



FOOD FOR
9 BILLION

The Challenge of Feeding the World

Why Are People Hungry?

Teacher Notes

Before You Start

Grade Level:

Grade 9-12, could be adapted for middle school

Concepts Covered:

Statistics, figure reading, malnutrition, hunger index, calories, undernourishment, government policy, poverty

Time Frame:

50-80 minutes

Materials Needed:

Computers with Internet access, student handout *Why are People Hungry?*, graph paper

Overview

Modern civilization has tremendous food production capability and yet millions of people go hungry worldwide. In this activity, students examine some of the factors contributing to hunger worldwide, investigate the link between poverty and hunger, and discuss the role of government in reducing hunger. This lesson utilizes an interactive World Food Map that provides students an opportunity to manipulate and make sense of data about food and hunger worldwide.

Objectives

- Students will understand how hunger is quantified and how hunger, poverty, and the ability to afford food are intertwined.
- Students will learn about one country's approach to reducing hunger and evaluate the usefulness of that model for other countries.
- Students will use data to develop hypotheses and evaluate alternatives.

Teaching Tips/ Activity Sequence

1. Begin with a short discussion focusing on two questions:
 - a. What is hunger and how can we measure it? See the teacher resource *Facilitating a discussion about quantifying hunger*.
 - b. Why are people hungry?
2. Allow students to work alone or in pairs to complete the activity. They will listen to part of a story about hunger in the Philippines and then use the World Food Statistics Map to analyze the connections between income, undernourishment, and food consumption. Lastly, they will evaluate one country's approach to solving the hunger problem.
3. Conclude the lesson with a final discussion in which students can share their ideas about the following questions:
 - What is the link between poverty and hunger?
 - What is the role of government in reducing hunger within a country?

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Extensions

- Another map related lesson, A Hungry World? (<http://www.ricediversity.org/foodfor9billion>), can be used in conjunction with this lesson, or as a way to differentiate if the content or skills of this lesson are too difficult for some students.
- News Hour Extra has a lesson and resources on Food Insecurity in the U.S. at http://www.pbs.org/newshour/extra/teachers/lessonplans/economics/july-dec11/food_11-18.html

Standards

National Science Education Standards Grades 9-12

Science in Personal and Social Perspectives
Population Growth 2.2, 2.3
Science and Technology in local, national, and global challenges 6.2

Common Core State Standards for Literacy in History / Social Studies, Science and Technical Subjects 6-12

Reading Standards
Key Ideas and Details RST1, RH1
Integration of Knowledge and Ideas RST7
Writing Standards
Text Types and Purposes WHST2
Production and Distribution of Writing WHST4
Range of Writing WHST10

National Curriculum Standards for Social Studies

3. People, Places, and Environments
5. Individuals, Groups, and Institutions
6. Power, Authority, and Governance
7. Production, Distribution, and Consumption
9. Global Connections

National Geography Standards

2. Knows the location of places, geographic features, and patterns of the environment
9. Understands the nature, distribution and migration of human populations on Earth's surface
18. Understands global development and environmental issues

Acknowledgements

These teacher notes and resources were produced by Molly Holden and Susan Dodge, M.S. Ed for Creative Curriculum, in conjunction with the "Food for 9 Billion" project (<http://foodfor9billion.org>), with funding from the National Science Foundation (PGRP grant #1026555; <http://ricediversity.org>) and Cornell University.

Why Are People Hungry?

Facilitating a Discussion about Quantifying Hunger



Teacher Resource

Taking the time to engage the students in a short discussion about hunger allows students to activate their prior knowledge about the topic and allows you, as a teacher, to build a shared base of knowledge. It also provides an opportunity to examine the complexity underneath a simple word and the challenges inherent in quantifying a concept like hunger.

