

7

AGRICULTURE & CIVILIZATION

WAS FARMING AN IMPROVEMENT
OVER FORAGING?



UNIT 7

AGRICULTURE & CIVILIZATION

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UNIT 7 OVERVIEW

Key Disciplines: Archaeology, anthropology, history

Timespan: Farming developed about 11,000 years ago

Driving Question:

- To what extent was farming an improvement over foraging?
- What makes human societies similar and different? (WH)
- Why do societies collapse? (WH)

Threshold for this Unit: Threshold 7: Agriculture



World History

Big History includes selected World History topics in support of local standards in New York, California, and other regions around the world. While not a replacement for a World History course, they explore the intersection of Big History and World History. These activities, videos, and articles are marked with a globe icon or '(WH)'.



Science

The Big History science extension aims to increase the depth of STEM and general science content in the course. These activities, videos, and articles are marked with '(Sci)'.



UNIT 7

LEARNING OUTCOMES

By the end of Unit 7, students should be able to:

1. Define agriculture and describe where it emerged.
2. Identify the features of agrarian civilizations.
3. Understand the similarities and differences between the lifestyles of hunter-gatherers and farmers.
4. Describe how early civilizations formed and their key features.
5. Understand what scholars from multiple disciplines know about agriculture and civilization and the information they can derive from them using an integrated perspective.
6. Describe how agrarian civilizations formed and analyze their key similarities and differences.
(WH)
7. Use sentence starters to strengthen making an argument in writing.



UNIT 7

LESSONS

7.0 The Rise of Agriculture

Planting crops instead of hunting for nuts and berries meant we stopped following food sources. The effect that this change had on human history? Big. Very big. The emergence of agriculture was a huge step in human development because it paved the way for cities, states, and civilizations.

7.1 The First Cities and States Appear

Agriculture allowed humans to settle down and live in one place. It did not take long for larger and larger communities of people living together to develop, and this allowed specialists to emerge, but it also required means of social organization and control to be developed.

7.2 Ways of Knowing: Agriculture and Civilization

Like detectives solving a murder mystery, historians use artifacts and written records of past civilizations as clues to understand our history as a species.

7.3 What Should We Eat?

We've had millennia to contemplate what foods are best for us; yet, the argument over what we as a species should be eating has never been more heated and bewildering amongst nutritionists, agriculturalists, and laypeople alike.



UNIT 7

KEY CONCEPTS

- agrarian civilization
- agrarian era
- agrarian surplus
- agriculture
- artificial selection
- city
- civilization
- cuneiform
- domestication
- Fertile Crescent
- geography
- government
- history
- ice age
- irrigation
- Mesopotamia
- monumental architecture
- Natufians
- pastoralism
- power (relations among people)
- sedentism
- state
- Sumer
- teosinte
- Uruk
- village



LOOKING BACK

WHAT HAPPENED IN UNIT 6?

Unit 6 focused on the emergence of humans as part of the Big History story. We learned:

- What physical adaptations have made us different from our primate cousins.
- What role human language plays in collective learning.
- How collective learning allows us to pass knowledge from one generation to the next.
- How the first humans lived.



KEY CONTENT

THRESHOLD 7— AGRICULTURE

Video



- Humans first began to practice agriculture in the Fertile Crescent, at the end of the last ice age, about 10,000 years ago.
- At this time, two conditions combined to “push” human populations to adopt agriculture. First, the Earth was warming, which impacted plant and animal populations and gave humans confidence they could harvest plants in an area year after year. And second, human populations were growing, which put pressure on humans to find new sources of food.
- Agriculture is often referred to as the “domestication” of plants and animals. In this context, the word domestication means the process by which humans breed a population of plants or animals to make them more productive, easier to control, or more beneficial to humans in other ways. The changes that humans make in these plants or animals typically result in genetic changes in those plants and animals and dependence on humans for future survival.
- Growing plants, as opposed to just picking what grew naturally, gave humans access to more of the Sun’s energy by tapping into the process of photosynthesis. This resulted in an energy bonanza for humans.





