

RESOURCE LIBRARY | ACTIVITY : 50 MINS

# The Ocean and Weather: El Niño and La Niña

Students explore the weather phenomena El Niño and La Niña and their effects, map where they occur, and discuss the benefits of accurately predicting these phenomena.

## GRADES

6, 7, 8

## SUBJECTS

*Earth Science, Oceanography, Geography, Physical Geography*

## CONTENTS

1 PDF, 2 Links, 1 Video

## OVERVIEW

Students explore the weather phenomena El Niño and La Niña and their effects, map where they occur, and discuss the benefits of accurately predicting these phenomena.

For the complete activity with media resources, visit:

<http://www.nationalgeographic.org/activity/the-ocean-and-weather-el-nino-and-la-nina/>

## DIRECTIONS

### **1. Introduce El Niño and have students brainstorm possible effects.**

Explain to students that El Niño is characterized by unusually warm ocean surface temperatures. Ask students to brainstorm what negative effects they think would be likely to accompany the rise in temperature, including any global natural disasters. Prompt students to think about the impact on weather and marine life, and to include such events as droughts, floods, mudslides, hurricanes, typhoons, and wildfires.

## 2. Show students the National Geographic video “El Niño.”

Show students the National Geographic video “El Niño.” Then check students’ comprehension.

Ask:

- *What is El Niño? (an unusually warm ocean current, accompanied by heavy rains and flooding)*
- *When does El Niño usually happen? (every few years around Christmas)*
- *What is La Niña? (another weather phenomenon that includes unusually cold ocean temperatures that push warm surface water farther west than usual, creating the opposite effects of El Niño—drought where El Niño brought floods and floods where El Niño brought drought)*
- *What did you learn about the El Niño and La Niña phenomena that surprised you?*

## 3. Have students map the patterns of El Niño and La Niña in the world's oceans.

Divide the class into small groups and distribute blank outline maps of the world. Invite a volunteer to point out the Equatorial Pacific. Then have students use NOAA’s El Niño Page and the blank maps to illustrate the patterns of El Niño and La Niña in the world's oceans. Have them use different colors to represent warmer and cooler water, and arrows to represent the direction the water is moving.

## 4. Have a whole-class discussion about the benefits of accurately predicting the next El Niño or La Niña.

Have students look at NOAA’s El Niño page to see when the next predicted El Niño or La Niña will occur. Explain to students that scientists currently use a variety of tools—such as satellites and buoys—to monitor changes in the Pacific Ocean. Ask: *How could accurate forecasts of a future El Niño or La Niña benefit people?* (There would be less damage due to natural disasters with advance warning. Farmers could plan crops based on expected weather conditions. Countries could conserve water and energy.)

# OBJECTIVES

# Subjects & Disciplines

Earth Science

- [Oceanography](#)

## Geography

- [Physical Geography](#)

# Learning Objectives

Students will:

- identify the effects of El Niño on people and the environment
- explain the El Niño and La Niña phenomena
- map the patterns of El Niño and La Niña on a world map
- describe the benefits of accurately predicting the next El Niño or La Niña

# Teaching Approach

- Learning-for-use

# Teaching Methods

- Brainstorming
- Discussions
- Hands-on learning
- Visual instruction

# Skills Summary

This activity targets the following skills:

- Critical Thinking Skills
  - Analyzing
  - Understanding
- Geographic Skills
  - [Acquiring Geographic Information](#)
  - [Analyzing Geographic Information](#)

# National Standards, Principles, and Practices

## NATIONAL GEOGRAPHY STANDARDS

- Standard 1:

How to use maps and other geographic representations, geospatial technologies, and spatial thinking to understand and communicate information

- Standard 15:

How physical systems affect human systems

## NATIONAL SCIENCE EDUCATION STANDARDS

- (5-8) Standard B-3:

Transfer of energy

### Preparation

### What You'll Need

## MATERIALS YOU PROVIDE

- Colored pencils
- Markers
- Paper
- Pencils
- Pens

## REQUIRED TECHNOLOGY

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

## PHYSICAL SPACE

- Classroom

## GROUPING

- Large-group instruction
- Small-group instruction

## RESOURCES PROVIDED: WEBSITES

- NOAA: NOAA's El Niño Page

## RESOURCES PROVIDED: UNDEFINED

- El Niño

## RESOURCES PROVIDED: HANDOUTS & WORKSHEETS

- World Map

## RESOURCES PROVIDED: ARTICLES & PROFILES

- Learn all about about El Niño with our illustrated encyclopedic entry.

## BACKGROUND & VOCABULARY

# Background Information

El Niño is an unusually warm ocean current accompanied by heavy rains and flooding. La Niña includes unusually cold ocean temperatures that push warm surface water farther west than usual, creating the opposite effects of El Niño. People are learning to forecast these weather patterns in an attempt to protect themselves from the worst of these effects.

# Prior Knowledge

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# Recommended Prior Activities

- None

# Vocabulary

<b>Term</b>	<b>Part of Speech</b>	<b>Definition</b>
<b>El Nino</b>	<i>noun</i>	irregular, recurring weather system that features a warm, eastern-flowing ocean current in the eastern Pacific Ocean.
<b>La Nina</b>	<i>noun</i>	weather system that includes cool ocean temperatures in the eastern Pacific Ocean.
<b>natural disaster</b>	<i>noun</i>	an event occurring naturally that has large-scale effects on the environment and people, such as a volcano, earthquake, or hurricane.

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## For Further Exploration

### Websites

- [NOAA: NOAA's El Niño Page](#)

## FUNDER



This activity is made possible by a generous grant from the National Oceanic and

Atmospheric Administration (NOAA) National Marine Sanctuary Program.



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