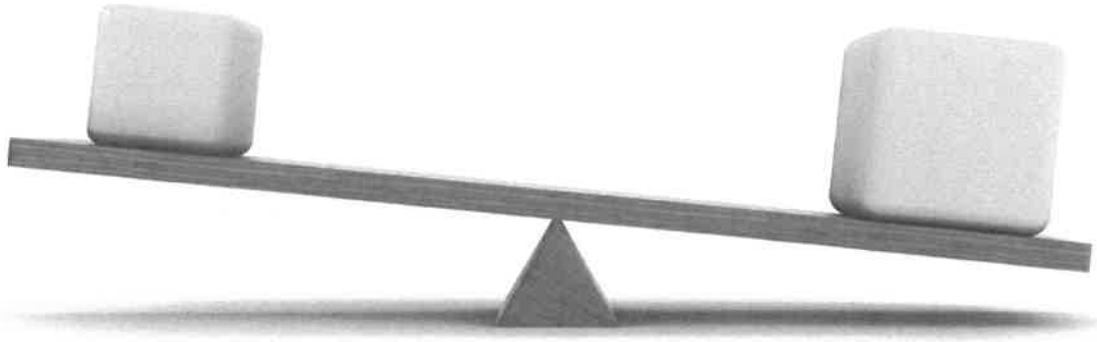
LEVERS

Have you ever sat on a see-saw? Have you ever cut with scissors? You probably didn't know that you were using a lever! Levers are simple machines because they are made up of few or no moving parts. Levers help you open and close objects, move things, and can even help you lift heavy things. A lever is a bar that is hard to bend. When you push down on one end of the lever, the other end goes up. They make work easier.

A lever has four parts that make it up:
1. The lever is a long strong material like a stick, bar, or piece of wood.
2. The fulcrum is the point on which the lever balances or is supported.
3. The load is the object that needs to be moved or lifted.
4. The effort, or work, is force you apply to the lever.

Think about a seesaw. If your teacher sat on one end and you sat on the other, you would probably be stuck in the air because you weigh a lot less. If your teacher moves closer to the fulcrum, or about halfway up the seesaw, you could use the seesaw as a lever to lift your teacher up into the air even though she or he weighs more than you. A lever helps you lift a load.

Levers are important tools that help us everyday. Levers allow you to use just a little bit of force in order to get a job done!



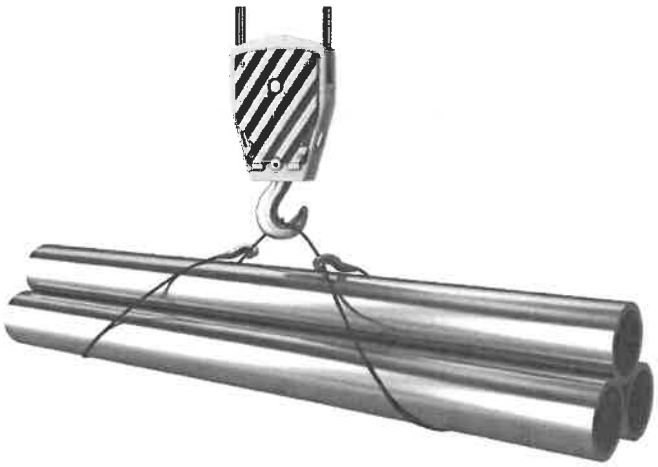
How are levers useful to us?

PULLEYS

If you have ever pulled on the cord to raise or lower the blinds on your window, you have used a pulley! A pulley is a simple machine that raises and lowers objects.

A pulley can lift and lower objects because it is made up of a grooved wheel and a rope. The rope goes around the wheel first. Then, you attach one end of the rope to the object you want to lift. You grab the other end of the rope and pull it. The wheel takes on the weight of the object, allowing you to lift a heavy load just by using a pulling motion. Pulleys do the work for us. Have you seen a crane before? Giant cranes use pulleys to lift up beams or other supplies to build skyscrapers.

There are many different types of pulleys. Have you ever climbed up a rock wall? Rock climbers use pulleys to help secure and pull themselves up a steep wall. Some pulleys that you may see every day are the flagpole at your school, the projector screen in your classroom, and even an elevator uses pulleys to lift people up and down. You use less force when you use a pulley. Using less force makes your work easier.



How are pulleys helpful in lifting and lowering objects?

INCLINED PLANES

If you like to skateboard or ride your bike, you may have ridden off a ramp before. If you have moved from one home into another, you have probably used a ramp to help you get your objects on and off of a moving van. A plane is a flat surface. The word "inclined" means "slanted" or "leaning". An inclined plane is just another word for a ramp.

An inclined plane increases the distance you travel which means the effort, or work, is spread out. Traveling a longer distance lets a person use less force. This simple machine makes certain tasks easier. You can also slide an object up or down it, rather than lifting something up over your head. If you ever have to move or carry something heavy, it would be much simpler to slide it up or down an inclined plane, rather than trying to lift it. It requires less force in order to get the work done.

Have you ever gone sledding? A hill is an inclined plane. When a hill is covered with snow, it is perfect for sledding. Gravity pulls the sled down the hill. Friction is the other force. Friction is a force that stops or slows moving objects. Since there isn't much friction between two smooth surfaces, the sled slides easily on the snow. Think about people who use wheelchairs. They may have a difficult time getting up and down steps. Since ramps are on an incline, people can roll their wheelchairs up and down with ease!

How are inclined planes helpful in moving heavy items?