

## Connecting With Your Child

### Building a Periscope

A periscope is a tool with several mirrors at opposite ends of a long tube. These mirrors allow people to see around objects. Designing and building a periscope is an excellent way to learn about the fundamental laws of reflection.

Remember that the angle at which a light ray approaches a mirror is the same as the angle at which the light ray bounces off the mirror. Plans and instructional videos for building a periscope can easily be found on the internet. Use search terms such as *periscope plans*.

For most designs, you will need the following items:

- A long, square box, or enough cardboard to make such a box
- Two small pocket mirrors
- A protractor
- A sharp knife
- Duct tape

As you and your child position the mirrors at either end of the box, explain the significance of the angles at which the mirrors are set. (The first mirror must reflect light entering the periscope toward the mirror at the other end of the periscope. The mirror located at the other end must then reflect light toward the eyepiece of the periscope.) You can also watch videos of how a periscope is used aboard a submarine. Encourage your child to find other uses for a periscope. For example, a periscope can let someone look around a corner or above a couch.



The other end of this periscope is inside a submarine that is underwater. Someone is using it to observe events above the water's surface.