Simple Machines Study Guide: Test on ________________

**Vocabulary:**
- **simple machine:** A device that does work with only one movement.
- **mechanical advantage:** The number of times a machine multiplies the effort force.
- **pulley:** A grooved wheel with a rope or chain running through the groove.
- **gear:** A wheel with teeth along its circumference.
- **inclined plane:** A sloping surface used to raise objects.
- **screw:** An inclined plane wrapped in a spiral around a cylindrical post.
- **wheel and axle:** A simple machine consisting of two wheels of different sizes that rotate together.
- **wedge:** An inclined plane with two or more sloping sides.
- **compound machine:** A machine made up of two or more simple machines.
- **power:** The rate at which work is done.
- **efficiency:** A measure of how well a machine operates.

**Inclined Plane:**
- Inclined planes are used as ramps to buildings, as handicap access, to travel up hills and mountains, as methods for dragging loads up into trucks.
- Inclined planes make work easier by sliding the load up a ramp over the length of the ramp. This is easier than lifting an object straight up.

**Wedge:**
- A wedge is like two inclined planes attached along their bases.
- A wedge is anything that has a cutting edge. It makes work easier by concentrating a lot of effort into a small area at the point of the wedge.
- Examples of wedges are knives, scissor blades, ax blades, tip of shovels, arrow heads, fish hooks, tacks, and saw blades.

**Screw:**
- A screw is like an inclined plane wrapped around itself.
- Screws are used for holding furniture together, securing electronic equipment, and any instance where a tight long lasting grip is required.

**Lever:**
- The 3 parts of a lever are fulcrum, resistance (load), and effort (force).
- There are 3 classes of levers. The location of the fulcrum, resistance, and effort determine the type of lever.
- The distance between the fulcrum and the resistance is the resistance arm.
- The distance between the fulcrum and the effort is the effort arm.

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<td><img src="image1" alt="Class 1 Lever Diagram" /></td>
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**Wheel and Axle:**
- The wheel has made it possible for humans to move loads easily. It is easier to roll something instead of pushing it along.
- Examples of wheels and axles are pencil sharpeners, vehicles with wheels, steering wheels, doorknobs, screwdrivers.

**Pulley:**
- There are two types of pulley systems: the fixed pulley and the movable pulley. A fixed pulley is tied to a support and changes the direction of effort. A moveable pulley is attached to the object being moved (load or resistance) and the rope that runs through the pulley is attached to a support.
- The pulley at the top of a flagpole is a fixed pulley.
- A series of pulleys used together is a block and tackle.
- Pulleys are used on construction cranes, flag poles, sailboats, and exercise equipment.