

CHAPTER
1

The Peopling of the World,

Prehistory – 2500 B.C.

Connect History *and* Geography

Archaeologists believe that the first human ancestors, or hominids, emerged in Africa around four million years ago. By 1,000,000 B.C., one of these early human species, called *Homo erectus*, had begun to migrate. The map at the right shows the various paths that *Homo erectus* took as they spread around the world. Use the map to help you answer the following questions.

1. Where did the migrations begin?
2. What paths did the migrations take?
3. Which sites were directly on rivers? Why might they have been located there?

For more information about human prehistory, the development of civilization, and related topics . . .



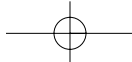
A Sumerian queen wore this gold headdress.

4,000,000 B.C.

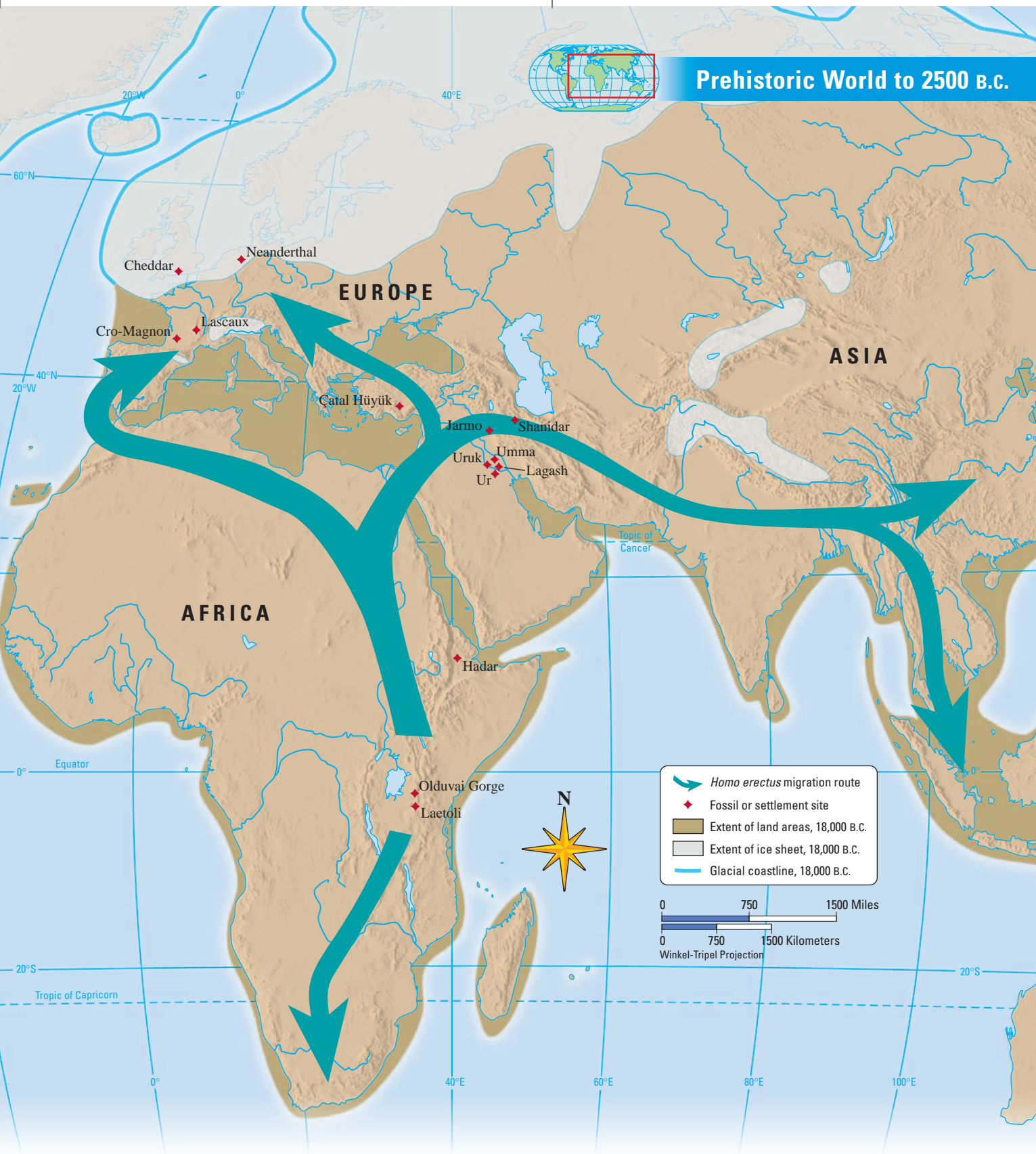
First hominids appear in Africa.

2,500,000 B.C.

Paleolithic Age begins.



Prehistoric World to 2500 B.C.



1,600,000 B.C.
Homo erectus appears.

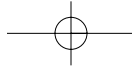
40,000 B.C.
 Cro-Magnons appear.

8000 B.C.
 Neolithic Age begins;
 first agriculture takes place.

3000 B.C.
 Bronze Age begins
 in Mesopotamia.

2600 B.C.
 City of Ur
 flourishes in Sumer.

2500 B.C.



Interact *with* History

You have joined a team of scientists on an expedition to an ancient site where early humans once lived. The scientists' goal is to search for evidence that might unlock the mysteries of the past.

You're an eyewitness to their astounding discovery—human-made tools around 5,000 years old.



This small sharp-tipped tool is made of bone.

X-rays indicate that the wedge-shaped blade of this tool is made of copper. Birch tar, a gummy substance from the bark of a tree, binds the blade to a 2-foot-long wooden handle partially wrapped with strips of animal hide.



What were these tools used for?

1.5
inches



3
inches

Roughly the size of an arrowhead, the 1.5-inch tip of this hand-held tool is made of flint, a very hard rock. The wooden handle is about 3 inches long.

EXAMINING *the* ISSUES

- What did early humans need to do to survive?
- What physical actions would these tools help humans do?
- What materials did early humans use from their physical environment to make these tools?
- What modern tools do these early tools resemble?

