

Thread NSTA Light with Reflection Question

How can I get 5th and 6th grade students to understand that everything they can see is reflecting light. All of them have misconceptions in this area. I have lots of experiments for reflections, refraction, etc but nothing I can think of besides telling them. any thoughts?

Kathy

How about,
Find a dark corridor, put students in a doorway to the corridor, and have a student shine a flashlight down the corridor, or not. Ask the students in the doorway to say whether or not the flashlight is on. They won't be able to tell...why not. Then put a reflecting medium in the hallway, some dust or just a piece of paper...now they can see when the light is on. You may have to do some previous work on the beam of light coming from a flashlight...ie when can you see the light...when it enters your eye, etc.

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Hi Kathy,

Not everything is reflected of course (direct sunlight, street lights, neon lights, candle flames etc.).

Also shadows are not reflected light. Some colors - such as the blue sky - would be more accurately described as scattered light and rainbows are refracted light.

A fun way to explore the different phenomena is have them explain the "source" and "path" of light playing with different objects in front of a bright light source (the sun or overhead projector). The objects can be everyday things (colored paper, pencils, prisms, flashlights, mirrors). Have them draw a simple ray diagram from the source to their eye. Ask why things have different colors. Contrast a mirror or object with a flashlight.

Have fun...cheers...Mark

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Hi Kathy,

For teaching reflection, consider the following:

Distribute mirrors and glass of similar sizes. Allow students to explore using the two and then complete and a compare/contrast table.

The discussion can focus on why they could see themselves in the mirror and not with the glass. What is the basic difference between the two? Allow them to use arrows to represent light rays to demonstrate the difference between the two. There will be students who have mastered the concept and allow them to present their explanations to the class. This is a great peer teaching/learning moment.

Also, give them the opportunity to explore with refraction. Please do not refer to it as "the bending of light" but rather that it appears that light is bending. I had students place a plastic coffee stirrer in a beaker and asked them to observe, draw and explain. I then asked them to show what they saw with arrows to represent light rays. You would be surprised how many actually could use the arrows correctly to describe the refraction.

It was easy for me to explain the differences in the speed of light as it traveled from one medium to another.

Most important teaching strategy...gives students the opportunity to explore and to explain thereafter.

Claude
Claudia Toback

Check this site out. It may help.
<http://www.engineeringinteract.org/>
go to the light section - it's an interactive site.

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