

## Physical Science - Chapter 14 Review Sheet

- When does a force applied to an object not do any work? **When there is no displacement**
- What is the unit of work? **Joule**
- If you exert a force of 10.0 N to lift a box a distance of 0.75 m, how much work do you do? **7.5 J**
- If you perform 30 joules of work lifting a 20-N box from the floor to a shelf, how high is the shelf? **1.5 m**
- The SI unit of power is the **Watt**.
- If you exert a force of 500 N to walk 4 m up a flight of stairs in 4 s, how much power do you use? **500 W**
- A machine is a device that can multiply **Force**.
- When a machine does work, it can do all of the following EXCEPT
  - change the direction of a force.
  - increase a force and change the distance a force moves.
  - increase the distance a force moves and change the direction of a force.
  - increase a force and increase the distance a force moves.**
- If you know the input distance and output distance of a machine, which of the following can you calculate? **IMA**
- If you have to apply 30 N of force on a crowbar to lift an rock that weights 300 N, what is the actual mechanical advantage of the crowbar? **11**
- The efficiency of a machine is always less than 100 percent because **of friction**.
- A motor with an efficiency rating of 80 percent must supply 300 J of useful work. What amount of work must be supplied to the motor? **375 J**
- Which of the following is an example of a wheel and axle?
 

a. <b>a doorknob</b>	c. a jar lid
b. <b>an automobile steering wheel</b>	d. a pencil
- The rate at which work is done is called **power**.
- The force that is exerted on a machine is called the **input force**. **Output force**
- Besides a reduction in friction, the only way to increase the amount of work output of a machine is to **increase** the work input.
- The fulcrum is always between the effort force and the resistance force in a(an) **first**-class lever.
- The bottle opener shown in the figure is a(an) **second**-class lever.
- Compare the size and direction of the input and output forces shown in the figure to the right. **Same direction, output force is greater**
- The ideal mechanical advantage of a third-class lever is always **less** than 1.
- If you grease a ramp to make a box slide more easily, what happens to the ramp's mechanical advantage? **increases**
- If a simple machine could be frictionless, how would its IMA and AMA compare? **equal**
- How does friction affect the calculation of the IMA of a simple machine? **it doesn't**
- The input force of a pulley system must move 6.0 m to lift a 3000-N engine a distance of 0.50 m. What is the IMA of the system? **12**
- A force of 12 N is applied to the handle of a screwdriver being used to pry off the lid of a paint can. As the force moves through a distance 0.3 m, the screwdriver does 32 J of work on the lid. What is the efficiency of the screwdriver? **BAD QUESTION**
- What is the IMA of the ramp in the figure at the right? **3**



# Physical Science Chapter Test Questions

**D Keegan**



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