

# Tomb Builders

## Simple machines

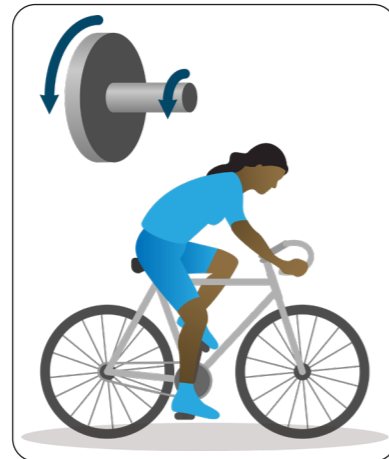
Simple machines are devices that make physical tasks easier. They work by changing the strength or direction of a force.

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.

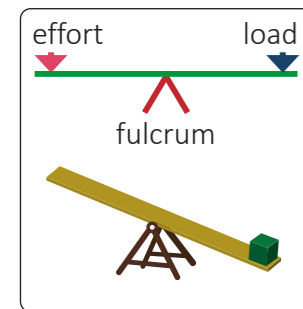
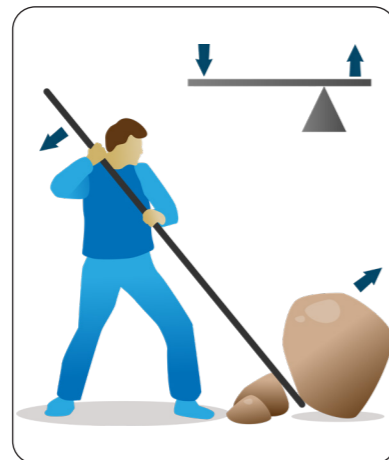
Bicycles, skateboards and cars all use wheels and axles.



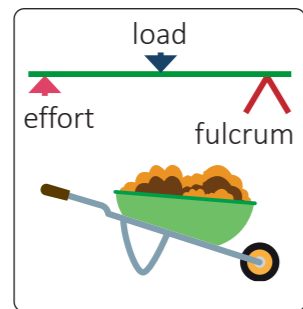
### Lever

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.

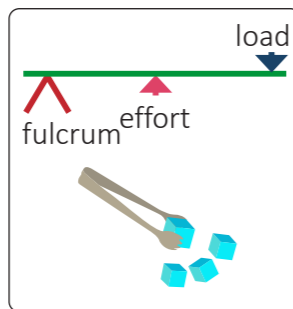
There are three different classes of lever depending on where the load and the effort are located:



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.

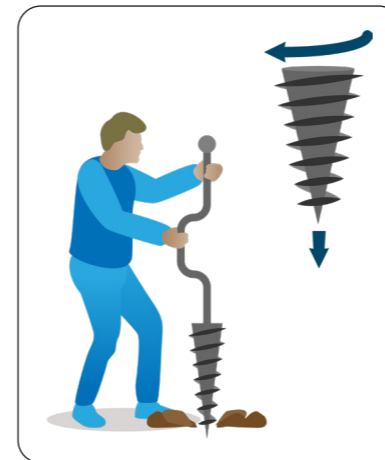
Flag poles, window blinds, and a bucket in a well all use pulleys.



### 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.

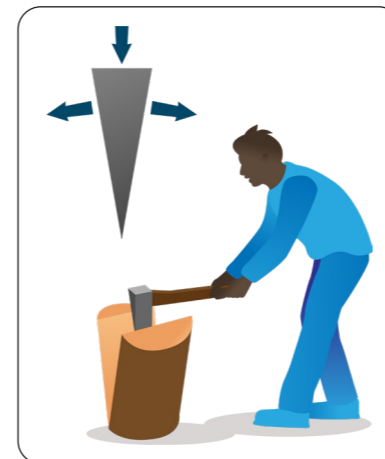
Bottle tops, light bulbs and taps all use screws.



### 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.

