

LESSON: Small Islands–Big Problems

Summary: Students read an article about the environmental problems impacting small island nations and then research the issues in more detail using the worksheet provided. Lesson Type: Integrated Lesson.

EHP Article: “Keeping Afloat: A Strategy for Small Island Nations”
EHP Student Edition, December 2005, p. A607–A609
<http://ehp.niehs.nih.gov/members/2005/113-9/spheres.html>

Objectives: By the end of this lesson students should be able to:

1. recognize the major causes of small island nations’ economic and environmental vulnerability;
2. report the relevant geographic and environmental information about his or her assigned island nation;
3. relate the specific findings of their research to the information presented in the article; and
4. summarize how their findings do or do not illustrate the global environmental situation.

Class Time: 1 hour with some homework

Grade Level: 9–12

Subjects Addressed: Earth Science, English, Environmental Health, Environmental Science, Geography, Social Studies

►Prepping the Lesson (30 minutes)

INSTRUCTIONS:

1. Obtain a class set of *EHP Student Edition*, December 2005, or download the article “Keeping Afloat: A Strategy for Small Island Nations” at <http://ehp.niehs.nih.gov/members/2005/113-9/spheres.html>
2. Read the article and the Student Instructions.
3. Make copies of the Student Instructions.
4. Create small slips of paper, one per student, each with the name of a small island nation. Choose from the list below or visit the Alliance of Small Island States (AOSIS) website (see Resources section) for a complete listing of member or observer states.

Atlantic Ocean

Cape Verde
Sao Tome and Principe

Caribbean Sea

Bahamas
Barbados
Cuba
Grenada
Haiti/Dominican Republic
Jamaica
St. Lucia
Trinidad & Tobago

Indian Ocean

Comoros
Maldives
Mauritius
Singapore
Seychelles

Mediterranean Sea

Cyprus
Malta

Pacific Ocean (north of equator)

Federated States of Micronesia
Guam
Marshall Islands
Palau

South Pacific (south of equator)

Cook Islands
Fiji
Kiribati
Nauru
Papua New Guinea
Samoa
Solomon Islands
Tuvalu

5. Fold the slips and put them into a container.



MATERIALS (per student):

- 1 copy of *EHP Student Edition*, December 2005, or 1 copy of the article “ Keeping Afloat: A Strategy for Small Island Nations”
- 1 copy of the Student Instructions, including worksheet
- Access to computers for research online

VOCABULARY:

- ambiguous
- biodiversity
- brackish
- disease vectors
- diversification
- exacerbate
- human-induced
- infrastructure
- inundated
- sovereign
- tsunami
- uninhabitable

BACKGROUND INFORMATION:

The *EHP Student Edition* article provides all the necessary information to get started. Specific information about individual islands may vary.

RESOURCES:

Environmental Health Perspectives, Environews by Topic page, <http://ehp.niehs.nih.gov/topic>. Choose Global Warming/Climate Change

Alliance of Small Island States (AOSIS), <http://www.sidsnet.org/aosis/>

Small Island Developing States Network, <http://www.sidsnet.org>

United Nations Island Information Network, <http://islands.unep.ch/>

National Geographic “Map Machine,” <http://plasma.nationalgeographic.com/mapmachine/profiles/aa.html>

Online Encyclopedias:

Encyclopedia.com: <http://www.encyclopedia.com>

Wikipedia: <http://www.wikipedia.com>

Central Intelligence Agency *World Factbook*, <http://www.odci.gov/cia/publications/factbook/>. See Environmental Issues

► Implementing the Lesson

INSTRUCTIONS:

1. Have students read the article “Keeping Afloat: A Strategy for Small Island Nations.”
2. Hand out the Student Instructions and worksheet.
3. Have each student draw one slip of paper from the container to determine the island he/she will research.
4. Review the instructions and worksheet with students to clarify any questions, and assign the worksheet as homework with one or two days to complete. Give examples, as necessary, to explain the differences between the three categories of problems: environment, isolation/distance, and globalization of the economy (See the Assessing the Lesson section). Also give a specific example of one of the problems for a particular island nation.
5. When students return with the finished worksheets, conclude with a class discussion of their findings. Consider the following: What are common trends across most of the islands? Are there islands with unique issues, especially environmental health issues, to highlight? The question at the end of Section 3 will also provide some insightful and reflective discussion.

