

2 Humans Try to Control Nature

TERMS & NAMES

- nomad
- hunter-gatherer
- Neolithic Revolution
- slash-and-burn farming
- domestication

MAIN IDEA

The development of agriculture spurred an increase in population and the growth of a settled way of life.

WHY IT MATTERS NOW

New methods for obtaining food and the development of technology laid the foundations for modern civilizations.

SETTING THE STAGE By about 40,000 years ago, human beings had become fully modern in their physical appearance. With a shave, a haircut, and a suit, a Cro-Magnon man would have looked like a businessman. However, over the following thousands of years, the human way of life underwent incredible changes. People developed new technology, artistic skills, and most importantly, agriculture.

Achievements in Technology and Art

Early modern humans quickly distinguished themselves from their ancestors, who had devoted most of their time to the task of survival. As inventors and artists, more advanced humans stepped up the pace of cultural changes.

SPOTLIGHT ON

The Iceman's Tool Kit

In 1991, a German couple made an accidental discovery. It gave archaeologists a firsthand look at the technology of early toolmakers. Near the border of Austria and Italy, the two hikers spotted the mummified body of a prehistoric traveler, preserved in ice for some 5,000 years.

Nicknamed the "Iceman," this early human was not empty-handed. The tool kit found with him included a six-foot longbow and a deerskin case with 14 arrows. It also contained a stick with an antler tip for sharpening flint blades, a small flint dagger in a woven sheath, and a copper ax. Unfortunately, officials damaged both Iceman's belongings and his body as they tried to remove him from the ice.

A New Tool Kit For thousands of years, men and women of the Old Stone Age were nomads. **Nomads** wander from place to place, rather than making permanent settlements. These highly mobile people were always searching for new sources of food. Nomadic groups whose food supply depends on hunting animals and collecting plant foods are called **hunter-gatherers**. Prehistoric hunter-gatherers, such as roving bands of Cro-Magnons, increased their food supply by inventing tools. For example, hunters crafted special spears that enabled them to kill game at greater distances. Digging sticks helped food gatherers pry plants loose at the roots.

Early modern humans had launched a technological revolution. They skillfully used stone, bone, and wood to fashion more than 100 different tools. These expanded tool kits included knives to kill and butcher game and fish hooks and harpoons to catch fish. A chisel-like cutter was designed to make other tools. Cro-Magnons used bone needles to sew clothing made of animal hides.

Paleolithic Art The tools of early modern humans explain how they met their survival needs. Yet their world best springs to life through their artistic creations. Necklaces of seashells, lion teeth, and bear claws adorned both men and women. People ground mammoth tusks into polished beads. They also carved small realistic sculptures of animals that inhabited their world.

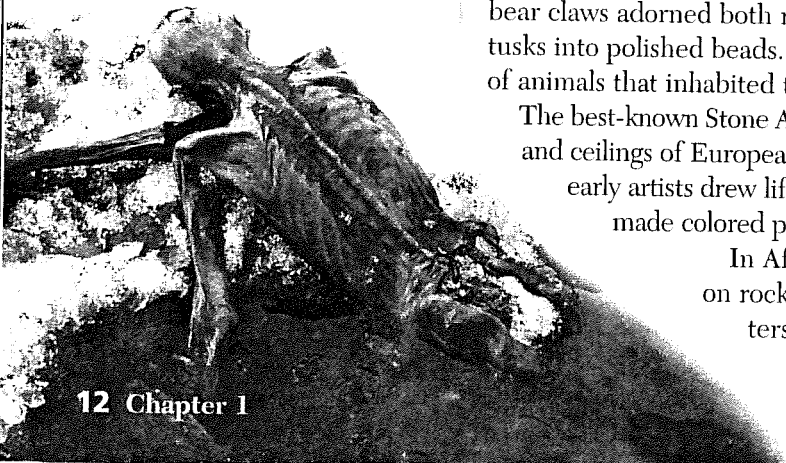
The best-known Stone Age works of art are the paintings on the walls and ceilings of European caves, mainly in France and Spain. Here early artists drew lifelike images of wild animals. Cave artists made colored paints from charcoal, mud, and animal blood.