THRESHOLD

AGRICULTURE

Up until about 11,000 years ago, humans—who had spread throughout the world—survived by foraging for food. Everything changed when certain groups of humans began to farm. Populations exploded. Societies became more diverse. Collective learning accelerated.

1 MILLION YEARS AGO

5000 YEARS AGO

1000 YEARS AGO



THRESHOLD

AGRICULTURE

INGREDIENTS

Increasingly dense human communities

Knowledge about the environment

Accumulated through collective learning over many generations



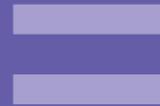
GOLDBLOCKS CONDITIONS

Warmer climates after the last ice age

Enable the proliferation of plants and animals in many regions

Increasing competition for resources

Forces foragers to find ways to increase production from their environments



NEW COMPLEXITY

Domestication of plants and animals

Increases access to food and energy sources

Villages, cities, and agrarian civilizations

Generate new social systems and complex infrastructures

Enable rapid acceleration of collective learning and even greater innovation

WHY WAS AGRICULTURE SO IMPORTANT?

Video / David Christian



- Farming is different from foraging. Farmers select a small number of plant and animal species, tend to them very carefully, and keep them in protected environments.
- The earliest evidence of farming is from Mesopotamia and Egypt around 11,000 years ago.
- Farming appears to have developed independently in China and Papua New Guinea around 8,000 years ago, and also in West Africa and the Americas about 4,000 years ago.
- Farming probably developed as a result of two factors:
 - Population growth spurred the need for more food by human populations.
 - Climate changes at the end of the last ice age resulted in other larger-scale environmental changes, which made farming possible in areas with human populations.



JACQUELINE HOWARD PRESENTS: THE HISTORY OF DOMESTIC ANIMALS

Video / Jacqueline Howard



- Humans first domesticated dogs prior to the development of agriculture 10,000 years ago.
- Early dogs developed into the breeds that we see now through the process of artificial selection.
- After dogs, we went on to domesticate cows, sheep, goats, camels, horses, oxen, and other livestock.
- These beasts of burden gave an advantage to populations in Afro-Eurasia because of their usefulness in farming and trade.
- Domesticated animals in the Americas included llamas, turkeys, and guinea pigs, none of which could be used as working animals.



COLLECTIVE LEARNING (PART 2)

Article / David Christian



- Collective learning accelerated with the appearance of agrarian civilizations because:
 - Population growth meant there were larger networks of people and more possibilities for exchanging information.
 - Division of labor helped create diversity of thought and increased the amount of information available.
- Uneven information flows led to an uneven distribution of wealth and power, with those at the top of the social structure having the best connections and the most access to information.





WHAT'S FOR DINNER TONIGHT? EVIDENCE OF EARLY AGRICULTURE – THE FIRST FARMERS

Article / Anita Ravi



- According to Susan Douglass, historian and senior researcher at George Mason University, there are four factors archaeologists use to determine where to dig:
 - People have dug there before.
 - The climate and social conditions make discovery of a site very likely.
 - Available financial and human resources.
 - Cultural preferences for studying sites in one part of the world over another.
- What kinds of evidence do archeologists look for that tell them past inhabitants were farming?
 - Large quantities of pottery
 - Vast varieties of seeds—shows that individuals were experimenting with different plant-cultivation techniques
 - Eel traps found in Australia—near ponds and canal systems used to cultivate eel populations.
- Archaeologists and other scientists have used artifacts they've found as evidence to give logical accounts of how people lived and farmed 9,000 to 6,000 years ago.
- These scientists have created new technologies to gather this evidence and support their claims.
- As a result, we now know with some confidence that people all around the globe were developing new ways to put food on the table for their growing, sedentary populations.



