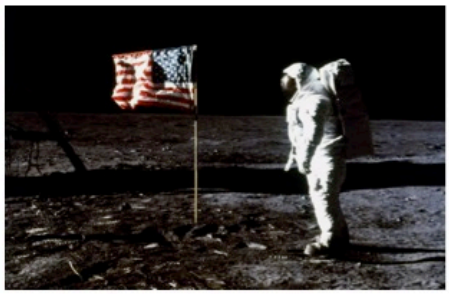
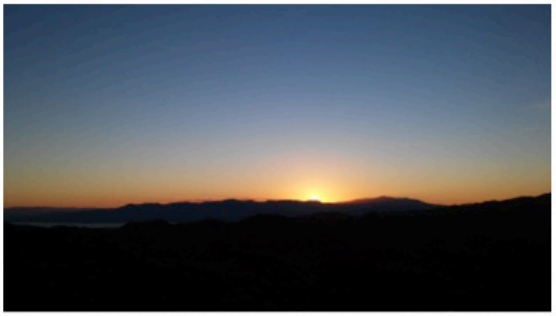
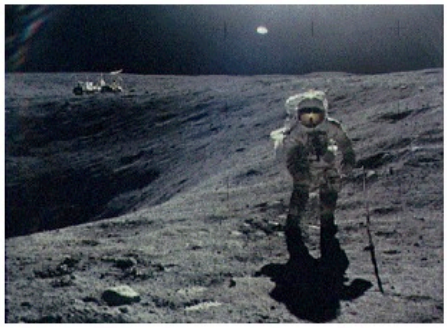
OBSERVE & QUESTION







Sources: nasa.gov; space.com; Paul Frankenstein (Bay Bridge)

California Academy of Sciences

Notice	Wonder

INVESTIGATE & OBSERVE

Focus Question:

Investigate:

1. Shine flashlight through plain water, from the side and end of box.
2. Observe the light passing through the water from above, the side, and the end of the box.
3. While stirring the water with spoon, add 4 droppers of skim milk to the water.
4. Shine flashlight through milky water, repeating steps 1-2.

Observations:

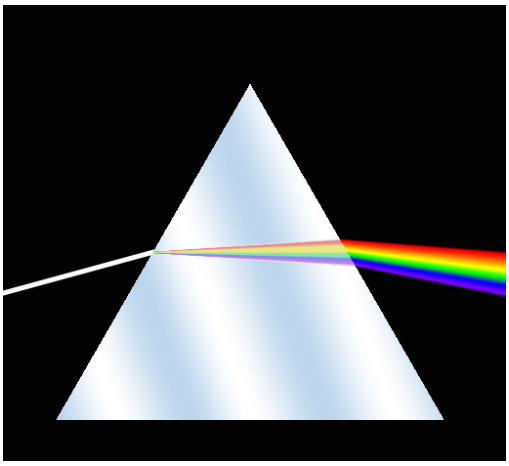


Image source: Wikimedia “Dispersion prism”

- ✓ Three ways that light **interacts** with matter:
  - **Transmit** (passes through)
  - **Reflect** (bounces off of)
  - **Absorb** (turns into another form of energy—for example *heat*)

- ✓ Light is can also **scattered** = redirected in random directions by **interacting** with small particles in its path.

- ✓ White light is the combination of many colors of light.