1. Begin by asking the students, “What is hunger?” Have them discuss briefly with pairs or small groups and then provide an answer back to the larger group. Depending upon prior knowledge and experience, students will answer in different ways. It is likely that they’ll start with a basic definition, such as a need for food or a feeling of needing food, or lacking a certain nutrient. *Defining and measuring hunger is far from simple!*
2. Encourage students to elaborate. Continue the discussion by asking more questions, such as:
 - Are you “hungry” if you have enough food to eat but it’s not healthy food?
 - Are you “hungry” if you have enough food most of the time but every year your food runs out for a month or two, as in much of rural Africa?
 - Are you “hungry” if you have enough food most of the time, but run out of money for a week every month and can’t afford to buy food?
3. Move towards a discussion about quantifying and measuring hunger. Ask, “How can you quantify hunger?” Solicit student feedback and encourage them toward seeking items or conditions that can be quantified.
4. Conclude the discussion with an explanation of two metrics that have been developed to quantify hunger. The first is “food security” and the second is the Global Hunger Index.
 - Many scholars are more comfortable talking about “food security” than they are with “hunger,” because food security can be carefully defined by the availability of food and people’s ability to make use of it. The United States Department of Agriculture has defined levels of food security and hunger, which are available at <http://www.ers.usda.gov/Briefing/FoodSecurity/labels.htm>. Food insecurity includes being without food, eating less than you feel you should, skipping meals or going without eating, or being unable to afford a balanced meal.
 - The FAO, or Food and Agriculture Organization, also measures food security. That organization keeps track of food security worldwide and measures yearly the Prevalence of Undernourishment (% of the population) in countries. The statistic indicates the percent of the population that regularly doesn’t consume enough food to meet dietary energy requirements (Calories). That data can be seen at <http://www.fao.org/economic/ess/ess-fs/en/> and at <http://data.worldbank.org/indicator/SN.ITK.DEFC.ZS>.
 - The Global Hunger Index, developed by the International Food Policy Research Institute, measures hunger differently. The index measures three indicators (the child mortality rate, the proportion of people who are undernourished, and the proportion of children under five who are underweight) and ranks nations on a scale of 0 – 100, zero being no hunger. A score between 20 and 29.9 indicates an alarming hunger situation and a score above 30 indicates extremely alarming situations. More information is available at <http://www.ifpri.org/book-8018/ourwork/researcharea/global-hunger-index>.

Name: _____



Date: _____ Class: _____

Why Are People Hungry?

Part 1: What is the face of hunger?

Begin by listening to the first two minutes (17:42 – 19:30) of the Marketplace report Philippines: Too Many Mouths, available at <http://cironline.org/reports/philippines-too-many-mouths>.

1. What does *pantawid gutom* mean?
2. The reporter says that Clarissa Canayong is the “face of population growth,” that she represents the conditions into which most of the world’s next two billion people will be born. Describe Ms. Canayong’s situation and how her family experiences hunger.
3. What do you think are the causes of hunger?

Part 2: How does the cost of food affect hunger?

Investigate the link between income and hunger levels using the World Food Statistics Map available at <http://cironline.org/reports/map-world-food-statistics>.

4. Fill out the table of data below. Use the map to find the statistics for each country.

Country	Income spent on food (%)	Undernourishment (%)	Food Consumption (Calories/person/day)
United States			
Italy			
China			
India			
Bolivia			
Brazil			
Kenya			

Name: _____



Date: _____ Class: _____

Why Are People Hungry?

5. If food prices in every country doubled, which of the countries above would see the biggest change in the proportion of income spent on food?
6. What proportion of income would citizens of that country theoretically have to spend on food to keep their diet the same?
7. What can you infer would happen to the amount of undernourishment and food consumption in that country?
8. Explain your answer with details and data.
9. What happens to the amount of undernourishment as the proportion of income spent on food increases? Graph the data and then explain the relationship.
10. Create two hypotheses to explain the relationship from the last question.

Name: _____



Date: _____ Class: _____

Why Are People Hungry?

Part 3: Evaluate one country's approach to reducing the prevalence of hunger

The Brazilian government made food a human right and then went on to institute a number of programs to fight hunger throughout the nation. Listen to the radio story at <http://cironline.org/reports/brazil-delivers-hunger-promise> to learn more about their approach. As you listen, answer the questions below and consider if Brazil's approach could work in other countries with large percentages of undernourished people.

12. When did the Brazilian government declare food a basic human right?

13. Describe the program that was created to feed the people of Brazil.

14. Over the past decade Brazil has spent more than \$35 billion on fighting hunger. Most of it was given directly to poor people. How do they pay for that?

15. Chad has some of the highest amounts of hunger in the world. Using the World Food Statistics Map, compare the hunger situation in Brazil to that of Chad. Can Brazil's model of ending hunger be applied in Chad? Why or why not?

Why Are People Hungry?

Part 1: What is the face of hunger?

Begin by listening to the first two minutes (17:42 – 19:30) of the Marketplace report Philippines: Too Many Mouths, available at <http://cironline.org/reports/philippines-too-many-mouths>.

1. What does pantawid gutom mean?

Pantawid gutom means to cross the hunger, or to move through the hunger pains by stretching food as far as it can go or by making due with only a little food.

2. The reporter says that Clarissa Canayong is the “face of population growth,” that she represents the conditions into which most of the world’s next two billion people will be born. Describe Ms. Canayong’s situation and how her family experiences hunger.

Ms. Canayong has 10 surviving children; four others have died from disease. The family lives in a slum and Ms. Canayong makes \$7 per day. Sometimes they eat three meals a day, but sometimes they eat only once or sometimes the children just have bread twice a day.

3. What do you think are the causes of hunger?

Student answers will vary, but might include poverty, high food prices, inadequate food supply, and other ideas.