In Africa, early artists engraved pictures on rocks or painted scenes in caves or rock shelters. In Australia, they created paintings on large rocks.

THINK THROUGH HISTORY

A. Making

Inferences How did Cro-Magnons' new tool kit make the task of survival easier?



Cave Painting

Prehistoric paintings probably served a more meaningful role than just showing vivid scenes from daily life. They may have represented religious beliefs. Early artists may have also hoped their images had magical power that would bring hunters good luck. Perhaps some paintings acted as a kind of textbook to help young hunters identify various animals. The use of pictures to communicate information represents an important first step in the development of writing.

Algeria

Farming and herding gradually replaced hunting as a means of getting food. This African cave painting from Algeria shows women and children tending cattle. The white rings—symbols for huts—illustrate an early version of signs used in writing.



France

Stampeding wild horses and bison seem to come alive in this prehistoric painting below from Lascaux Cave in France. After viewing such striking scenes, the world-famous, 20th-century artist Picasso reportedly said, "We have learned nothing."



Australia

This rock painting from Australia features two humanlike figures holding up their hands. Early artists used stencils to create these outstretched hands, which commonly appear in Australian rock art.

Connect to History

Comparing What do you think is the purpose of each of these paintings?

SEE SKILLBUILDER HANDBOOK, PAGE R7

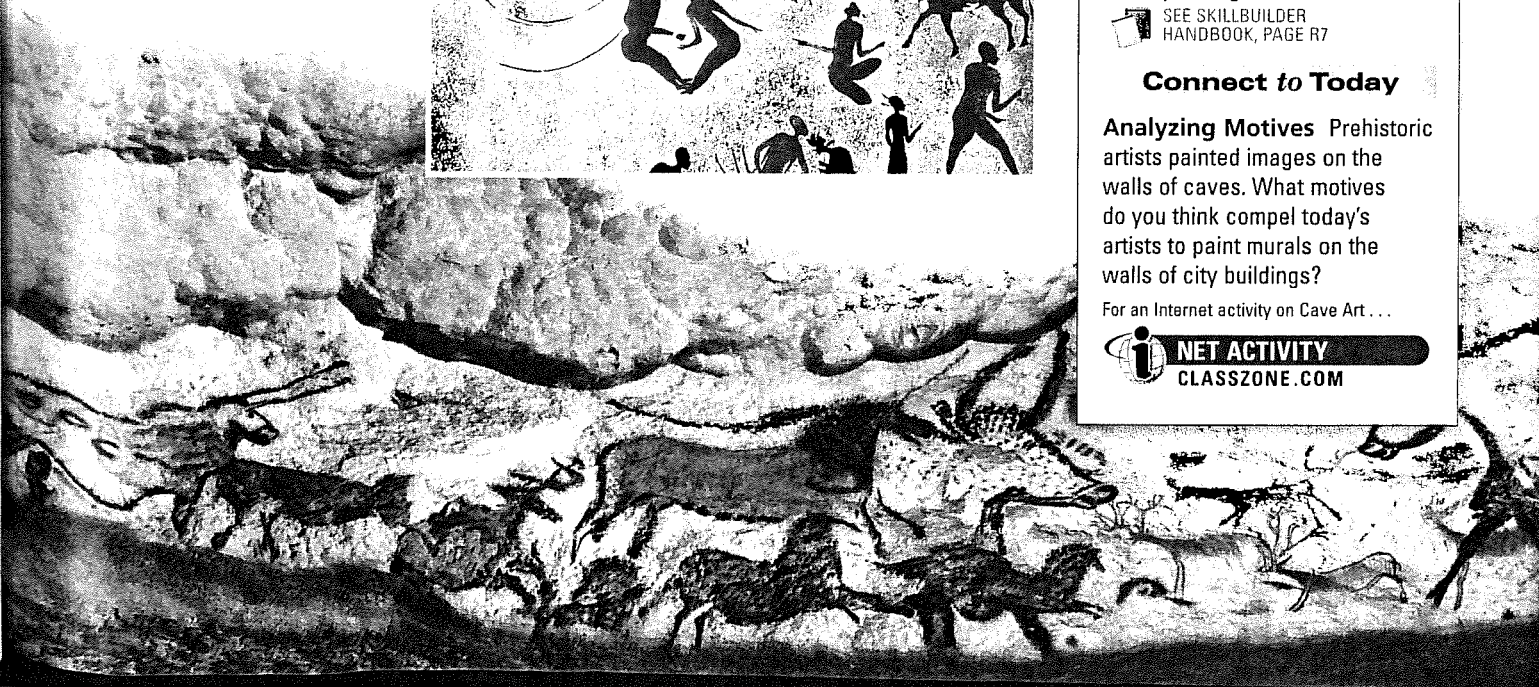
Connect to Today

Analyzing Motives Prehistoric artists painted images on the walls of caves. What motives do you think compel today's artists to paint murals on the walls of city buildings?

For an Internet activity on Cave Art . . .



