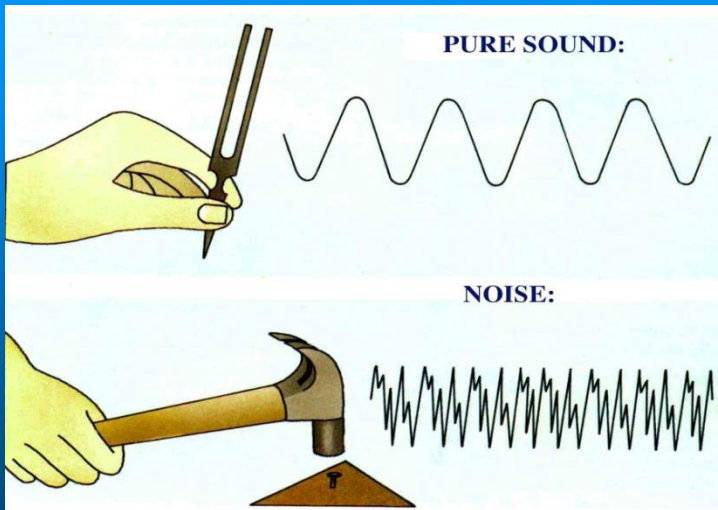
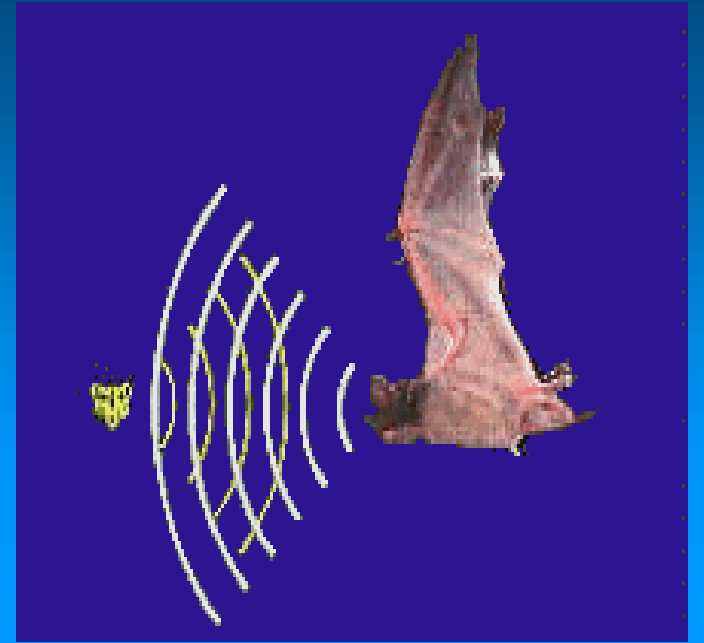




Light and Sound



Standards

S4P1a: Identify materials that are transparent, opaque, and translucent

S4P1b: Investigate the reflection of light using a mirror and light source

S4P1c: Identify the physical attributes of a convex lens, a concave lens and a prism and where each is used.

S4P2a: Investigate how sound is produced.

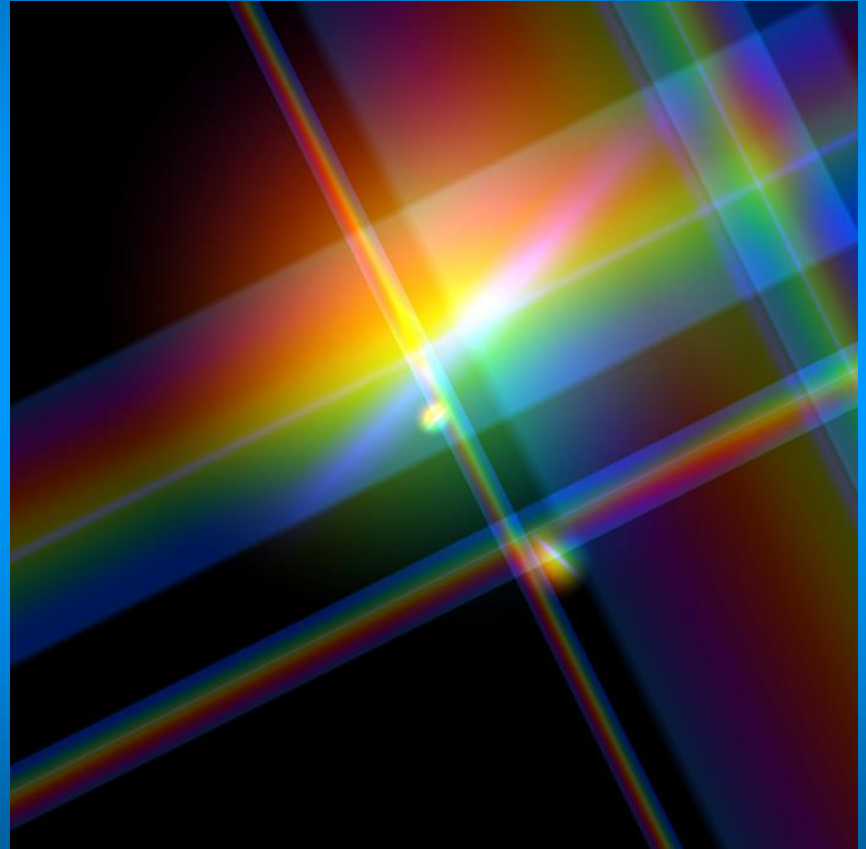
S4P2b: Recognize the conditions that cause pitch to vary.

