

Unit 3 Teacher's Guide

Grades 9–12

Unit 3: Geographic Influences on Homebuilding

Unit Overview

Physical and cultural geography contribute greatly to our ways of life and our definitions of self; they are deeply interwoven with human history and our economic and political lives. The relationship between humans and geography, however, is not one-sided. Human activity and technology greatly impact the land around us and can contribute to adverse living conditions. Recently, Habitat for Humanity announced that it had reached its 100-country goal — i.e., it will be working in 100 countries around the world. What are these countries, and what are their special geographic and cultural needs and resources? What does the relationship between humans and geography in these countries look like, and how is it affecting living conditions? This unit is designed to align with a high school geography course — addressing these issues and helping students understand the far-reaching impact of our lives here on Earth.

Standards Addressed

Curriculum Standards for Social Studies (National Council for the Social Studies)

- Strand 3: People, Places, and Environments – Social studies programs should include experiences that provide for the study of people, places, and environments.
- Strand 7: Production, Distribution, and Consumption – Social studies programs should include experiences that provide for the study of how people organize for the production, distribution, and consumption of goods and services.

Geography for Life: National Geography Standards

- Standard 4: The Physical and Human Characteristics of Places – The student knows and understands the changing physical and human characteristics of places.
- Standard 5: Places and Regions – The student knows and understands how multiple criteria can be used to define a region.
- Standard 15: Environment and Society – The student knows and understands strategies to respond to constraints placed on human systems by the physical environment.

2002 NAEP Writing Assessment Framework Objectives

- Students should write for a variety of purposes: narrative, informative, and persuasive.
- Students should write from a variety of stimulus materials, and within various time constraints.

Unit 3 Teacher's Guide

Standards Addressed

Standards for the English Language Arts (The National Council of Teachers of English and the International Reading Association)

- Students conduct research on issues and interests by generating ideas and questions, and by posing problems. They gather, evaluate, and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience.
- Students use spoken, written, and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion, and the exchange of information).

National Standards for Arts Education

- NA-VA.9-12.3: Choosing and Evaluating a Range of Subject Matter, Symbols, and Ideas: Students apply subjects, symbols, and ideas in their artworks and use the skills gained to solve problems in daily life.

Learning Objectives

By completing this unit, students will:

- Gather relevant geographic information about the country (or countries) under study.
- Analyze geographic information in relation to human needs and economic limitations.
- Synthesize geographic information to create a visual and written product.

Teacher Preparation Time

1 hour

Class Time

3 hours

Materials Needed

- Internet access
- Media center access
- Paper
- Marker, paints, pens, or colored pencils

Activity Sheet(s)

- Poverty Housing: Global Crisis and Global Needs

Unit 3 Teacher's Guide

Activity Sheet(s)

- Local Construction Materials: Democratic Republic of Congo, Papua New Guinea, and Guatemala
- Local Building Materials Research Sheet
- Teacher-Student Checklist

Lesson Steps

1. Ask students to try to picture housing in a developing country. Whether it's a country of your choosing or their choosing, make sure they have a specific country in mind. Then, ask students to imagine poverty housing in that same country. (At this point in the lesson it is okay if students do not have a clear definition of poverty housing — they should simply infer its meaning as best they can.) Once students have a mental picture of poverty housing, they should write down three obstacles they think people living in that situation are likely to face.
2. Pass out the handout entitled "Poverty Housing: Global Crisis and Global Needs." It consists of two parts: an excerpt from the United Nations Development Program and short descriptions of families living in poverty housing situations in two different parts of the world. As a class, discuss the handout, identifying the obstacles these families face and the impact of poverty housing — including the ideas that students listed before reading the handout. Additionally, use the excerpt from the United Nations Development Program to come to a consensus on what poverty housing means. The second part of the handout mentions the efforts and impact of Habitat for Humanity International.
3. Have students read the article "Local Construction Materials: Democratic Republic of Congo, Papua New Guinea, and Guatemala." Use the following guiding questions in your class discussion of the article. In order to facilitate discussion, you may wish to divide students into pairs or groups and have each group discuss one question; students could then become panelists and answer questions from the rest of the class. Discussions could also take place on paper. Post questions on chart paper around the classroom, and have students write their answers on the paper using markers. This format gives students time to process information and formulate their own conclusions and opinions.
 - a. Why do you think that Habitat for Humanity encourages the use of local materials in their building projects?
 - b. What is the relationship between using local construction materials and transportation costs?

