Work, Machines, and Power

1. Name the two simplest machines.
2. What is a lever that rotates around a fixed point?
3. What is a measure of how many times force gets multiplied when using a machine?
4. What measures how fast work is done?
5. This is done when a force moves an object a distance.
6. What is the unit for work?
7. What is the unit for power?
8. What do you call something that helps make work easier for you?
9. What is the ratio of work output to work input?
10. What do you call the fixed point on a lever?
11. An example of a simple machine is a
    a. Light bulb
    b. Can opener
    c. Desk drawer
    d. Pencil
12. The amount of work output from a machine is never as large as the work put into the machine, because some of the work is lost to
    a. Gravity
    b. Weight
    c. Power
    d. Friction
13. When using an incline plane, a person pushes a heavy carton up the ramp. The person is using
    a. Effort distance
    b. Effort force
    c. Mechanical advantage
    d. None of these
14. When turning a screw, the more turns (threads on the screw), the more the
    a. Efficiency
    b. Effort force
    c. Mechanical advantage
    d. All of the above

15. Work is being done when you
    a. Talk on the phone
    b. Turn on the television
    c. Walk a dog
    d. All of the above

Solve the following problems. Show work to receive credit.

16. If a book weighing 8.2 N is lifted 2 m off of the ground, how much work is done?
17. If a bag of sugar weights 25 N and you can move the sugar 2 m in 10 s, how much power did you produce?
18. If you weigh 40 N and are sitting 3 m from the fulcrum of a seesaw, how far from the fulcrum would a person weighing 60 N have to sit in order to balance you?
19. What is the mechanical advantage of a ramp that is 12 cm tall and 125 cm long?
20. If you rolled a barrel up the ramp in question 19, what would be your effort force if the barrel weighed 100 kg (220 lbs.)?