As a class, discuss these questions. In your discussion, think about recent tools and inventions that have dramatically changed people's daily lives.

As you read about the ancestors of present-day humans, notice how early toolmakers applied their creativity and problem-solving skills.



1 Human Origins in Africa

TERMS & NAMES

- artifact
- culture
- hominid
- Paleolithic Age
- Neolithic Age
- technology
- *Homo sapiens*

MAIN IDEA

Fossil evidence shows that the earliest humans originated in Africa.

WHY IT MATTERS NOW

Early humans' discoveries helped them survive, grow in numbers, and spread across the globe.

SETTING THE STAGE What were the earliest humans like? Many people have asked themselves this question. Because there are no written records of prehistoric peoples, scientists have to piece together information about the past. Teams of scientists use a variety of research methods and techniques to learn more about how, where, and when early humans developed. Interestingly, recent discoveries provide the most knowledge about human origins and the way prehistoric people lived. Yet the picture of prehistory is still far from complete.

Scientists Search for Human Origins

Written documents provide a window to the distant past. For several thousand years, people have recorded information about their beliefs, activities, and important events. Prehistory, however, dates back to the time before the invention of writing—roughly 5,000 years ago. Without access to written records, scientists investigating the lives of prehistoric peoples face special challenges.

Scientists Discover Clues Specially trained scientists work like detectives to uncover the story of prehistoric peoples. Archaeologists are scientists who learn about early people by excavating and studying the traces of early settlements. An excavated site, called an archaeological dig, provides one of the richest sources of clues to the prehistoric way of life. Archaeologists sift through the dirt in a small plot of land. They analyze all existing evidence, such as bones and artifacts. Bones might reveal what the people looked like, how tall they were, and how long they lived. **Artifacts** are remains, such as tools, jewelry, and other human-made objects. These items might hint at how people dressed, what work they did, or how they worshiped.

Scientists called anthropologists study **culture**, or people's unique way of life. Anthropologists examine the artifacts at archaeological digs. From these, they re-create a picture of early people's cultural behavior, including customs, family life, and social relationships.

Other scientists, called paleontologists, study fossils—evidence of early life preserved in rocks. Human fossils often consist of small fragments of teeth, skulls, or other bones. Paleontologists use complex techniques to date ancient fossil remains and rocks. Archaeologists, anthropologists, paleontologists, and other scientists work as a team to make new discoveries about how prehistoric people lived.

Mary Leakey Finds Footprints In the mid-1970s, Mary Leakey, an archaeologist, led a scientific expedition to the region of Laetoli in Tanzania, an East African nation. There she and her team looked for new clues about human origins. In 1978, they made an amazing discovery. They found prehistoric footprints that resembled those of modern humans. These footprints were made by humanlike beings now called australopithecines (aw-STRAY-loh-PIH-thih-SYNZ). Humans and other creatures that walk

Vocabulary

excavating: uncovering by digging

THINK THROUGH HISTORY

A. Making Inferences

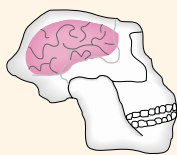
Why are scientists who study prehistory so important in providing knowledge about the distant past?



This artifact from around 200,000 B.C. is a hand ax made of flint. An all-purpose tool, the hand ax was probably a hunting weapon, chopper, scraper, and slicer.

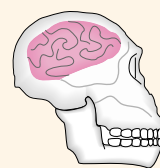


Hominid Development



Australopithecines

- 4 million to 1 million B.C.
- found in southern and eastern Africa
- brain size 500 cm³ (cubic centimeters)
- first humanlike creature to walk upright



Homo habilis

- 2.5 million to 1.5 million B.C.
- found in East Africa
- brain size 700 cm³
- first to make stone tools

4 million years ago

Australopithecines

3 million years ago

Homo habilis

HISTORY MAKERS



Mary Leakey
1913–1996

Born in London, England, Mary Leakey left a remarkable legacy in the fields of archaeology and anthropology. “She was one of the world’s great originals,” said a scientist who worked with the Leakey family on fossil hunts. Mary earned respect for her excavations and well-documented findings.

At 22, she made her first visit to East Africa. In her autobiography she reflected on her experiences there:

“I am lucky enough to have been involved for half a century with work, mostly in East Africa, that very much belongs to everyone, since it concerns the human origins that are common to the whole human race.”

upright, such as australopithecines, are called **hominids**. The Laetoli footprints provided striking evidence about the origins of humans:

A VOICE FROM THE PAST

What do these footprints tell us? First, . . . that at least 3,600,000 years ago, what I believe to be man’s direct ancestor walked fully upright with a . . . free-striding gait. Second, that the form of the foot was exactly the same as ours. . . . [The footprints produced] a kind of poignant time wrench. At one point, . . . she [the female hominid] stops, pauses, turns to the left to glance at some possible threat or irregularity, and then continues to the north. This motion, so intensely human, transcends time. . . .

MARY LEAKEY, quoted in *National Geographic*

Johanson Discovers “Lucy” While Mary Leakey was working in East Africa, American anthropologist Donald Johanson and his team were also searching for fossils. They were exploring sites in Ethiopia, 1,000 miles to the north. In 1974, Johanson’s team made a remarkable find—an unusually complete skeleton of an adult female hominid. They nicknamed her “Lucy” after the Beatles song “Lucy in the Sky with Diamonds.” She had lived around 3.5 million years ago—the oldest hominid found to date.

Hominids in Motion Lucy and the hominids who left their footprints in East Africa were species of australopithecines. Walking upright helped them travel distances more easily. They were also able to spot threatening animals and carry food and children.

These early hominids had already developed the opposable thumb. This means that the tip of the thumb can cross the palm of the hand. The opposable thumb was crucial for tasks such as picking up small objects and making tools. (To see its importance, try picking up a coin with just the index and middle fingers. Imagine all the other things that cannot be done without the opposable thumb.)

