Chapter 14 Day 5
Lesson 2
Screw, Wedge, Lever

SPI 0707.11.1 Differentiate between the six simple machines.

What You Will Learn

- How to distinguish between wedges, screws, and levers
- Where you see wedges, screws, and levers in everyday life

What Mastery Looks Like

13 **A screw is an example of a simple machine that would be most useful for**

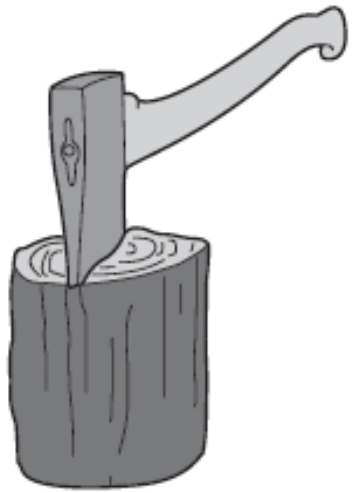
A cutting a sandwich.

B hammering a nail.

C opening a corked bottle.

D lifting a rock.

33 **A logger splits a piece of wood.**



What simple machine splits the wood?

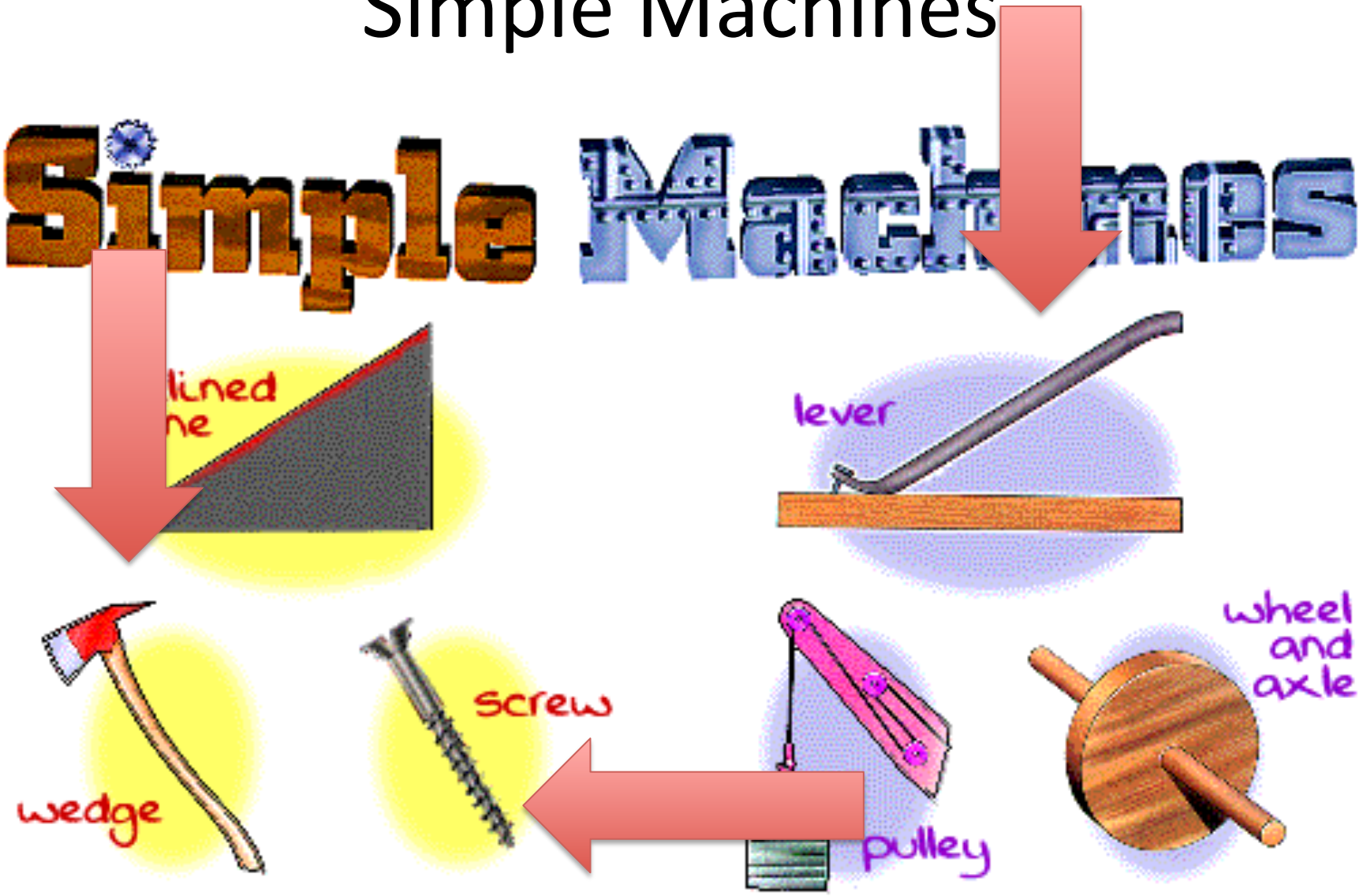
A wedge

B wheel and axle

C pulley

D lever

Simple Machines



What is a wedge?

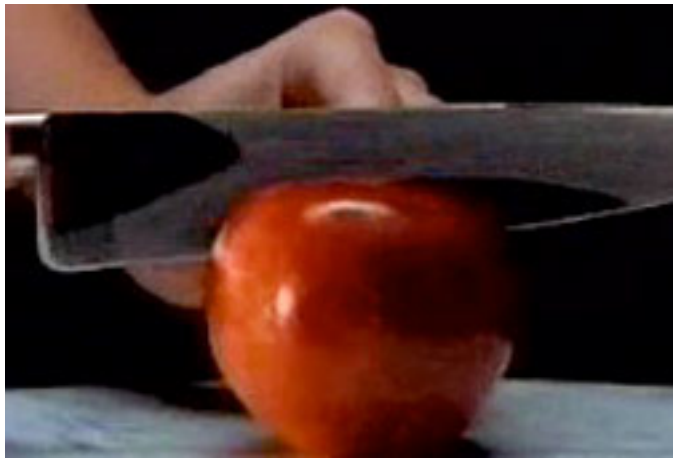
- A wedge is an inclined plane that moves.
- It can have one or two sloping sides.
- A wedge's mechanical advantage increases as it becomes longer and thinner.

https://www.youtube.com/watch?v=LAAwZird80k

Wedge Examples

- Can you think of wedges that you see in real life? With your group, make a list.

Wedge Examples



