HOMESCHOOL SCIENCE EXPERIMENT

BUILDING A WORKING PERISCOPE WITH MIRRORS

Name: _____ **Date:** _____

QUESTION

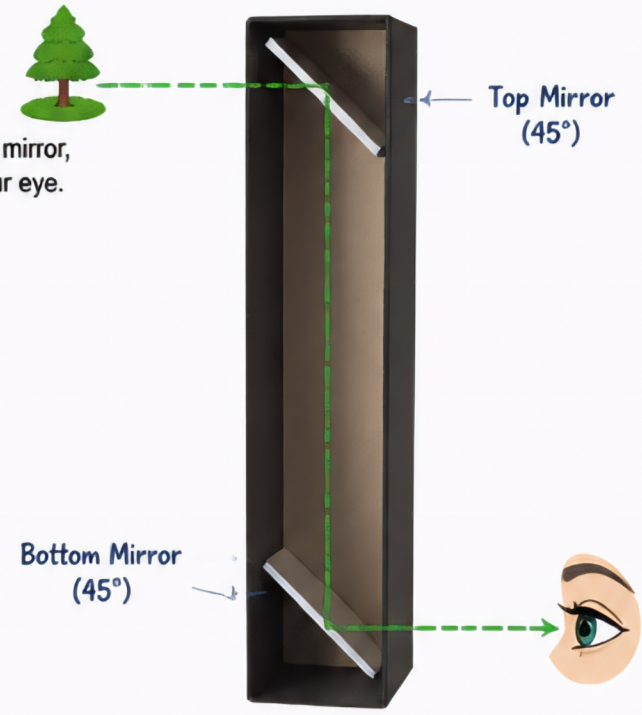
Can I build a periscope that lets me see over or around objects using mirrors?

HYPOTHESIS

If I build a periscope with two mirrors at 45-degree angles, then I will be able to see objects that are not in my direct line of sight.

WHAT IS A PERISCOPE?

A periscope is a device that uses mirrors (or prisms) to let you see Light from an object reflects off the top mirror, down to the bottom mirror, and into your eye.



MATERIALS

- ○ Shoebox or cardboard box (tall shape works best)
- ○ **2 small flat mirrors (about 2" x 2" or larger)**
- ○ Hot glue gun or strong tape
- ○ Ruler
- ○ Pencil
- ○ Scissors or box cutter
- ○ Black construction paper or paint (optional)
- ○ Objects to look at (toys, books, trees outside, etc.)

BUILD STEPS

1. **Prepare the Box** – Stand the box on its end so it is tall.
2. **Cut Opening for Viewing** – Cut a small hole or opening near the bottom on one side for your eye to look through.
3. **Cut Opening at the Top** – Cut a hole or opening on the opposite side near the top for light to enter.
4. **Install the Top Mirror** – Place the first mirror inside the top of the box at a 45-degree angle. The reflective side should face down toward the inside of the box.
5. **Install the Bottom Mirror** – Place the second mirror inside the bottom of the box at a 45-degree angle. The reflective side should face up toward the top mirror.
6. **Secure the Mirrors** – Use hot glue or strong tape to hold the mirrors firmly in place.
7. **Light-Proof the Box** – Cover any gaps or openings inside the box with black paper or paint so no extra light gets in.

CONCLUSION

Did your experiment support your hypothesis? Why or why not?
What would you do differently next time?

_____

_____

_____

HOW IT WORKS

Light from an object enters the top opening and reflects off the top mirror (at 45°). It travels down the tube and reflects off the bottom mirror (also at 45°). The light then travels into your eye, so you can see the object.

TEST IT!

Test your periscope in different places. Try looking over a chair, around a corner, or out a window. What can you see that you couldn't see before?

OBSERVATIONS

What worked well? What was challenging?
What did you see with your periscope?

_____

_____

_____

CHALLENGE (OPTIONAL)

Can you make your periscope smaller? Can you use different mirrors or materials? Try improving your design!