Unit 3 Teacher's Guide

Lesson Steps

- c. What economic benefits would the use of local materials bring to a project?
 - d. What human benefits would the use of local materials in a building project bring to an area?
 - e. What are houses like in your area? Are they built using local materials? Why or why not?
 - f. Are houses in your area built to adapt to the local environment? If so, explain how.
 - g. Can you name any other housing styles that adapt to the local environment? Where are they located?
 - h. Given the following physical characteristics of place, what do you think homes in these areas might look like?
 - i. Arid to semiarid climate with cold winters and hot summers; mostly rugged mountains; but some plains areas
 - ii. Tropical marine climate with little seasonal temperature variation; mostly low-lying limestone and coral islands with some higher volcanic areas
 - iii. Cold winters, cool and moist summers; generally flat land that contains much marshland, natural forests, and peat deposits
 - iv. Climate variation from temperate to subarctic and arctic with continuous permafrost; plains, mountains, and lowlands in different areas
 - i. Do you agree or disagree with the following statement? "Housing styles and materials have an effect on the lives of the people who occupy them." Explain your opinion.
4. Review with students the guiding principles Habitat for Humanity operates under when building a home. The guiding principles are listed below, and can also be found on the Local Building Materials Research Sheet:
- Build quality houses at the lowest possible cost.
 - Use cost-effective, best-practice construction methods.
 - Raise awareness of the environmental impacts of house building.
 - Build healthier, more energy-efficient and durable housing.
 - Build simple, modestly-sized houses that use fewer raw materials than large houses since smaller houses are less expensive to build and easier to heat and cool.
 - Purchase smaller quantities of materials in order to decrease the environmental impact of raw material extraction, processing and transportation, and also to reduce the amount of waste.
 - Encourage the use of locally available construction materials.

Unit 3 Teacher's Guide

Lesson Steps

5. Ask students to imagine that they live in poverty housing in a developing country. (If you want to focus on a specific country or region of the world, specify which one.) Students should then try to describe what their home might look like — this exercise may simply build off of their ideas from Step 1 and Step 3.
6. Now have students begin to explore the characteristics of some of the countries around the world in which Habitat builds. One way to do this is on the Habitat for Humanity Web site. From the home page (<http://www.habitat.org>), have students click on the Local Affiliates link at the bottom of the page. From there, they can search by country.
7. Have each student select a particular country to focus on. Students will be assuming the role of a Habitat project coordinator for this country. Using the attached Local Building Materials Research Sheet, students will need to gather information about the local materials available in this country as well as climate characteristics. (The Resources section provides some Web sites for obtaining this kind of information.) Using this information, have students design a house using local materials and write a field report justifying their design.

Assessment

Teacher-Student Checklist

Extension Activities

- To add a stronger economics element to this unit and to provide a comparison with costs in this country, have students investigate the actual costs of local materials in both the United States and other countries. (economics)
- Use this unit as a springboard to researching current issues related to how humans are impacting access to safe housing — e.g., Albania's environmental "wasteland," refugees and the environment, and Iraq's marshes and their inhabitants. As part of the research, have students find out how local government or non-governmental organizations respond to peoples' needs. See Resources below. (research skills, current events)
- Have students write letters to appropriate agencies advocating for the rights and needs of environmental refugees — part of this extension can include research on how Habitat for Humanity's activities intersect with areas of the world that have environmental refugees. See Resources below. (civics)
- Have students investigate how to start a HFH campus chapter. They may begin by e-mailing campuschapters@hfhi.org, or by calling 1-800-HABITAT, Ext. 2220.

Unit 3 Teacher's Guide

Abridged Unit Activity

Provide the country characteristics information to students in place of having them conduct independent research.

Modified Unit for Classes with Limited Internet Access

Use your textbook and/or any other print resources for geographic, cultural, and topographical information. If the entire class is focusing on one country or one region, locate information on the Internet (or elsewhere) and have it available for students.

Resources

- Habitat for Humanity's Sacramento affiliate has a ReStore program that touches on issues of affordable housing as well as pragmatic use of construction materials. More information can be found at <http://www.shfh.org/restore/>.
- To research country characteristics, students may consult the CIA World Factbook at <http://www.cia.gov/cia/publications/factbook/>; the Library of Congress Country Studies at <http://lcweb2.loc.gov/frd/cs/cshome.html>; and/or the United Nations Cyberschoolbus "Country at a Glance" at <http://cyberschoolbus.un.org/infonation/index.asp>.