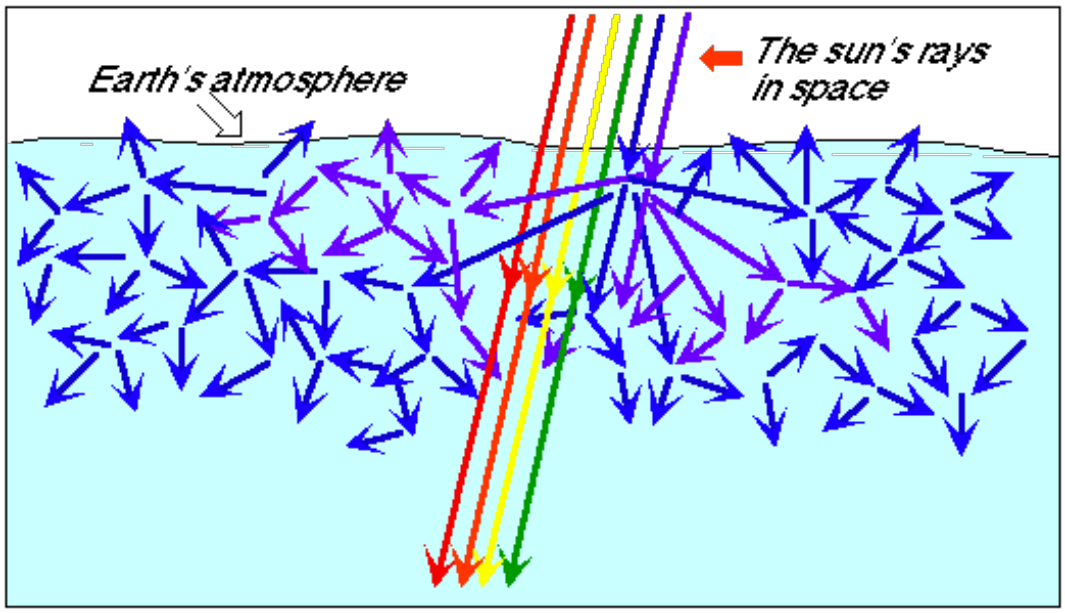
What do you think is happening, and why?

Plan a test and make a prediction:

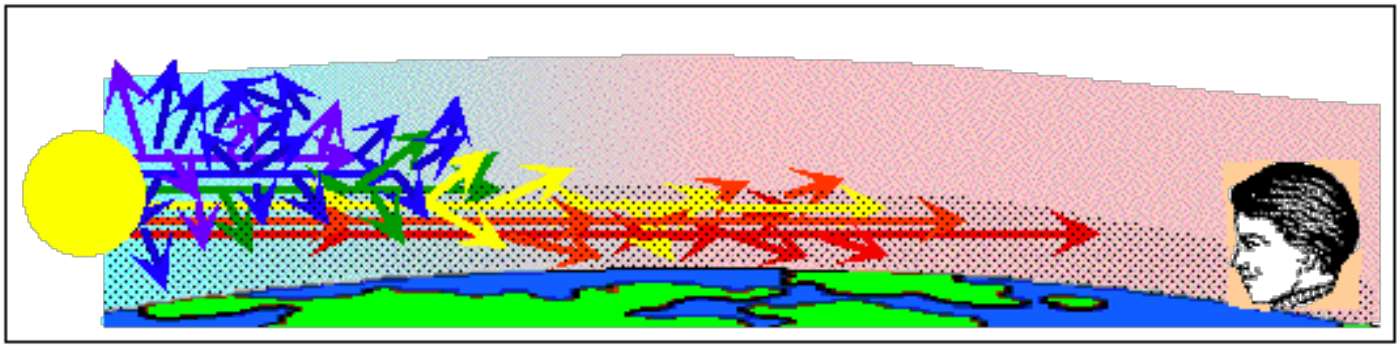
Observations:

Revise or confirm your thinking:

REFLECT



https://www.esrl.noaa.gov/gmd/grad/about/redsky/



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Part of the model		Part of the real world	They are *alike* because…	They are *different* because…
Water filling the bucket		Space surrounding the earth or moon	*Both take up 3-dimensional space that we can observe and that light can pass through.*	
Milk mixed into the water	**… is like …**	Atmosphere		*Particles that make up the atmosphere are much smaller; the atmosphere is not made of milk.*
Flashlight shining through the water		The Sun	*Both emit "white" light; both are a source of light made up of many colors/ wavelengths.*	