

INSTRUCTIONAL GUIDE

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Teacher Notes

This experiment is appropriate for students at any level. Students should have completed on how light reflects from a plane mirror before completing this lab.

Educational Objectives:

- To use the Internet to find plans for a homemade periscope.
- To construct a periscope.
- To observe the operation of a periscope.
- To diagram the behavior of light in a periscope.
- Extension: To diagram the behavior of light in a modified periscope.

Key Question:

- How does a periscope work?

Concept Overview:

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

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 (Figure 1). 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 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.

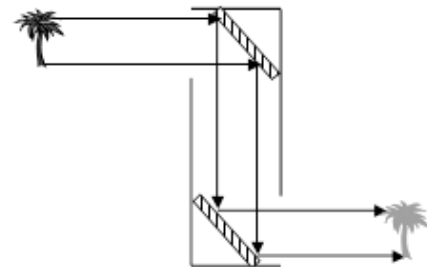


Figure 1

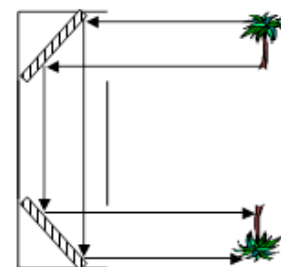


Figure 2

Related Products

Periscope Classroom Kit (P2-7085) A fun and engaging classroom STEM activity that allow 30 students to build and test their own periscope for exploring the law of reflection.

Reflect-View (P2-9570) With this specialized "mirror" your students can easily see the concepts of reflective symmetry, transformations (slides, flips, and rotations), congruence, and constructions in action.

3D Mirascope Illusion Maker (P2-7040) Parabolic mirrors create a floating holographic image that looks 100% real, but try to touch it and your fingers go right through! Create a hologram with any small object.

