

Let's Start with Simple Machines...

Before we start any of our building, we have to understand some of the words that will be used throughout our exploration of wheels and levers. We have all seen, and probably used, these simple machines before, but sometimes their names are a bit tricky. Let's go!



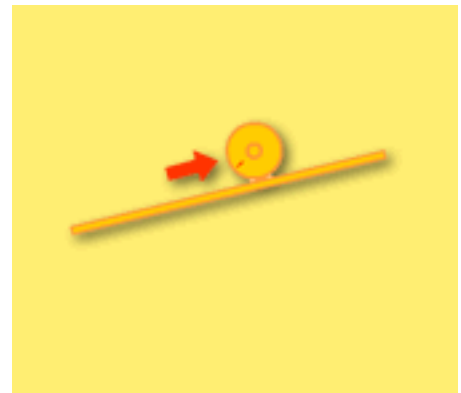
Gears:

Two toothed wheels fit together either directly or through a chain or belt so one wheel will turn the other. Some gears may have a screw or a toothed shaft in place of one of the wheels. A gear may also be a combination of toothed wheels that produces a certain speed (such as a bicycle's top gear which makes the bike go fast, and the low gear for slow speed.)
Examples: Clock, Automobile, Drill

Inclined plane: (usually called a "ramp")

A sloping surface, such as a ramp. An inclined plane can be used to alter the effort and distance involved in doing work, such as lifting loads. The trade-off is that an object must be moved a longer distance than if it was lifted straight up, but less force is needed.

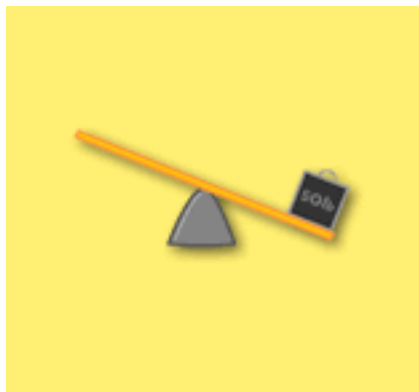
Examples: Staircase, Ramp, Bottom of a Bath Tub



Lever:

A straight rod or board that pivots on a point known as a fulcrum. The fulcrum can be moved depending on the weight of the object to be lifted or the force you wish to exert. Pushing down on one end of a lever results in the upward motion of the opposite end of the fulcrum.

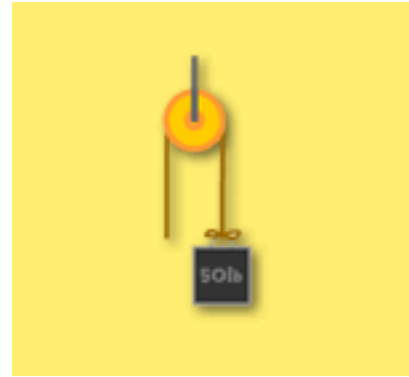
Examples: Door on Hinges, Seesaw, Hammer, Bottle Opener



Pulley:

A wheel that usually has a groove around the outside edge. This groove is for a rope or belt to move around the pulley. Pulling down on the rope can lift an object attached to the rope. Work is made easier because pulling down on the rope is made easier due to gravity.

Examples: Flag Pole, Crane, Mini-Blinds



Screw:

An inclined plane wrapped around a shaft or cylinder. This inclined plane allows the screw to move itself or to move an object or material surrounding it when rotated.

Examples: Bolt, Spiral Staircase

Wedge:

Two inclined planes joined back to back. Wedges are used to split things.

Examples: Axe, Zipper, Knife



Wheel and Axle:

A wheel and axle has a larger wheel (or wheels) connected by a smaller cylinder (axle) and is fastened to the wheel so that they turn together. When the axle is turned, the wheel moves a greater distance than the axle, but less force is needed to move it. The axle moves a shorter distance, but it takes greater force to move it.

Examples: Door Knob, Wagon, Toy Car

Source: <http://www.edheads.org/activities/simple-machines/glossary.shtml>