

Lesson Outline**LESSON 1****Work and Power****A. What is work?**

1. _____ is the transfer of energy that to an object by a force that makes an object move in the direction of the force.
2. A weightlifter does work when exerting a force that makes weights _____, but does no work to hold weights in place because the weights are not _____.

B. Calculating Work

1. You must know two things to calculate work—_____ and _____.
 - a. The force must be in _____.
 - b. The distance must be in _____.
2. A newton-meter is also called a(n) _____, which is the unit of work.
3. The work equation uses the distance that the _____ acts on the object, not necessarily the total _____ that the object moves.
4. The work done on an object depends on the _____ of the force applied and the direction of the motion.
 - a. When the force on an object and the motion of the object are in the same direction, you multiply the total _____ times the total distance to determine the amount of work done.
 - b. When the force on an object is at a(n) _____ to the direction of motion of the object, you multiply only the part of the force that is in the _____ of motion times the total distance to determine the amount of work done.
5. The weight of any object is due to the downward force of _____ on the object.
 - a. To lift an object, you must pull upward on the object with a force _____ to the object's weight.
 - b. The work done to lift any object is equal to the _____ of the object multiplied by the distance the object is lifted.

Lesson Outline continued

C. Work and Energy

1. Doing work on an object increases transfers _____ to the object.
2. Because doing work on an object requires that the object move, doing work on the object increases its _____ energy.
3. Lifting an object increases the object's gravitational _____ energy.

D. What is power?

1. _____ is the rate at which work is done.
2. Power is determined by dividing the work done by the amount of _____ needed to do the work.
 - a. In the power equation, _____ done is in joules.
 - b. In the power equation, _____ is in seconds.
 - c. In the power equation, power is in _____.