

## Engagement:

Ask students to think back to their Discovery lab. Ask them to talk with a partner and see how many tools they can remember that they used. Which ones used incline planes to get the job done? Answer: the screw and screw driver. Explain that sometimes it is hard to see how a screw can be an incline plane so today we are going to make our own giant screws so we can really see what is going on.

## Exploration:

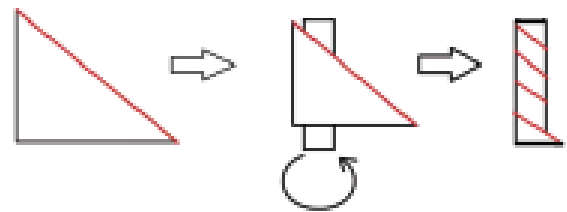
Have students begin by looking closely at some screws. Use magnifying glasses if you have them. Invite students to draw a picture of the screw.

## Explanation:

Ask the students which was easier in the tool exploration: hammering the nail in or put the screw in the wood? The hammer and nail is quicker but requires more force while the screw requires a small amount of force spread out over because it uses the incline plane. Think about a farmer loading a big truck up with his freshly picked apples. It is a lot of work to climb up onto the truck and load the apples but if he has a ramp on the truck he will have an easier time walking up the incline plane to get all of the apples into the truck. The ramp is a tool that is an incline plane.

## To Create the Giant Screw from an Incline Plane:

1. Have students tape the curling ribbon to the top of the paper towel tube.
2. Wrap the ribbon around the tube (approximately 5 times).
3. Tape the bottom of the ribbon to the bottom of the tube.
4. Cut out the screw head (see template on next page) and tape to the top of your screw.



*Optional – This can be glued to a piece of cardboard to make it more sturdy.*

## What You Will Need:

- 1 paper towel tube or another cylindrical object
- Curling ribbon
- Scissors
- Screws for examination
- Optional: Magnifying glasses
- Paper screw heads
- 3-4 work sheets  
(See page 2 of this lesson)

## Nevada Academic Content Standards in Science (NGSS):

K-2-ETS1-2. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

