



Class 8

THE NEOLITHIC AGE – THE BIRTH OF AGRICULTURE

Title:

Class 8: The Neolithic Age – The Birth of Agriculture

Topics (CHAPTERS – Video lectures):

Class 8. [Introduction Video](#)

Chapter 1 Video. [Brazil – Belem – The Amazon](#)

Chapter 2 Video. [Egypt – Cairo – The Nile](#)

Chapter 3 Video. [China – Beijing – The Grand Canal \(Yangtze, Yellow & Pearl Rivers\)](#)

Chapter 4 Video. [India – Varanasi – The Ganges/Indus](#)

Subject/Course: Civics, History, Geography, Religion, Ethics, Social Studies

Grade: Secondary School Level

The Ages of Globalization book reference chapters:

Download your free copy of the AOG book [here](#).

Stage 1 – Desired Results



In this section, you will find a detailed framework that outlines the overall learning goals, the enduring understandings, attitudes and values students will develop, essential questions students should be able to formulate and/or to provoke deep thinking and discussion, and specific learning outcomes that emphasize both knowledge and skills.

Established Goals:

Summary/Overarching:

Learners will understand the emergence of the Holocene period from the Pleistocene Epoch, which brought about climate changes on Earth. Learners will understand how the emergence of agriculture, animal domestication and settlements came to mark the Neolithic Age.

Enduring Understandings:

[The #s in parenthesis point to UNESCO's Learning Objectives for the Sustainable Development Goals](#)

Students will

- ▶ Develop an understanding of how their own region was shaped during the Neolithic Age.
- ▶ Recognize how climate, physical, and geographical conditions influence agriculture, settlement patterns, and the rise of civilizations.
- ▶ (2.4C) Cultivate a sense of responsibility for the interconnectedness of biodiversity, climate, and food production.

Essential Questions:

- ▶ How did the physical and geographical conditions of the Neolithic period influence the formation and growth of settlements and early civilizations?
- ▶ How are today's agricultural practices, production methods, and climate zones connected to environmental challenges and health concerns?



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- ▶ How did agriculture and animal domestication develop independently across different regions, and how did these innovations spread over long distances?
- ▶ How did the shift from a nomadic hunter-gatherer lifestyle to settled village life transform culture, political structures, and create new social inequalities?

Students will know...

- ▶ The transition from the Pleistocene to the Holocene Epoch.
- ▶ The impact of climate change on early human societies.
- ▶ The origins of agriculture and animal domestication.
- ▶ The development of permanent settlements.
- ▶ The rise of organized political structures.
- ▶ The invention and spread of new technologies.

Students will be able to...

- ▶ Trace the history of their region during the Neolithic

Age.

- ▶ Identify how agricultural practices contributed to the formation of early civilizations.
- ▶ (2.4C) KEY IDEA: The food we eat comes from plants and animals. Learners will be able to: Research and compare different diets and food cultures from around the world.
- ▶ (2.4C) KEY IDEA: Farming transforms biodiversity. Learners should be able to: promote food production and animal farming that respects biodiversity.
- ▶ (2.4C) Learners should be able to: Analyze the direct impact of climate conditions, including seasonal variations and extreme weather events, on food production processes.
- ▶ (2.4C) Evaluate the environmental consequences of industrial farming practices, including the emission of greenhouse gasses through pesticide and fertilizer use, over exploitation of soil, vast monocultures and their implications for biodiversity and climate.

Stage 2 – Assessment Evidence



In this section, you'll find key concepts and definitions essential for understanding the course material as well as activities, such as Vocabulary Flashcards, Check-Your-Facts and Fill-in-the-Blank to enhance your students' comprehension and retention. You can adapt these activities to suit various subjects and grade levels.

Concepts & Definition

Familiarize yourself with the provided terms, such as "Ice Age," "Sedentism" and others. Understanding these definitions will help you effectively teach the material and connect it to your lessons.

Vocabulary Activity

Create physical flashcards for each term. This hands-on approach helps reinforce terminology and aids in building a solid foundation of knowledge. Encourage students to use these flashcards for review and practice.

