Was the Development of Agriculture Good for Humans?

Advanced Social Studies
Essential Question for this Inquiry
Essential Question for this Inquiry

Was the development of agriculture good for humans?
1. How did environmental changes and new technologies affect the development of agriculture?
2. How did the development of agriculture in Mesopotamia lead to the development of writing?
3. What were the consequences of agriculture for humans?
Getting started...

Make a list of the greatest innovations and write a statement about why particular innovations appear on the list. Consider how humans have benefited from these innovations and, at the same time, explore the costs of innovations to human culture.
Background Information to Get You Started… Did you know?

More than 15,000 years ago, hunters and gatherers began to settle in permanent villages along the Tigris and Euphrates rivers as the overall climate became warmer and led to more favorable conditions for farming.

These rivers provided the lifeline for civilizations such as Mesopotamia to develop and flourish as they offered access to transportation, cleanliness and health, irrigation of crops, food, and protection. As early humans learned to modify and adapt to their environments, notably by harnessing water to serve a community, they made social and technological advancements that, together, are known as the Neolithic Revolution.
Much debate, however, is centered on the impact of agriculture on early humans. Advances in agriculture and the domestication of animals in such places as Mesopotamia allowed people to form semi-sedentary and sedentary settlements, which led to the development of complex societies and civilizations. The case of Mesopotamia provides an interesting example of how the development of agriculture affected social structures and everyday life for humans living in the area. As humans began to establish permanent settlements along the Tigris and Euphrates flood plain, they built up new systems for organizing and managing the new complexities of everyday life. In Mesopotamia, writing emerged in response to these new complexities. At the same time, social hierarchies developed to maintain order and protect agricultural production. Some social scientists argue that the development of agriculture included negative outcomes, such as increased malnutrition and starvation, the rise of epidemic diseases, and the origin of a hierarchical class system marked by great differences between rich and poor. What is beyond dispute though is that the development of agriculture was a turning point in human history.
Top 10 from a list of “50 Greatest Breakthroughs Since the Wheel” found in the *Atlantic Monthly*:

1. **The printing press, 1430s**
2. **Electricity, late 19th century**
3. **Penicillin, 1928**
4. **Semiconductor electronics, mid-20th century**
5. **Optical lenses, 13th century**
6. **Paper, second century**
7. **The internal combustion engine, late 19th century**
8. **Vaccination, 1796**
9. **The Internet, 1960s**
10. **The steam engine, 1712**

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<tr>
<th>Supporting Question</th>
<th>How did environmental changes and new technologies affect the development of agriculture?</th>
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<tr>
<td>Formative Performance Task</td>
<td>Create a chart with information about how climate change and improved tools contributed to the development of agriculture.</td>
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</table>
| Featured Sources                         | **Source A:** Timeline of the Neolithic Revolution  
**Source B:** Historical temperature data  
**Source C:** Image bank: Neolithic farming tools |
| Conceptual Understanding                 | (6.3c) Mesopotamia, Yellow River valley, Indus River valley, and Nile River valley complex societies and civilizations adapted to and modified their environment to meet the needs of their population. |
| Content Specifications                   | Students will explore how the selected complex societies and civilizations adapted to and modified their environment to meet their basic needs for food, clothing, and shelter. |
| Social Studies Practices                 | ☑ Gathering, Using, and Interpreting Evidence  
☑ Chronological Reasoning and Causation |
How did environmental changes and new technologies affect the development of agriculture?

As early humans fine-tuned their hunting and gathering skills, a series of environmental changes and the gradual adaptation of tools that had been used to harvest wild plants contributed to the development of agriculture. The emergence of agriculture allowed humans to create permanent settlements with the hope of a stable food supply. This supporting question asks how changes and innovations unfolded, keeping a specific focus on warming temperatures and creation of hand tools for working with crops. These changes and technical innovations occurred over a long period of time, but together they represented a remarkable leap forward. Increasing temperatures opened the door for humans to learn how to cultivate wild plants, while new tools allowed humans to better manage crops and increase crop yields.
1st Formative Performance Task

I will learn about how agriculture developed by analyzing featured sources.

Supporting Question: How did environmental changes and new technologies affect the development of agriculture?

- Consider the amount of time needed for the development of agriculture.
- Describe the similarities and differences of agricultural patterns.
- Identify how humans developed agriculture with a focus on the rise of agriculture in Mesopotamia.

Task Directions: You will be completing a chart with information about how climate change and improved tools contributed to the development of agriculture.

Task Due Date: ________________________________
Featured Sources for Task #1

FEATURED SOURCE A is a timeline of agricultural-related events in the Neolithic Revolution. This information will help students gain the necessary background information about the chronological development of agriculture and the domestication of animals.