A knife is a wedge with a sharpened edge that can cut objects into pieces

As you push your front teeth into the apple, the downward effort force is changed by your teeth into a sideways force that pushes the skin of the apple apart.

A doorstop is used to hold doors in place. The doorstop is a wedge that goes between the door and the floor.

Is this a wedge?

Yes! As the nail is pounded into a piece of wood, the bottom part of the nail opens up a large enough hole for the shaft of the nail to move through.

Yes! The sharp edge of the shovel is a wedge.

What is a screw?

- Look at this picture. With your group, describe what you see.

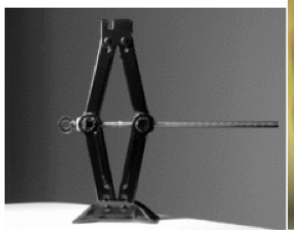
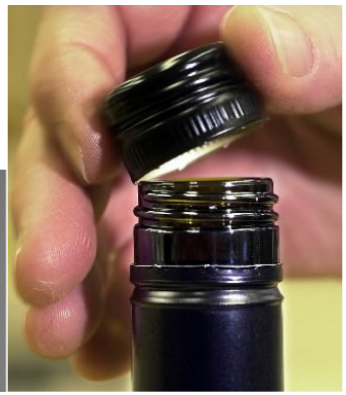
- The screw is another form of an inclined plane.
- A screw is an inclined plane wrapped around a cylinder or post.
- The inclined plane on a screw forms the screw threads.

https://www.youtube.com/watch?annotation_id=annotation_239178&feature=iv&src_vid=LAAwZird80k&v=4oPPQpF7bHY

When have you used a screw?

