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Curriculum Support Information

Sound & Light . .**Students will:**  **Fourth Grade 5 of 5**

* Investigate how sound is produced
* Recognize conditions that cause the pitch to vary
* Identify translucent, opaque, and transparent materials
* Investigate the reflection of light using a mirror and a light source
* Identify the physical attributes of convex lenses, concave lenses, and prisms and explain when each is used

**Classroom Cases:**

* Sound is made when something vibrates. It travels through air waves. Put your hand on your throat as you say your name. What is happening in your throat that allows you to hear yourself say your name? Your vocal chords are vibrating, or moving back and forth! Anytime you hear any sound, something has vibrated to produce the noise.
* Do all sounds sound the same? Of course not! Some people have high-pitched voices. Some instruments make a low-pitched sound when they are played. The pitch of a sound all depends on the length of the sound wave. The shorter the sound wave, the more vibrations per second (frequency), and the higher the pitch is! Pretty cool, huh?!

**Terminology (make flashcards and practice them for 15 minutes each night):**

**Vibration:** A back-and-forth movement of matter

**Volume:** The loudness of a sound

**Pitch:** How high or low a sound is

**Frequency:** The number of vibrations per second

**Reflection:** The bouncing of light off an object

**Refraction:** The bending of light as it moves from one material to another

**Translucent:** Allowing only some light to pass through

**Transparent:** Allowing light to pass through

**Opaque:** Not allowing light to pass through

**Concave lens:** A lens that is thicker at the edges than at the middle – *they* ***cave*** *in and make objects appear to look smaller but right-side up*

**Convex lens:** A lens that is thicker in the middle than at the edges – *they make objects look as if they are larger and upside down*

**Insta-Lab:**

**This Insta-Lab will help you learn about the reflection of light. Make sure you try it out so you can see what happens!!**

1. Find a flashlight

2. Go in to a room that has a mirror and a door.

3. Close the door and turn off all the lights.

4. Turn the flashlight on and shine it at the mirror.

What happened to the beam of light and why?

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Name an object in the solar system that we can see because of reflection.

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| **Objects** | **Description** | **Examples/when they are used** |
| **Transparent** | You can see right through transparent objects! | Clean window, clear glass, saran wrap, plastic baggies, eyeglasses, sheet protector |
| **Translucent** | You can kind of see through these objects. | Colored drinking glasses, cover of classroom lights, frosted glass, frosted plastic |
| **Opaque** | You can’t see through these objects at all! | Desk, printer, wall, computer, notebook, pencil |
|  |  |  |
| **Concave lens** | They make things appear to be smaller than they are | **Camera** – when you look through the view finder, everything appears smaller!  **Inside of a spoon** – you can see your reflection but you look smaller |
| **Convex lens** | They make things appear to be smaller than they are | **Projector** – when we turn the projector on, we can see the images on the screen but they look much larger than they do on the laptop  **Magnifying glass** – we can use these to make objects appear larger so we can observe them more carefully |
| **Prism** | They separate a white beam of light into the colors of the rainbow | C:\Users\meredith peterson\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\8C1RKCK9\MC900071114[1].wmfPrism  Raindrops act as a prism  which is where rainbows  come from! |