FEATURED SOURCE B is a chart with historical temperature data. Although scientists and archaeologists are still debating the extent to which climate changes contributed to the development of agriculture, it is important for students to understand that agriculture started during a period of increasing temperatures. Featured Source B shows global temperatures over 18,000 years. The chart uses the average global temperature today as a baseline so students may make comparisons to other times in history.

FEATURED SOURCE C is an image bank showing farming tools that Neolithic humans used to manage crops. Included are an axe, a sickle, a grinding stone, and a primitive plough called an “ard.” Humans used these tools to clear areas, cut the stalks on grains and other crops, and process food. Collectively, such tools represented an important step in the process of humans coming to recognize that certain food sources could be processed and stored.
You will be completing a chart with information about how climate change and improved tools contributed to the development of agriculture.

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<th>Sources for Gathering Information</th>
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</table>
| Source A: Timeline of agricultural-related events in the Neolithic Revolution | | ● What do you see in this image?  
● What do you think this tool was used for?  
● How did this tool support the development of agriculture? |
<p>| Source B: Chart with historical temperature data | | |
| Source C: Image bank showing farming tools that Neolithic humans used to manage crops | | |</p>
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<th>How did the development of agriculture in Mesopotamia lead to the development of writing?</th>
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| Featured Sources | **Source A:** Sumerian counting tokens  
**Source B:** Sumerian numeric system  
**Source C:** Clay tablet with cuneiform symbols |
| Conceptual Understanding | (6.3a) Humans living together in settlements develop shared customs, beliefs, ideas, and languages that give identity to the group. |
| Content Specifications | Students will explore how the selected complex societies and civilizations adapted to and modified their environment to meet their basic needs of food, clothing, and shelter. |
| Social Studies Practices | ☑ Gathering, Using, and Interpreting Evidence  
☑ Chronological Reasoning and Causation |
How did the development of agriculture in Mesopotamia lead to the development of writing?

As agriculture became more complex, humans began to create some of the habits, customs, structures, and techniques that we associate with civilizations. For example, people in Mesopotamia, in particular the region of Sumer, developed ways to record information about crops and animals that they later transformed into writing. The first writing systems date as far back as 8000 BCE when Neolithic humans started using counting tokens with simple markings on small stones to represent and communicate ideas. The tokens were used to represent the quantity of a commodity. For example, a cone-shaped token might represent a small amount of grain. Sumerian priests and royalty used tokens to record whether people had paid what they owed the temple or had received goods from the temple stores (like seed grain) in return for their labor.

Archaeologist Denise Schmandt-Besserat describes this initial system of writing in her 1996 book How Writing Came About. She argues that humans developed this simple system of recording ideas as a precursor to more complex symbolic writing. Sometime around 3000 BCE Sumerians and Egyptians developed more complex systems of writing. These systems made use of cuneiform and symbolic representations.

Although the focus of this inquiry is on the emergence of writing in Mesopotamia, students should know that writing emerged independently in other places, including China and Egypt. Given the similarities and differences among these writing systems, the possible directions of influence are unclear.

This supporting question asks students to think about how writing emerged in Mesopotamia to address the needs that humans had to be more organized.
2nd Formative Performance Task

I can write a paragraph about how writing emerged in Mesopotamia and describe the implications of that development.

Supporting Question: How did the development of agriculture in Mesopotamia lead to the development of writing?

- Continue your investigations of the development of agriculture by considering how people invented writing to address issues that emerged in agricultural societies.
- Discuss the methods Sumerians used to record their grain surpluses refer to featured sources.
- Understand how the evolution of writing and record keeping contributed to human culture.
- Describe the Sumerians’ invention of counting tokens and their later development of cuneiform writing. They should identify the relative time of each development and place those developments in sequence within the larger scope of the Neolithic period.

Task Directions: You will be writing a paragraph about how writing emerged in Mesopotamia and describe the implications of that development.

Task Due Date: _________________________________
FEATURED SOURCE A depicts Sumerian counting tokens. The earliest tokens were designed in particular shapes, such as a cone or a sphere. Each shape represented a specific crop or commodity. The more complex tokens developed later had markings on the stone shapes. These complex tokens represented a certain quantity of a specific commodity.

FEATURED SOURCE B is an image of symbols used in the unique Sumerian numeric system. The source illustrates how humans in Sumer developed symbols to represent the physical counting tokens.

FEATURED SOURCE C is an image of a clay cuneiform tablet. Around 3200 BCE, Sumerians started etching symbols on clay tablets in order to represent ideas. This form of writing was an innovation in that the system included a collection of symbols on a single surface.
You will be writing a paragraph about how writing emerged in Mesopotamia and describe the implications of that development.