NOTES & HELPFUL HINTS:

- Make sure the assigned island nations come from a variety of geographic areas. Discussion will be more interesting when students can compare and contrast regional issues.
- Allow sufficient time for students to complete their geographic research. Too little time will result in shallow exploration of the environmental issues, and a boring discussion.



- Not all teachers are comfortable teaching poetry in a science class. For that reason, Section Three of the Student Worksheet may be omitted. Many science teachers find incorporating literature or poetry into their lessons to be a good way of rekindling their own enjoyment of their subject and that of students who consider themselves “not science types.”

▶Aligning with Standards

SKILLS USED OR DEVELOPED:

- Communication (note taking, oral, written—including summarization)
- Comprehension (listening, reading)
- Critical thinking and response
- Research

SPECIFIC CONTENT ADDRESSED:

Unifying Concepts and Processes Standard

- Systems, order, and organization
- Evidence, models, and explanation
- Change, constancy, and measurement
- Evolution and equilibrium
- Form and function

Earth and Space Science Standard

- Energy in the Earth system
- Geochemical cycles

Science in Personal and Social Perspectives Standard

- Personal and community health
- Population growth
- Natural resources
- Environmental quality
- Natural and human-induced hazards
- Science and technology in local, national, and global challenges

History and Nature of Science Standard

- Science as a human endeavor
- Nature of scientific knowledge

▶Assessing the Lesson

Answers for Section 1 will be unique to each student’s country.

Answers for Section Two are correctly classified as follows (each island nation will not have all factors):

1. Environment
 - Intensification of hurricanes
 - Global warming
 - Rising sea levels
 - Changing agriculture
 - Damage to coral reefs
 - Saltwater intrusion
 - Increased/changing disease patterns
 - Depleted fish stocks
 - Loss of biodiversity
 - Poor waste management
 - Ship pollution
 - Dwindling freshwater supplies



2. Isolation/Distance
 - High transportation costs for goods, energy
 - Difficulty finding trained workforce
 - Minimal communication infrastructure
 - Vulnerability in emergencies
3. Globalization of Trade
 - Price shocks
 - Reduced prices for raw material
 - Dependence on foreign aid
 - Dependence on limited exports, industries
 - Reductions in foreign aid, trade

Answers for Section 3

1. Answers will be unique and based on students' perspectives. Make sure students use correct grammar and write clearly and logically. They should relate their answer to the poem and provide a sufficient explanation of their reasoning.

► Authors and Reviewers

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STUDENT INSTRUCTIONS:
Small Islands–Big Problems

- Step 1:** Read the article "Keeping Afloat: A Strategy for Small Island Nations," *EHP Student Edition*, December 2005, p. A607–A609.
- Step 2:** Complete the Student Worksheet with information about the small island nation which you have been assigned.
- Step 3:** After completing your worksheet, share your findings during the class discussion.



Island: Earth Student Worksheet

Name of Small Island Nation: _____

Section 1

1. In the space provided below, draw a map of the island nation. Identify its capital and main geographic features, such as rivers and ports. Identify the scale in miles.

2. Using an encyclopedia, identify the following features of the island:

Form of government:

Language(s):

Population:

Major industries/exports:

Large trading partners:



Section 2

1. Which problems identified in the article are relevant to this island’s environmental and economic future? Utilize websites such as <http://www.sidsnet.org> and <http://islands.unep.ch> to help you. Identify your island’s specific issues and correctly classify them under the headings below.

1. Environment

2. Isolation/Distance

3. Globalization of Trade



Section 3

1. Read the following well-known poem written by John Donne (1573–1631). The poem predates all knowledge of environmental health as we describe it today.

No man is an island, entire of itself; every man is a piece of the Continent, a part of the main;
If a clod be washed away by the sea, Europe be the less, as well as if a promontory were,
As well as if a manor of your friends or of thine own were.
Any man's death diminishes me, because I am involved in Mankind.
And therefore never send to know for whom the bell tolls.
It tolls for thee.

2. Select one issue from your island. How does that issue relate to the John Donne poem you just read? What can your island teach mankind? Please use correct grammar in your answer and write clearly. Provide sufficient explanation to support your point.

