

RESOURCE LIBRARY
ACTIVITY : 20 MINS

The Mariana Trench: Earth's Deepest Place

Students locate the Mariana Trench on a map, discuss who has jurisdiction over it, and identify the challenges of exploring the deepest place on Earth.

GRADES

6 - 8

SUBJECTS

Earth Science, Geography, Physical Geography

CONTENTS

1 Video, 2 Links

OVERVIEW

Students locate the Mariana Trench on a map, discuss who has jurisdiction over it, and identify the challenges of exploring the deepest place on Earth.

For the complete activity with media resources, visit:

<http://www.nationalgeographic.org/activity/mariana-trench-deepest-place-earth/>

DIRECTIONS

1. Build background on the deepest place on Earth.

Have a whole-class discussion. Ask:

- *What is the highest point in the world and where is it located? (Mount Everest at approximately 8,850 meters, or 29,035 feet; located on the borders of Nepal and China)*
- *What is the deepest location on Earth and where is it located?*

Elicit student responses. Then explain to students that the Mariana Trench is the deepest part of the ocean and the deepest location on Earth. It is 11,034 meters (36,201 feet) deep, which is almost 7 miles. Tell students that if you placed Mount Everest at the bottom of the Mariana Trench, the peak would still be 2,133 meters (7,000 feet) below sea level. Show students NOAA's Mariana Trench animation. Tell them that the animation reflects actual digital bathymetric data, which is measurement data of water depth.

2. Have students locate the Mariana Trench on a map.

Show students the NG Education interactive map and invite a volunteer to pinpoint the location of the Mariana Trench, which is just to the east of the Mariana Islands. Ask: *The Trench is in what ocean?* (the Pacific Ocean) Have students note the nearest bodies of land—Guam and the Mariana Islands. Tell students that the Trench is 2,500 kilometers (1,554 miles) long and 70 kilometers (44 miles) wide.

3. Discuss who has jurisdiction over the Mariana Trench.

Review the concept of jurisdiction. Tell students that jurisdiction is the power or right to exercise authority. Have students look at the location of the Trench again. Ask: *Who do you think has jurisdiction over, and therefore responsibility for, the resources of the Mariana Trench?* Explain to students that according to the Exclusive Economic Zone (EEZ) a country has the rights to all living and non-living resources up to 200 nautical miles from its coastline. To help students understand this distance in terms they recognize, have them convert the nautical miles to standard miles by multiplying nautical miles by 1.15 to get an answer of 230 standard miles. Point out that Guam is a territory of the U.S. and the Mariana Islands are a commonwealth of the U.S., so the U.S. has jurisdiction.

4. Have students identify how researchers can access the Trench.

Ask students to share their ideas about how researchers might access an area this deep. Go to NOAA's Ocean Explorer website and explore the technology and photos as a class. Ask students to identify the challenges of exploring the deepest location on Earth. Students' responses should include darkness, cold, and crushing pressures.

OBJECTIVES

Subjects & Disciplines

Earth Science

Geography

- Physical Geography

Learning Objectives

Students will:

- locate the Mariana Trench on a map
- identify the depth, length, and width of the Trench
- identify the country that has jurisdiction over the Mariana Trench

Teaching Approach

- Learning-for-use

Teaching Methods

- Discussions
- Reading
- Visual instruction

Skills Summary

This activity targets the following skills:

- Critical Thinking Skills
 - Understanding
- Geographic Skills
 - Acquiring Geographic Information

National Standards, Principles, and Practices

NATIONAL GEOGRAPHY STANDARDS

- Standard 16:

The changes that occur in the meaning, use, distribution, and importance of resources

NATIONAL SCIENCE EDUCATION STANDARDS

- (5-8) Standard D-1:

Structure of the earth system

Preparation

What You'll Need

REQUIRED TECHNOLOGY

- Internet Access: Required
- Tech Setup: 1 computer per classroom, Projector, Speakers
- Plug-Ins: Flash

PHYSICAL SPACE

- Classroom

GROUPING

- Large-group instruction

BACKGROUND & VOCABULARY

Background Information

The Mariana Trench, in the Pacific Ocean, is the deepest location on Earth. According to the Exclusive Economic Zone (EEZ), the United States has jurisdiction over the trench and its resources. Scientists use a variety of technologies to overcome the challenges of deep-sea exploration and explore the Trench.

Prior Knowledge

[]

Recommended Prior Activities

- [Protecting the Mariana Trench](#)

- [Resources in the Deep Sea](#)

Vocabulary

Term	Part of Speech	Definition
bathymetric data	<i>noun</i>	information on the depth of the ocean, lakes, or other bodies of water.
exclusive economic zone (EEZ)	<i>noun</i>	zone extending 200 nautical miles off a country's coast. A country has the right to explore and exploit the living and nonliving things in its EEZ.
jurisdiction	<i>noun</i>	geographic region associated with a legal authority.
Mariana Trench	<i>noun</i>	deepest place on Earth, located in the South Pacific Ocean at 11,000 meters (36,198 feet) at its deepest.
nautical mile	<i>noun</i>	unit of distance for sea or air travel, equal to 1,852 meters (6,076 feet).

For Further Exploration

Websites

- [Marine Conservation Biology Institute: From Sea to Shining Sea](#)

PARTNER

