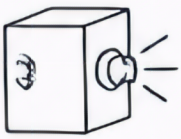


# MAKING A PINHOLE CAMERA WITH A BOX

*Discover how light travels in a straight line to create an image!*

**Name:** _____

**Date:** _____

**Location:** _____

## GOAL

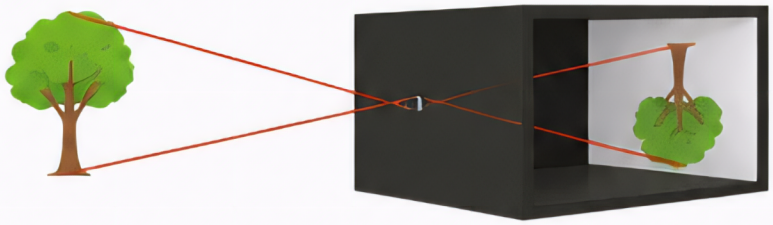
To build a pinhole camera and observe how light creates an upside-down image.

## MATERIALS

- Empty cardboard box (shoe box or similar size)
- Aluminum foil
- Pin or sewing needle
- Black construction paper or black tape
- White paper or tracing paper
- Tape
- Scissors or craft knife (adult use)
- Pencil

## BACKGROUND

Light travels in straight lines. When light enters a tiny hole (the pinhole) in a dark box, the rays cross over and project an image on the opposite side. The image appears upside down!



### THINK!

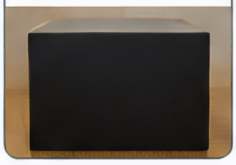
*Why do you think the image is upside down?*

_____

_____

## PROCEDURE

1. Cover one end of the box with black paper or black tape. Make sure it is light-tight.



2. Cover the opposite end with aluminum foil. Make it smooth and tight.

3. Use a pin or needle to make a tiny hole (pinhole) in the center of the foil.

4. Tape a white paper (or tracing paper) on the inside of the black end.

5. Take your camera outside. Point the pinhole at a bright scene.

6. Look at the screen inside the box. What do you see? Adjust and observe!

## OBSERVATIONS

What does the image look like?

_____

_____

Is the image upside down? Why or why not?

_____

_____

What happens if you make the pinhole bigger?

_____

_____

## DRAW YOUR RESULT

Draw the scene you observed on the screen (remember, it will be upside down!).

## CONCLUSION

What did you learn from this experiment?

_____

_____

_____

### CHALLENGE!

Try making a smaller pinhole. Does the image change? Why?

_____

_____