Resources for Extension Ideas

- To look into current issues surrounding the access to safe housing around the world, refer to the UN-Habitat resource "The Slum Challenge" at <http://www.unhabitat.org/mediacentre/presskits.asp>.
- BBC News has articles related specifically to housing challenges in Albania and Iraq. See "Albania's Environmental Wasteland" and related links at <http://news.bbc.co.uk/1/hi/world/europe/1300282.stm>; as well as "UN's Plan to Save Iraq's Marshlands" at http://news.bbc.co.uk/1/hi/world/middle_east/3921151.stm.
- If students wish to write letters supporting the rights of environmental refugees, they can use the following resources:
 - United Nations Environmental Program Regional Office for North America
1707 H Street, NW, Suite 300
Washington, D.C. 20006
Web: <http://www.rona.unep.org/contacts.html>

Unit 3 Teacher's Guide

Resources for Extension Ideas

- Worldwatch Institute
1776 Massachusetts Ave., NW
Washington, D.C. 20036-1904
Phone: 202-452-1999
Fax: 202-296-7365
E-mail: worldwatch@worldwatch.org

- United Nations High Commissioner for Refugees
Case Postale 2500
CH-1211 Genève 2 Dépôt
Suisse
Web: <http://www.unhcr.ch/cgi-bin/texis/vtx/contact?hq=y>

- Human Rights Watch
1630 Connecticut Avenue, NW, Suite 500
Washington, D.C. 20009
Phone: 202-612-4321
Fax: 202-612-4333
E-mail: hrwdc@hrw.org

Poverty housing is a global crisis, particularly in developing countries where large percentages of the population live in poverty. In developing countries, what is defined as “poverty housing” may not be the same as it is in the United States, yet the effects of living in poverty housing are similar throughout the world. Habitat for Humanity International is one agency in particular that is devoted to addressing these global needs, in part, through its emphasis on using local materials in building homes.

Poverty housing may have many consequences: less protection against diseases, difficulty to sleep and rest, difficulty for children to do school homework, fire hazards, family conflicts, less social interaction, etc. Poverty housing may also entail inability to afford heating and cooling.

Often, sanitation systems are insufficient, drinking water unavailable or remote, evacuation and rescue difficult in emergencies. In some poor neighborhoods, waste is not removed, thus creating sources of epidemics and other health problems.

Poverty of the household makes it impossible sometimes to pay for electricity or to be connected to the power network. Living in sub-standard housing may also lead to a loss of self-esteem and lead to isolation.

Housing is a human right that must be guaranteed through public and private initiative. Local, regional, and national authorities may provide low cost social housing, free or special rates for energy and water, safe water supply and sanitation, sports and recreational facilities and activities. Public and private initiatives can enable access of poor people to credit for housing and household appliances. Community initiative by people concerned can lead to cleaner environments, collective equipment. Support for administrative and legal matters can be provided through public or private initiative. Free transport and telephone services, literacy programs, vocational training and information about employment opportunities are also key, the goal being for people to be able to afford decent housing at equitable prices.

Excerpt taken from the United Nations Development Program at
<http://www.undp.org/teams/english/housing.htm>

The excerpt from the United Nations Development Program provides a sense of the negative effects of poverty housing around the world. Sadly, there are numerous obstacles in life when poverty housing is so prevalent. To give you a glimpse of how poverty housing and its obstacles have affected specific families, we have provided a short snapshot of two families in different parts of the world. Please read them and learn how these families have dealt with their obstacles with the help of Habitat for Humanity International.

Cochabamba, Bolivia

Between soaring interest rates and a low monthly income (less than \$200US), the only shelter the Verduguez family could afford was just two tiny rooms in a run-down adobe-block house. The walls were cracked, the stucco was falling and water leaked from the roof when it rained. Romulo, 45, and Adela, 41, struggled to make enough room for their six children, ages 3 to 21, to sleep. With no bathroom in the house, the family had to trek down the street to public toilets and showers shared by 80 other people—all of whom paid 32 cents every time they used the facilities. Water from the public system is available only once a week. Despite the challenges in their lives, the Verduguez family worked hard to become Habitat homeowners. “Working with the other families to build our houses helped me grow as a person,” says Adela. “I know the value of friendship. ...We all share our own homes in common.”

