

Lesson #34

What are the properties of waves?

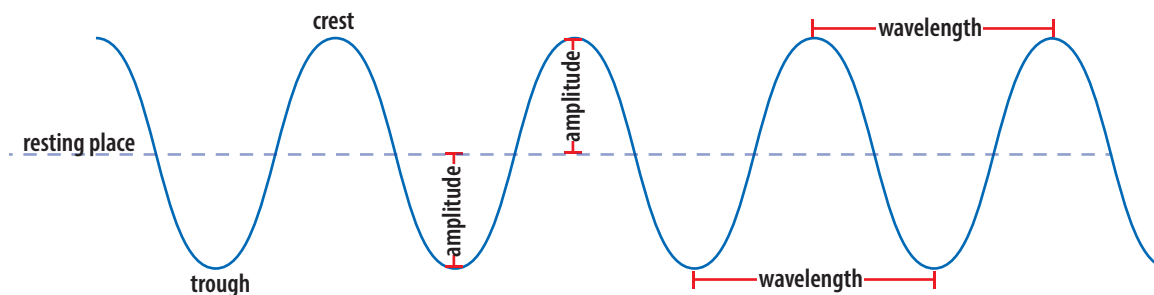
Remember, a **wave** is a regular pattern of motion that transfers energy from one place to another. There are different types of waves. Sound waves travel through the air to our ears, allowing us to hear. Light waves enter our eyes, allowing us to see. One way to illustrate how waves move is to think about water waves.



Water waves transfer energy in predictable patterns.

A water wave begins when there is a disturbance in water. A **disturbance** is an interruption in stillness. For example, imagine dropping a pebble into a pool of water. The pebble disturbs the water. It creates ripples in a circular pattern. The waves move up and down across the surface. It looks like water is moving away from the place where the pebble went in. But the waves are transporting energy, not matter. All the water stays where it is. It is energy that moves out in a regular pattern of motion.

The peak of a wave is called the **crest**. The valley is called the **trough** (trōf). Some properties of a wave are wavelength and amplitude. **Wavelength** is the distance from one crest to another or one trough to another. The closer the crests are to each other, the more energy the wave has. A wave's **amplitude** refers to its height. It is measured from the wave's resting place to the top of a crest or to the bottom of a trough. So, the greater the amplitude, the more energy is being transferred by the wave.



A wave drawing represents a certain amount of time. A crest is the highest point on a wave and a trough is the lowest point. The wavelength is the distance between two crests or two troughs.

1. Write the definition of a wave.

2. Match each term with its clue.

| | |
|-------------------|---|
| _____ crest | A) the height or depth of a wave |
| _____ circuit | B) the distance between each crest or trough |
| _____ phenomena | C) the peak of a wave |
| _____ disturbance | D) observable events |
| _____ wavelength | E) path on which electricity flows |
| _____ trough | F) an interruption in stillness (starts a wave) |
| _____ amplitude | G) the valley of a wave |

3. Fill in the blanks. Write **complete** or **incomplete**.

When a circuit is _____ electricity flows through.

When a circuit is _____ electricity will not flow through.

4. Which phrases describe the diagram shown here?

- _____ circuit is complete
- _____ circuit is incomplete
- _____ energy is flowing
- _____ energy is stopped
- _____ chemical reaction is happening in battery

