## Record: 1

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| **Abstract:** | The article provides information on machines and science. Machines help people do things, or make doing things easier. The wheel and the screw are both simple machines. A pulley helps to lift very heavy weights. Gears change the turning direction of a force. INSET: I DON'T BELIEVE IT!. (Copyright applies to all Abstracts) |
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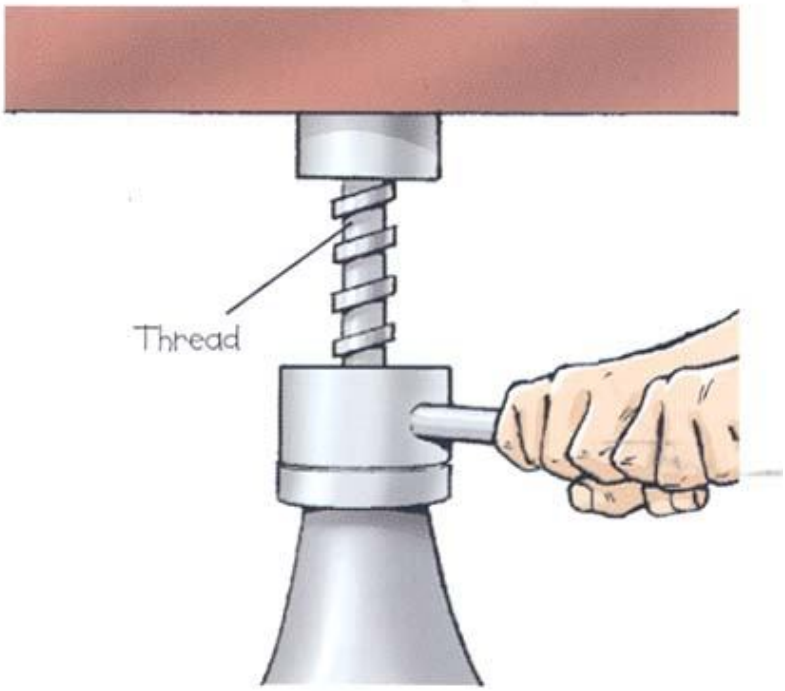
### Machines big and small

**2 Machines are everywhere!** They help us do things, or make doing them easier. Every time you play on a seesaw, you are using a machine! A lever is a stiff bar that tilts at a point called the pivot or fulcrum. The pivot of the seesaw is in the middle. Using the seesaw as a lever, a small person can lift a big person by sitting further from the pivot.

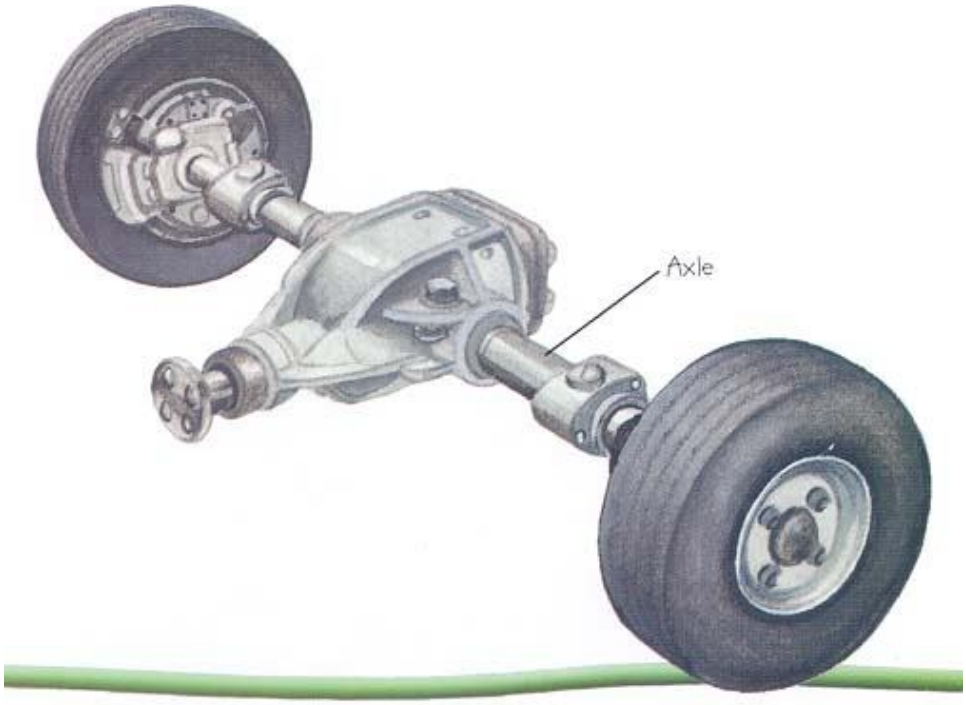
*On a seesaw lever, the pivot is in the middle. Other levers have pivots at the end.*

**3 The screw is another simple but useful scientific machine.** It is a ridge, or thread, wrapped around a bar or pole. It changes a small turning motion into a powerful pulling or lifting movement. Wood screws hold together furniture or shelves. A car jack lets you lift up a whole car.