THINK THROUGH HISTORY B. Drawing Conclusions

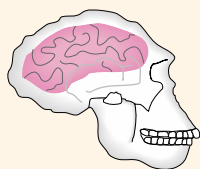
Why were the discoveries of hominid footprints and “Lucy” important?

Progress During the Old Stone Age

The invention of tools, mastery over fire, and the development of language are some of the most impressive achievements in human history. These occurred during the prehistoric period known as the Stone Age. It spanned an enormous length of time. The earlier and longer part of the Stone Age, called the Old Stone Age or **Paleolithic Age**, lasted from about 2.5 million to 8000 B.C. The oldest stone chopping tools date back to this era. The New Stone Age, or **Neolithic Age**, began about 8000 B.C. and ended as early as 3000 B.C. in some areas. People who lived during this second phase of the Stone Age learned to polish stone tools, make pottery, grow crops, and raise animals.

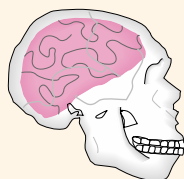
Much of the Paleolithic Age occurred during the period in the earth’s history known as the Ice Age. During this time, glaciers alternately advanced and retreated as many as 18 times. The last of these ice ages ended about 10,000 years ago. By the beginning of the Neolithic Age, glaciers had retreated to roughly the same area they now occupy.

Vocabulary
glaciers: huge masses of slowly moving ice



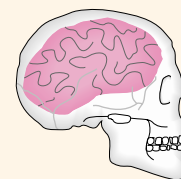
Homo erectus

- 1.6 million to 30,000 B.C.
- found in Africa, Asia, and Europe
- brain size 1,000 cm³



Neanderthal

- 200,000 to 30,000 B.C.
- found in Europe and Southwest Asia
- brain size 1,450 cm³
- first to have ritual burials



Cro-Magnon

- 40,000 to 8000 B.C.
- found in Europe
- brain size 1,400 cm³
- fully modern humans
- created art

2 million
years ago

Homo erectus

1 million years ago

Neanderthal

Cro-Magnon

Present

Homo Habilis: The First Toolmaker? Before the australopithecines eventually vanished, new hominids appeared in East Africa around 2.5 million years ago. In 1960, Mary Leakey and her husband, Louis, discovered a hominid fossil at Olduvai (OHL-duh-vay) Gorge in northern Tanzania. The Leakeys named the fossil *Homo habilis*, which means “man of skill.” Scientists jokingly called this hominid “Handy Man.” The Leakeys and other researchers found tools made of lava rock. They believed *Homo habilis* used these tools to cut meat and crack open bones. Modern archaeologists have shown that these stone blades could butcher elephant meat.

Homo Erectus Is More Intelligent About 1.6 million years ago, before *Homo habilis* left the scene, another species of hominids appeared in East Africa. This species is now known as *Homo erectus*, or “upright man.” Some anthropologists believe *Homo erectus* was a more intelligent and adaptable species than *Homo habilis*. *Homo erectus* people used intelligence to develop **technology**—ways of applying knowledge, tools, and inventions to meet their needs. Tools made the task of survival easier. These hominids gradually became skillful hunters and invented more sophisticated tools for digging, scraping, and cutting. They also eventually became the first hominids to migrate, or to move, from Africa. Fossils and stone tools show that bands of *Homo erectus* hunters settled in India, China, Southeast Asia, and Europe.

According to anthropologists, *Homo erectus* was the first to use fire. Fire provided warmth in cold climates, cooked food, and frightened away attacking animals. A band of hunters may have carried torches to drive herds of animals into marshes in order to slaughter them. The control of fire also probably helped *Homo erectus* settle new lands.

Homo erectus might also have developed the beginnings of spoken language. Language, like technology, probably gave *Homo erectus* greater control over the environment and boosted chances for survival. The teamwork needed to plan hunts and cooperate in other tasks probably relied on language. *Homo erectus* might have named objects, places, animals, and plants and exchanged ideas.

THINK THROUGH HISTORY
C. Recognizing Effects How did *Homo erectus* use fire to control the environment?

Background
Thal (as in *Neanderthal*) is the German word for valley.

CONNECT to TODAY

Cheddar Man

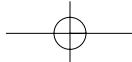
In 1997, scientists at Oxford University tested samples of DNA from a Stone Age skeleton nicknamed “Cheddar Man.” This young hunter from around 7150 B.C. was found buried in the Cheddar Caves in England.

Scientists then compared the skeleton’s samples to samples from people whose families had lived in the area for generations. The results of the genetic tests surprised Adrian Targett, a 42-year-old history teacher who participated in the study. He discovered that Cheddar Man was his ancient relative. Cheddar Man’s and Targett’s DNA were nearly identical. Scientists believe that the DNA match also proves that Britain’s native population is descended from Stone Age humans.