Bishkek, Kyrgyzstan

The irony of Aniepa Togolokva’s life is that she works every day for a construction company plastering walls in other people’s houses. At night, she comes home to a room, 6 feet by 10 feet, amid a slum of shanties. There is no running water, no heat, and only sporadic electricity. Ice forms on the inside walls in winter. Togolokva shares a tiny outdoor kitchen, gas stove, and water pump with her neighbors. A single pit latrine serves the entire community. After the fall of the Soviet Union, Togolokva’s husband went to Russia in search of a better life, and she was left alone to provide for her six children. The family was forced to separate: two children live with grandparents, two live hours away with other relatives, and two attend boarding school. “A house is only part of what Habitat is giving me,” says Togolokva. “They’re giving me my children back, too.”

Local Construction Materials:

Democratic Republic of Congo, Papua New Guinea, and Guatemala

Since Habitat for Humanity International's founding in 1976, Habitat's board of directors has encouraged the use of locally-available construction materials. A sound choice for sustainable development, the use of local materials cuts down on materials transportation costs and educates the community about quality construction methods that are readily available.

For example, in the **Democratic Republic of Congo**, some Habitat houses are built with bricks and roof tiles made of fired clay. Here, the roof is the most critical and expensive element of each house, accounting for as much as half of the total house cost. Using a kiln firing method, Habitat affiliates produce roof tiles locally, making efficient use of area resources, providing employment and a ready source of replacement tiles for roof maintenance.

In **Papua New Guinea**, Habitat houses are built on stilts and provide a major improvement in hygiene and sanitation, especially in protection from malarial mosquitoes with screening. Due to the high cost of concrete and its local scarcity, houses are constructed of wood. House costs are kept especially low through the use of portable saw mills which produce all of the timber for the houses. In turn, HFH affiliates in Papua New Guinea maintain reforestation projects in each of their communities.

Guatemala, because of its geographic location, is prone to natural disasters such as tremors, earthquakes, hurricanes, volcano eruptions, and floods. Habitat houses in Guatemala are earthquake-resistant and constructed of concrete floors, block walls, and corrugated zinc roofs. (Unlike Papua New Guinea, concrete is relatively inexpensive to produce in Guatemala.) A Habitat house in Guatemala typically replaces a makeshift structure that lacks a septic system, plumbing, or electricity.

Grades 9–12

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When Habitat for Humanity builds a house — no matter what the location — it operates under these guiding principles:

- Build quality houses at the lowest possible cost.
- Use cost-effective, best-practice construction methods.
- Raise awareness of the environmental impact of house building.
- Build healthier, more energy-efficient and durable housing.
- Build simple, modestly-sized houses that use fewer raw materials than large houses (smaller houses are less expensive to build and easier to heat and cool).
- Purchase smaller quantities of materials (decreases the environmental impact of raw material extraction, processing and transportation, and also reduces the amount of waste).
- Encourage the use of locally available construction materials.

In this activity, you will combine the geographic characteristics of a particular country discovered through research (such as climate, environment, and topography) with the principles discussed above to design a locally-appropriate housing structure. You will also use the information you have learned to justify your design.

Country: _____

Area of country in which you will be building: _____

1. How would you describe the climate of this area?

2. What types of housing characteristics would this climate naturally encourage?

3. What natural resources are available in this area?

4. Are these natural resources renewable or non-renewable?

5. What types of housing characteristics do these types of natural resources naturally encourage?

6. How would you describe the topography of this area?

7. What types of housing characteristics does this topography naturally encourage?

Using the information you have researched in combination with Habitat's guiding principles of construction, design an appropriate dwelling for the area you have chosen. Draw your design below, and label the materials you have chosen to use.



Now imagine that you will be presenting this design to a coalition comprised of members of both Habitat for Humanity and the local area. Your job is to explain your design and justify your design and use of materials. On a separate sheet of paper, write three or four paragraphs that meet these two goals. Remember to review the information you researched, Habitat's building principles, as well as the attached checklist for guidance.

Teacher-Student Checklist:

Criteria (10 points possible)	Teacher score and justification	Student score and justification
Research questions are complete and accurate		
Design appropriately addresses local climate criteria		
Written justification appropriately addresses local climate criteria		
Design appropriately addresses natural resources of the area		
Written justification appropriately addresses natural resources of the area		
Design appropriately addresses topography of the area		
Written justification appropriately addresses topography of the area		
Design labels building materials		
Design is clearly presented and visually appealing		
Written justification explains and justifies design		
TOTAL		