Part 2: How does the cost of food affect hunger?

Investigate the link between income and hunger levels using the World Food Statistics Map available at <http://cironline.org/reports/map-world-food-statistics>.

4. Fill out the table of data below. Use the map to find the statistics for each country.

Country	Income spent on food (%)	Undernourishment (%)	Food Consumption (Calories/person/day)
United States	6.4	5	3748
Italy	15	5	3646
China	23	10	2981
India	25	19	2352
Bolivia	28.2	27	2064
Brazil	24.7	6	3113
Kenya	42	33	2089

Why Are People Hungry?

5. If food prices in every country doubled, which of the countries above would see the biggest change in the proportion of income spent on food?

Kenya

6. What proportion of income would citizens of that country theoretically have to spend on food to keep their diet the same?

42% x 2 = 84%

7. What can you infer would happen to the amount of undernourishment and food consumption in that country?

In reality, people would likely spend a far smaller proportion of income, sacrificing quantity or quality of food due to other financial commitments like housing. Undernourishment would increase while food consumption would decrease.

8. Explain your answer with details and data.

If 33% of Kenyans were struggling to stay nourished before a rise in food cost, then doubling the price of food would drastically reduce the amount of food Kenyans could purchase, thus causing a drop in the food consumption and increasing the amount of undernourishment.

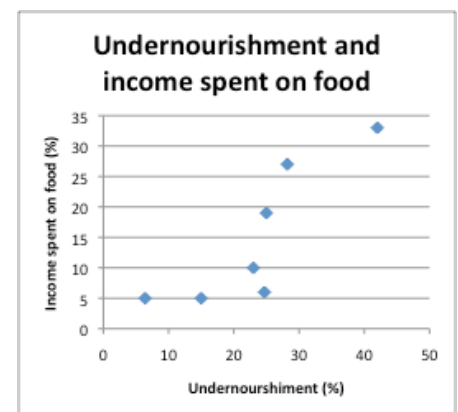
9. What happens to the amount of undernourishment as the proportion of income spent on food increases? Graph the data and then explain the relationship.

As income spent on food increases, undernourishment increases.

10. Create two hypotheses to explain the relationship from the last question.

Answers will vary, but might include:

- The country is producing its own food, which lowers the cost.*
- The country has to buy its food from other countries.*
- People are paid more than in other countries, so the food cost doesn't take up as much of the person's income.*
- People are paid much less than in other countries, so the food cost takes up much more of the person's income.*
- The cost of producing the food is higher than in other countries, possibly due to lack of technology, machinery, amount of workers available, infrastructure, etc.*
- The cost of producing the food is lower than in other countries, possibly due to available technology, machinery, amount of workers available, infrastructure, etc.*



Why Are People Hungry?

Part 3: Evaluate one country's approach to reducing the prevalence of hunger

The Brazilian government made food a human right and then went on to institute a number of programs to fight hunger throughout the nation. Listen to the radio story at <http://www.marketplace.org/topics/sustainability/food-9-billion/brazil-delivers-hunger-promise> to learn more about their approach. As you listen, answer the questions below and consider if Brazil's approach could work in other countries with large percentages of undernourished people.

12. When did the Brazilian government declare food a basic human right?

2003

13. Describe the program that was created to feed the people of Brazil.

The Zero Hunger program, initially modeled after food provision programs started in a few cities in the early 1990s, is based on the idea that it's the government's responsibility to provide healthy, affordable food to anyone who might need it. The early programs created government-run cafeterias where people can purchase a simple balanced meal for a low price. However, in 2003 when the president decided to expand the Zero Hunger program to provide a food safety net nationwide, the program was expanded to include other social services beyond simply providing food. It now includes giving cash transfers to poor people.

14. Over the past decade Brazil has spent more than \$35 billion on fighting hunger. Most of it was given directly to poor people. How do they pay for that?

Fighting hunger was made a priority and the government had to figure out how to pay for it. Since the early 2000s, Brazil has created more than 10 million jobs, discovered major oil fields and the country's agricultural exports have become among the largest in the world. The presidents have supported big business and economic expansion and given some of the proceeds to the poor.

15. Chad has some of the highest amounts of hunger in the world. Using the World Food Statistics Map, compare the hunger situation in Brazil to that of Chad. Can Brazil's model of ending hunger be applied in Chad? Why or why not?

Chad has an extremely alarming Hunger Index and 39% of the population is undernourished. In comparison, Brazil's Hunger Index is low and only 6% of the population is undernourished.

Student answers about applying the Zero Hunger policy in Chad will vary. Encourage students to consider the conditions that led to the success of the program in Brazil (a stable government, political willpower, and economic growth) and whether those conditions exist in Chad (which has a long history of political instability).