WHERE AND WHY DID THE FIRST CITIES AND STATES APPEAR?

Video / David Christian



- After learning to domesticate plants and animals, humans began to take advantage of animals to provide power, transportation, and products such as wool and milk.
- Because farming allowed them to settle in one place, humans also began to live a sedentary lifestyle.
- Specialization developed because not all humans needed to hunt or gather.
- Hierarchies emerged as societies organized around their specializations.
- Humans began to build monumental architecture.



COMPARING CIVILIZATIONS

Articles / Cynthia Stokes Brown



- In this series, Cynthia Stokes Brown and David Baker introduce agrarian civilizations and provide examples, describing the characteristics that made each civilization unique.
 - With the development of agriculture, people could live in more bigger, more dense groupings. Cities might have tens of thousands of people living in them. Agrarian civilizations tended to have even bigger populations than cities and controlled much larger areas of land.
 - Early cities like Jericho and Uruk depended on agriculture to feed their people. The inhabitants developed complex ways of life that included specialists, social hierarchy, monumental architecture and many other.
 - In Mesoamerica, the Olmecs, Mayans, and Aztecs developed complex ways of life that shared many common traits including writing, calendars, a ball game, step pyramids, complex farming, and trade.
 - Agrarian civilizations in East Asia were dramatically influenced by their geographical settings such as the flooding of the Yellow River in China.
 - Greece was a series of independent states for much of its history. In Italy, powerful Roman rulers were able to unite the peninsula and then conquer vast neighboring territories in Europe, Asia, and Africa.
 - African civilizations, in general, got a late start, spreading independently from East Africa as well as from West Africa. Aksum, in the east, rose to become a great power in the ancient world because it formed a crucial link between east and west on the supercontinent of Afro-Eurasia. In the west, the Ghana Empire revolutionized trans-Saharan trade through the domestication of camels and grew rich due to its proximity to major gold fields and major trade networks like the Silk Roads.





'WE'RE NOT IN KANSAS ANYMORE': THE EMERGENCE OF EARLY CITIES

Article / Anita Ravi



- Most of the world's largest cities were established in the Middle East by 2250 BCE.
- What can we learn about early cities from archeological evidence?
 - Olmec heads of Mesoamerica tell us that the Olmec society had evolved to create specialized roles to cut, carve and transport large boulders over tremendous distances. The heads were clearly valued by the elite, and possibly the clergy, because they had to organize this whole effort. Stone carvers, toolmakers, laborers, artists, rulers, and religious clergy all had to work together to make this happen.
- What can we learn about early cities from written texts?
 - Can learn about early ways of life, systems of law. (ex. Hammurabi's Code in Babylon)
- Religion and laws were designed by humans to create order in daily life.
- These laws were probably written by a small group of elites who rose to rule these cities, and maintaining a social hierarchy was extremely important to them.





THE ORIGIN OF WORLD RELIGIONS

Article / Anita Ravi



- Most of the large-scale, world religions developed around the same time—between 1200 BCE and 700 CE.
- As a result of increasing commercial and cultural interaction between people across large areas, religions were shared.
- Common features of these religions are the following: there is usually a founding man who receives the word of God; there is a key text or set of texts that defines man’s relationship with God; there are recommended ways of living and worshipping; people come together regularly to have God’s word interpreted for them by an authority; and there is a path to self-transformation and eternal salvation in one way or another.
- Religion provided structure and meaning for large groups of people in ways that small, tight-knit village communities used to do. Religion provided stability in cities and appealed to many different people from all social classes and occupations.
- Urban dwellers, and particularly poor, marginal persons, found that authoritative religious guidance, shared faith, and mutual support among congregations of believers could substitute for the tight-knit custom of village existence (within which the rural majority continued to live) and give meaning and value to ordinary lives, despite daily contact with uncaring strangers.



