



# Simple Machines

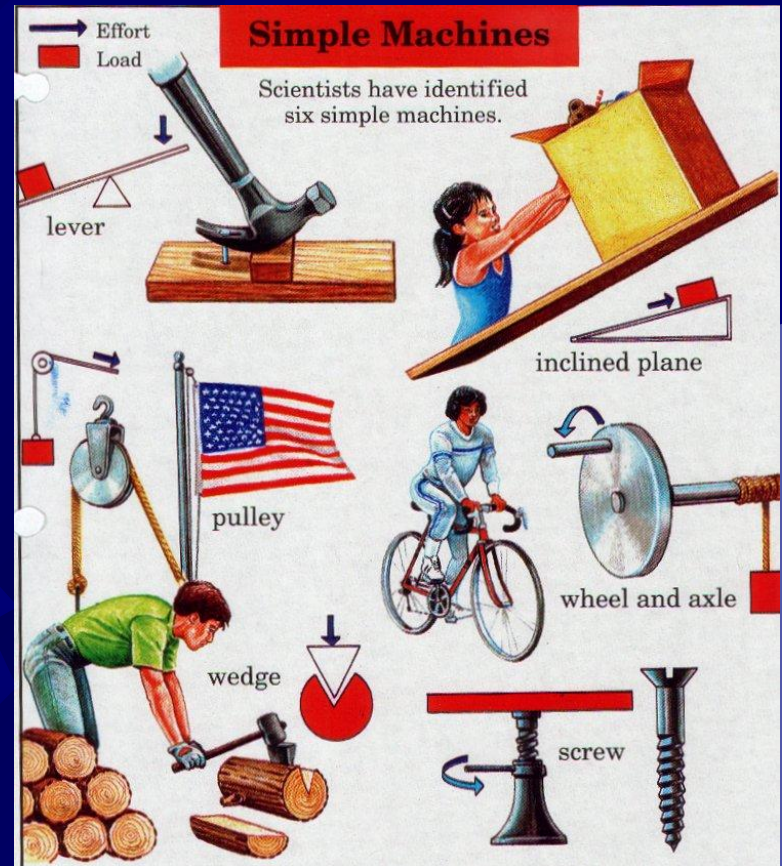
Chapter 8 – Section 3

# Essential Questions

- ★ What are the six types of simple machines?
  - Name an example of each.
- ★ What mechanical advantage is provided by each simple machine?
- ★ What simple machines make up a compound machine?

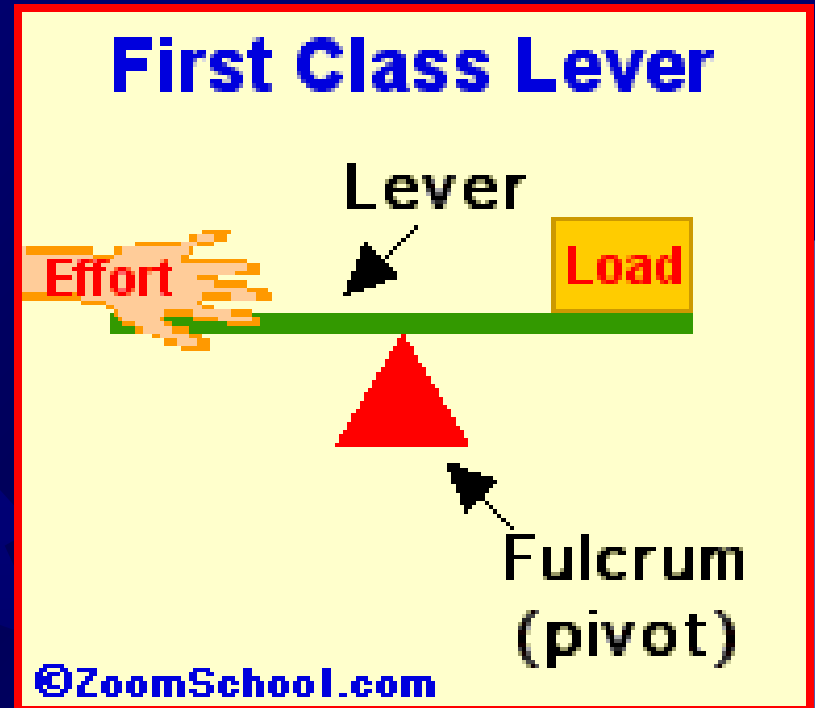
# What is a Simple Machine?

