

## Q'S GADGET LAB: MAKER PROJECT

### SPY PERISCOPE

#### YOUR MISSION:

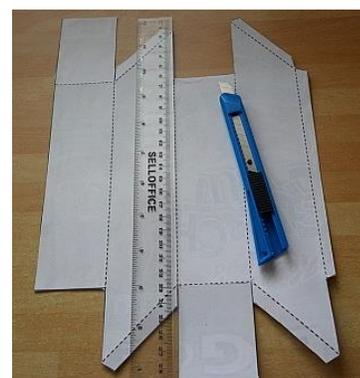
Any good spy should always check that the coast is clear before entering rooms. Making a periscope will help you make sure you know what's around the corner or to see over fences!

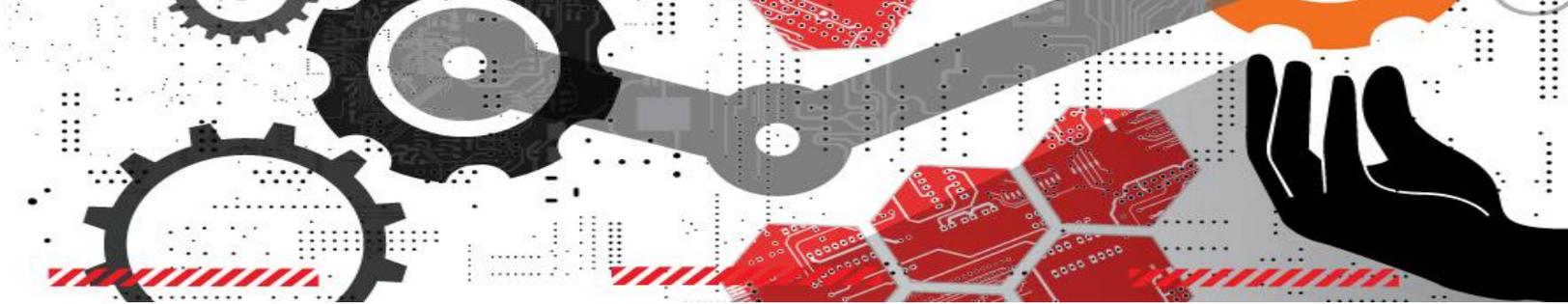
#### WHAT YOU NEED:

- Flattened cereal box or large piece of cardboard (at least 8.5" X 11")
- Masking tape
- 2 mirrors (2" X 2")
- Cutting blade
- Scissors
- Paint for decoration (optional)
- Periscope template

#### HOW TO MAKE IT:

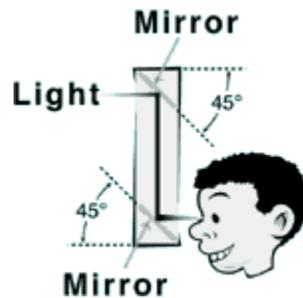
1. Glue the periscope template onto the cardboard and let it dry. Cut out the template along the solid lines – careful not to cut off the end flaps.
2. Using a ruler as a guide, score down the dotted lines with the cutting blade. Fold all the scored lines inwards. (HINT: folding over the ruler will help keep the folds straight.)
3. Fold the periscope over to make a tube. Glue and secure with masking tape if needed.
4. Glue the flaps at the end of the periscope down. (NOTE: The edges of the periscope can sometimes end up looking messy in places where you scored it. You can cover them with masking tape.)
5. Glue or tape a mirror into each opening of the periscope.
6. Decorate your periscope. Remember you want to blend in when using this device.





## HOW IT WORKS:

- Light reflects away from a mirror at the same angle that it hits it. In your periscope, light will hit the top mirror at a 45-degree angle and reflects away at the same angle. The reflected light then bounces down to the bottom mirror which reflects the light in the direction of your eye.



[https://www.exploratorium.edu/science\\_explorer/periscope.html](https://www.exploratorium.edu/science_explorer/periscope.html)

## DID YOU KNOW?

- Periscope comes from two Greek words: “peri” meaning around, and “scopus” meaning to look.
- Submarines have periscopes so that the crew inside can see what is above the water when they are under the surface.