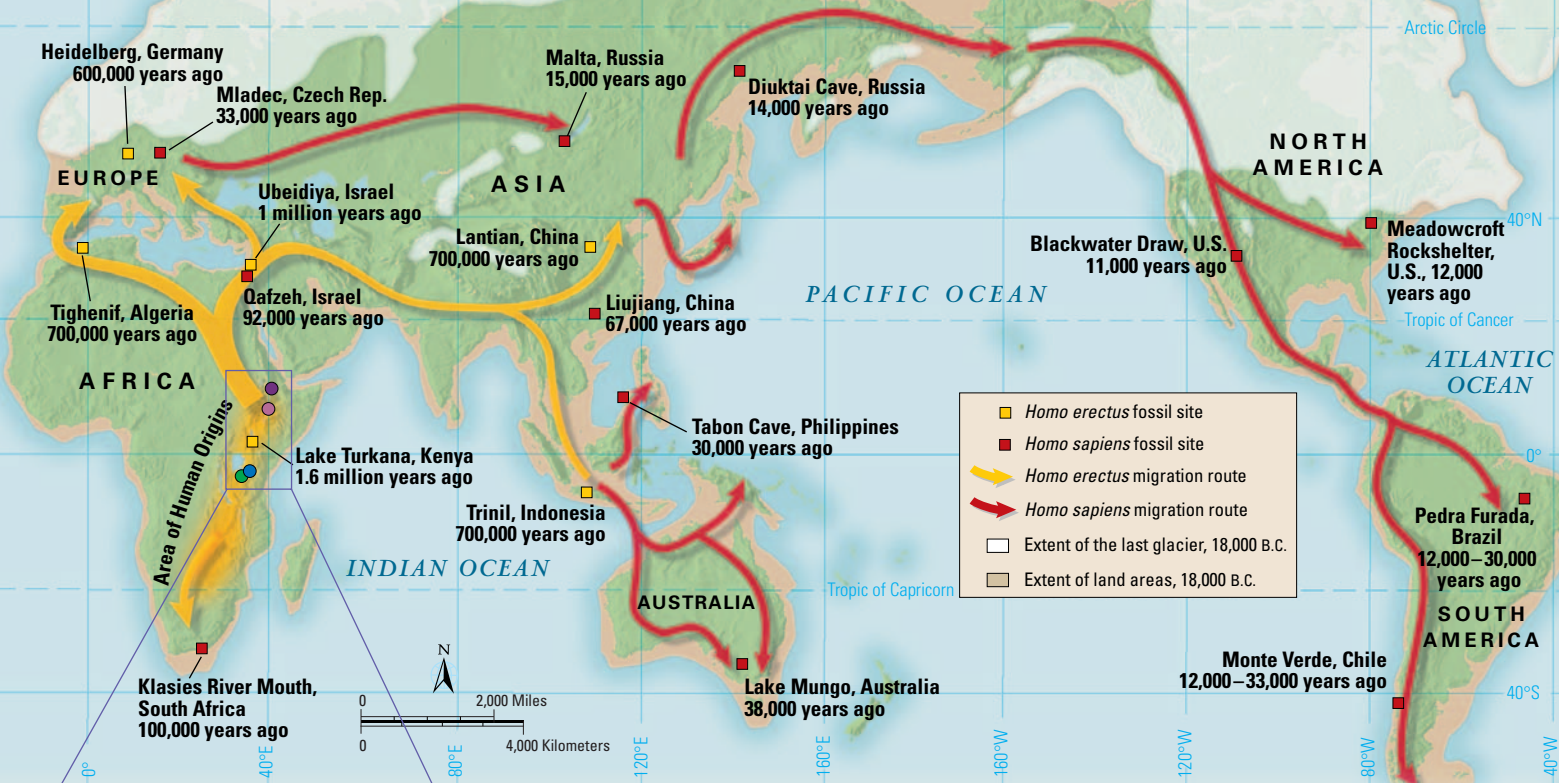
The Dawn of Modern Humans

Many scientists believe *Homo erectus* eventually developed into ***Homo sapiens***—the species name for modern humans. *Homo sapiens* means “wise men.” While they physically resembled *Homo erectus*, *Homo sapiens* had much larger brains. Scientists have traditionally classified Neanderthals and Cro-Magnons as early groups of *Homo sapiens*. However, in 1997, DNA tests on a Neanderthal skeleton indicated that Neanderthals were not ancestors of modern humans. They were, however, affected by the arrival of Cro-Magnons, who may have competed with Neanderthals for land and food.

Neanderthals’ Way of Life In 1856, as quarry workers were digging for limestone in the Neander Valley in Germany, they spotted fossilized bone fragments. These were the remains of Neanderthals, whose bones were discovered elsewhere in



Early Human Migration, 1,600,000–10,000 B.C.



Fossil Hunters

Famous Finds

- **1960** At Olduvai Gorge, Louis Leakey finds 2 million-year-old stone tools.
- **1974** In Ethiopia, Donald Johanson finds “Lucy,” a 3.5 million-year-old hominid skeleton.
- **1978** At Laetoli, Mary Leakey finds 3.6-million-year-old hominid footprints.
- **1994** In Ethiopia, an international team of scientists finds 2.33 million-year-old hominid jaw.

GEOGRAPHY SKILLBUILDER: Interpreting Maps

- 1. Movement** To what continents did Homo erectus groups migrate after leaving Africa?
- 2. Human-Environment Interaction** What do the migration routes of Homo sapiens reveal about their survival skills and ability to adapt?

Europe and Southwest Asia. These people were powerfully built. They had heavy slanted brows, well-developed muscles, and thick bones. To many people, the name “Neanderthal” calls up the comic-strip image of a club-carrying caveman. However, archaeological discoveries reveal a more realistic picture of these early hominids, who lived between 200,000 and 30,000 years ago.

Evidence suggests that Neanderthals tried to explain and control their world. They developed religious beliefs and performed rituals. About 60,000 years ago, Neanderthals held a funeral for a man in Shanidar Cave, located in northeastern Iraq. Archaeologists theorize

that during the funeral, the Neanderthal’s family covered his body with flowers. The prehistoric funeral points to a belief in a world beyond the grave. Fossil hunter Richard Leakey, the son of Mary and Louis Leakey, wrote about the meaning of this Neanderthal burial:

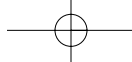
A VOICE FROM THE PAST

The Shanidar events . . . speak clearly of a deep feeling for the spiritual quality of life. A concern for the fate of the human soul is universal in human societies today, and it was evidently a theme of Neanderthal society too. There is also reason to believe that the Neanderthals cared for the old and the sick of their group. A number of individuals buried at the Shanidar Cave, for instance, showed signs of injury during life, and in one case a man was severely crippled. . . . These people lived for a long time, although they needed constant support and care to do so.

RICHARD E. LEAKEY, *The Making of Mankind*

THINK THROUGH HISTORY

D. Comparing
How were Neanderthals similar to people today?



Neanderthals were also resourceful. They survived harsh Ice Age winters by living in caves or temporary shelters made of wood and animal skins. Animal bones found with fossils of Neanderthals indicate their ability to hunt in subarctic regions of Europe. To cut up and skin their prey, Neanderthals fashioned stone blades, scrapers, and other tools.

