

RESOURCE LIBRARY  
ACTIVITY : 45 MINS

## Geography of Oil Drilling in the Gulf of Mexico

Students read about oil production, refinement, and use and make connections to their personal energy needs in their daily lives. Students use a map to identify the scale of oil drilling in the Gulf of Mexico. Then they discuss ways to reduce the need for oil and the threat of future oil spills.

### GRADES

6 - 8

### SUBJECTS

*Earth Science, Oceanography, Geography, Human Geography, Physical Geography, Social Studies, U.S. History*

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1 Link, 1 PDF

## OVERVIEW

Students read about oil production, refinement, and use and make connections to their personal energy needs in their daily lives. Students use a map to identify the scale of oil drilling in the Gulf of Mexico. Then they discuss ways to reduce the need for oil and the threat of future oil spills.

For the complete activity with media resources, visit:

<http://www.nationalgeographic.org/activity/geography-oil-drilling-gulf-mexico/>

## DIRECTIONS

**1. Build background about oil.**

As a homework assignment before class, have students visit the Department of Energy: Energy Kids website to read about oil basics. Ask students to pay attention to where oil comes from, how it is refined, what we use it for, and how it impacts the environment. Discuss what students learned from their reading. Tell students that oil is used for fuel but also to make petroleum and plastics. Provide examples of surprising products that contain oil, such as chewing gum, ink, tires, deodorant, and heart valves. Have students brainstorm additional products.

## **2. Review a map of oil drilling in the Gulf of Mexico.**

Display the map Gulf of Mexico: A Geography of Offshore Oil from the October 2010 issue of *National Geographic* magazine. Explain to students that the United States has been pumping oil out of the Gulf of Mexico since 1938. Most of the near-shore wells are depleted, which has led to drilling at deeper sites. Ask students to use the map, including the map legend, to answer the following questions:

- *Which U.S. states border the Gulf of Mexico?*
- *What do the different types of red dots and lines represent in the map?*
- *What do the squares in the map legend represent? What are the different types of squares?*

## **3. Have a whole-class discussion about oil drilling.**

Refer to the relevant sidebars, such as “Economy of the U.S. Gulf,” as appropriate. Ask:

- *Are you surprised by the amount of drilling in the Gulf of Mexico? Why or why not?*
- *Why is oil drilling so widespread?*
- *What parts of your daily life require oil for energy?*
- *What can you do to reduce your energy needs?*
- *After learning about this topic, what other questions do you have? What other things would you like to know about oil drilling?*

Ask each student to use what he or she has learned in class to independently write a response to the guiding question: How much of the Gulf of Mexico is used for offshore drilling?

Encourage students to use vocabulary from the map in their responses.

#### 4. Discuss ways that students can make a difference.

Explain to students that, after the *Deepwater Horizon* oil spill, cleanup crews worked throughout the Gulf of Mexico to skim, burn, and disperse oil. Booms were placed as barriers throughout the Gulf Coast to prevent oil from entering fragile ecosystems. Note that there are ongoing ways that people outside the area can help too. Encourage students to reduce their oil use. Explain that this can reduce the need for oil and the threat of future oil spills. For example, students can reduce their use by carpooling, avoiding petroleum-based products, buying locally whenever possible, avoiding disposables, recycling plastics, and using less electricity. Have students brainstorm additional ways to reduce their oil use. Encourage students to share what they have learned; reminding them that education about these issues is the best way to make a change in energy consumption.

## Informal Assessment

Assess students' written responses based on content, organization, and vocabulary.

## Extending the Learning

Have students keep a journal and log every time that they use plastics, other petroleum-based products, and oil for one week. Help students analyze their logs to determine how they can directly reduce their oil consumption.