What is Light?

- It is a form of energy.
- It travels as waves.
 - Unlike sound, light can travel through empty space

What is Light?

- When light waves reach an object, some of the energy is absorbed by that object.



Vocabulary

- Reflect - Reflection: the bouncing of light from a surface
- Refraction - the bending of light as it moves from one material to another
- Absorb - soaks up, or take in



Absorption and Reflection

- When light meets an object, the light will either
 - Absorb the light
 - Bounce off
 - Pass through

Absorption

- Objects of different colors absorb light differently
 - Dark colors: Absorb MORE light
 - Light colors: Absorb LESS light

- What color clothes would you want to wear on a hot, sunny summer day?
light colored clothes

Reflection

- Objects don't absorb all light that hits them. Some of the light bounces off.



- The bouncing of light from a surface is called reflection.

Reflection

- Reflected light enables you to see things.
- Usually, light scatters in many directions.
- On a smooth surface, light reflects in a predictable manner.
 - Example: Seeing your reflection in a mirror

Check for Understanding

- Why can you see the mountain range when looking at this distance, but when you are at the lake looking down, you can not see the mountain range?



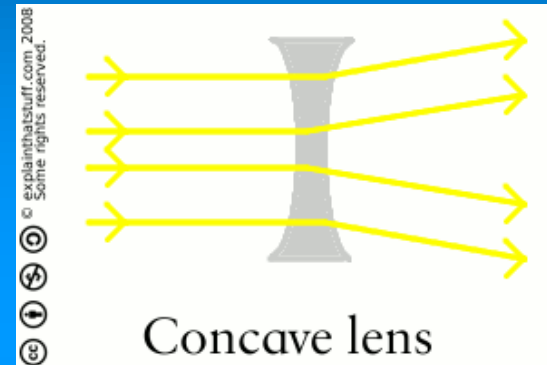
Refraction

-The bending of light as it moves from one material to another

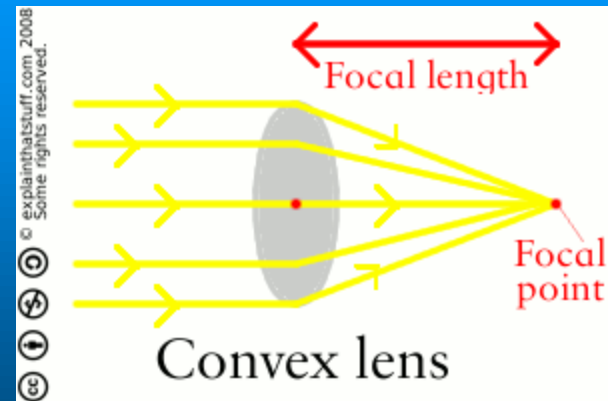


Light

- Concave lens - is thicker at the edges than in the middle



- Convex lens - is thicker in the middle than at the edges



Light

- Prism-it separates white light into its component colors (meaning: The prism splits white light into individual colors.)



Translucent

- Material that allows some light to pass through



Transparent

- Material that allows most of the light to pass through



Opaque

- Material that does not allow light to pass through



What is Sound?

- Sound is a form of energy that travels through the air.
- Sound is produced by vibration.
- Sound can be varied by changing the rate of the vibration.
- Pitch is how high or low a sound is.
- Volume the loudness of sound.
- Frequency is the number of vibrations per second.

Sound

- If you tighten the string of your banjo, what effect will it have on your string?
- Its pitch will be higher.



Sound

- Which instrument plays at a higher pitch the bass or violin? Why?
- The violin because its strings are shorter and tighter.

