

<b>Main Topic</b>	Light & Color
<b>Subtopic</b>	Reflection
<b>Learning Level</b>	Middle
<b>Technology Level</b>	Low
<b>Activity Type</b>	Student

Description: Investigate the operation of a periscope and discover why its bent design is important.

Required Equipment	Periscope
Optional Equipment	

This lab is excerpted from *Light and Color Teacher's Guide* (Arbor Scientific P2-9560). The diagrams allow students to use the Light Box and Optical Set (Arbor Scientific P2-9561) directly on their lab pages.

## Reflection—C3—How Does a Periscope Work? Teacher's Notes

### Educational Objectives

- To observe the operation of a periscope.
- To diagram the behavior of light in a periscope.
- To diagram the behavior of light in a modified periscope.

### Key Questions

- How does a periscope work?

### Concept Overview

A periscope works by reflecting light rays off of two mirrors to produce an image.

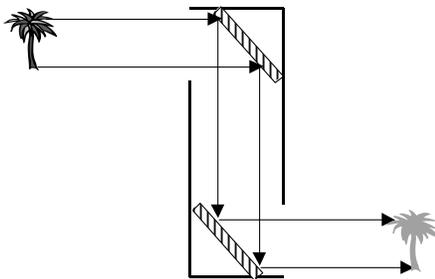


Figure 1

Notice that the image is right-side-up, with the light rays from the top of the tree going to the top of the image. Students are asked to compare this situation with one in which the top mirror is rotated so that it points behind the observer, as in Figure 1.

# Reflection in a Periscope

# Teacher's Notes

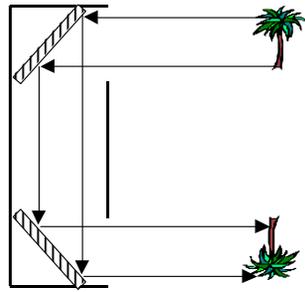


Figure 2

In this case, an inverted image is formed. For this reason, periscopes in submarines must be allowed to completely turn around. It would not work to just have the top mirror rotate.

