

Misconception model lesson plan: Reflection of light

Materials:

Worksheets
One ball
Flashlights
Small mirrors
Soup spoons

Commit to an outcome:

Give the students graphical representation of objects and faces and have them fill in how vision of luminous and non-luminous objects works. (5-10 minutes)

Expose beliefs:

Ask students to describe their drawings and explain their reasoning. (5-10 minutes)

Confront beliefs:

Teacher will use the ball to demonstrate the concept of reflection. When the ball is directed against the floor at a 90 degree angle it will bounce straight back up. When the ball is thrown at an angle, it will bounce away at that same angle. If the ball is bounced against a rough surface, it is difficult to predict the resulting action. This is all true of light, as well. Give the students the remaining materials and ask them to determine how different materials reflect light differently. Also, students need to think about the surrounding light in the room and how it reacts to the surfaces. For instance, how do reflections of their faces in the spoons change between the concave surface and convex surface? (15 minutes)

Accommodate the concept:

Ask students how light behaved when the flashlight was directed at differently shaped objects. (10 minutes)

Extend the concept:

Ask children to look again at the spoons. When their reflections change side to side, is their vision changing or is the light changing? What does this mean about vision? (10 minutes)

Go beyond:

Ask students to design a fun-house mirror that would make heads look big and feet look small by bending the surface. (10 minutes)

Inquiry level 1

Problem defined by teacher
Problem solving methods chosen by teacher
Tentative solution determined by students