The Neanderthals survived for some 170,000 years and then vanished about 30,000 years ago. Their disappearance remains a mystery.

Cro-Magnons Emerge About 40,000 years ago, a group of prehistoric humans called Cro-Magnons appeared. Their skeletal remains show that they are identical to modern humans.

Unlike the Neanderthals, Cro-Magnons planned their hunts. They studied animals' habits and stalked their prey. Evidently, Cro-Magnons' superior hunting strategies allowed them to survive more easily. This may have caused Cro-Magnon populations to grow at a slightly faster rate and eventually replace the Neanderthals. Cro-Magnons' advanced skill in spoken language may also have helped them to plan more difficult projects. This cooperation perhaps gave them an edge over the Neanderthals.

THINK THROUGH HISTORY

E. Contrasting

Why did Cro-Magnons have a better chance of survival than Neanderthals?

Recent Findings Add New Knowledge The story of human origins is constantly changing with new discoveries. Reports of such findings continue to update when and where various species of hominids are believed to have originated. In 1994, two fossil hunters in Ethiopia found a 2.33 million-year-old jaw. It was the oldest fossil belonging to the species that includes modern humans. They also unearthed stone tools at the same site. This find suggests that the first toolmakers emerged earlier than previously thought.

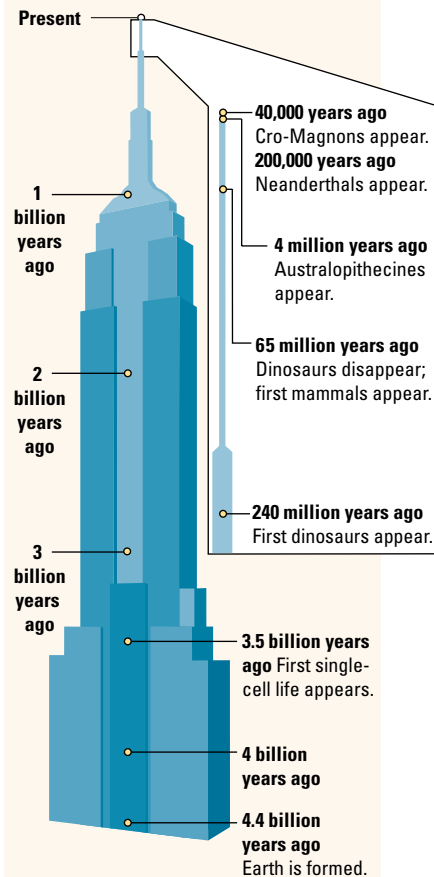
In 1996, a team of researchers from Canada and the United States, including a high school student from New York, dated a Neanderthal bone flute. They believe it is between 43,000 and 82,000 years old. This discovery hints at a previously unknown talent of the Neanderthals—their gift of musical expression.

Each new scientific discovery helps add further details to the still sketchy picture of human prehistory. As time progressed, early humans' skills and tools for surviving and adapting to their environment became more sophisticated. These technological advances would help launch a revolution in the way people lived.

SPOTLIGHT ON

Time Line of Planet Earth

Imagine the 102 stories of the Empire State Building as a scale for a time line of the earth's history. Each story represents about 40 million years. Modern human beings have existed for just a tiny percentage of the life of this planet.



Section 1 Assessment

1. TERMS & NAMES

Identify

- artifact
- culture
- hominid
- Paleolithic Age
- Neolithic Age
- technology
- *Homo sapiens*

2. TAKING NOTES

Create a chart like the one below, showing the advances, discoveries, and inventions of hominids.

Australo-pithecines	<i>Homo erectus</i>	Neanderthals	Cro-Magnons

3. SYNTHESIZING

How do recent findings keep revising knowledge of the prehistoric past?

THINK ABOUT

- modern scientific methods
- the way various species of hominids are classified
- dates relating to hominids

4. ANALYZING THEMES

Interaction with Environment

Which of the following skills—toolmaking, the use of fire, or the development of language—do you think gave hominids the most control over their environment? Why?

THINK ABOUT

- the kinds of tools early humans developed
- the various uses of fire
- the benefits of language



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.

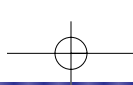
The best-known Stone Age works of art are the paintings on the walls and ceilings of European caves, mainly in France and Spain. Here early artists drew lifelike images of wild animals. Cave artists made colored paints from charcoal, mud, and animal blood.

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?





HISTORY THROUGH ART: **Fine Art**

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](#)

