

## **Scientists Ideas on “Can it Reflect Light?”\***

### **Purpose:**

The purpose of this assessment probe is to elicit students’ ideas about light reflection off ordinary objects and materials. The probe is designed to find out if students recognize that all non-light-emitting objects that we can see reflect some light or if they believe that only certain types of objects reflect light.

### **Explanation:**

Assuming all the objects on the list are visible to an observer, the best response is “All of the objects on the list can reflect light.” The objects and materials on this list can be seen when light is reflected from the object or material and enters the eye. When we can see a nonluminous object, we know that some or all of the light striking the object is reflected to our eye. Otherwise we would not be able to see it. Most materials will absorb some wavelengths of light and reflect the rest. This accounts for why we see different colors. When we see white, all colors have been reflected back. Materials that absorb all light and reflect no light appear black. Black is the absence of light. Black objects whose features you can actually see do not absorb all the light that falls on them. With these objects, some reflection at the surface allows you to see their features. Some materials clearly reflect light better than others. Ordinary mirrors and light, shiny, smooth objects reflect light to the observer because the light bounces off the surface at a definite angle. When light hits rough surfaces, such as paper or rock, it is scattered and bounces back in many different directions. This scattering makes some objects appear dull.

\*From *Uncovering Student Ideas in Science* by Page Keeley, NSTA Press, 2005, pp. 26-27.