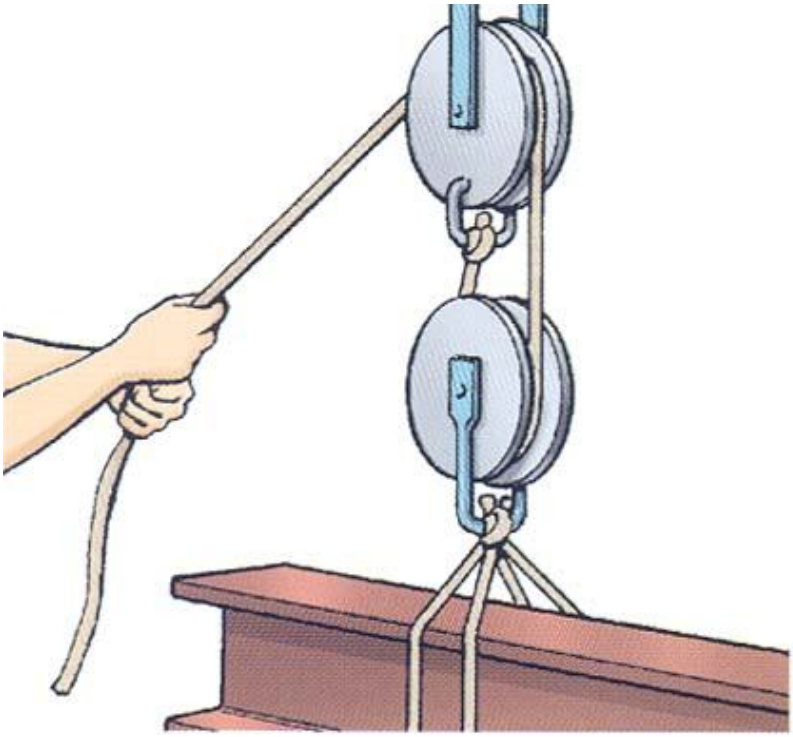

*Thread*

**4 Where would you be without wheels?** Not going very far. The wheel is a simple machine, a circular disk that turns around its center on a bar called an axle. Wheels carry heavy weights easily. There are giant wheels on big trucks and trains and small wheels on rollerblades.




*A car's rear wheels are turned by axles.*

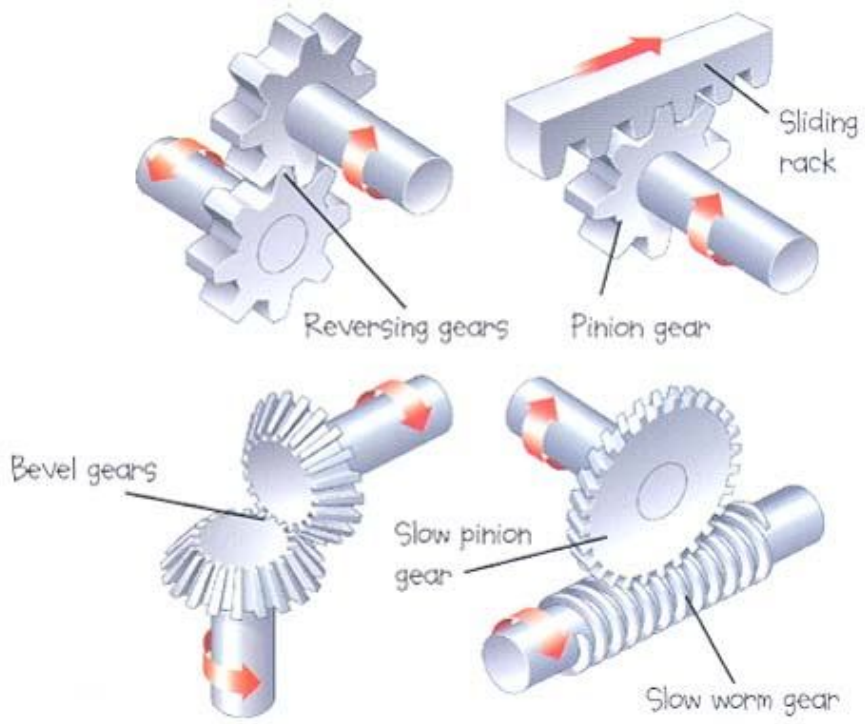
**5 A pulley turns around, like a wheel.** It has a groove around its edge for a cable or rope. Lots of pulleys allow us to lift very heavy weights easily. The pulleys on a tower crane can lift huge steel girders to the top of a skyscraper.



*Two pulleys together reduce the force needed to lift a heavy girder by one half.*

**6 Gears are like wheels, with pointed teeth around the edges.** They change a fast,

weak turning force into a slow, powerful one--or the other way around. On a bicycle, you can pedal up the steepest hill in bottom (lowest) gear, then speed down the other side in top (highest) gear.




*Gears change the turning direction of a force. They can slow it down or speed it up--and even convert it into a sliding force (rack and pinion).*

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By Steve Parker

Consultant: Peter Riley

**I DON'T BELIEVE IT!**

A ramp is a simple machine called an included plane. It is easier to walk up a ramp than to jump straight to the top.

PHOTO (COLOR)


**Source:** Science (1-59084-456-4)

 