NET ACTIVITY
CLASSZONE.COM



The Neolithic Revolution

For thousands upon thousands of years, humans survived by hunting game and gathering edible plants. They lived in bands of no more than two dozen to three dozen people. The men almost certainly did the hunting. The women gathered fruits, berries, roots, and grasses. Then about 10,000 years ago, some of the women may have scattered seeds near a regular campsite. When they returned the next season, they may have found new crops growing. This discovery would usher in the **Neolithic Revolution**, or the agricultural revolution—the far-reaching changes in human life resulting from the beginnings of farming. The shift from food-gathering to food-producing culture represents one of the great breakthroughs in history.

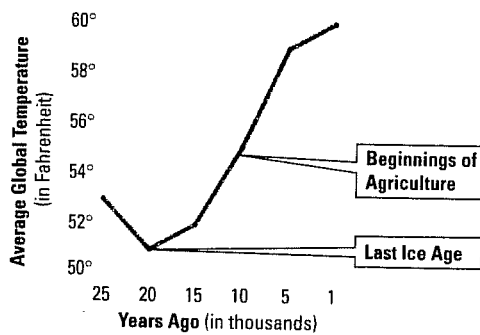
Causes of the Agricultural Revolution Scientists do not know exactly why the agricultural revolution occurred during this period. Change in climate was probably a key factor. Rising temperatures worldwide provided longer growing seasons and drier land for cultivating wild grasses. A rich supply of grain helped support a small population boom. As populations slowly rose, hunter-gatherers felt pressure to find new food sources. Farming offered an attractive alternative. Unlike hunting, farming provided a steady source of food.

Vocabulary
edible: safe to eat

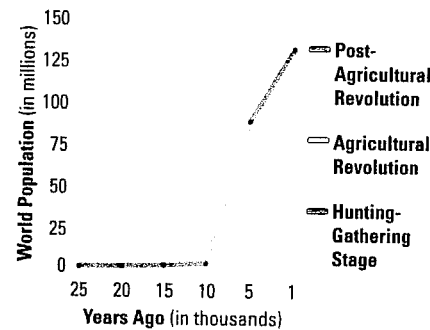
Background
The agricultural revolution caused a dramatic change in human diet. Hunter-gatherers consumed about 80 percent meat and 20 percent plant foods. The agricultural revolution reversed these percentages.

Agricultural Revolution

Temperature



Population



SKILLBUILDER: Interpreting Charts

1. How was the agricultural revolution linked to a change in temperature?
2. What effect did the agricultural revolution have on population growth? Why?

