

Glossary

air resistance Friction between a falling object and air. When a skydiver jumps out of a plane, her parachute is not open. The skydiver's body falls very fast toward the ground because it doesn't have much air resistance. When she opens her parachute, it has much air resistance. Her speed slows down, and she safely lands.

attract To pull toward each other. Magnets attract other materials, like iron. Magnets can also attract each other. If you put two magnets on a table and bring them closer together, they may pull toward each other.

fixed pulley A pulley that doesn't move. The pulley on a flagpole is a fixed pulley. The pulley doesn't move to another place. It just sits at the top of the pole. The rope around it moves as someone pulls it.

force A push or a pull. When you push open a door, you use force on the door. When you pull on a drawer handle, you use force on the handle. The force makes the objects move.

friction A force between two surfaces that are touching; friction works against motion. When your shoes move against a rough sidewalk, the friction between the shoe soles and the sidewalk keeps your shoes from slipping. If the sidewalk is icy, there is little friction between your shoes and the ice. You might fall down!

fulcrum The support that a lever turns around. The fulcrum can be close to the load or far from it. The closer it is to the load, the easier it is to lift the load.

gear A wheel with teeth. If you could see the inside of a clock that has hands, you would see that it has gears. When one wheel turns, it makes other wheels turn. A big wheel and a little wheel turning at different speeds make the hour hand and the minute hand turn at different speeds.

gravity The force that pulls objects toward each other. The strength of gravity depends on the mass of the objects. Earth has a lot of mass, so Earth's gravity pulls objects toward it. For example, when you drop your pencil, gravity makes the pencil fall to the ground.

inclined plane A simple machine made of a flat, sloping surface. A ramp is a kind of inclined plane. Let's say you use a ramp to load a box into the back of a truck. It takes less force to move the box using the ramp than it takes to lift the box straight up.

lever A simple machine made of a long bar or board that turns around a support that does not move. A lever is often used to lift heavy objects or pry things open. When you push down or pull up on one end of the lever, a load at the other end is lifted.

load The object that a lever moves. The load can be a washer, a person, or even a paint can lid.

lubricant A material that reduces friction. Suppose the chain on your bicycle is difficult to move. To help it move, you put some oil on the chain. The oil reduces friction between the chain and the gears. Oil is a lubricant because it reduces friction between two objects.

magnet An object that attracts iron and a few other materials. A magnet will stick to your refrigerator. The refrigerator door contains iron. A magnet attracts iron. A magnet attracts a few other materials, too. But the attraction between iron and a magnet is strongest.

mass The amount of matter in an object. Objects are made up of matter. Some objects contain a lot of matter. You contain more matter than an apple. An apple contains more matter than a paper clip. Objects with more mass are heavier than objects with less mass.

Glossary (continued)

movable pulley A pulley that is free to move. Movable pulleys are very important when you need to move something heavy. They let you use less force to lift an object. Movable pulleys are used in some factories. They can be used to lift heavy parts, such as engines.

newton (N) The unit of weight in the metric system. In the English system, weight is measured in pounds (lb.) You might say that a dog weighs 50 lbs. But in science, the correct unit is newtons. That same dog would weigh about 222 newtons.

pitch How high or low a sound is. A cat's meow sounds high. The cat's meow has a high pitch. The growl of a lion sounds low. The growl has a low pitch.

pulley A simple machine made of a grooved wheel with a rope or chain wrapped around it. Pulleys let you lift objects into the air. They can even let you use less force to lift heavy objects.

repel To push away from each other. Any time two objects push away from each other, they repel each other. Two magnets push away from each other when you hold them one way.

screw A simple machine made of an inclined plane wrapped around a small rod. The threads that wrap around a screw are like a long inclined plane. It takes less force to drive a screw into a board than it does to pound the screw into the board.

simple machine A tool that makes it easier to move objects. Inclined planes, screws, and wedges are all simple machines. Simple machines often let you do a job using less force than it would take you to do the job without the simple machine.

sound A form of energy produced by vibrating objects. As objects vibrate back and forth, they make air particles vibrate too. These vibrating air particles move away from the vibrating object in all directions. When they reach your ears, you hear the sound.

spring scale A tool used to measure weight. Most spring scales measure weight in newtons, but some also show grams. Grams are really units of mass. But people sometimes use them to describe weight.

vibration A quick back-and-forth movement that produces sound. Object that vibrate create sound. People make instruments vibrate by hitting them, plucking them, or blowing air through them.

volume How loud or soft a sound is. A rock band has a high volume. It sounds loud. A whisper has a low volume. It sounds soft.

wedge A simple machine made from two inclined planes placed together to make a sharp edge. Most cutting blades are wedges. If you look at a knife blade, you can see that it forms a "V." A wedge is also used to split wood.

weight A measure of the force of gravity on an object. On Earth, objects with more mass have more weight. You have more mass than a cat. And you weigh more than a cat.

wheel and axle A simple machine made of a round object (the wheel) that turns around a rod (the axle). When a bus driver turns the steering wheel, she can turn the whole bus. She uses a small force to turn the big wheel. A smaller axle attached to the wheel turns a shorter distance but with more force.

work When a force moves an object from one place to another. Work is only done when a force actually moves an object. If the object doesn't move, no work is done.