Properties of Waves on Water: Exploration #3

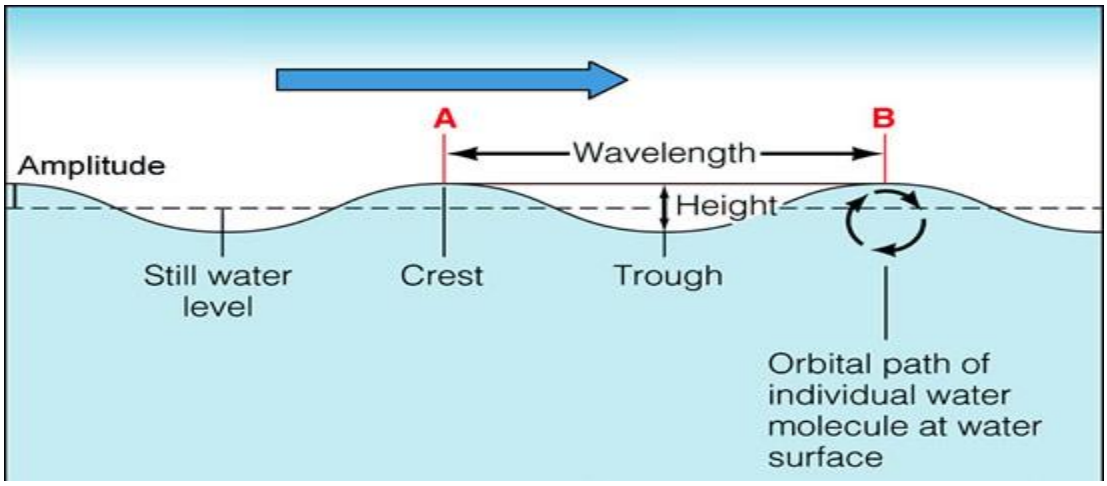
Lab Worksheet: The Movement of Energy

EXPLORATION #3: The Motion of the Ocean Wave

Waves that move through matter (a medium) create areas where the molecules in that matter move closer together and then further apart. Energy is carried in this wave.

In the ocean, the medium that the waves of energy travel through is, of course, the ocean. The water molecules themselves do not move. Instead they move in a motion that is like a circle.

In Exploration #2, you saw the wave move through the slinky even though the coils of the slinky only move back and forth.



Properties of Waves on Water: Exploration #3

EXPLORATION: The Motion of the Ocean (cont.)

Read all instructions before beginning.

Experiment

Materials:

- Pan
- Ruler or tape measurer
- Water
- Cup
- Toothpick
- Rock

After reading the instructions, complete the following sentence to create your hypothesis, or educated guess, about what you believe will happen.

Hypothesis: When I drop the rock into the pan, the toothpick will move (where?)

_____.

1. Fill the cup up with water and pour the water into the pan so that you have about 2 inches (approximately 3 centimeters) of water in the bottom of the pan.

2. Place the toothpick on the water in the middle of the pan.

3. Lay the ruler next to the pan.

4. Holding your hand slightly above the water, drop the rock into one end of the pan.

5. Observe the movement of the toothpick.

6. Hold your hand at the same height each time and repeat the experiment 3 times.

Answer the following questions.

1. Was your hypothesis correct? If not, describe what happened.

2. Why do you think the toothpick behaved the way that it did?