Lesson 4 Waves Vocabulary

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|---|---|---|
| 1. Wave | a _____ that _____ _____ from place to place | |
| 2. Medium | the _____that a mechanical wave _____ _____ | can be a |
| 3. Mechanical waves | waves in which _____ move _____ and _____ in _____ _____<br>● Requires a _____ to travel through | EX. _____, _____ |
| 4. Light Waves | A wave that _____ _____ need a _____.<br>● Can travel through _____ space (_____) as well as through a _____. | |
| 5. Drawing | _____ _____<br>_____ _____<br>(Mechanical wave- HAS to _____ a _____ to _____ through | |

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Waves are disturbances that transfer energy from one place to another. Mechanical waves travel through matter, causing it to vibrate, expand and contract, move up and down, side to side, or in circles. They include water waves, sound waves, and seismic waves.

Light is the transfer of energy via electromagnetic waves. Unlike mechanical waves, which require matter, electromagnetic waves can travel through empty space, as well as through liquids, solids, and gases.

There are many similarities between light waves and mechanical waves. They can both be measured by their amplitude, wavelength, and frequency. When they interact with matter, they can be reflected, transmitted, absorbed, refracted, or diffracted.

Visible light, radio waves, microwaves, infrared radiation, ultraviolet, x-rays, and gamma rays make up the electromagnetic spectrum. They all travel at the same speed — the speed of light — in a vacuum, but when they come into contact with matter, they slow down.

Light keeps traveling through space until it encounters matter. Some of the light we see from faraway stars has been traveling through empty space for billions of years