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Worksheet: Work and Energy

1. 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?
2. A battery lights a bulb. Describe the energy changes involved in the process
3. What is power?
4. 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.
5. A lamp consumes 1000 J of electrical energy in 10 s. What is its power?
6. What are the various energy transformations that occur when you are riding a bicycle?
7. Define 1 watt of power.
8. The potential energy of a freely falling object decreases progressively. Does this violate the law of conservation of energy? Why?
9. Write an expression for the kinetic energy of an object.
10. 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?
11. 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?
12. When do we say that work is done?
13. What is the kinetic energy of an object?
14. 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?
15. Define 1 J of work.
16. 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.
17. Write an expression for the work done when a force is acting on an object in the direction of its displacement.