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Teacher Overview: *What was the Green Revolution? What effect has it had? What lessons can we learn from it to address global needs in the 21st century?*

[Go directly to student-facing materials!](#)

Unit Essential Question(s): Do the benefits of globalization outweigh the costs? | [Link to Unit](#)



Supporting Question(s): What was the Green Revolution? What effect has it had? What lessons can we learn from it to address global needs in the 21st century?

Objective(s):

- **Describe** what the Green Revolution was.
- **Explain** the effects of the Green Revolution.
- **Identify** lessons learned from the Green Revolution that can help address 21st century issues.

Alignment to State Standards

NYS Social Studies Framework:

Key Idea	Conceptual Understandings	Content Specifications
10.9 GLOBALIZATION AND A CHANGING GLOBAL ENVIRONMENT (1990–PRESENT): Technological changes have resulted in a more interconnected world, affecting economic and political relations and in some cases leading to conflict and in others to efforts to cooperate. Globalization and population pressures have led to strains on the environment. (Standards: 2, 3, 4, 5; Themes: MOV, TCC, GEO, GOV, ECO, TECH, EXCH)	10.9c Population pressures, industrialization, and urbanization have increased demands for limited natural resources and food resources, often straining the environment.	Students will explore efforts to increase and intensify food production through industrial agriculture (e.g., Green Revolutions, use of fertilizers and pesticides, irrigation, and genetic modifications).

Social Studies Practices

[NYS Social Studies Practices](#)

Gathering, Using, and Interpreting Evidence (A2, A5, A6, A7)
Chronological Reasoning and Causation (B3)
Comparison and Contextualization (C3, C6)
Geographic Reasoning (D3)

[Common Core State Standards](#)

Depending on how you structure your lesson, you may address different standards. Below, are the standards that we believe are most important for this lesson.

Reading	Writing	Speaking and Listening
<p>Key Ideas and Details: CCSS.ELA-LITERACY.RH.9-10.2: Determine the central ideas or information of a primary or secondary source; provide an accurate summary of how key events or ideas develop over the course of the text.</p> <p>Craft and Structure: CCSS.ELA-LITERACY.RH.9-10.4: Determine the meaning of words and phrases as they are used in a text, including vocabulary describing political, social, or economic aspects of history/social science.</p> <p>Integration of Knowledge and Ideas: CCSS.ELA-LITERACY.RH.9-10.7: Integrate quantitative or technical analysis (e.g., charts, research data) with qualitative analysis in print or digital text.</p> <p>CCSS.ELA-LITERACY.RH.9-10.9: Compare and contrast treatments of the same topic in several primary and secondary sources.</p>	<p>Text Types & Purposes: CCSS.ELA-LITERACY.WHST.9-10.1: Write arguments focused on <i>discipline-specific content</i>.</p>	<p>Comprehension and Collaboration: CCSS.ELA-LITERACY.SL.9-10.1: Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9-10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.</p>

What was the Green Revolution? What effect did the Green Revolution have on world hunger?

Objective:

- **Describe** what the Green Revolution was.
- **Explain** the effects of the Green Revolution.
- **Identify** lessons learned from the Green Revolution that can help address 21st century issues.

Introduction

➡ **Directions:** Review information about other non-political revolutions you have learned about in the past in the chart below.

	What changed as a result of this revolution?	What were the positive effects of the revolution?	What were the negative effects of the revolution?
Neolithic Revolution			
Industrial Revolution			

What was the Green Revolution?



Watch [this video on the Green Revolution](#) and read the text below.

Throughout history, there have been many revolutions that have occurred and changed human lives, such as the Neolithic Revolution and the Industrial Revolution.

After World War II, population increased greatly around the world, especially in areas outside of Europe and North America. There was concern that the agricultural techniques used in the regions with the greatest population increase would not produce enough crops to keep up with the demand.

The **Green Revolution** was a period from the 1940s to the late 1960s when the production of crops increased drastically as a result of new technological advances such as mechanical equipment, new farming techniques, and chemical fertilizers.

The Green Revolution had mixed results. There were benefits for some and disadvantages for others.

Questions

1. What problem did the Green Revolution attempt to solve?

2. Was the Green Revolution successful?



New varieties of crops like wheat and corn that produced more food and were resistant to pests and disease were an important part of the Green Revolution.