INTRODUCTION TO HISTORY

Video / Bob Bain



- Bob Bain is a professor of education and history at the University of Michigan.
- History is typically defined as the study of the past. To study of the past historians need to focus on questions and evidence. They must come up with questions about the past and gather evidence to answer these questions.
- In some ways studying history is a lot like trying to solve mysteries. Once something happens, it's gone. Only “residue,” various kinds of evidence, is left behind for the detective or historian to ponder. The mystery can only be solved or historical event explained if the detective/historian asks the right questions and finds the necessary evidence to answer it.
- Science is different from history in some important ways. Scientists asks questions and design experiments or plan observations to test their hypotheses. Repeating experiments and observations gives them confidence about their conclusions. Historians ask questions, but they must rely on the analysis of artifacts and written evidence to answer their them. They can't perform and repeat experiments.
- There are many types of historians, and their questions differ depending on the field of history they work in. For example, the questions that a environmental historian asks are going to be different from the questions of an economic historian.



RECORDKEEPING AND HISTORY

Article / David Christian



- Many species have ways of tracking the past, but only humans have writing.
 - Plants and animals can track the past. Trees, for example, create tree rings, but creating a ring each year is not the same as remembering abstract ideas or origin stories.
 - Humans can use language and writing to record ideas and make them accessible without an individual person having to memorize them.
- For a long time, humans could only transmit their ideas orally. This required people to memorize the ideas or records, and then pass them on to someone else.
- Writing allowed humans to remember and record much more information than any one human could pass on orally. Once the information was recorded in a permanent way, a person was not required to remember it to keep it in the collective learning of the human community.
- Historians depend on written records. Historians use them to help answer the questions they have about what happened in the past.





MIGRATIONS & INTENSIFICATION – CRASH COURSE

Video / Crash Course



- After the bottleneck event that was the eruption of Mt. Toba 74, 000 years ago, human populations migrated eventually populating all four world zones: Afro-Eurasia, the Americas, Australasia, and the Pacific.
- Why did humans develop agriculture? The Garden of Eden theory postulates that the warming of the Earth created lush ecosystems that stopped humans from having to migrate. Another theory is that after humans settled into certain areas, they depleted the resources that were there and had to start farming to maintain their population.
- Agriculture was incredibly hard work and the spread of diseases became problematic. On the positive side, populations grew because more people could be supported using much less land, and this greatly increased collective learning.
- Agriculture first emerged in the Fertile Crescent and Egypt, around 11,000 years ago; then in East Asia and Papua New Guinea, around 9,000 years ago; then in the Americas and West Africa, around 5,000 years ago. The emergence of states basically followed the same pattern as the emergence of agriculture, with the exception of Papua New Guinea.
- Hobbes versus Rousseau debate: Thomas Hobbes viewed life without state control as nasty, brutish, and short, while Jean-Jacques Rousseau viewed life largely as egalitarian, but corrupted by societal structures.
- Hank claims the quest for sufficient matter and energy to survive and reproduce is an underlying theme in all of human history.
- With increased food production to support life, populations rose. With more people, you have more innovation: things like writing were created, and knowledge was shared more widely, which created a continuing cycle of more knowledge, more people, more innovations, and so on.
- Humans would reproduce until the carrying capacity of the environment was strained, and then there would often be a population decline caused by disease and famine. Once things normalized, humans would again reproduce at high levels and repeat this cycle of population decline and rise.





