

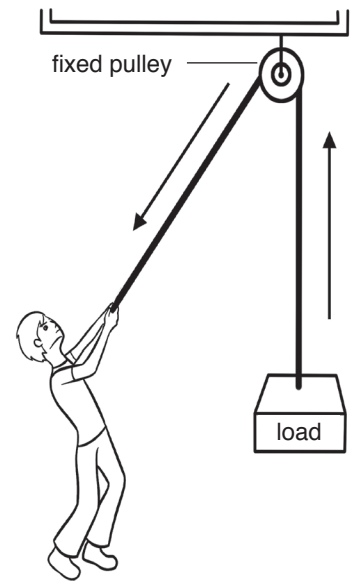
What Is a Pulley?

Machines make our lives easier. They let us do tasks with much less effort. For example, think of an elevator. To use an elevator, just step in and push a button. Step off when you reach your floor. Now think of using the stairs. Climbing stairs takes much more effort, and takes more time, too.

Machines can save both time and effort. Not all machines are complicated. Some are very simple. A wheel is a simple machine. Wheels make it easier to move heavy loads. Small wheels on heavy furniture makes the furniture easier to move.

A pulley is a simple machine that uses a wheel that has a groove in it. A rope or cable fits into the groove. The wheel helps the rope move.

A pulley can be placed above a heavy object that you want to lift. You pull down on the rope to lift the object. It is easier to lift an object by pulling down than by pulling up. When you pull down, you can use the weight of your body to help you.



The object a pulley lifts is called the load.

Fixed Pulleys

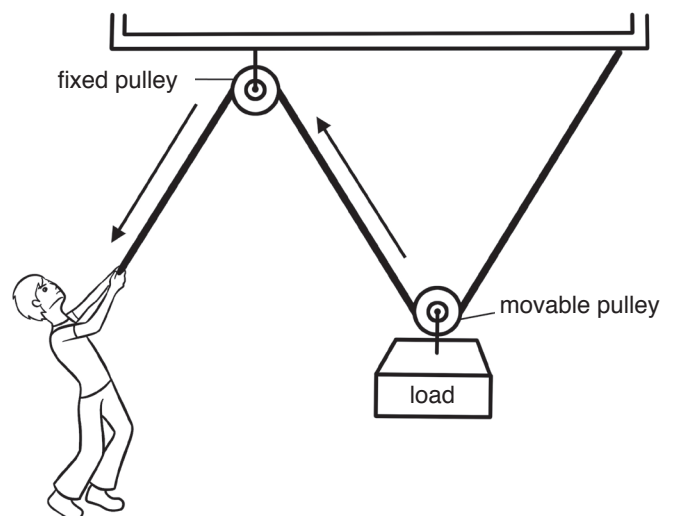
The pulley shown here is a fixed pulley. It stays in one place.

Your muscles apply force to move something. When you lift an object without using a machine, the direction of force is up. Using a fixed pulley changes the direction of the force. The diagram shows a person pulling down on the rope. The direction of the force is down, but the object is lifted up.

Movable Pulleys

A movable pulley changes position. It is not attached to a structure. The movable pulley shown here moves up when the rope is pulled. It takes less force to lift an object with a movable pulley than with a fixed pulley.

A compound pulley is made up of a two or more pulleys. The diagram shows a compound pulley.



A compound pulley. As the rope is pulled down, the movable pulley moves up.