THE STANDARD

Reflecting Light & Vision

"Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen."

ANCHORING PHENOMENON

The Pitch-Black Room

You walk into a room with the lights off and the shades pulled tight. You know your backpack is on the chair, but you cannot see it at all. Then you click on a flashlight and there it is. The backpack didn't move and it didn't change. So why could you suddenly see it the instant the light came on? 4th graders will want to figure out what the light is actually doing.

> **DRIVING QUESTION**
> *"The backpack was there the whole time, so why couldn't we see it until the light turned on?"*

INVESTIGATIVE 1

Catching Light in a Mirror

Shine a flashlight at a small mirror and aim the bright spot it makes onto the wall or ceiling. Tilt the mirror and the spot jumps to a new place. The light clearly bounced off the mirror and traveled somewhere new. Use this to sharpen the anchor: light doesn't stop at an object, it bounces off and keeps going, and it can travel right into your eye.

> **DRIVING QUESTION**
> *"Where does the flashlight beam go after it hits the mirror, and how do we know it bounced?"*

INVESTIGATIVE 2

The Box With One Peephole

Put a small toy inside a sealed cardboard box with one peephole to look through. With the box closed up tight, you see only black. Cut a flap to let light in and suddenly the toy appears. Same toy, same eye, same peephole. The only thing that changed was letting light reach the toy. This zeroes in on whether light is the missing piece.

> **DRIVING QUESTION**
> *"What has to happen inside the box before our eye can see the toy through the peephole?"*