[Image](#) is courtesy of wikimedia commons and is public domain



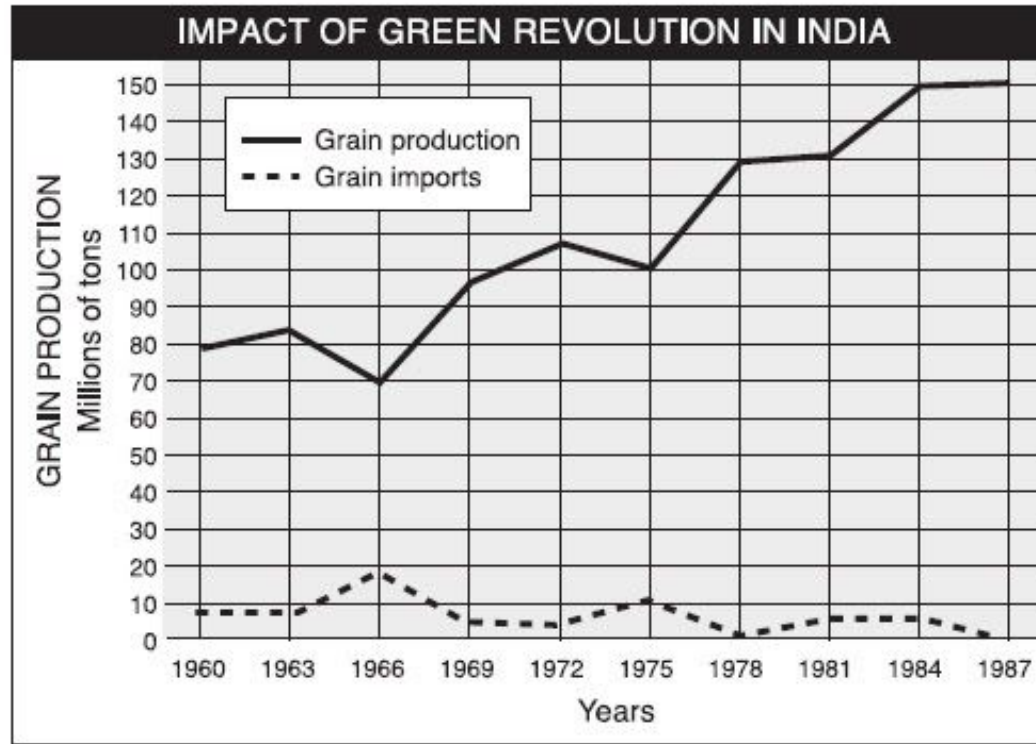
Using pesticides, herbicides, and fertilizers, like the ones being sprayed on fields by the plane above, helped reduce natural threats to crops and creating larger crop yields.

[Image](#) is courtesy of wikimedia commons and is public domain

Document Analysis Activity: What effects did the Green Revolution have?

➡ **Directions:** Read each of the documents below and answer the accompanying questions.

Document 1



Source: James Killoran et al., *The Key to Understanding Global History*, Jarrett Publishing Co. (adapted) from the NYS Global History and Geography Regents Exam.

1a. According to the graph, what impact did the Green Revolution have on grain production in India?

1b. According to the graph, what impact did the Green Revolution have on grain imports to India?

Document 2

. . . The [implementation of the] first green revolution—from the early 1960s to 1975— introduced new varieties of wheat, rice, and maize that doubled or tripled yields. The new varieties were highly susceptible to pest infestation and thus required extensive chemical spraying. But they were also responsive to high rates of fertilizer application under irrigation. So, large- and medium-scale farmers in regions with adequate irrigation facilities, easy access to credit, sufficient ability to undertake risks, and good market integration adopted the new varieties. But these requirements meant that the new technology bypassed most poor African farmers.

Another reason that Africa did not benefit from the first green revolution was the research strategy used. To shortcut the process of varietal improvement, researchers introduced improved varieties [of crops] from Asia and Latin America rather than engaging in the time-consuming exercise of identifying locally adapted germ plasm and using this as the basis for breeding new varieties.

After the early euphoria with the high-yielding varieties, several problems became evident. First, the need for significant use of pest and weed control raised environmental and human health concerns. Second, as areas under irrigation expanded, water management required sophisticated skills that were in short supply. As a result poor farmers growing staple food crops in Africa could not adopt the new varieties. What was crucial for Africa was to develop crop varieties that could thrive in water-stressed regions without heavy use of fertilizers. . . .

Source: "Realizing the Promise of Green Biotechnology for the Poor," *Harnessing Technologies for Sustainable Development*, United Nations Economic Commission for Africa (adapted) from the NYS Global History and Geography Regents Exam, January 2010.

2a. According to the authors of this passage, what was one problem countries in Africa faced in attempting to adopt the Green Revolution?

Document 3

. . . It is not clear which are greater—the successes of modern high-intensity agriculture, or its shortcomings. The successes are immense. Because of the green revolution, agriculture has met the food needs of most of the world’s population even as the population doubled during the past four decades. But there has been a price to pay, and it includes contamination of groundwaters, release of greenhouse gases, loss of crop genetic diversity and eutrophication [pollution] of rivers, streams, lakes and coastal marine ecosystems (contamination by organic and inorganic nutrients that cause oxygen depletion, spread of toxic species and changes in the structure of aquatic food webs). It is unclear whether high-intensity agriculture can be sustained, because of the loss of soil fertility, the erosion of soil, the increased incidence of crop and livestock diseases, and the high energy and chemical inputs associated with it. The search is on for practices that can provide sustainable yields, preferably comparable to those of high-intensity agriculture but with fewer environmental costs. . . .

