What is the work done by gravity on the object?
17. Define 1 watt of power.