

What Is the Green Revolution?

The Green Revolution

Susan McHale, Kristen Sublett, Debra Davis
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Grade Level	9th – 12th Grade	**Time Frame**	2-3 class period(s)
Subject	Social Studies	**Duration**	130 minutes
Course	World Human Geography		

Essential Question

Is the world's food supply enough for a growing population? What is the Green Revolution? What are the challenges of a Western diet?

Summary

Students will gain information about the Green Revolution and its impact on the world's food supply.

Snapshot

Engage

Students examine the population clock and calculate the rate of a growing world population. Students then brainstorm the challenges of a growing world population with finite Earth resources.

Explore

Student partners brainstorm what contributes to or hinders a continuous and abundant food supply.

Explain

Students watch a short video and take Cornell-Style Notes about the Green Revolution and its contribution to a world food supply.

Extend

Students compare and contrast the Green Revolution with the current rise in teen and adult obesity brought about by a Western diet. A choice of various activities are offered.

Evaluate

The brainstorming charts, video notes, H Chart, PSA poster, and 3-minute paper can all serve as possible assessments for this lesson.

Standards

Oklahoma Academic Standards (Social Studies: World Human Geography (9th through 12th grade))

WG.5.1: Examine the origin and diffusion of agriculture including the Agricultural Revolutions and the Green Revolution.

Attachments

- H Chart for the Green Revolution - Spanish.docx
- H Chart for the Green Revolution - Spanish.pdf
- H Chart for the Green Revolution.docx
- H Chart for the Green Revolution.pdf
- Lesson Slides—What is the Green Revolution.pptx
- Teacher Answer Key for the Video Questions.docx

Materials

- A Weighty Problem reading
- Lesson Slides (attached)
- Video Questions Answer Key (attached)
- Notebook paper
- H-Chart handout (attached; optional)
- Poster paper (optional)

Engage

Use the attached **Lesson Slides** to guide the lesson and show **slide 2** and share with students the essential questions of this lesson that you hope they will learn. Change to **slide 3** and show the world population clock as it is ticking.

Ask students to notice how fast that the world is adding new babies per second. Ask one student to time one minute with their phone, the school wall clock, or a watch. As soon as the student says start, have the rest of the students count how many new people are added to the world in one minute. Continue to ask students to do some math. How many people will be added in one hour (or 60 minutes)? How many will be added in one day (or 24 hours)?

Ask students to turn to an Elbow Partner and brainstorm together what the challenges are of a fast growing population. What will the world need to support this growing population? After discussing their thoughts with a partner, randomly call on students to respond with answers to this question. List all ideas on the board.

Teacher's Note: Brainstorming Activity

Hopefully, students will include a steady food supply or food among the list of challenges of a growing world population. Other ideas that students might list are limited natural resources, human pollution, access to clean or viable water, housing issues, and possible lack of job or education opportunities.

Explore

Explain to students how a steady and continuous food supply is a challenge for the world. Ask students to think of countries or locations where food may be scarce. Can they name locations or situations? Show **slide 4** and ask students to comment on locations/countries or situations where a food supply might be scarce. Many countries have experienced famine at some time in their history, such as India, Pakistan, and Ireland; and many more countries, especially countries that are still developing (like Chad, Ethiopia, Zambia, and more), continue to experience widespread hunger even now.

Assign students to groups of three, and have each student get out a piece of notebook paper. Students are to fold their notebook paper in half lengthwise or "hot dog" style. Students should title the first column (left side of the paper) "Reasons for an Abundant Food Supply." Have students title the second column "Reasons for a Scarce Food Supply." This is displayed on **slide 5**.

Ask student groups to brainstorm what would cause an abundant food supply and what issues might have occurred that would create a scarce food supply. Allow only 10 to 15 minutes for this activity. Once they have completed the task, ask student groups to share one cause for an abundant food supply one group at a time. If student groups hear something that they did not list, ask them to add it to their own list. Continue in this same manner until all groups have contributed at least one idea to each column.

Teacher's Note: Brainstorming Activity

Here is a list of possible student answers. They will vary with the students' prior knowledge of growing food or experiences of famine. Abundant food supply: water, sunshine, irrigation, crop rotation, good farming practices, farm machinery, money, grain storage, natural or man-made fertilizers, available land for farming. Scarce food supply: drought, poor farming practices, flooding or monsoons, war, worn-out soil, lack of money, lack of available land. This brainstorming activity can also be turned in and assessed as a participation grade.

Explain

Explain to students that in the early 1940s, many developing countries were experiencing hunger and famine. Norman Bourlag was an American biologist and agronomist who thought that, through science, a more abundant food supply could be achieved. Tell students that they will be watching a video about the Green Revolution, which Norman Bourlag began, and ask them to take notes on the video as they watch.

To prepare for these notes, have students get out two sheets of paper. They will be taking a variation of the Cornell Notes System. To prepare their notebook paper, students should take the left-side edge of their papers and fold it over to the red line of the right side. This should make two natural columns with the left column smaller than the right. Have them title the left-hand column "Guiding Questions" and the right-hand column, "Video Notes." **Slide 6** shows how their notebook paper should look.Have students write the guiding questions in the left column before the video starts. Students should leave 3 to 4 lines as spaces between the guiding questions. They can also use the front and back of their notebook paper.