Source: David Tilman, “The Greening of the Green Revolution,” *Nature*, November 1998 from the NYS Global History and Geography Regents Exam, June, 2004.

3a. According to David Tilman, what are two effects of the Green Revolution?

Synthesize

➡ **Directions:** Using the readings above, complete the chart below.

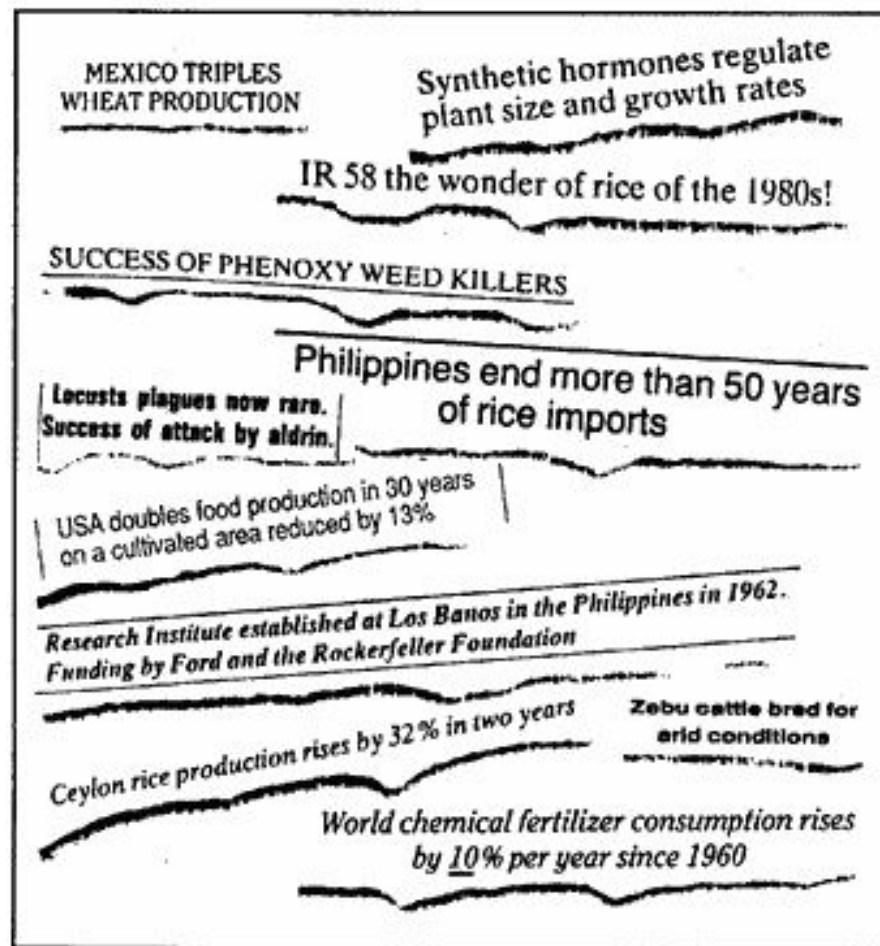
What were the positive effects of the Green Revolution?

What were the negative effects of the Green Revolution?



Regents Multiple Choice Check for Understanding

1. In the late 20th century, the Green Revolution had the greatest impact on
 - (1) grain production in India
 - (2) political freedom in Russia
 - (3) economic reforms in Cuba
 - (4) traditional customs in Japan
2. The main goal of the Green Revolution was to
 - (1) prevent further destruction of the world's rain forests
 - (2) solve chronic food shortages through the use of technology
 - (3) expand the economies of developing nations with foreign investment
 - (4) insure that foreign aid was received by people with the greatest need
3. The use of scientific farming methods and improved varieties of seeds to increase agricultural output in economically developing countries is called the
 - (1) Renaissance
 - (2) Age of Enlightenment
 - (3) Green Revolution
 - (4) Reformation



Source: *People and Environment: A World Perspective*

4. In many Asian and Latin American nations, a major effect of the developments described by the headlines has been
 - (1) an improvement in living standards
 - (2) improved job opportunities for workers in urban areas
 - (3) a decrease in production of food crops
 - (4) a decrease in trade agreements

FA

SQ 9: What was the Green Revolution? What effect has it had? What lessons can we learn from it to address global needs in the 21st century?

➔ **Directions:** Using evidence from the documents above, respond to the task below in the space provided.

- **Describe** what the Green Revolution was.
- **Explain** the effects of the Green Revolution.

Extension Activity:

The world in the 21st century faces many of the issues faced by the world after World War II that were addressed by the Green Revolution. Based on what you've learned about the 21st century issues and the Green Revolution, suggest **one lesson from the Green Revolution that we should apply** in the 21st century and **one mistake we should avoid repeating**.