

Photo Description



The picture shows tall buildings with lots of glass windows. One building looks like it is inside another building's windows. The glass acts like a mirror and shows the building behind it.

Scientific Phenomena

This image demonstrates reflection as an anchoring phenomenon. Light rays from the building behind bounce off the smooth glass surface of the front building and travel to our eyes, creating a mirror-like image. This happens because glass surfaces are smooth and shiny, causing light to bounce back at predictable angles rather than scattering in all directions like rough surfaces do.

Core Science Concepts

1. Light Reflection - Light bounces off smooth, shiny surfaces like mirrors and glass windows
2. Properties of Materials - Different materials interact with light differently (glass reflects and lets light through, while concrete absorbs light)
3. Observable Properties - We can see and describe how materials look shiny, dull, smooth, or rough

Pedagogical Tip:

Use a flashlight and various materials (mirror, aluminum foil, sandpaper, fabric) to let students discover which surfaces reflect light best. This hands-on exploration helps them understand that smooth, shiny materials are the best reflectors.

UDL Suggestions:

Provide multiple ways for students to demonstrate understanding by having them draw what they see, act out light bouncing with their bodies, or use hand gestures to show light traveling and reflecting.

Zoom In / Zoom Out

1. Zoom In: At the tiny level, light is made of particles called photons that bounce off the smooth glass surface like balls bouncing off a wall
2. Zoom Out: Reflection happens everywhere in our world - in puddles, car windows, phone screens, and even helps animals like cats see better at night

Discussion Questions

1. What do you notice about how the building looks in the glass? (Bloom's: Observe | DOK: 1)
2. Why do you think some windows show reflections while others don't? (Bloom's: Analyze | DOK: 2)

3. How is this glass window similar to a mirror in your bathroom? (Bloom's: Compare | DOK: 2)
4. What would happen if the glass was rough instead of smooth? (Bloom's: Predict | DOK: 3)

Potential Student Misconceptions

1. Misconception: "The building is actually inside the glass"
Clarification: The building image is reflected on the glass surface, like looking in a mirror
2. Misconception: "Only mirrors can show reflections"
Clarification: Any smooth, shiny surface can create reflections including water, metal, and glass

NGSS Connections

- Performance Expectation: 1-PS4-3 Plan and conduct investigations to determine the effect of placing objects made with different materials in the path of a beam of light
- Disciplinary Core Ideas: 1-PS4.B
- Crosscutting Concepts: Cause and Effect

Science Vocabulary

- * Reflection: When light bounces off a surface back to your eyes
- * Smooth: A surface that feels flat with no bumps or rough spots
- * Shiny: A surface that reflects light and looks bright or glossy
- * Material: What something is made of, like glass, wood, or metal
- * Property: How something looks, feels, or acts

External Resources

Children's Books:

- Mirrors and Reflections by David Dreier
- Light by David Dreier
- What Is Light? by Robin Johnson

YouTube Videos:

- "Light and Shadows for Kids" - Simple explanation of how light travels and reflects with fun animations <https://www.youtube.com/watch?v=p8A2zGJUhwk>
- "Reflection of Light - Science for Kids" - Demonstrates light reflection using mirrors and everyday objects <https://www.youtube.com/watch?v=lQjOJSW8xJI>