- Discuss with your group.

Screw Examples

Is this a screw?

Yes, this is a corkscrew. It helps remove corked bottles.

No, this is actually an example of a wheel and axle.

What is a lever?

- A lever is any rigid rod or plank that pivots, or rotates about a point. The point about which the lever pivots is called a fulcrum.

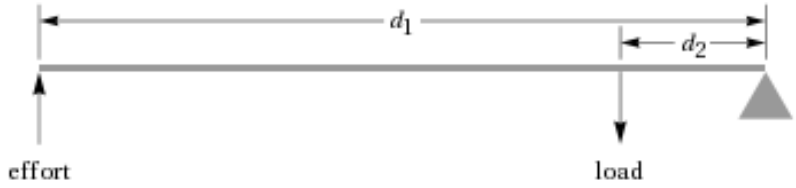
https://www.youtube.com/watch?v=E8RA9Kw_IaE

What is a lever?

- The mechanical advantage of a lever depends on the location of the input force, the output force, and the fulcrum.

- The mechanical advantage can be calculated by dividing the distance from the fulcrum to the input force by the distance from the fulcrum to the output force.

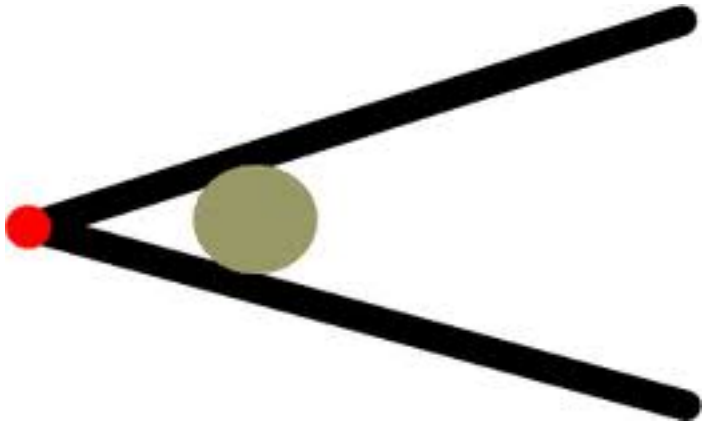
$MA = \frac{d_1}{d_2}$	
MA	mechanical advantage
d_1	effort arm
d_2	load arm

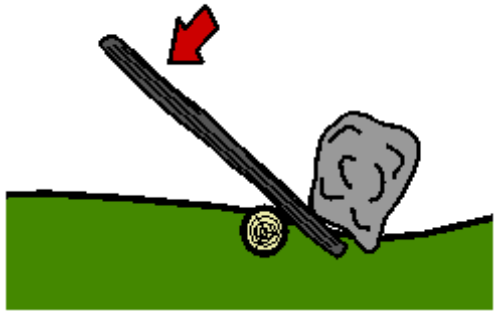


When have you used a lever?

- Discuss with your group.