- ▶ **Ice Age:** is any geologic period during which thick ice sheets cover [vast](#) areas of land. Such periods of large-scale [glaciation](#) may last several million years and dramatically reshape surface features of entire continents. A number of major ice ages have occurred throughout [Earth's history](#). The earliest known took place during [Precambrian](#) time dating back more than 570 million years. The most recent periods of widespread glaciation occurred during the [Pleistocene Epoch](#) (2.6 million to 11,700 years ago) (Britannica).



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- ▶ **Holocene:** is the most recent segment of the [Quaternary Period](#), spanning the last 11,700 years of [Earth's](#) history. This epoch is distinctive not only for its extensive geological record – covering the largest area of any [epoch](#) in both continental and marine sediments – but also because it coincides with the late and post-Stone Age development of [human](#) civilization. The impact of human activity on the planet during the Holocene has been so significant that it warrants recognition as a unique period in geological time (Britannica).
- ▶ **Pleistocene:** is best known as a time during which extensive [ice](#) sheets and other [glaciers](#) formed repeatedly on the landmasses and has been informally referred to as the “Great Ice Age.” The timing of the onset of this cold interval, and thus the formal beginning of the Pleistocene Epoch, was a matter of substantial debate among geologists during the late 20th and early 21st centuries. By 1985 a number geological societies agreed to set the beginning of the Pleistocene Epoch about 1,800,000 years ago, a figure coincident with the onset of glaciation in [Europe](#) and [North America](#). Modern research, however, has shown that large [glaciers](#) had formed in other parts of the world earlier than 1,800,000 years ago. This fact precipitated a debate among geologists over the formal start of the Pleistocene, as well as the status of the Quaternary Period, that was not resolved until 2009 (Britannica).
- ▶ **River systems:** is also called a drainage basin or watershed. A river’s watershed includes the river, all its tributaries, and any groundwater resources in the area (National Geographic).
- ▶ **Sedentism:** is a commonly used concept in settlement pattern analysis. Rafferty (1985) found “sedentary” to be related to both settlement permanence and site size. Both space and time are fundamental aspects of sedentism. It is proposed that models of sedentism should not only be based on ecological, economic, and adaptational considerations but should also include the importance of the meaning of place in the relationship between human populations and landscape ([Taylor & Francis online; Rafferty, Janet. 1985. The archaeological record on sedentariness: Recognition, development, and implications. Advances in Archaeological Method and Theory, 8: 113 – 156.](#)
- ▶ **Domestication:** is the process of adapting wild plants and animals for human use. Domestic species are raised for food, work, clothing, medicine, and many other uses. Domesticated plants and animals must be raised and cared for by humans. Domesticated species are not wild (National Geographic).
- ▶ **Origins of agriculture:** Agriculture is the intentional cultivation of useful [plants](#) or [animals](#) in [ecosystems](#) that have been created by people. Agriculture has often been conceptualized narrowly, in terms of specific combinations of activities and organisms – wet-rice production in [Asia](#), [wheat](#) farming in [Europe](#), [cattle](#) ranching in the Americas, and the like – but a more [holistic](#) perspective holds that [humans](#) are environmental engineers who disrupt terrestrial [habitats](#) in specific ways. Anthropogenic disruptions such as clearing vegetation or [tilling](#) the [soil](#) cause a variety of localized changes; common effects include an increase in the amount of light reaching ground level and a reduction in the competition among organisms. As a result, an area may produce more of the plants or animals that people desire for [food](#), [technology](#), [medicine](#), and other uses (Britannica).
- ▶ **River valley civilization:** The Indus River Valley Civilization, 3300-1300 BCE, also known as the Harappan Civilization, extended from modern-day northeast Afghanistan to Pakistan and northwest India. Important innovations of this civilization include standardized weights and measures, seal carving, and metallurgy with copper, bronze, lead, and tin. Little is understood about the Indus script, and as a result, little is known about the Indus River Valley Civilization’s institutions and systems of governance. The civilization likely ended due to climate change and migration (Khan Academy).
- ▶ **Endogenous growth:** is an economic theory which argues that [economic growth](#) is generated from within a system as a direct result of internal processes. More specifically, the theory notes that the enhancement of a nation’s [human capital](#) will lead to economic growth by means of the development of new forms of technology and efficient and effective means of [production](#) (Investopedia).
- ▶ **Biodiversity:** are all the different kinds of life you’ll find in one area – the variety of animals, plants, fungi, and even microorganisms like bacteria that make up our



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natural world. Each of these species and organisms work together in ecosystems, like an intricate web, to maintain balance and support life. Biodiversity supports everything in nature that we need to survive: food, clean water, medicine, and shelter (World Wildlife Fund).