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<th>Describe what you see in the image. How might these items have been used in Sumerian society?</th>
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- Discuss and describe the methods Sumerians used to record their grain surpluses refer to featured sources
- Understand how the evolution of writing and record keeping contributed to human culture
## Supporting Question 3

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<th>What were the consequences of agriculture for humans?</th>
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<td>Formative Performance Task</td>
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| **Featured Sources** | **Source A**: Graph of population changes in the Neolithic period  
**Source B**: Image bank: Life in Paleolithic and Neolithic communities  
**Source C**: Graph of changes in rates of disease |
| **Conceptual Understanding** | (6.3d) Political and social hierarchies influenced the access that groups and individuals had to power, wealth, and jobs and influenced their roles within a society. |
| **Content Specifications** | This conceptual understanding has no content specifications. |
| **Social Studies Practice** | Gathering, Using, and Interpreting Evidence |
What were the consequences of agriculture for humans?

Building upon your understandings of how agriculture developed and how writing subsequently emerged to meet the demands of humans in managing agricultural productivity, the third supporting question asks you to consider the consequences of agriculture on society, including both positive and potentially negative results.

You have already examined one positive outcome in the development of writing. Other positive outcomes of agriculture include population growth and economic productivity. Jared Diamond, author of Guns, Germs, and Steel, makes an argument in “The Worst Mistake in the History of the Human Race” that early humans’ transition from hunter-gatherer to sedentary agricultural societies had some negative effects on human culture. Diamond and others suggest that, after humans created agriculture, they began to experience a rise of epidemic diseases and a rise in inequality resulting from property ownership. Although Diamond’s argument is somewhat counterintuitive, it provides an opportunity to balance and deepen the story of human progress and to help students recognize that history is not a straight path of progress.

This third supporting question moves you closer to the Summative Performance Task by providing you with an opportunity to extend your considerations of the effects of agriculture. The idea of consequences in the compelling question is not to suggest that humans got something wrong. Instead, the idea is to focus your’ attention on the idea that history is complex and on the notion that predicting the consequences of innovations is challenging.
3rd Formative Performance Task

I can develop a claim supported by evidence that agriculture had consequences for human culture.

Supporting Question: What were the consequences of agriculture for humans?

- When making a claim, you are committing to a belief about why something in the past happened.
- Whatever you decide, you will need to support your claims with evidence.
- Start your work on this formative performance task by making a statement of belief.
  - Agriculture led to _________________________.
  - I believe agriculture was _______________________.
  - As a result of the development of agriculture, humans were able to _________________________.
- As you continue your work, you should locate and record evidence from the sources that have been provided.

Task Directions: You will develop a claim supported by evidence that agriculture had consequences for human culture.

Task Due Date: ________________________________
Featured Sources for Task #3

FEATURED SOURCE A a population graph, depicts the rise in population that occurred after the development of agriculture. Although the graph does not show it, the world population had been steady for millennia before approximately 10,000 BCE.

FEATURED SOURCE B consists of two images of human settlements that depict life before and after agriculture. These sources may be used to help students recognize that property and private spaces came into existence with agriculture. In the Paleolithic period, humans lived in communal settings sharing hunting and gathering tasks and the rewards of those efforts. With the rise of agriculture in the Neolithic period, humans began to produce surpluses of food and other materials, such as tools, clothes, and decorative items.

FEATUREED SOURCE C illustrates the rise in disease-related death rates for humans in the Neolithic period. Diseases came from multiple sources that all emerged as a result of agriculture. Waterborne diseases increased as humans created irrigation systems that altered the flow of water and put them in close contact with these new water sources. Diseases from animals increased as humans domesticated and penned animals, coming in regular close contact with animals in ways they had not before. Famines became more prevalent as humans began to depend on food stores that were subject to destruction from natural and human causes.
**Summative Performance Task**

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<td><strong>ARGUMENT</strong></td>
<td>Was the development of agriculture good for humans? Construct an argument that addresses the compelling question using specific claims and relevant evidence from historical sources while acknowledging competing views.</td>
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<tr>
<td><strong>EXTENSION</strong></td>
<td>Conduct a Socratic dialogue addressing the compelling question.</td>
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Answering the Essential Question:
Was the development of agriculture good for humans?

In this task, you will write a response to the compelling question “Was the development of agriculture good for humans?”

At this point in the inquiry, you should have examined the conditions and tools that made agriculture possible, the impact of agriculture on early human societies through the example of writing, and some of the consequences of agriculture.

The Summative Performance Task allows you to apply what you have learned by making a claim-based argument supported with evidence.

You should be cautious not to overuse any single source. You should be expected to demonstrate the breadth of your understanding and your ability to use evidence from multiple sources to support your distinct claims.
Answering the Essential Question: Was the development of agriculture good for humans?

The Evidence Chart can be used to provide you with support as you build your arguments with claims and evidence.
Student Handouts
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|----------------------------------|-------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Source A: Image bank: Sumerian counting tokens |                                                                                                  |                                                                                            |
| Source B: Sumerian numeric system |                                                                                                  |                                                                                            |
| Source C: Clay tablet with cuneiform symbols |                                                                                                  |                                                                                            |
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