Vocabulary: Pulley Lab

Vocabulary

- Block and tackle – a pulley system used to lift a heavy load.
- Conservation of energy – a scientific law that states that the total energy in a closed system remains constant.
  - Energy can be changed from one form to another, but the total amount of energy stays the same.
- Efficiency – the percentage of input work that is converted to output work.
  - To calculate percentage efficiency, divide the output work by the input work, and then multiply by 100.
- Friction – a force that works against motion as surfaces rub together.
- Input force – the force that is applied to a simple machine such as a pulley or lever.
  - Input force is also called *effort* or *effort force*.
- Load – the weight that is moved, lifted, or supported by a simple machine.
- Mechanical advantage – the factor by which a simple machine reduces the effort needed to lift or move an object.
  - For example, if a simple machine had a mechanical advantage of 2, it would take just over 50 newtons of effort to lift a 100-newton load.
- Output force – the force that a simple machine applies to the load.
- Pulley – a simple machine consisting of a wheel with a groove for a rope or cable.
  - A *fixed* pulley is anchored in place. It rotates but does not move up or down.
  - A *moveable* pulley is attached to the load and is free to move up and down.
- Pulley system – a group of two or more pulleys that work together to lift a load.
- Simple machine – a device that requires a single input force to accomplish work.
  - There are six simple machines: the inclined plane, wedge, screw, lever, pulley, and wheel and axle.
- Work – the application of a force over a distance.
  - The symbol for work is *W*.
  - To calculate work, multiply the force by the distance: $W = Fd$.
  - In a pulley system, increasing the distance the rope is pulled allows the same amount of work to be done with less force.