THE ORIGIN OF AGRICULTURE IN AFRICA

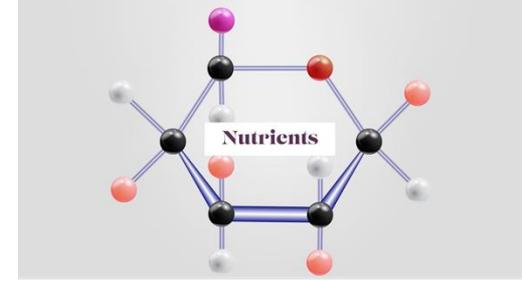
Article / David Baker

- As long as humans have existed, some of them have always called Africa home.
- Shouldn't Africa, then, have been the place where agriculture found its roots, instead of the Fertile Crescent?
- The fact that Africa was the cradle of our civilization actually prevented it from developing agriculture first.
- Since the entirety of human history had been spent on the continent, humans became extremely well-adapted to African conditions and were able to hold out as foragers for much longer.
- Once agriculture was established in West Africa, around 3000 BCE, it spread quickly and led to population growth in larger, agrarian civilizations.



FUNDAMENTALS OF NUTRIENTS AND THE HISTORY OF NUTRITION

Video / Maya Adam



- Food is essential for life but agreeing on the right foods to eat is much more complex. We know that we need certain macronutrients to be healthy but focusing on the nutrients alone is not the answer to good health. Rather, we must focus on the nutrients in the food that we eat, as eating supplements or nutrients alone does not provide us with all that we need to survive.
- Humans need a mixture of carbohydrates, proteins, and fats to maintain good health. Deciding on the right percentages of these three nutrients is much more difficult.





PROTEIN-RICH DIET HELPS GORILLAS KEEP LEAN

Article/ Sindya N. Bhanoo



- Studying our primate cousins can provide essential information on how the human diet could improve.
- Gorillas in Uganda survive on a mixture of protein-rich leaves and fruits, but when the fruits are unavailable then the gorillas protein intake increases substantially. When they eat a more protein-rich diet, the gorillas keep lean.
- Since the dawn of agriculture, humans have increasingly relied on foods rich in sugars, starches, and fats rather than diets rich in protein. When the protein levels in our foods are reduced then we overeat to make up for this lack of protein. This is one factor that leads to the obesity epidemic we are currently experiencing.





FOR MOST PEOPLE, EATING BUGS IS ONLY NATURAL

Article/ Sharon Guynup and Nicolas Ruggia



- Humans have been eating bugs for thousands of years. The Ancient Greeks wrote about the best ways to harvest bugs and Old Testament writers encouraged bug consumption. In many areas of the world, bugs are still an important source of protein in the human diet.
- However, in Western countries, the idea of eating bugs is considered just plain gross. Scientists have shown how we could improve our diets and help save the environment by adding more bugs to our diets.





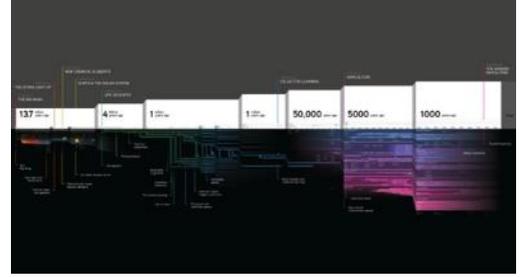
THE REAL PALEO DIET

Video / SciShow

- The premise behind the Paleo Diet is that humans weren't meant to eat all of the processed foods that we are currently eating and so we should return to a diet like that of early hunter-gatherers.
- The problem with this is that all hunter-gatherer communities had different diets based upon what was available in their local area. So how can we then really know what to eat considering foods that weren't found in certain continents became staple crops there after the Columbian Exchange? Or that over the years humans have genetically modified certain fruits, vegetables, and animals to suit our needs.
- Couple this with the fact that our bodies have also changed since the Paleolithic Era and we're going to have even more problems trying to recreate that Paleo Diet.



LOOKING AHEAD



WHAT'S NEXT?

In Unit 8, we will focus on the expansion of agrarian civilization and the growing connections between the world's four major zones. We will learn:

- How innovation and collective learning helped people from distant world zones connect and interact with one another.
- How systems of exchange and trade made the world a smaller place.
- How the Afro-Eurasian world zone gained power.
- About the stories, new ideas, and new technologies explorers brought home with them after they traveled to far corners of the world.