- ▶ **Lucky Latitudes:** Historians have called the band of largely temperate zone Eurasian region (stretching 10,000 plus kilometers from Europe to China) as the lucky latitudes because that region has been distinctively the most prosperous and most technologically dynamic part of the world over the long haul of history. In fact, we can see that the Lucky Latitude band was already thousands of years ago the home to the first urban settlements in the world. It was in these regions that agriculture was so productive that a proportion of the population could grow the food to feed a significant part of the population that lived in non agricultural settlements, specifically in urban areas. These are the regions of food surplus that could support nonagricultural urban activities.
- ▶ **Diffusion:** of innovations is a model that attempts to describe how novel products, practices, or ideas are adopted by members of a social system. The theory of [diffusion](#) of [innovations](#) originated in the first half of the 20th century and was later popularized by American sociologist Everett M. Rogers in his book *Diffusion of Innovations*, first published in 1962 (Britannica).
- ▶ **Innovation:** is the creation of a new way of doing something, whether the enterprise is concrete (e.g., the development of a new product) or abstract (e.g., the development of a new philosophy or theoretical approach to a problem). [Innovation](#) plays a key role in the development of sustainable methods of both production and living because in both cases it may be necessary to create [alternatives](#) to conventional ways of doing things that were developed before environmental consideration was central to most people's framework for making decisions (Britannica).
- ▶ **Pictogram / pictograph:** is a [symbol](#) representing a [concept](#), object, activity, place or event by illustration. Pictography is a form of [writing](#) in which [ideas](#) are transmitted through drawing. Such pictograms are characterized by their simplified style, which omits all details that are unnecessary to the desired

communication. It is the basis for some of the earliest forms of structured written [languages](#), such as [Cuneiform](#) and, to some extent, [Hieroglyphs](#) (New World Encyclopedia).

Check-Your-Facts / Review Questions

Utilize this activity to promote critical thinking by having students verify and analyze information related to the concepts and definitions.

1. What major change took place on planet Earth from the end of the Pleistocene to the start of the Holocene? (The warming of the climate)
2. What are the major civilizations that arose with the river systems and growth of agriculture? (Ancient Egypt (Nile), China (Yangtze & Yellow Rivers), Indus Valley (the Ganges), Mesopotamia (Tigris & Euphrates))
3. What transition was made in human society/culture from the Paleolithic Age to the Neolithic Age? (Populations went from largely hunter gatherer culture to settled populations.)
4. What are some of the breakthroughs and inventions of the Neolithic Age? (Agriculture that enabled a more settled life, permanent crops, invention of forms of writing that became the precursor to modern scripts; and the earliest forms of government)
5. What is the significance of Lucky Latitudes? And what is the relationship between climate zones and the economy? (The lucky latitudes, a band of temperate climates, stretching across Eurasia, have historically been prosperous and technologically dynamic. A location's climate and physical features play an important role in shaping its economic structure and prosperity. Factors such as being in a mountain region, along a coast, or near global trade lanes influence a location's economic characteristics).



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Fill-In-The-Blank

Incorporate this activity to assess students' understanding of key concepts and historical periods. Provide a word bank to support their learning and check their grasp of the material.

