

Tomb Builders

Simple machines

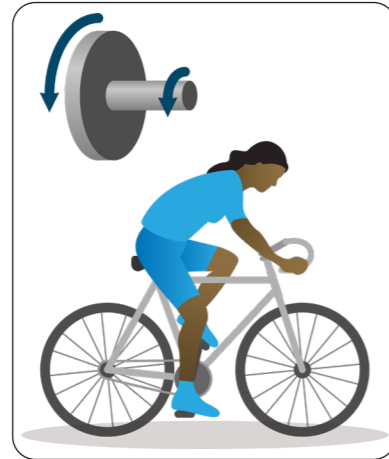
Simple machines are devices that make physical tasks easier. They work by changing the strength or direction of a force.

There are six types of simple machines:

Wheel and axle

Wheels and axles make it easier to move things. Wheels also reduce the friction between two surfaces.

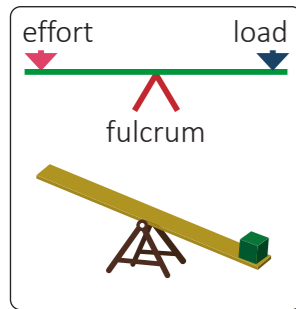
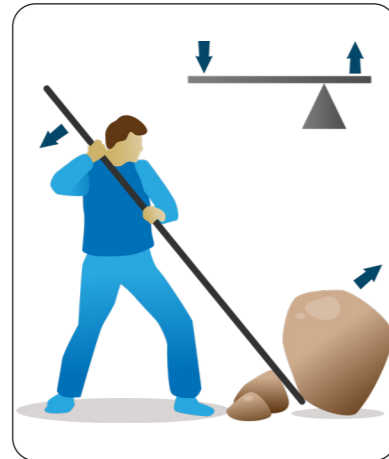
Bicycles, skateboards and cars all use wheels and axles.



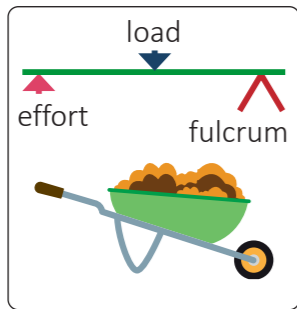
Lever

A lever is a rigid bar that pivots on a fixed point called a fulcrum. When one end of a lever is pushed down, the other end moves up.

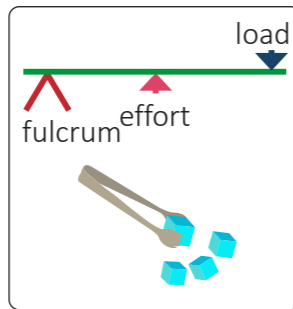
There are three different classes of lever depending on where the load and the effort are located:



first class



second class



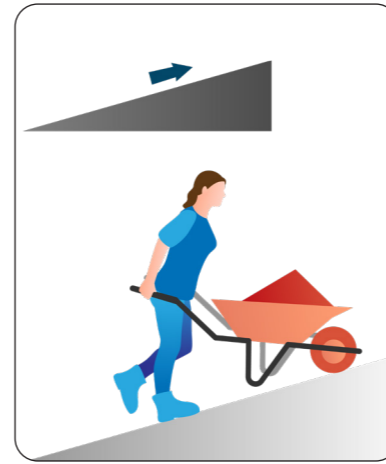
third class

Seesaws, spades and bottle openers all use levers.

Inclined plane

An inclined plane is a slope between two levels. Inclined planes make it easier to move heavy objects up and down.

Wheelchair ramps, slides and stairs all use inclined planes.



Pulley

A pulley changes the direction of the force. It is used to lift or lower an object.

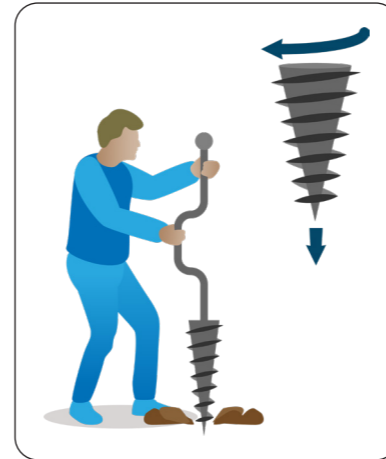
Flag poles, window blinds, and a bucket in a well all use pulleys.



Screw

A screw is a long, inclined plane, called a thread, that is placed around a cylinder. It changes a gentle rotational force into a stronger forward force to join two things together.

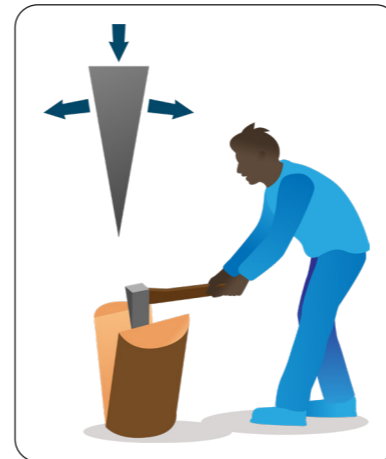
Bottle tops, light bulbs and taps all use screws.



Wedge

A wedge is a triangular tool that is thick at one end and thin at the other. It changes the direction of a force.

Axes, knives and chisels all use wedges.



Compound machines

Compound machines use a combination of simple machines. A wheelbarrow is a compound machine because it combines a lever with a wheel and axle.



Scoring, joining and strengthening cardboard

Models of simple machines can be made of cardboard. Cardboard models can be improved by using folding, joining and strengthening techniques.

- Using a ruler and an empty ballpoint pen to score cardboard makes it easier to fold.
- Cardboard can be joined using folded cardboard, sticky tape or a glued tab.
- Cardboard can be strengthened by gluing layers of card together, gluing or taping lollipop sticks or straws to the back, or gluing card triangles into the corners of folded card.

Glossary

force A push or a pull.

friction The force between two surfaces as they move across each other.