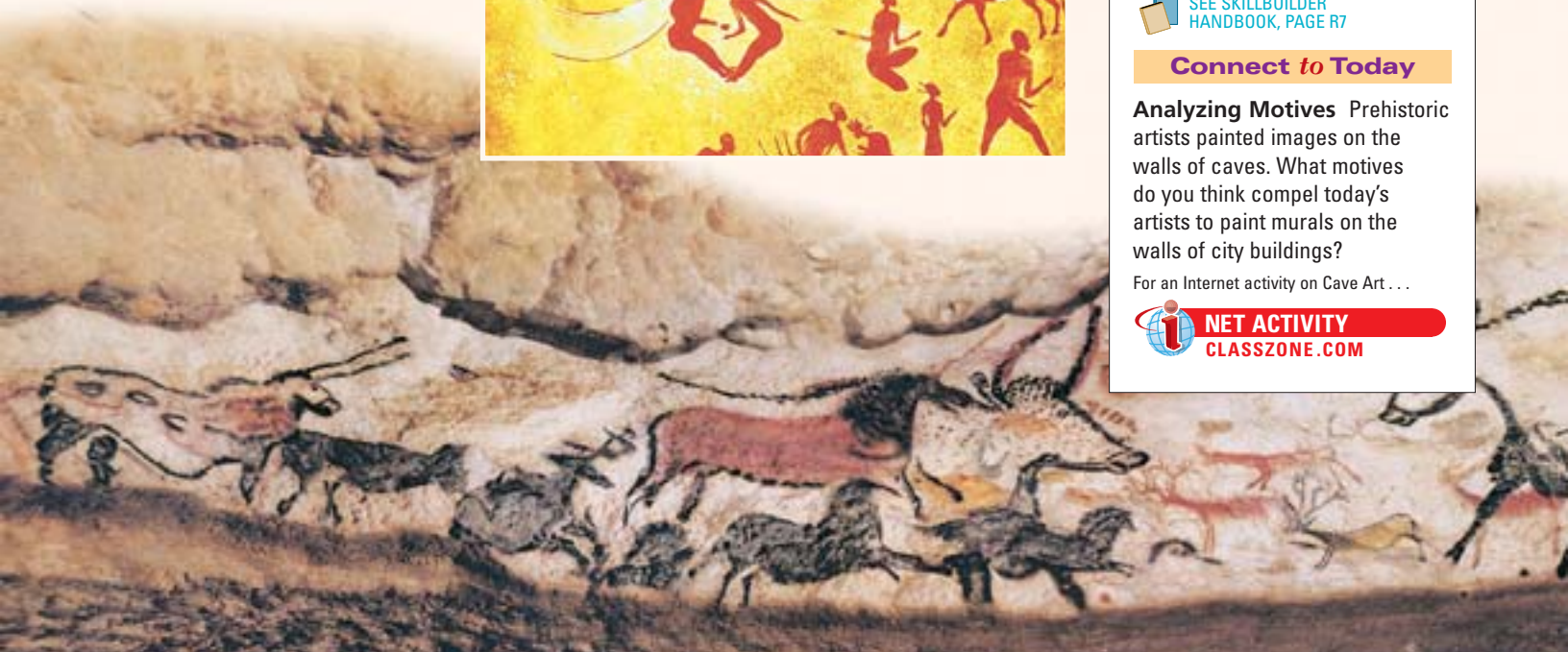
Connect to Today

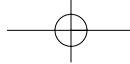
Analyzing Motives Prehistoric artists painted images on the walls of caves. What motives do you think compel today's artists to paint murals on the walls of city buildings?

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.

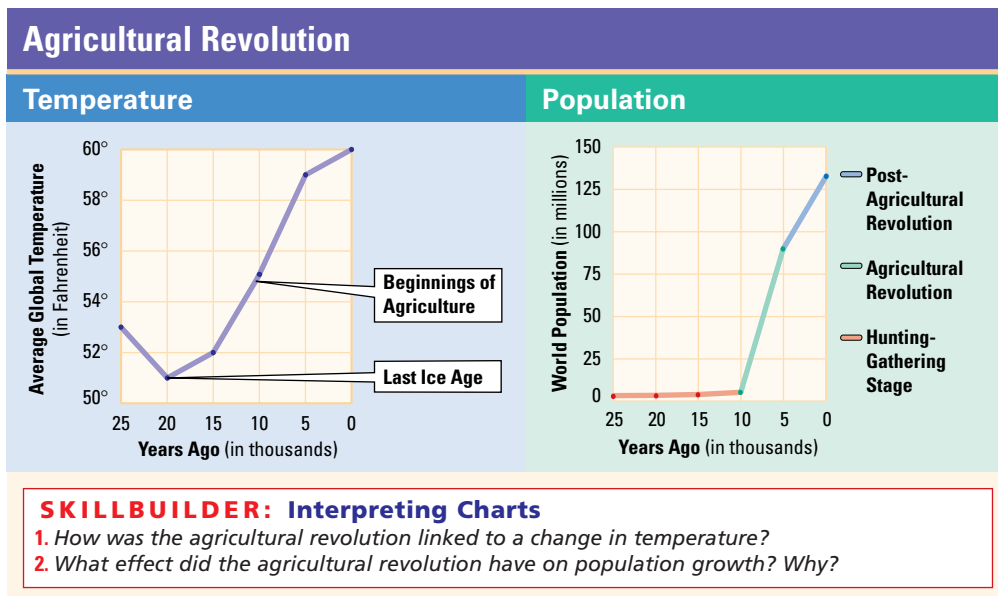
Causes of the Agricultural Revolution Scientists do not know exactly why the agricultural revolution occurred during this period. Change in climate was probably a key factor. Rising temperatures worldwide provided longer growing seasons and drier land for cultivating wild grasses. A rich supply of grain 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.



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.

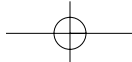
Domestication of Animals Food gatherers' understanding of plants probably spurred the development of farming. Meanwhile, hunters' expert knowledge of wild animals likely played a key role in the **domestication**, or the taming of animals. They tamed horses, dogs, goats, and pigs. Like farming, domestication 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.