- ✦ A simple machine has few or no moving parts
- ✦ Simple machines make work easier



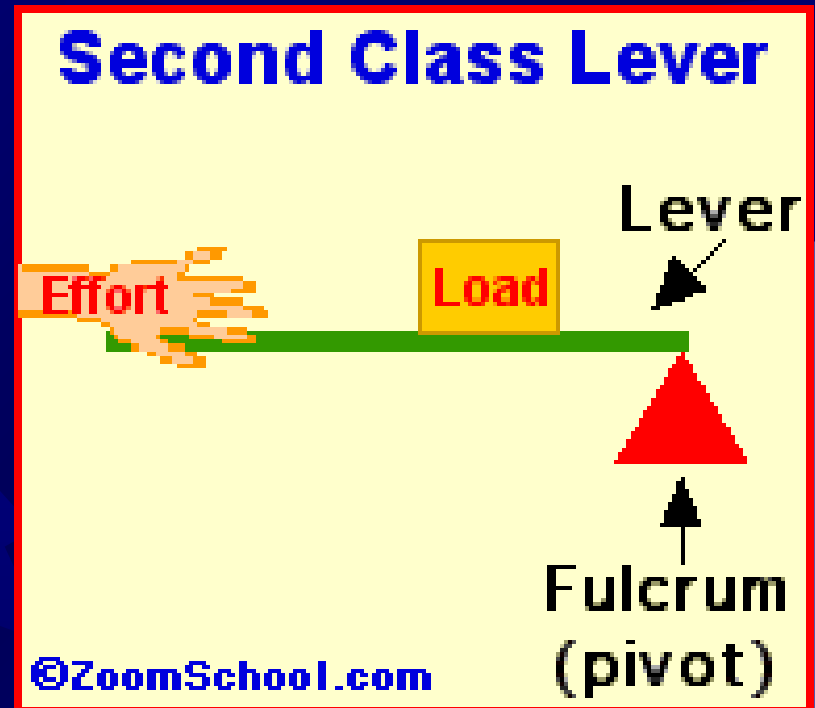
# Levers-First Class

- ✦ In a first class lever the fulcrum is in the middle and the load and effort is on either side
- ✦ Think of a see-saw



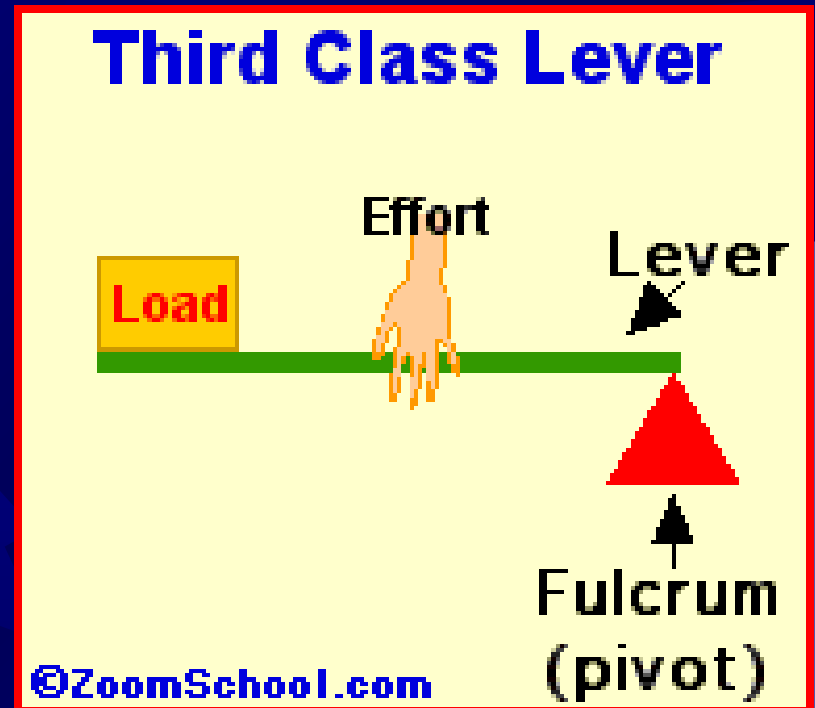
# Levers-Second Class

- ✦ In a second class lever the fulcrum is at the end, with the load in the middle
- ✦ Think of a wheelbarrow



