

## Lingo Quiz – Oct. 22<sup>nd</sup>

### Honors Freshman Physics

### Work and Machine Lingo

The following are the terms you should be familiar with in order to properly complete this unit. You are expected to be able to define each as well as apply these terms in any situation during this and subsequent units of study.

**energy** - The "something" that enables work to be done. The total energy of a system; mechanical energy consists of all the kinetic and potential energies of the system.

**work** - Amount of energy required to move an object, or released by the motion of an object, over a certain distance; motion must be in the same direction of the applied force.

**machine** - A device for increasing (or decreasing) a force or changing the direction of the force.

**ideal machine** - A machine in which work input equals work output. There is no loss of energy in an ideal machine.

**simple machine** - A device that does work with only one movement.

**compound machine** - A combination of two or more simple machines.

**input or (effort) force** - The force applied to a machine.

**output or (resistance) force** - The force exerted by the machine.

**input or (effort) distance** - The distance over which the effort force is applied. For a lever it is called an effort arm and is either the distance from the effort force to the fulcrum or the distance the effort end of the lever is vertically displaced.

**output or (resistance) distance** - The distance over which the resistance force is applied. For a lever it is called a resistance arm and is either the distance from the resistance force to the fulcrum or the distance the resistance end of the lever is vertically displaced.

**mechanical advantage (MA)** - The amount a machine multiplies force. Ratio of resistance force to effort force.

**ideal mechanical advantage (IMA)** - The mechanical advantage predicted for a simple machine based on its structure. Ratio of effort distance to resistance distance.

**lever** - A bar that turns about a fixed point called the fulcrum. Consists of three classes, first, second, and third. Family of simple machines including levers, pulleys, and wheel and axles.

**fulcrum** - The pivot point of a lever.

**pulley** - A type of lever that consists of a "wheel" fulcrum over which "rope" slides in order gain mechanical advantage; usually used to lift or lower objects.

**wheel and axle** - A type of lever that consists of two different-sized "wheels" that rotate together.

**inclined plane** - A simple machine consisting on a sloping surface used to vertically displace objects. A family of simple machines including ramps, screws, and wedges.

**screw** - An inclined plane wrapped around a cylinder. Considered an inclined plane.

**wedge** - A moving inclined plane. Considered an inclined plane.

**power** - Rate at which work is done or energy is transformed; equal to the work done or energy transformed divided by time.

**efficiency** - The ratio of work output to work input of a machine; represented as a percentage. Work output is determined by the resistance and work input is determined by the effort.