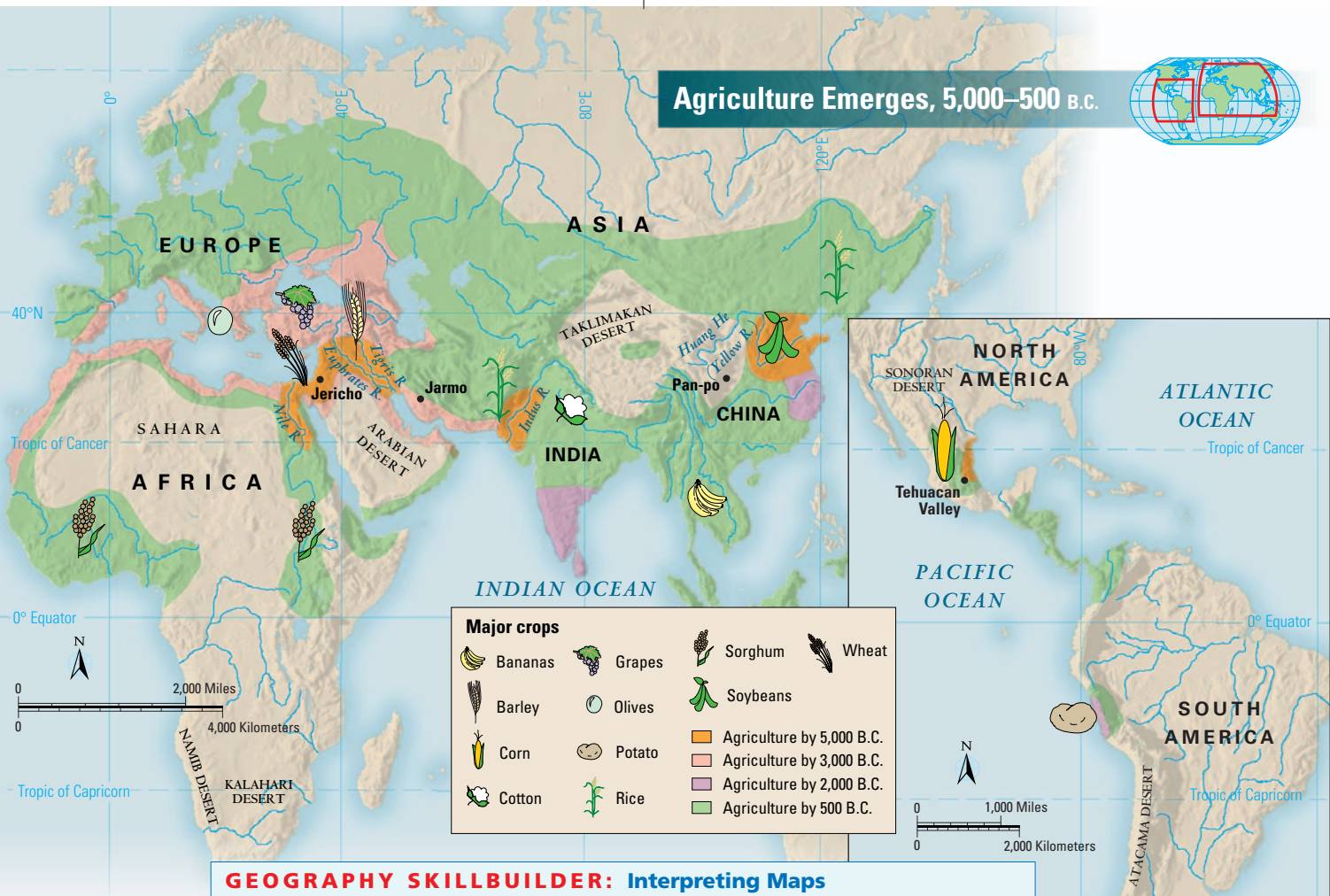
Revolution in Jarmo Today the eroded and barren rolling foothills of the Zagros Mountains in northeastern Iraq seem an unlikely site for the birthplace of agriculture.

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.



Agriculture Emerges, 5,000–500 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.

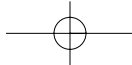
ROBERT BRAIDWOOD, quoted in *Scientific American*

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.

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.

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.

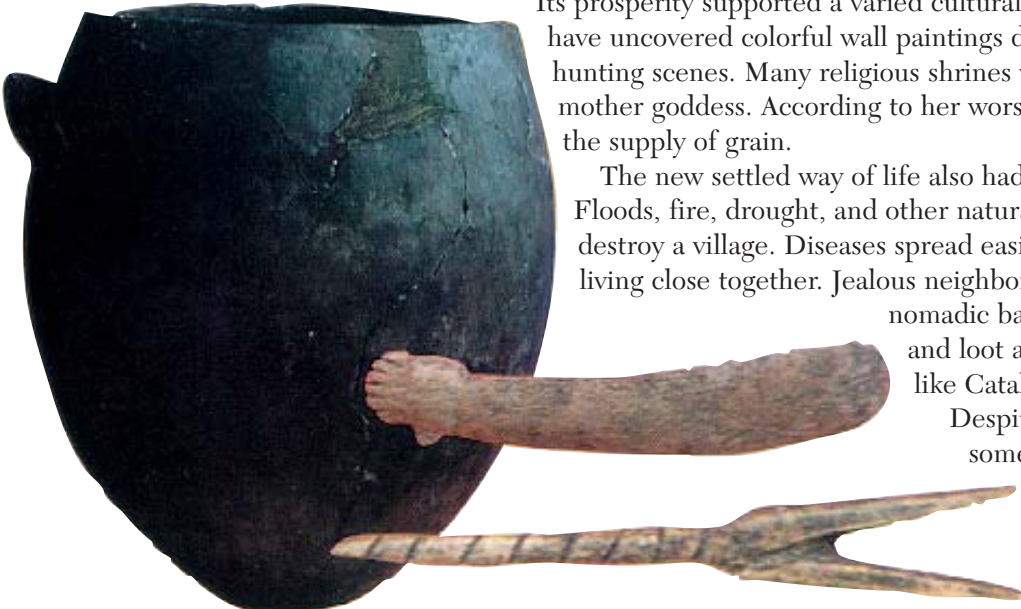
THINK THROUGH HISTORY

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.



3 Civilization

PATTERNS
OF CHANGE

CASE STUDY: Ur in Sumer

TERMS & NAMES

- civilization
- specialization
- artisan
- institution
- scribe
- cuneiform
- Bronze Age
- barter
- ziggurat

MAIN IDEA

Prospering agricultural villages, food surpluses, and new technology led to the rise of civilizations.

WHY IT MATTERS NOW

Contemporary civilizations share the same characteristics typical of ancient civilizations.

SETTING THE STAGE Agriculture marked a dramatic change in how people lived together. They began dwelling in larger, more organized communities, such as farming villages and towns. Gradually, from some of these permanent settlements, cities emerged, forming the backdrop of a much more complex way of life—civilization.