# Levers-Third Class

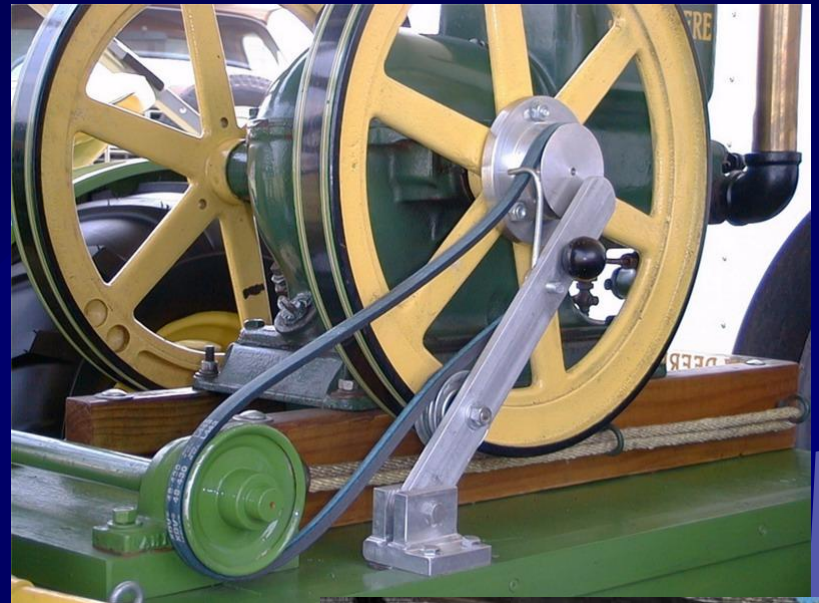
- ✦ In a third class lever the fulcrum is again at the end, but the effort is in the middle
- ✦ Think of a pair of tweezers





# Pulleys

- ☀ Pulleys are wheels and axles with a groove around the outside
- ☀ A pulley needs a rope, chain or belt around the groove to make it do work



# Types of pulleys

- ★ Fixed pulley – attached to something that does not move; pull down on the rope to make the load lift up
- ★ Moveable pulleys – not attached to the object being moved; do not change a forces direction, but increase force and distance
- ★ Block and tackle – a fixed pulley and a moveable pulley that work together



# Wheels and Axles

- ★ The wheel and axle are a simple machine
- ★ The axle is a rod that goes through the wheel which allows the wheel to turn
- ★ Gears are a form of wheels and axles



# Inclined Planes

- ✦ An inclined plane is a flat surface that is higher on one end
- ✦ Inclined planes make the work of moving things easier



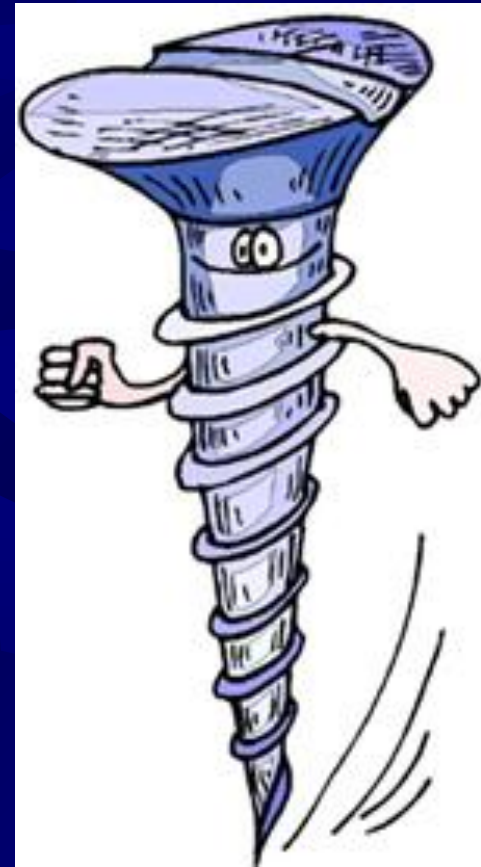
# Wedges

- Two inclined planes joined back to back.
- Wedges are used to split things.



# Screws

- ★ A screw is an inclined plane wrapped around a shaft or cylinder.
- ★ The inclined plane allows the screw to move itself when rotated.





# Simple Machines

- ★ Simple Machines can be put together in different ways to make compound machines
- ★ Ex: a can opener is a wedge, a wheel and axle, and a second class lever

