UBD Unit Design Template

Time Frame: Quarter 1 (10 weeks)	Unit Title: Why do we sometimes see differ things when looking at the same object?	Course Name: 6th Grade Science

Stage 1: Desired Results

Established Goal(s)

Enduring Understandings (Big Ideas)

MS-PS4-2:
Develop and use a model t describe that waves are reflected, absorbed, or transmitted through various materials.

MS-LS1-8:
Gather and synthesize information that sensory receptors respond to stimul by sending messages to th brain for immediate behavio or storage as memories.

Transferable Skills

Ask questions

- Develop and use models
- Plan and carry out investigations
- Analyze and interpret data
- Use mathematics and computational thinking
- Construct explanations
- Engage in argument from evidence
- Obtain, evaluate, and communicate information

Meaning

Understandings

Students will understand that…

A one-way mirror transmits about half the light and reflects about half the light that shines on it due to its microscale structures.

There are unseen light interactions between people and a one-way mirror.

Light on either side of a material changes the light input entering the eyes which affects what we see.

Glass can act like a one-way mirror in certain light conditions.

Essential Questio Why do we sometimes see different things when looking at the same obje

Investigation Questions:

How can something act like a mirror and a window at the same time?

What happens if we change the light?

What happens when light shines on a one-way mirror?

How do similar amounts of light transmit through and reflect off the one-way mirror?

How do light and the one-way mirror interact to cause the one-way mirror phenomenon?

Why does the music student not see the teacher?

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		Why do the music student and the teacher se music student but the music student can't see teacher? Why do we sometimes see different things wh looking at the same object?
	Acquisition	
	Students will know… MS-PS4.B • When light shines on an object, it is reflected, ~~absorbed~~, or transmitted through the object, depending on the object's material ~~and the frequency (color) of the light.~~ • The path that light travels can be traced as straight lines, except at surfaces between different transparent materials (e.g., air and water, air and glass) where the light path bends. MS-LS1.D • Each sense receptor responds to different inputs (electromagnetic, ~~mechanical, chemical~~), transmitting them as signals that travel along nerve ~~cells~~ to the brain. The signals are then processed in the brain, ~~resulting in immediate behaviors or memories~~. Vocabulary • one-way mirror • scale • model • norm • light source • reflect • transmit	*Students will be able to…* Develop a shared set of classroom norms to guide their work together. Ask questions about the one-way mirror phenomenon that they investigate in the classroom by (1) manipulating light in the scaled box model, (2) measuring transmitted and reflected light off different materials, and (3) obtaining information from readings and videos. Agree upon and develop models to explain how light interacts with the one-way mirror, glass, regular mirrors, the eye, and the brain. Use a model to explain how the one-way mirror acts like a mirror on the light side of the system and acts like a window on the dark side of the system. Apply to an everyday phenomenon the science ideas and models developed for explaining the one-way mirror.

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	• independent variable • dependent variable • experimental question • silvering • transparent • opaque • model • retina • optic nerve • refract • system • scattering • specular reflection	