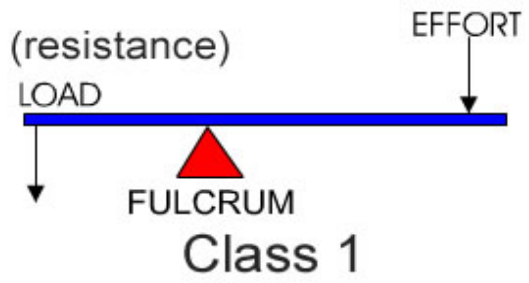
Lever Examples

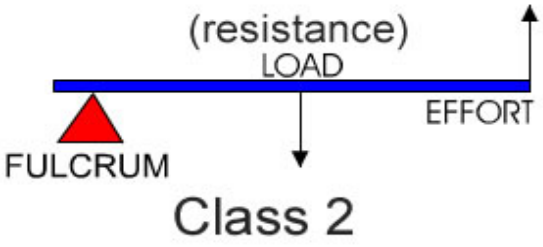


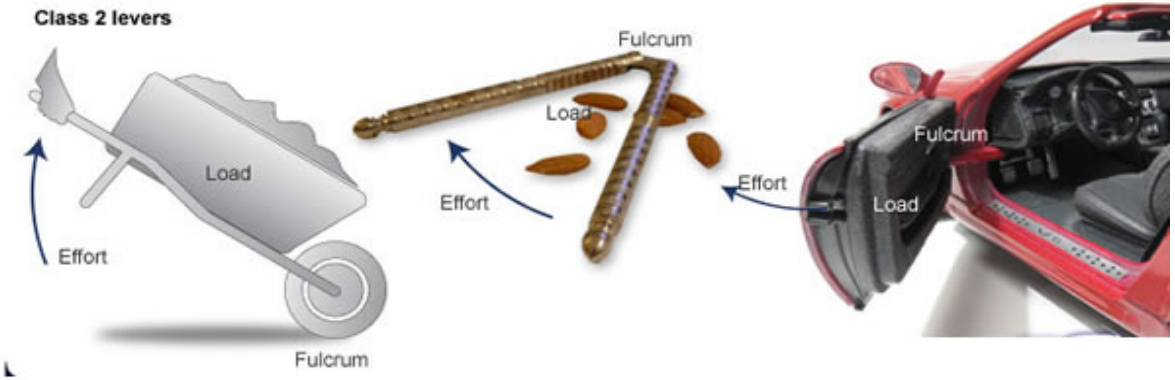


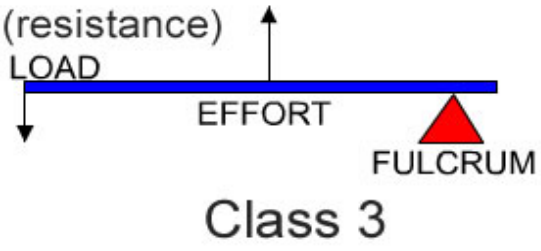
http://www.brainpop.com/technology/simplemachines/levers/

Three Types of Levers

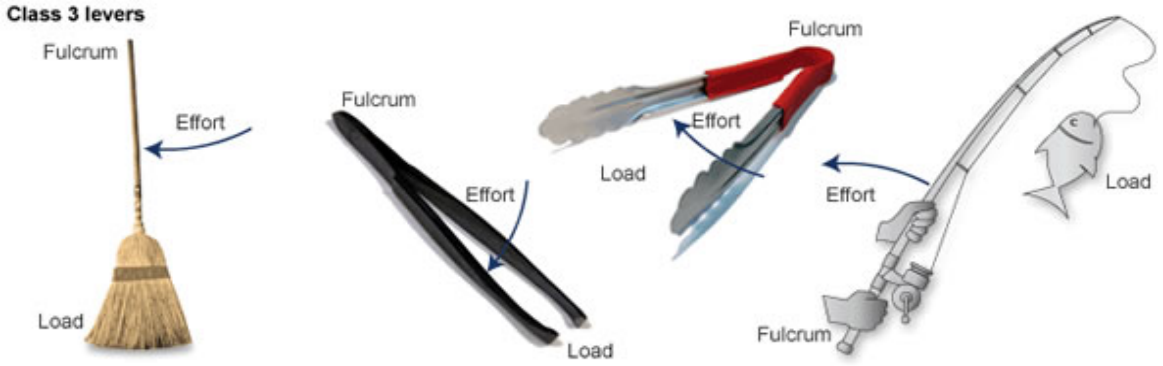








some Images from UCI Distance Learning center



Exit Ticket

- Pick two of the three simple machines we learned about today.
  - Draw a picture of each.
  - Describe a time you have used those simple machines.