The guiding questions are listed on **slides 6–8**. The attachments in this lesson include a teacher answer key for the questions. The questions are:

1. What was the Green Revolution?
2. How were seeds different in the Green Revolution?
3. How were farming methods different?
4. What countries benefited most from the Green Revolution?
5. What were some positive results of the Green Revolution?
6. What were some negative consequences of the Green Revolution?

Allow students to copy the questions first, then discuss the questions so that all of the students understand what they are looking for. As students watch the video, they are to look for answers to the questions in the video and fill in the right column of their notes with those answers written in phrases or sentences. The "The Green Revolution: Waging a War Against Hunger" video is linked on **slide 9**.

Embedded video
https://youtube.com/watch?v=HucSCNQ01X4

Teacher's Note: Video Note-Taking

If the first video is not available, an alternative video exists on YouTube about the Green Revolution. It is titled "Winner National History Day 2012 - The Green Revolution: Against All Odds". For students who are not familiar with note taking from audio or video, some teachers have found it helpful to pause the video after about 5 minutes and allow students to work on the questions they can already answer at that point. The group discussion after the video can also help students to fill in the gaps. If you wish, you may also supplement student knowledge about the Green Revolution by having students read that section of their textbook.

After the video, move students back to their original groups of three. Have them work together to share what they learned from the video and to compare their notes with each other. After notes are completed by the group, you may wish groups to present their information (in some manner) to the rest of the class, showing what they learned.

You may wish to use the Cornell-Style Notes as an assessment, and have students turn their notes in. If they complete Option 1 in the Extend section, then they will need their video notes returned for the H-Chart activity.

Extend

Show **slide 10** of former first lady Michelle Obama's fight against childhood obesity. Ask students if they know about any of these initiatives displayed by these pictures. The pictures on the slide give clues to the former first lady's initiatives-- changes in vending machine food to healthier food choices, urban gardening, and more exercise.

Explain to students that as they saw in the Green Revolution video, Mexico, India, and parts of Africa were areas that benefited from the Green Revolution during the '60s and '70s. As people in these countries have become more urbanized and have better incomes, they have moved from farm-to-table diets to a more Americanized, Western diet. Especially in urban areas, people are choosing to eat more fast foods and convenience foods. Pass out the reading called " A Weighty Problem" and place each student with a reading partner.

Reading partners will use the strategy called Stop and Jot. For Stop and Jot, have students jot down the big ideas in the margins after they read one or two paragraphs at a time. This is a useful reading strategy that "chunks" the reading into smaller pieces. The student directions to Stop and Jot are on **slide 11**.Once students have read the article, they can choose one of these Extend activities:

Option 1: Have pairs complete an H Chart (**slide 12**). Pass out the **H Chart** handout. The left side of the H-Chart should be the main ideas from the Green Revolution video. The right side of the H-Chart should be the main ideas from the article about the rise of obesity in these same developing countries. The bridge of the H-Chart should answer the question, "What are the implications of these two texts or how should we prepare for our 'food future'?" Students will need both their video notes and their Stop and Jot notes to complete the H-Chart.

Option 2: After reading the article, discuss the main ideas of the article with the class. If they used the Stop and Jot method, they should be able to share ideas from what they wrote in the margins. Place students into small groups of three. Give students poster paper and markers or colored pencils. Ask students to create a PSA poster that either explains the problem of obesity and western diets, shares Michelle Obama's campaign for ending childhood obesity, or creates food suggestions that are healthier alternatives to fast foods. Display posters in the school. Student directions for the poster are on **slide 13**.

Option 3: Show **slide 2** of the essential questions. Ask students to choose one of the essential questions and write about what they now know. Time the writing for 3 minutes exactly.

Evaluate

The brainstorming food supply activity, the video notes, and the Extend activities can all serve as assessments for this lesson.

Resources

- chocoabuddha. (2010). The Green Revolution: Waging a war against hunger [Video]. https://www.youtube.com/watch?v=HucSCNQ01X4
- K20 Center. (n.d.). Cornell notes system. Strategies. https://learn.k20center.ou.edu/strategy/56
- K20 Center. (n.d.). Elbow partners. Strategies. https://learn.k20center.ou.edu/strategy/116
- K20 Center. (n.d.). Paired texts H-chart. Strategies. https://learn.k20center.ou.edu/strategy/132
- K20 Center. (n.d.). Stop and jot. Strategies. https://learn.k20center.ou.edu/strategy/168
- Samhita Karnati. (2012). Winner National History Day 2012 – The Green Revolution: Against all odds [Video]. https://www.youtube.com/watch?v=c6lds_RK6XM
- Wiggins, S. (2014). A weighty problem: How to halt obesity in the developing world. The Guardian. https://www.theguardian.com/global-development/poverty-matters/2014/jan/03/weighty-problem-halt-obesity-developing-world
- Worldometers. (n.d.) World population. http://www.worldometers.info/world-population/