

What Are Waves?

Read the text and answer the questions.

A wave is energy that travels from one location to another. All waves come from a source—a force, reaction, vibration, explosion, etc. Waves behave in predictable ways, meaning all waves have similar properties. All waves transfer energy and have wavelength and amplitude. However, there are two different types of waves—mechanical and electromagnetic.

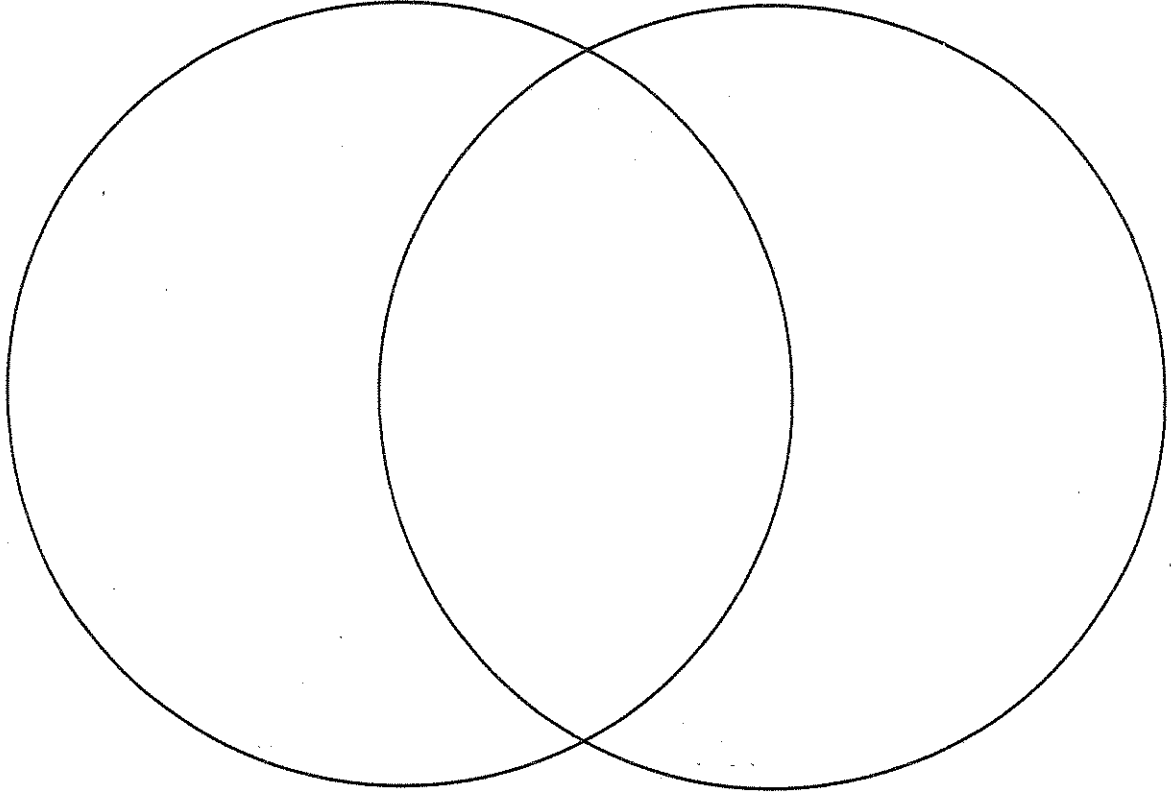
Mechanical waves are waves that travel through a medium. When a wave travels through a medium such as a solid, liquid, or gas, we can see, hear, or feel the wave's movement. For example, imagine a day at the beach. On the ocean's surface, we can see the water swell at the top and sink at the bottom of each wave. When we play music very loudly, we can hear, and sometimes feel, the vibration of the sound waves in the air. And, when a seismic wave travels through the Earth, the ground shifts and we feel the vibrations of an earthquake.

The other type of waves are called electromagnetic waves. They do not need a medium to travel through. That means electromagnetic waves can even travel through space! We cannot see some electromagnetic waves, such as gamma rays, X-rays, or microwaves. However, light, another electromagnetic wave, allows us to see objects and color. Sunlight, firelight, and electric light are all examples of the visible spectrum of electromagnetic waves.

1. Use the text to list three facts about waves.
2. Use the text to give three examples of a medium.
3.
 - A. What is the main idea of this text?
 - B. What details from the text support the main idea?
4. According to the text, where do waves come from?
5. How are mechanical waves similar to electromagnetic waves? How are they different?
6. Can sound waves travel through space? Why or why not?

Types of Waves

Use an online resource to research and define mechanical and electromagnetic waves. Complete the Venn diagram by comparing and contrasting the two types of waves.



Electromagnetic Waves

Mechanical Waves