

WHAT HUMANS NEED

INTRODUCTION:

Most people in the United States spend very little time each day trying to obtain the basic necessities of life: oxygen, water, food, and health. However, there are places in the world where people's entire existence is focused on meeting these basic needs. In this learning activity, students will consider the things necessary for meeting human needs and consider the results of failure to meet basic physiological needs.

Grade Level:

6-12; adaptable to lower grades (see Extensions & Variations)

Time Required:

One class period

Standards Addressed:

Geography standards
14.

Knows and understands how human actions modify the physical environment.

Science standards

C, grades 5-8

Structure and function in living systems

F, grades 5-8

Personal health and Populations, resources, and environments

F, grades 9-12

Natural resources and Science and technology in local, national, and global challenges

Skills:

This learning activity requires students to:

- ask geographic questions
- acquire geographic information
- organize geographic information
- analyze geographic information
- answer geographic questions

Vocabulary/Concepts:

stress, physiological needs, child mortality rate, per capita water availability, underweight, access to safe water and sanitation, per capita cropland availability

Objectives:

As a result of completing this learning activity, students will:

- understand the concept of "basic human needs," including oxygen, water, food, and health.
- consider the physiological, emotional, and material requirements necessary for human well-being and prosperity.
- understand the concept of "stress."
- identify a variety of indicators for stress.
- use the *World Population and the Environment Data Sheet* to find information on the availability of environmental resources.

Materials:

- 5" x 8" index cards
- Masking tape
- Copies of the *World Population and the Environment Data Sheet*
- Copies of handout: *The Earth Day Express*

THE LEARNING ACTIVITY:

Background:

The activity that follows asks students to develop a continuum of human requirements from a list of words representing a range of physiological, emotional, and material needs and wants. The activity assumes that students have a basic understanding of the biological requirements for life, namely that:

- a. animals need air, water, and food;
- b. plants need air, water, nutrients, and light;
- c. if any of these requirements is in short supply or is not available, life cannot exist for long.

If necessary, you may want to review these basic requirements.

WHAT HUMANS NEED *continued*

Preparing for the Activity:

Before introducing the activity, write each of the following words on 5" x 8" index cards:

books	stereo	shampoo	car	acceptance
self-esteem	bed	oxygen	friends	computer
shelter	education	health	TV	medicine
heat	food	air conditioning	clothes	refrigerator
electricity	hot water	bike	phone	toilet
tools	pets	meat	fuel	water

Introducing the Activity:

1. Distribute one card to each student in the class. (If you have fewer than 30 students, make sure that the cards that you distribute include oxygen, water, food, and health. If you have more than 30 students, add some additional words to the list.)

Ask students to arrange the cards in priority order from most important to least important, securing each card across the top of the chalkboard with masking tape.

You may want to place the first card somewhere in the middle to give students a reference point. Once each student has placed a card on the board, allow the class to discuss the order and, through mutual agreement and trial and error, arrange the words into a continuum, ranging from the most basic biological needs to luxury items that are not essential to basic human life.

NOTE: The list should begin with: oxygen, water, food, health. (Students could first prioritize the list based on the necessities in their community and then consider whether the order of priorities might be different for a citizen from another country.)

Leave the human requirements continuum up on the board for the remainder of the unit.

Executing the Activity:

2. Distribute copies of *The Earth Day Express*. This mock newspaper presents situations from around the world in which people are either not able to meet their basic needs or are under **stress** due to difficulties in meeting basic needs. Define "stress" as *a measure of the level of concern/pain caused by not being able to meet the basic human needs*.

Briefly discuss factors that may lead to this stress. For example, stress might be created by having to walk for miles every day to obtain water that is safe to drink. Or, a lack of sewage treatment facilities may lead to a polluted water supply and an outbreak of water-borne disease. An indicator of stress could be the percentage of the population that has access to clean water. (If everyone had clean water there would be no stress, at least with respect to clean water.)

As they read the articles, ask students to identify possible indicators of "stress" related to each of the basic needs.

3. Write the words **water**, **food**, and **health** on the board as category headings. (Omit oxygen, acknowledging to students that it is obviously a basic need, but it is readily available under current conditions.) Ask students to identify possible indicators of "stress" for each of these categories of basic needs. Place students' ideas under each category heading.
4. Distribute copies of the *World Population and the Environment Data Sheet*. Briefly discuss the categories, highlighting the definition of each. Younger students may require more time to become familiar with new terms.

Concluding the Activity:

Ask students to consider the categories, noting similarities and differences with the ideas they have already listed on the board. Have students decide which categories relate directly to the headings on the board; then add these to the list.

