

Reflection Relay

Description: In this event, teams of three students use pocket mirrors and cooperate to bounce a light beam from a film projector onto a predetermined target.

Groups Upper elementary, teams of 3 recommended

Time Required: 15-20 minutes estimated



Key Question: Using a mirror and a light source, what is the best way to quickly hit a predetermined target?

Content Expectations Addressed: Inquiry involves generating questions, conducting investigations, and developing solutions to problems through reasoning and observation.

Inquiry includes an analysis and presentation of findings that lead to future questions, research, and investigations.

Reflecting on knowledge is the application of scientific knowledge to new and different situations. Reflecting on knowledge requires careful analysis of evidence that guides decision-making and the application of science through history and within society.

Heat, electricity, light, and sound are forms of energy.

Light travels in straight lines. Shadows are the result from light not being able to pass through an object. When light travels at an angle from one substance to another, it changes direction.

Teacher background: Objects can be seen because the light is reflected from an object to the viewer's eye. An image can be seen in a mirror for this same reason. Light from a source is reflected off an object to the mirror and is reflected again to the viewer's eye. The angle at which light strikes a mirror is called angle of incidence. The angle at which light bounces off a mirror is called angle of reflection. The angle at which a beam of light strikes the mirror is equal to the angle at which it bounces off, but it bounces off in the opposite direction.

Discovering STEM Program

Science Process Skills: Communicating, inferring, interpreting and making models.

Materials: Light source, such as filmstrip projector (teacher provides) Pocket mirrors, one per student

Procedure: Student teams of 3 cooperate to bounce a light beam from a source such as a film projector onto a predetermined target. The light must strike each of the three mirrors before hitting the target, and there may be obstacles that the beam of light will have to be directed around. The three team members must cooperate to direct the beam of light on the target. They must use all three mirrors to change the light's path. Each team is given up to one minute of preparation time before the clock is started. The light source is on during the preparation time. The object of the activity is to hit the target in the least amount of time. See diagram on page 2 for set up information.