Parts and Sizes of Waves

Students learn about the parts of a wave, wave height, and wavelength and then draw and label a wave.

GRADES
1, 2

SUBJECTS
Earth Science, Geography, Physical Geography

OVERVIEW

Students learn about the parts of a wave, wave height, and wavelength and then draw and label a wave.

For the complete activity with media resources, visit:
http://www.nationalgeographic.org/activity/parts-and-sizes-of-waves/

DIRECTIONS

1. Introduce the parts of a wave.
Draw a simple wave with two crests and one trough on the board so all students can see it. Explain that each part of a wave has a name, just like each part of the body has a name. Draw a line to the highest part of the wave and write the label crest. Tell students that the crest is the top of the wave. Draw a line to the lowest part of the wave and write the label trough. Tell students that the trough is the lowest point between each crest. Have students draw a similar wave on a piece of construction paper and add the labels.

2. Introduce the concept of wave height.
Put the drawings together in a visible place, by taping them to the wall or laying them
together on a tabletop. Explain to students that like their drawings of waves, all waves are different sizes. Ask students to compare their drawings and figure out which drawing has the tallest or shortest waves. Tell students that you’re looking at wave height, or the distance between trough and crest. If needed, remind students of the meanings of trough and crest. Model drawing a vertical line from trough to crest and adding the label “wave height.” Then have students do the same on their drawings.

3. Introduce the concept of wavelength.
Next, have students compare their drawings and figure out which drawing shows waves that are the farthest apart or closest together. Tell students you’re looking at wavelength, or the distance from crest to crest. If needed, remind students of the meaning of crest. Explain to students that they can also look at the distance from trough to trough to see wavelength. Model drawing a horizontal line from crest to crest on their drawings and adding the label “wavelength.” Then have students do the same on their drawings.

4. Display students’ drawings.
Ask students to write their names on their drawings. Display the drawings in the classroom or hallway.

Informal Assessment

Check students’ drawings to make sure they labeled them correctly. Provide feedback, as needed.

OBJECTIVES

Subjects & Disciplines

Earth Science
Geography
• Physical Geography

Learning Objectives

Students will:
• draw and label a wave with its parts, wave height, and wavelength
Teaching Approach

- Learning-for-use

Teaching Methods

- Hands-on learning
- Visual instruction

Skills Summary

This activity targets the following skills:

- Critical Thinking Skills
  - Remembering
  - Understanding

National Standards, Principles, and Practices

NATIONAL GEOGRAPHY STANDARDS

- **Standard 7:**
  The physical processes that shape the patterns of Earth’s surface

NATIONAL SCIENCE EDUCATION STANDARDS

- **(K-4) Standard D-1:**
  Properties of earth materials

Preparation

What You’ll Need

MATERIALS YOU PROVIDE

- Construction paper
Crayons

PHYSICAL SPACE

- Classroom

GROUPING

- Large-group instruction

BACKGROUND & VOCABULARY

Background Information

Waves are the movement of water. Knowing the parts of waves helps students to talk about them.

Prior Knowledge

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Recommended Prior Activities

- Introduction to Waves

Vocabulary

<table>
<thead>
<tr>
<th>Term</th>
<th>Part of Speech</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>crest</td>
<td>noun</td>
<td>the top of a wave.</td>
</tr>
<tr>
<td>wave</td>
<td>noun</td>
<td>moving swell on the surface of water.</td>
</tr>
<tr>
<td>wave height</td>
<td>noun</td>
<td>the distance between a wave's trough and crest.</td>
</tr>
<tr>
<td>wavelength</td>
<td>noun</td>
<td>the distance between the crests of two waves.</td>
</tr>
<tr>
<td>wave trough</td>
<td>noun</td>
<td>the lowest part of a wave.</td>
</tr>
</tbody>
</table>

For Further Exploration
Websites

- NOAA: Homepage