

Write your notes  
about what you are  
reading in this space.

## Science Shorts -6

### Pulleys

Do you ever work hard trying to lift a heavy object? Does it make you tired? A pulley could help make your work easier. A pulley is a type of simple machine. It uses a wheel with a groove in the rim and a rope, belt or chain wrapped around the wheel. The groove keeps the rope from slipping off of the pulley.

People all over the world use pulley in many different ways to help make their work much easier. Farmers use them to raise hay bales into their barns, construction workers use them to move loads of materials and rock climbers use them to safely climb rocks. Pulleys are used on exercise equipment, flagpoles, cranes, curtain rods and in cars.

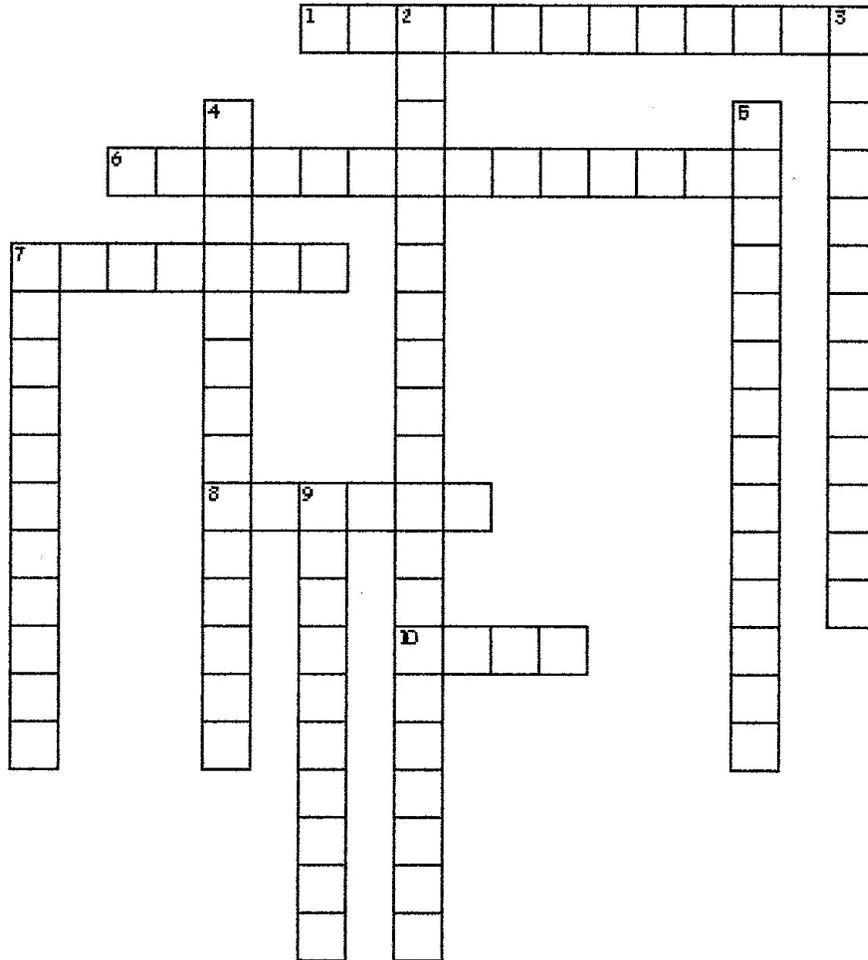
There are two kinds of pulleys to help you with different kinds of work. One is called a fixed pulley. The fixed pulley does not move from one place to another. It is “fixed” or attached in place. It helps by changing the direction of your work. For example, if you want to raise the flag at your school, a fixed pulley can make it much easier. Without a pulley, you would have to climb up the flagpole with the flag, attach it and then climb down. At the end of the day, you would have to do this again to unhook the flag and bring it down. After you hook the flag to the chain, someone pulls down on the chain and the flag goes up. When it is time to lower the flag all you need to do is pull down on the other side of the rope.

The other kind of pulley is a moveable pulley. A moveable pulley is attached to the object that you are moving. It moves along the rope with whatever is being moved. It takes less effort to do the work when you use a moveable pulley, but you have to pull over a larger distance.

You can combine fixed and moveable pulleys, too. This lets you change the direction of your work and makes the work easier to do. An example of a combined pulley is called a block and tackle. The “block” is a group of pulleys connected by a frame and some hooks. The “tackle” is how the block and ropes are arranged to lift the objects. You can see block and tackle on weight machines in gyms and when you see people wash the windows of high-rise buildings.

As you can tell, if you need to lift anything heavy, then a pulley is a simple machine that makes your work easier. People all over the world use pulleys in their jobs and homes.

# Pulleys



## Across

1. Use pulleys to safely climb rocks
6. A combination of pulleys
7. Use pulleys to lift hay bales
8. Wheel with a groove in the rim
10. What is wrapped around the wheel of a pulley

## Down

2. How a fixed pulley helps us do work
3. Examples are lever, pulley and inclined plane
4. Type of pulley that is attached to the object you are moving
5. Where you might find a block and tackle
7. Type of pulley that does not move from one place to another
9. How a moveable pulley helps you do work