

**CONCEPT** Simple machines make work easier. They have few or no moving parts and they work by changing the direction of a force or the amount of force needed to do something.

## BACKGROUND & EXAMPLES

The six simple machines are the wedge, screw, lever, pulley, inclined plane and the wheel and axle. They all make work easier and have few or no moving parts.

1. A wedge is a simple machine that gets thinner at one end that is used to split material such as wood.
2. A screw is an inclined plane wrapped around a center rod.
3. A lever is a plank that rests on something underneath and moves up and down.
4. A pulley is a wheel and rope that can change the direction of a force.
5. An inclined plane is a simple machine that has a gently sloped surface so it can be used to move objects upwards with less force.
6. An axle is a rod or pole centered in the wheel that allows the wheel to turn around it. The wheel then spins in a balanced circle to be used as transportation on a bike or to turn the hands of a clock.

## REAL WORLD CONNECTIONS

- A knife is an example of a wedge.
- An example of a screw is a spiral staircase.
- A seesaw is a lever.
- A flagpole uses a pulley to raise the flag.
- Ramps are examples of inclined planes.
- Gears are a form of the wheel and axle



Simple machines are important and common in our world today in the form of everyday devices (crowbars, wheelbarrows, highway ramps, etc.) that individuals use on a daily basis. The same physical principles and mechanical advantages of simple machines used by ancient engineers to build pyramids are employed by today's engineers to construct modern structures such as houses, bridges and skyscrapers. Simple machines give engineers added tools for solving everyday challenges.