WHAT HUMANS NEED *continued*

Extensions & Variations:

1. For younger students, use pictures to accompany the words on the index cards.
2. Ask a series of quick questions and have students race to locate the information in the data sheet. Questions might include:
 - a. What country in Latin America has the highest child mortality rate?
 - b. Which country has seen the greatest loss in per capita cropland?
3. Use the video *Apollo 13* to expand on the discussion of stress. How did the astronauts' ability or inability to obtain water, food, and health contribute to stress? Compare the plight of the astronauts to Earth's systems.
4. Have students bring in articles from the local newspaper indicating that people are not able to meet their basic needs or are under stress due to difficulties in meeting basic needs. (Or provide newspapers to the class and have them search for such articles.) Make lists of the basic needs that are not being met or of evidence of stress resulting from unmet basic needs in the community, as indicated in the articles.
5. Write data sheet terms and definitions on large index cards. Assemble a Jeopardy-style game to help students develop vocabulary for this lesson and those that follow.

Note:

Articles from *The Earth Day Express* were compiled from the following sources:

"Cholera Epidemic Claims Many in Peru" [*World Health*, July-August 1992: 18]

"Advertisement" ["The Year 2025-A Child's View," *The State of the Environment 1990: Children and the Environment*, UNEP and UNICEF: 31]

"Water, for Life's Sake" [Ajoa Yeboah-Afari and Sujaya Misra, "In Search of Water," *People and the Planet*, Vol. 2, No. 2, 1993: 6]

"Malnutrition and Infection: Research Reveals A Conspiracy" ["Unmasking Malnutrition," *The Progress of Nations*, 1995: 14]

"Less Land to Go Around" [Paul Harrison, *The Third Revolution: Environment, Population and a Sustainable World*, London: I.B. Tauris & Co Ltd., 1992: 80-81]

THE Earth Day Express

People worldwide using the environment to meet their needs.



April 1997

Water, for Life's Sake

Water is a dominating force in the lives of many people in the world's developing countries. For many African women, the trek for water is at the top of the daily list of work. Mbekiga Kimulu from Kenya walks two kilometers to the well for water each day. She gathers three containers for her family of eight to be used for drinking, cooking, bathing, and cleaning. She also needs water to grow her crops.

Dede Aryehteye from Ghana must also travel for water. Water hunger is killing the village where she lives. The village's three ponds and pump stand have dried up due to uncertain rainfall. Scarcity of water holds back her farming also. "With it we can grow every thing here, maize, cassava, vegetables. Without it we are dying."



Cholera Epidemic Claims Lives in Peru

In a four-month period during 1992, over 400,000 people in Peru fell ill with cholera, and more than 3,000 people died from the epidemic. Thousands of people die globally each year from water-borne diseases like cholera, which causes severe diarrhea and dehydration. In communities that do not have access to adequate sanitation, the water supply can easily become contaminated and unsafe for drinking or cooking. Since water is necessary for survival, however, many are forced to drink unsafe water in order to stay alive. While water-borne illnesses are more likely to be fatal among children, many adults become infected repeatedly during their lifetimes. Access to sanitation, safe water, and safe food is necessary to prevent cholera and other water-borne-diseases.

ADVERTISEMENT
Children in some cities are already wearing them—oxygen masks!!
If we continue to pollute our air, you too can be one of the crowd—wearing a mask of your very own!!

Less Land to Go Around

A village chief in Madagascar scans a valley that he once owned entirely. Now, it has been divided among his 10 children, all of whom must try to feed their own families. With each generation the land is divided as new households form—and less area is available for cultivation. If families want more land, they must cut into the forested hillsides.

One year the families may grow rice; the next, cassava. After that, the land should lie fallow for six or seven years so that the topsoil can regenerate. Because the families must eat, however, they may plant crops that require less fertile soil, or may leave the land fallow for only one or two years. With each year, the soil becomes less and less fertile and cannot yield as much food. Eventually, the land may become barren.



Malnutrition and Infection: Research Reveals Conspiracy

Each year there are about 13 million deaths among children under age five. Over 8 million of these deaths are caused by diarrhea, pneumonia, malaria, and other diseases that could be prevented with vaccination. Using data from 53 developing countries, researchers from Cornell University now conclude that over half of the 13 million child deaths each year are associated with malnutrition. Disease, it seems, does not work alone.

Children who are even mildly malnourished have a greater chance of getting sick, and have a harder time recovering from disease. This combination of malnutrition and infection prevents proper growth and development, and raises the risk of early death. To combat child mortality rates, actions must focus on improving nutrition **and** protecting against disease.

Movie Review: Apollo 13
During the journey of Apollo 13, the astronauts' lives were in danger when the supply of water and fuel became limited, inside temperatures threatened their health, and the concentration of carbon dioxide rose to dangerous levels. A report about their peril explained: "While the astronauts appear to have enough oxygen to keep them alive, one thing they have too much of is carbon dioxide. With each breath, the three men expel more of the poisonous gas into the lunar module cockpit and the scrubbers intended to keep the atmosphere breathable are quickly becoming saturated."
The crisis is an example of how a closed system (the spaceship) with finite resources can become stressed and threaten the lives of its inhabitants. The crisis can be compared to our struggle on Earth to maintain a sustainable living system. The oxygen supply is plentiful, but the level of carbon dioxide emissions is increasing and is likely to threaten the environment. By eliminating one of our most efficient absorbers of carbon dioxide—trees—we will eventually saturate our atmosphere too.