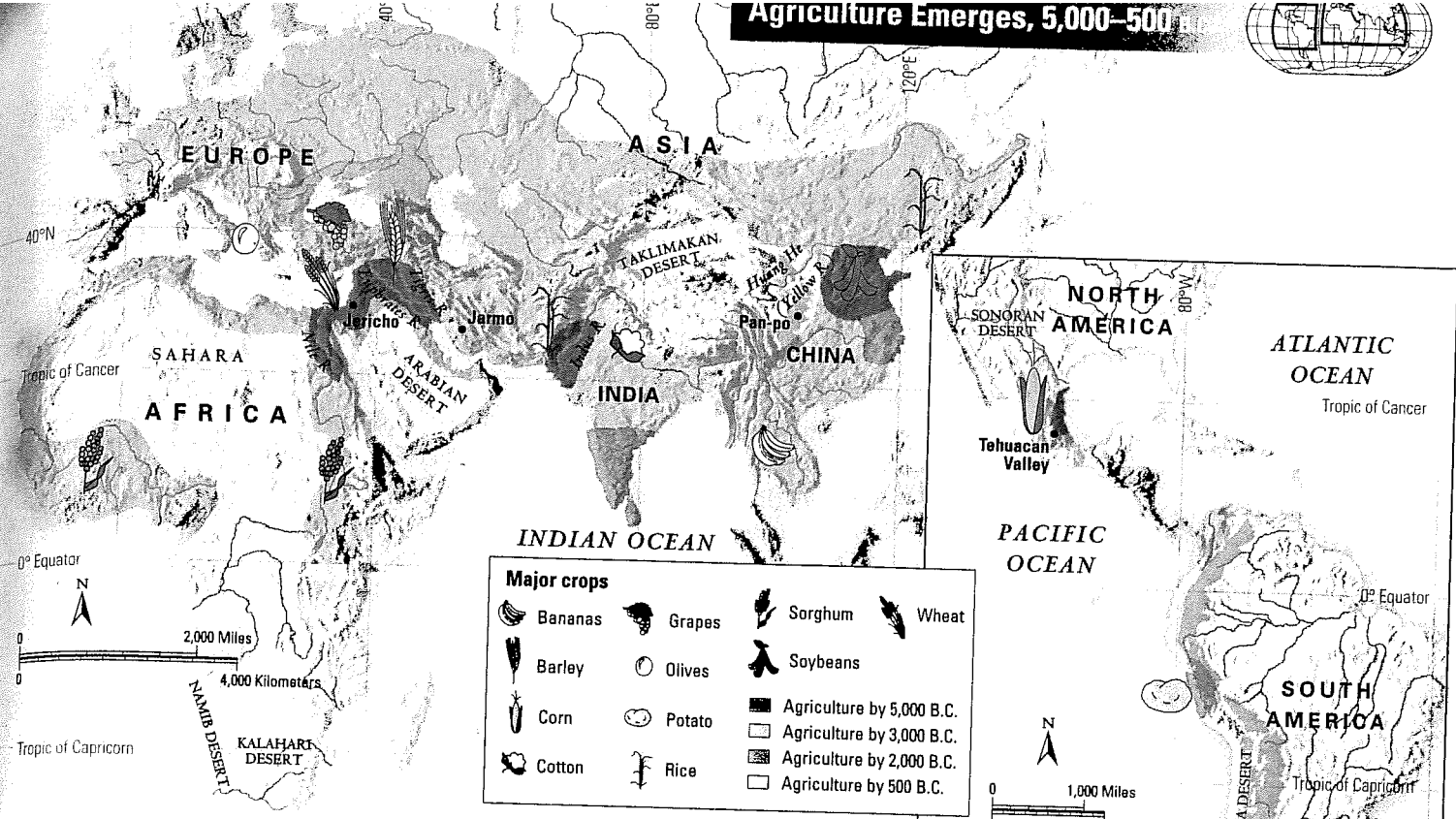
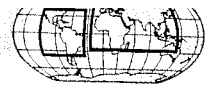
Early Farming Methods Some groups practiced **slash-and-burn farming**, in which they cut trees or grasses and burned them to clear a field. The remaining ashes fertilized the soil. Farmers planted crops for a year or two. Then they moved on to another area of land. After several years, the trees and grass grew back, and other farmers repeated the process of slashing and burning.

