



Big Wave

Primary Audience: K – 2nd

Description: Learn how to make different types of waves by using different patterns of movement.

Key Words: Waves

Materials:

- 6 rubber bands
- 10 marbles of the same size (larger ones work better)
- 5 jumbo paper clips
- Clear tape

Instructions:

1. Link the rubber bands together with the paper clips to make a long "string" of rubber bands and clips.
2. Place a marble on either side of the first paper clip (see figure) and tape the marbles together with the paper clip in between to secure the marbles. Repeat this with each paper clip.
3. Hold each end of the "string" of rubber bands and stretch it out across a table or floor. Move one end back and forth, while holding the other end still. What happens? Try moving the end faster or slower. What happens? Does the pattern change? Try moving one end up and down. What happens?

What's going on?

The rubber bands move in a pattern known as waves. Waves are caused by disturbing objects at rest, which produces movement. This form of movement is very common in our world: ocean waves, instrument strings, light and sound just to name a few. Sometimes waves produce an oscillation, a repetitive and rhythmic movement, like in the pendulum of clocks. Waves usually consist of three parts: crests (high points), troughs (low points) and nodes (half-way points between crests and troughs). Where are the crests, troughs and nodes in your system? How many of each can you make in your system?

Mechanics

Further Exploration:

Try adding more rubber bands and marble sets. What happens? What patterns of movement can you make? How many different types of waves can you make? What happens when both students move their ends at the same time?

Relevant Ohio Science Content Standards:

Physical Science: K.4, K.5, 8.4, 8.5