

EYE SPY

Make a periscope so you can secretly peer over walls and peek around corners.



1 Get what You need.

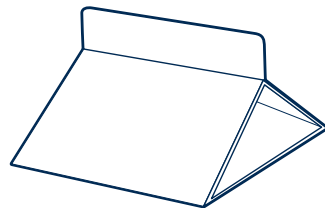
- 1 milk carton (quart size, thoroughly washed and dried)
- 2 small rectangular mirrors, approximately 2 1/2" x 3 1/2" (glass or plastic)
- scissors*
- duct tape
- aluminum-foil or plastic-wrap box, with serrated edge removed (optional—for Dig Deeper activity on back of sheet)

2 cut the carton.

- Cut off the top of the milk carton.
- Cut out a square about 1/4 inch from the bottom of the carton. This will be your eyehole—make it large enough so you can see through it.
- On the opposite side of the milk carton, about 1/4 inch from the top, cut out a larger square, at least twice the size of the eyehole.

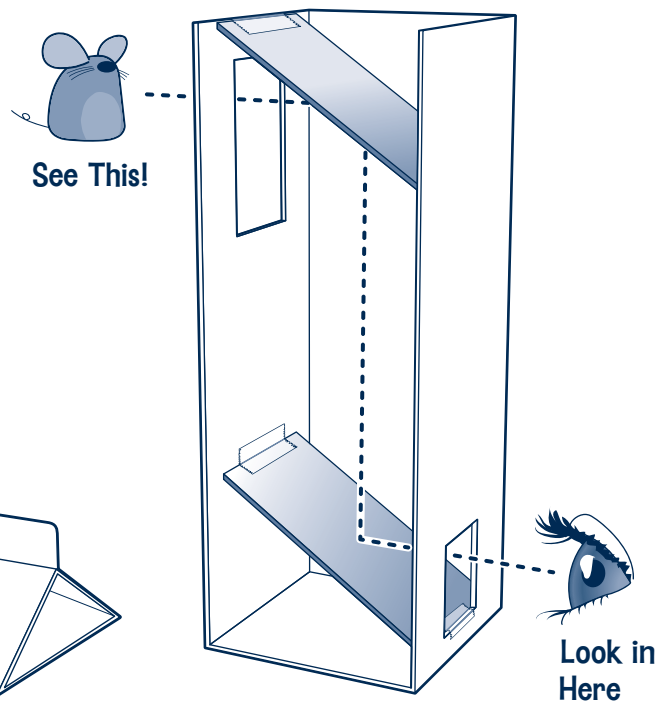
3 Add a mirror.

- Place a mirror at the bottom of the milk carton. Position it as shown in the diagram. Tape it in place.
- Look through the eyehole. You should be able to see the ceiling of the room you're in reflected in the mirror. If you don't, change the angle of the mirror.



4 Add another mirror.

Tape the top edge of the second mirror to the top edge of the milk carton, on the side where you cut out the large square. Position the bottom edge as shown in the diagram, and tape in place.



5 Take a look!

- **Experiment.** Can you look over a shelf? Around a corner? Under a table?
- **Observe.** While looking through the eyehole, put your hand on the carton where you think you're looking out. Did you find it right away? It's trickier than you think!

Chew on This!

You see things when light bounces off an object and reaches your eye. The mirrors in the periscope reflect light. They're angled so that the top mirror reflects the light down to the bottom mirror, and the bottom mirror reflects it into your eye. When you look through the eyehole and peer over a ledge, it seems like you're seeing something directly in front of you, at eye level. But you're actually seeing something several inches higher!

*Because it's difficult to cut the carton with scissors, an adult may wish to help kids by cutting the carton for them with a knife.

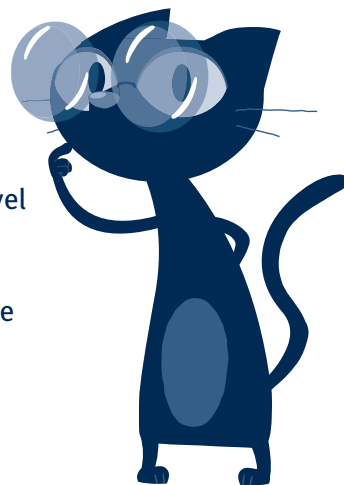
Dig Deeper

SCOPE it out. Use two milk cartons to make a taller periscope by taping the open ends of the cartons together. Or, make a periscope out of a long aluminum-foil or plastic-wrap box (remove the serrated edge). What can you do with a longer periscope?

Rearview mirror. Hold a mirror in front of you. Move it around until you can see what's behind you. Now try walking backward, using your mirror to navigate. Can you walk around a table or down a hallway without bumping into anything? Make an obstacle course and try it with your friends.

Did You Know?

Periscopes make it possible for a submarine's crew to see above the water level while the submarine remains submerged. They're also used in tanks. Periscopes let soldiers scout out danger without leaving the safety of the tank. There are also medical instruments that work like periscopes—they make surgery much easier for doctors.



Watch **FETCH!** on PBS KIDS GO! (check local listings) and visit the **FETCH!** Web site at pbskidsgo.org/fetch.



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Fold

Fetch!

EYE SPY

I hear all kinds of strange rumblings coming from Chet's mouse hole—it sounds like a bowling tournament in there, or an erupting volcano! But Chet (as usual) refuses to tell me what's going on. I've got an idea! Build a periscope so I can spy into his mouse hole. My canine curiosity must be satisfied!

GOOD FETCH!