Domestication of Animals Food gatherers' understanding of plants probably spurred the development of farming. Meanwhile, hunters' expert knowledge of wild animals likely played a key role in the **domestication**, or the taming of animals. They tamed horses, dogs, goats, and pigs. Like farming, domestication of animals came slowly. Stone Age hunters may have driven herds of animals into rocky ravines to be slaughtered. It was then a small step to drive herds into human-made enclosures. From there, farmers could keep the animals as a constant source of food and gradually tame them.

Not only farmers domesticated animals. Pastoral nomads, or wandering herders, tended sheep, goats, camels, or other animals. These herders moved their animals to new pastures and watering places.

Revolution in Jarmo Today the eroded and barren rolling foothills of the Zagros Mountains in northeastern Iraq seem an unlikely site for the birthplace of agriculture.

Background
Dogs were probably the first domesticated animals, serving as pets and hunting companions. The oldest discovery of human and dog fossils found together dates back to roughly 8000 B.C.



GEOGRAPHY SKILLBUILDER: Interpreting Maps

1. **Location** On which continent were most of the earliest agricultural sites located?
2. **Place** What geographic feature favored the development of agricultural areas before 5000 B.C.?

According to archaeologist Robert Braidwood, thousands of years ago, the environmental conditions of this region favored the development of agriculture. Wild wheat and barley, along with wild goats, pigs, sheep, and horses, had once thrived near the Zagros Mountains.

During the early 1950s, Braidwood conducted an archaeological dig at a site called Jarmo. He concluded that its residents first established this agricultural settlement about 9,000 years ago:

A VOICE FROM THE PAST

We found weights for digging sticks, hoe-like [tools], flint-sickle blades, and a wide variety of milling stones. . . . We also discovered several pits that were probably used for the storage of grain. Perhaps the most important evidence of all was animal bones and the impressions left in the mud by cereal grains. . . . The people of Jarmo were adjusting themselves to a completely new way of life, just as we are adjusting ourselves to the consequences of such things as the steam engine. What they learned about living in a revolution may be of more than academic interest to us in our troubled times.

ROBERT BRAIDWOOD, quoted in *Scientific American*

The farmers at Jarmo, and others like them in places as far apart as Mexico and Thailand, were pioneering a new way of life. Villages such as Jarmo marked the beginning of a new era and laid the foundation for modern life.

Villages Grow and Prosper

The changeover from hunting and gathering to farming and herding took place not once, but many times. Neolithic people in many parts of the world independently developed agriculture.

THINK THROUGH HISTORY
B. Making Inferences

What evidence discovered at Jarmo shows how farming created new technological needs?

Farming Develops in Many Places Within a few thousand years, people in many other regions worldwide, especially in fertile river valleys, turned to farming:

- **Africa** The Nile River Valley developed into an important agricultural center for growing wheat, barley, and other crops.
- **China** About 8,000 years ago, farmers along the middle stretches of the Huang He cultivated a grain called millet. About 1,000 years later, Neolithic farmers first domesticated wild rice in the Chang Jiang River delta.
- **Mexico and Central America** Farmers cultivated corn, beans, and squash.
- **Peru** Farmers in the Central Andes were the first to grow tomatoes, sweet potatoes, and white potatoes.

From these early centers of agriculture, farming spread to surrounding regions.

Catal Huyuk The agricultural village now known as Catal Huyuk (chuh-TUL hoo-YOOK) was located on a fertile plain in south-central Turkey. The village showed the benefits of settled life. Farmers there produced large crops of wheat, barley, and peas. Villagers also raised sheep and cattle.

Many highly skilled workers, such as potters and weavers, worked in Catal Huyuk. The village was best known for its obsidian products. This dark volcanic rock looks like glass. It was used to make mirrors, jewelry, and knives for trade.

