Get a Life: The Haves and the Have-Nots

Students learn about the imbalances of life expectancies between rich and poor nations.

Author: Cheryl Wiens
Grade Level: 6-8
Duration: 2-3 class periods

Overview
The world is divided between people in developed countries (the haves) who consume much salt and fat, and people in developing countries (the have-nots) who are starved for basic nutrients. The life expectancy of a person is shortened depending upon if he or she lives in a developed or developing nation.

National Geography Standards
ELEMENT FOUR: HUMAN SYSTEMS:
9. the characteristics, distribution, and migration of human populations on Earth’s surface.

Arizona Geography Strand 4
CONCEPT 1 World in Spatial Terms
GRADE 6, 7, and 8
PO 3 Interpret maps, charts and geographic databases using geographic information.

CONCEPT 4 Human Systems
GRADE 7
PO 1 Discuss the implications of the demographic structure of places and regions.
PO 6 Describe the distributions and patterns of cultural characteristics (e.g., religions, language, standard of living) over time.
GRADE 8
PO 7 Describe how changes in technology, transportation, communication, and resources affect economic development.

Arizona Math Standard
STRAND 2 Data Analysis, Probability, and Discrete Mathematics
CONCEPT 1 Data Analysis
GRADE 6
PO 1 Solve problems by selecting, constructing, and interpreting displays of data, including histograms and stem-and-leaf plots.
PO 2 Formulate and answer questions by interpreting, analyzing, and drawing inferences from displays of data, including histograms and stem-and-leaf plots.
PO 4 Compare two or more sets of data by identifying trends.
GRADE 7
PO 1 Solve problems by selecting, constructing, and interpreting displays of data including multi-line graphs and scatterplots.
PO 2 Interpret trends in a data set, estimate values for missing data, and predict values for points beyond the range of the data set.
GRADE 8
PO 1 Solve problems by selecting, constructing, interpreting, and calculating with displays of data, including box and whisker plots and scatterplots.
PO 2 Make inferences by comparing the same summary statistic for two or more data sets.
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**Purpose**
In this lesson students will gain a better understanding of the differences between developing and developed nations by studying graphs of the disability-adjusted life year, or DALY, as published in the World Health Organization’s 2002 yearly report on life expectancy. Students will also formulate interventions, which could increase longevity for people in both developed and developing countries.

**Materials**
- Handout 1 Get a Life: Life Expectancy
- Handout 2 Developed and Developing Countries Notes and Answer Key
- Handout 3 Disability-Adjusted Life Years
- Handout 4 Questions based on the graph
- Handout 4 Questions based on the graph key
- Paper, pencil, graph paper
- Handout 5 What Would You Do?
- Handout 5 What Would You Do? Key

**Objectives**
The student will be able to:

1. Explain what is a developed and a developing country and state some examples of each.
2. Interpret data on charts and graphs from the World Health Organization about life expectancy and disability-adjusted life year.
3. Construct a graph from organized data.
4. Identify trends in the data.
5. Argue for ways to increase life expectancies in both developed and developing countries.

**Procedures**

*Students should have basic knowledge of double bar graphs, both interpreting and constructing them.*

SESSION ONE

1. Brainstorm with the class about some of the reasons for death in the United States. Ask students for causes of deaths of family members, neighbors, and famous people. How old were these people? What is the life expectancy of people living in the United States? (76.9 years) Compare this average to students’ first-hand knowledge.

2. Look at life expectancies for several countries, Handout 1, some from developed and some from developing nations.

3. Ask students to speculate what the terms “developed” and “developing” mean. Students should complete the blanks on Handout 2 as the teacher leads a discussion on the differences. Look back at Handout 1 and decide which countries are developed and which are developing, noting the differences between the life expectancies.

SESSION TWO

4. Conduct guided reading with the class: Give students a copy of the text of the Handout 3: Disability-Adjusted Life Years. Make sure that students understand the terms mortality rate, DALY (Disability-Adjusted Life Year - to the loss of one healthy year of life), life expectancy, and The World Health Organization (WHO). The World Health Organization is the United Nations’ specialized agency for health. Its objective is the attainment by all peoples of the highest possible level of health. WHO classified nations into three categories for their study on DALY’s: developing countries with high mortality (includes sub-Saharan Africa, Western Africa, India, South Asia, and portions of Central America); developing countries with lower mortality (includes China, North Korea, and Indonesia); and developed countries (includes countries in North America, most of South America, Australia, and Russia).

5. Students should use the bar graph from the USA Today article (Handout 3) to answer questions (Handout 4) pertaining to DALY and compare three health risks between developing and developed nations.
6. Conclude the lesson with the assessment, Handout 5: What Would You Do?

**Assessment**

<table>
<thead>
<tr>
<th>Math Assessment:</th>
<th>The graph can be graded for accuracy. Mastery will be considered 80% or higher. Handout 4 can be graded for math concepts using the following:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 1</td>
<td>5 pts</td>
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<tr>
<td>Question 2a</td>
<td>5 pts</td>
</tr>
<tr>
<td>Question 3a</td>
<td>5 pts</td>
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<tr>
<td>Question 4</td>
<td>5 pts</td>
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<tr>
<td>Question 5</td>
<td>5 pts (Total 25 pts). Mastery is considered 20 pts or higher.</td>
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</tbody>
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<thead>
<tr>
<th>Geography Assessment: Handout 4 can be graded for geographic concepts using the following:</th>
<th>Question 2b = 5 pts</th>
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</thead>
<tbody>
<tr>
<td>Question 2c</td>
<td>5 pts</td>
</tr>
<tr>
<td>Question 3b</td>
<td>5 pts</td>
</tr>
<tr>
<td>Question 4</td>
<td>5 pts</td>
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<tr>
<td>Question 5</td>
<td>5 pts</td>
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<tr>
<td>Question 6</td>
<td>5 pts (Total 30 pts). Mastery is considered 24 pts or higher.</td>
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**Extensions**

Students can read the National Geographic Society book called *The Human Body Fighting Disease* by Kate Boehm Jerome, 2003, ISBN 0-7922-8865-3

Students can use the information from the life expectancy chart, Handout 1, to create graphs. Which type of graph will be the best display of the information?

Ask students to speculate about what other types of graphs would work to display the WHO DALY data? Have them make those types of graphs.

Have students construct a histogram from the WHO data, focusing on the percentages of premature death causes in developing countries, for example. Another could be based on the percentages of premature causes of death in developed countries.

**Sources**


The World Health Report 2002 – Reducing Risks, Promoting Healthy Life (may be found at http://www.who.int/mediacentre/releases/)

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