**Sound & Light Study Guide**

**Define the following words:**

1. **Frequency:** The number of vibrations per unit of time.
2. **Pitch**: a measure of how high or low a sound is.
3. **Volume**: The loudness of a sound.
4. **Reflection**: The bouncing of light off an object.
5. **Refraction**: The bending of light as it moves from one material to another.
6. **Translucent:** allowing only some light to pass through.
7. **Transparent:** allows the maximum amount of light to shine through it.
8. **Opaque**: does not allow any light waves to shine through
9. **Absorption**: the stopping of light when it hits a wall.
10. **Vibration**: a back and forth movement of an object that causes particles to move in the air.
11. How do sound waves travel?

\*They travel through waves that look like ripples on a pond.

1. How does pitch change for a string instrument?

\*Longer string= lower pitch

\*Shorter string= higher pitch

\*Thin string- high pitch

\*Thick string= low pitch

1. How does pitch relate to vibrations?

\*Pitch depends on how fast the source of a sound is vibrating.

1. How does sound travel through different objects?

\*Air = slowest

\*Water = faster

\*Solid objects = fastest

1. Can you control the sound waves coming out of your mouth? How?

Yes

\* cup your hands in front of your mouth

—this creates a direct path. It also allows the sound to travel farther before traveling outwards in all directions.

1. What is reflection? Give an example:

\*Reflections happen when light bounces off an object. Example: looking in a mirror.

1. What is refraction? Give an example:

\*The bending of light as it moves from one material to another.

\*Example: light hitting a prism.

1. What is a prism?

\*A prism is an object that allows light to pass through.

1. What does it do to light?

\*The prism bends the light.

1. How does light travel?

\*Light travels in straight lines.

1. What is an example of dispersion?

\*When you see a rainbow, red, orange yellow, green, blue, indigo, and violet.

1. Give examples of the following:
2. Opaque: a text book
3. Translucent: wax paper
4. Transparent: a clear glass window.
5. What is white light?

\*All of the colors combined.

1. Why can you often see a plane in the air before you hear it?

\*You can see a plane before you hear it because light travels faster than sound.