## OBJECTIVES

## Subjects & Disciplines

### Earth Science

- Oceanography

### Geography

- Human Geography
- Physical Geography

### Social Studies

- U.S. History

# Learning Objectives

Students will:

- describe and provide examples of where oil comes from, how it is refined, and what humans use it for
- use maps to analyze the scale of offshore oil drilling in the Gulf of Mexico
- make connections between widespread oil drilling and the energy needs of humans
- identify ways they use oil in their daily lives and changes they can make to reduce that use

# Teaching Approach

- Learning-for-use

# Teaching Methods

- Brainstorming
- Discussions
- Reading
- Reflection

# 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 COUNCIL FOR SOCIAL STUDIES CURRICULUM STANDARDS

- **Theme 3:**

People, Places, and Environments

## NATIONAL GEOGRAPHY STANDARDS

- **Standard 14:**

How human actions modify the physical environment

## NATIONAL SCIENCE EDUCATION STANDARDS

- **(5-8) Standard F-2:**

Populations, resources, and environments

- **(5-8) Standard F-5:**

Science and technology in society

## OCEAN LITERACY ESSENTIAL PRINCIPLES AND FUNDAMENTAL CONCEPTS

- **Principle 6e:**

Humans affect the ocean in a variety of ways. Laws, regulations and resource management affect what is taken out and put into the ocean. Human development and activity leads to pollution (such as point source, non-point source, and noise pollution) and physical modifications (such as changes to beaches, shores and rivers). In addition, humans have removed most of the large vertebrates from the ocean.

### **Preparation**

### **What You'll Need**

### **MATERIALS YOU PROVIDE**

- Pencils
- Writing paper

### **REQUIRED TECHNOLOGY**

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

## PHYSICAL SPACE

- Classroom

## GROUPING

- Large-group instruction

## OTHER NOTES

As a homework assignment before class, have students visit the Department of Energy: Energy Kids website to read about oil basics. Ask students to pay attention to where oil comes from, how it is refined, what we use it for, and how it impacts the environment.

## BACKGROUND & VOCABULARY

### Background Information

The Gulf of Mexico is rich in oil reserves. The majority of domestically-produced oil comes from wells in the Gulf. Many near-shore wells have been pumped dry, leading to deeper wells and the need for more sophisticated drilling technology. As wells get deeper and the number of pipelines to mainland increase, the risk of oil spills also increases. Education about the harvesting of oil and the refinement process in conjunction with the knowledge of how many petroleum-based products students use in their daily lives will help students make informed decisions to decrease their oil consumption.

### Prior Knowledge

["latitude and longitude", "how to read a map legend"]

### Recommended Prior Activities

- None

### Vocabulary

<b>Term</b>	<b>Part of Speech</b>	<b>Definition</b>
<b>boom</b>	<i>noun</i>	oil-containment device that floats on the surface of the water and is used as a barrier to keep oil in or out of a specific location.
<b>disperse</b>	<i>verb</i>	to scatter or spread out widely.
<b>ecosystem</b>	<i>noun</i>	community and interactions of living and nonliving things in an area.
<b>environment</b>	<i>noun</i>	conditions that surround and influence an organism or community.
<b>ocean</b>	<i>noun</i>	large body of salt water that covers most of the Earth.
<b>oil</b>	<i>noun</i>	fossil fuel formed from the remains of marine plants and animals. Also known as petroleum or crude oil.
<b>oil spill</b>	<i>noun</i>	accidental release of petroleum products into a body of water, either by an oil tanker or an offshore oil rig.
<b>petroleum</b>	<i>noun</i>	fossil fuel formed from the remains of ancient organisms. Also called crude oil.
<b>plastic</b>	<i>noun</i>	chemical material that can be easily shaped when heated to a high temperature.

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## For Further Exploration

### Articles & Profiles

- [National Geographic News: Gulf Oil Spill Anniversary: Resilience Amid Unknowns](#)

### Interactives

- [National Geographic Magazine: Interactive—Layers of Life](#)
- [National Geographic Magazine: Interactive Map—The Geography of Offshore Oil](#)

### Websites

- [National Geographic Environment: The Ocean](#)
- [National Geographic Environment: The Ocean—Gulf Oil Spill](#)
- [National Geographic Animals](#)

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