At its peak 8,000 years ago, Catal Huyuk was home to about 6,000 people.

Its prosperity supported a varied cultural life. Archaeologists have uncovered colorful wall paintings depicting animals and hunting scenes. Many religious shrines were dedicated to a mother goddess. According to her worshipers, she controlled the supply of grain.

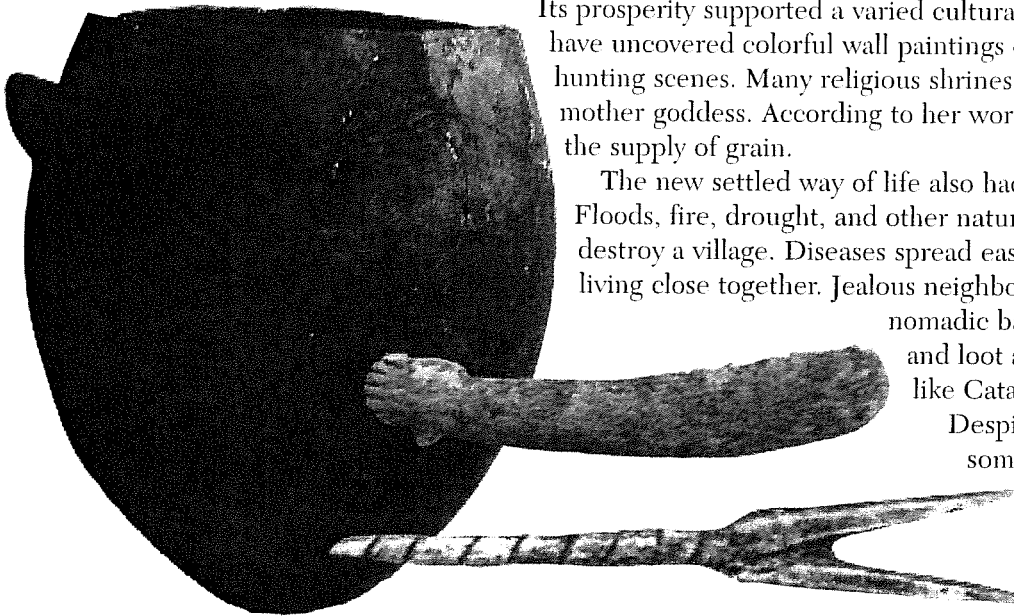
The new settled way of life also had its drawbacks. Floods, fire, drought, and other natural disasters could destroy a village. Diseases spread easily among people living close together. Jealous neighbors and roving

nomadic bands might attack and loot a wealthy village like Catal Huyuk.

Despite these problems, some early villages

expanded into cities that would become the setting for more complex cultures.

These cooking utensils—a pot, a bone spatula, and a fork—are from a kitchen in Catal Huyuk. They provide a glimpse of the settled life in new agricultural communities.



THINK THROUGH HISTORY

C. Evaluating

What advantages did farming and herding have over hunting and gathering?

Vocabulary

shrines: places where sacred relics are kept

Section 2 Assessment

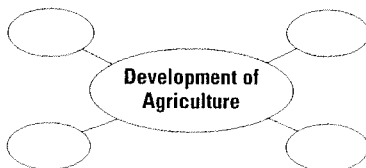
1. TERMS & NAMES

Identify

- nomad
- hunter-gatherer
- Neolithic Revolution
- slash-and-burn farming
- domestication

2. TAKING NOTES

Using a web diagram like the one below, show the effects of the development of agriculture.



Choose one effect and write a paragraph about it.

3. HYPOTHESIZING

Why do you think the development of agriculture occurred around the same time in several different places?

THINK ABOUT

- the migrations of early peoples
- changes in the earth's climate
- a rise in human population

4. THEME ACTIVITY

Science and Technology

Create a chart explaining new tools, utensils, and other artifacts that archaeologists would likely find at the site of a permanent farming settlement. Use information from the text on Jarmo and Catal Huyuk to make your list of objects.