1. The Neolithic Age ranged from (10,000 B.C. - 3,000 B.C.) and is marked by the introduction of (agriculture), domestication of animals, and early government technologies.
2. (River valleys) were crucial in the development of civilizations around the world.
3. Archeological and anthropological evidence shows a counterintuitive finding that (hunter gatherers) seem to have had better nutrition, fewer disease, more varied diets, less strenuous labor and longer lives than

contemporaneous (farm households). Despite the advantages of the (nomadic populations) compared to the agricultural populations, settled agriculture ended up winning out. The reason may be the

- a. (demographics) of nomadism versus farming, where nomadism only supports a small population density while farming supports a larger population per unit area.
- b. (Sedentary) lives within larger communities and sets off new technological discoveries: metallurgy, arts, record keeping, ceramics, writing, cuneiform and pictographs and later alphabets.
- c. A more settled life set off a chain reaction of (endogenous growth), producing gradual expansion of know-hows and accompanying increase in population.

Stage 3 – Learning Activities



In this section, you will find the different learning activities associated with this specific Class. We recommend that you begin by watching the lecture videos as a basis for the course and as a primary element for the course content. Interactive reference maps are mentioned in the lectures and activities.

Lecture Videos

Class 8. [Introduction Video](#)

Chapter 1 Video. [Brazil – Belem – The Amazon](#)

Chapter 2 Video. [Egypt – Cairo – The Nile](#)

Chapter 3 Video. [China – Beijing – The Grand Canal \(Yangtze, Yellow & Pearl Rivers\)](#)

Chapter 4 Video. [India – Varanasi – The Ganges/Indus](#)

Reference Maps

<https://sdgstoday-sdsn.hub.arcgis.com/pages/ag-es-of-globalization-data>

Origins of Agriculture

The Lucky Latitudes and Climate Zones

Chapter Summaries



In this section, you can find a summary of each Chapter in this Class for your reference. Chapter summaries provide insight into the era discussed in each class period. Should you have issues watching the videos, e.g. due to internet bandwidth, the summaries provide some of the key insight you can build on.

Video Lectures Summary

- ▶ The Neolithic Age marked humanity's transition to settled farming around 11,000 years ago, sparking global dispersal, permanent settlements, and the Neolithic Revolution. Sedentism began 14,500 years



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ago due to climate warming, even before the onset of agriculture. Agriculture independently arose world-wide, involving the selective planting of wild plant species like grasses, with key sites in the Fertile Crescent, China, and the Americas.

- ▶ Archaeological evidence indicates that hunters and gatherers had better nutrition than early farmers, even though farming became widespread. Farming encroached on hunter-gatherer territories, displacing natural ecosystems and leading to a decline in average well-being. The “demographic trap” of farming required increased labor for diminishing returns, creating a cycle of dependency on agriculture and further encroachment on hunter-gatherer lands.
- ▶ Sedentary farming villages spurred technological innovations, population growth, and rising living standards over millennia. Eurasia’s population increased dramatically from 10,000 BCE to 1 CE, driven by these sedentary communities. Early Anatolian agriculturalists displaced European hunter-gatherers, later followed by significant changes with the arrival of Eurasian pastoralists around 3000 BCE. Farming eventually spread across all continents except Antarctica, facilitating technological diffusion over time.
- ▶ Riverine civilizations like Egypt, Mesopotamia, the Indus Valley, and the Yellow and Yangtze Rivers developed advanced agricultural techniques, writing

systems, and organized governance. Writing evolved from Sumerian cuneiform and Egyptian hieroglyphics to Phoenician, Greek, and Chinese characters, as well as Mayan writing in the Americas. These civilizations benefited from river systems for irrigation, transport, and defense, which supported population growth, labor division, and scientific progress.

- ▶ Eurasia’s “lucky latitudes” allowed for technological and economic advancements due to consistent climates and a lack of tropical diseases. Innovations within these latitudes spread across Eurasia, while the Americas faced limitations in technological development. Not all areas within Eurasia’s lucky latitudes had equal resources: western and eastern regions had temperate climates, while central areas were drylands. Western and Central Asian empires, typically in arid regions with lower populations, contrasted with the populous, dynamic empires in temperate zones like the Roman and Han empires.
- ▶ The availability of coal in Eurasia’s “lucky latitudes” also provided an advantage during the fossil fuel era. Environmental factors, or “luck,” played a crucial role in the success of ancient civilizations, with favorable surroundings critical during the Neolithic Age. Eurasia’s “lucky latitudes” fostered innovation and diffusion, leading to early civilizations and proto-states, while isolation and disease posed challenges to the Americas and Africa.

Activities



Graphics Activities (Map, Data, Diagrams)

Activity #1: “Map the Crops!” (40 minutes)

In this activity, students will explore the origins of agriculture by mapping prominent crops and the river valleys where early agricultural practices emerged.

Introduction (5 minutes)

Set the stage with a warm-up question: “What do you know about the kinds of crops that were historically grown in major river valleys around the world?”

Map Creation (25 minutes)

Using a map (paper or digital), students will mark the prominent crops and regions associated with the origins of agriculture. If possible, use ArcGIS or other mapping tools.

- ▶ Mark River Valleys and Crops:
 - Fertile Crescent: Mark the area from the Egyptian Nile to present-day Iraq, with a focus on wheat, which likely began in Turkey.
 - China (Yellow and Yangtze River Basins): Mark the northern region for millet and the southern region for rice.



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- Americas: Mark maize originating in today's Mexico and potatoes in the highlands of the Andes.
- ▶ Sketch Layers: Create a sketch layer with polygons for each river valley (Fertile Crescent, Yellow and Yangtze river basins, and the Americas). NOTE: You can find some guidance on ArcGIS, amongst other, on how to make a sketch layer [here](#) and how to add pop-ups [here](#).
- ▶ Enable pop-ups for each layer and label the types of crops prominent in each region.

Map Analysis (10 minutes)

- ▶ Ask students to consider why these crops thrived in each area. Possible prompts:
- ▶ “What made these regions ideal for growing these specific crops?”
- ▶ “How might climate, soil, and geography have influenced agricultural success?”
- ▶ Assign students a brief journal entry reflecting on their findings as homework: “Why do you think these areas were successful centers for early agriculture? Consider how climate, geography, and available resources played a role in supporting specific crops.”

Activity #2: “Where would you settle?”

Students work in groups to make decisions about where to build settlements in hypothetical places. They consider site features and locational factors in the decision-making. Access the National Geographic lesson plan here: <https://education.nationalgeographic.org/resource/selecting-settlement-sites/>

Journal Activity

Journal Prompt

Select one key idea for your students to explore and invite them to speak to their parents, family members, or elders in their community to respond to these questions.

- ▶ **Key idea 1:** the students feel connected to local produce

- Identify the seasonality of food in your area and what are some of the sources of the food that you eat. Where do you get your food?
- What foods are native to the area versus foods that have been imported or brought from other areas of the world to be produced in your country?
- What are some challenges that the local farmers are facing growing your favorite food?
- ▶ **Key idea 2:** Learners identify how civilizations were formed due to agriculture practices.
 - Discuss the agricultural practices that helped to sustain sedentary lifestyles and stopped people from migrating for food. Relate to some agricultural practices in today's world and discuss their sustainability practices
 - What are some agricultural tools that early civilizations used and what are some agricultural tools that are used today. Discuss their efficiency as well as sustainability.
 - What are some sustainable farming practices that use animals for farming? Be aware of some animal rights work to protect animals.

Community Engagement & Student Action Considerations & Capstone Project

Community Engagement & Student Action Considerations

Key Idea: Learn how sustainable consumer choices can support farmers and the food industry.

Activities:

- ▶ Meet Your Grocer: Talk to a local grocery store manager to learn about their challenges, especially related to local and seasonal produce.
- ▶ Create an Action Plan: Brainstorm ways to promote local and seasonal foods in your community. Think of small actions you and your neighbors can take to support sustainable food choices.
- ▶ Goal: Influence your neighborhood to make more eco-friendly food choices!



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Capstone Project

Reflect on your previous journal entries and consider the following questions as you develop your project:

1. Why is it essential to understand the impacts of agriculture on our planet?
2. Why is fostering a sense of responsibility toward agriculture's effects on the environment important?
3. How might this sense of responsibility extend to other industries and human activities?
4. What actions can you take within your community to contribute positively?
5. Why is it important to acknowledge and address the negative impacts of agriculture and other human activities?

*Wiggins, G., & McTighe, J. (2005) *Understanding by design* (2nd ed.).
Alexandria, VA: Association for Supervision and Curriculum
Development ASCD