Villages Grow into Cities

Over the centuries, people settled in stable communities that were based on agriculture. Domesticated animals became more common. The invention of new tools—hoes, sickles, and plow sticks—made the task of farming easier. As people gradually developed the technology to control their natural environment, they reaped larger harvests. Settlements with a plentiful supply of food could support more heavily populated communities.

As the population of some early farming villages increased, social relationships became more complex. The change from a nomadic hunting-gathering way of life to settled village life took a long time. Likewise, the change from village life to city life was a gradual process that spanned several generations.

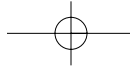
Economic Changes To cultivate more land and to produce extra crops, ancient people in larger villages built elaborate irrigation systems. The resulting food surpluses freed some villagers to pursue other jobs and to develop skills besides farming. Individuals who learned to become craftspeople created valuable new products, such as pottery, metal objects, and woven cloth. In turn, people who became traders profited from a broader range of goods to exchange—craftwork, grains, and many raw materials. Two important inventions also fostered the expanded trade between villages. The wheel and the sail enabled traders to transport more goods over longer distances.

Social Changes A more complex and prosperous economy affected the social structure of village life. For example, building and operating large irrigation systems required the cooperation and labor of many people. As other special groups of workers formed, social classes with varying wealth, power and influence began to emerge. A system of social classes would later become more clearly defined as cities grew.

Religion also became more organized. During the Old Stone Age, prehistoric

This photograph shows the well-preserved remains of Skara Brae. This small agricultural village emerged around 3000 B.C. It is located on an island off the coast of northern Scotland.





peoples' religious beliefs centered around nature, animal spirits, and some idea of an afterlife. During the New Stone Age, farming peoples worshiped the many gods and goddesses who they believed had power over the rain, wind, and other forces of nature. Early city dwellers developed rituals founded on these earlier religious beliefs. As populations grew, common spiritual values became lasting religious traditions.

What Is Civilization?

Most historians believe that one of the first civilizations arose in Sumer, a region that is now part of modern Iraq. Sumer was located in Mesopotamia. Just what set the Sumerians apart from their neighbors? Most scholars define **civilization** as a complex culture with these five characteristics: (1) advanced cities, (2) specialized workers, (3) complex institutions, (4) record keeping, and (5) advanced technology.

Advanced Cities Cities were the birthplaces of the first civilizations. In fact, the word *civilization* comes from the Latin word for *city*. A city is more than a large group of people living together. The size of the population alone does not distinguish a village from a city. One of the key differences is that a city is a center of trade for a larger area. Like their modern-day counterparts, ancient city dwellers depended on trade. Farmers, merchants, and traders brought goods to market in the cities. The city dwellers themselves produced a variety of goods for exchange.

Specialized Workers As cities grew, so did the need for more specialized workers, such as traders, government officials, and priests. Food surpluses provided the opportunity for **specialization**—the development of skills in a specific kind of work. An abundant food supply allowed some people to become expert at jobs besides farming. In early civilizations, some city dwellers became **artisans**—skilled workers who make goods by hand. Specialization helped artisans develop their skill at designing jewelry, fashioning metal tools and weapons, or making pottery. The wide range of crafts that artisans produced helped cities become thriving centers of trade.

Complex Institutions The soaring populations of early cities made government, or a system of ruling, necessary. In civilizations, leaders emerged to maintain order among people and to establish laws. Government is an example of an **institution**—a long-lasting pattern of organization in a community. Complex institutions, such as government, religion, and the economy, are another characteristic of civilization.

With the growth of cities, religion became a formal institution. Most cities had

great temples where dozens of priests took charge of religious duties. Sumerians believed that every city belonged to a god who lived in the temple and governed the city's activities. The temple became the hub of both government and religious affairs. It also served as the city's economic center. There food and trade items were distributed to the city's residents.

Record Keeping As government, religion, and the economy became more complex and structured, people recognized the need to keep records. In early civilizations, government officials had to document tax collections, the passage of laws, and the storage of grain. Priests needed some way to keep track of the yearly calendar and important rituals. Merchants had to record accounts of debts and payments.

Most civilizations developed a system of writing, though some devised other methods of record keeping. Around 3000 B.C., Sumerian **scribes**—or professional record keepers—invented a system of writing called **cuneiform** (KYOO-nee-uh-FAWRM), which means “wedge-shaped.” (Earlier versions of Sumerian writing consisted of signs called pictographs—symbols of the objects or things

SPOTLIGHT ON

The Inca's System of Record Keeping

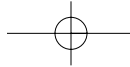
The empire of the ancient Inca civilization stretched along the western coast of South America. Though the Inca had no writing system, they kept records using a *quipu*, a complicated set of colored strings tied with different-sized knots at various intervals. Each knot represented a certain amount or its multiple. The colors of each cord represented the item being counted: people, animals, land, and so on.

The *quipucamayoc*, special officials who knew how to use the *quipu*, kept records of births, deaths, marriages, crops, and even important historical events.

THINK THROUGH HISTORY

A. Drawing Conclusions

Why were cities essential to the growth of civilizations?



they represented.) The scribe’s tool, called a stylus, was a sharpened reed with a wedge-shaped point. It was pressed into moist clay to create symbols. Scribes baked their clay tablets in the sun to preserve the writing.

People soon began to use writing for other purposes besides record keeping. They also wrote about their cities’ dramatic events—wars, natural disasters, the reign of kings. Thus, the beginning of civilization in Sumer also signaled the beginning of written history.

Advanced Technology New tools and techniques are always needed to solve the problems that emerge when large groups of people live together. In early civilizations, some farmers began to harness the powers of animals and nature. For example, they used ox-drawn plows to turn the soil. They created elaborate irrigation systems to expand planting areas.

Artisans relied on new technology to make their tasks easier. Around 3500 B.C., Sumerian artisans first used the potter’s wheel to shape jugs, plates, and bowls. Sumerian metalworkers discovered that melting together certain amounts of copper and tin made bronze. After 2500 B.C., skilled metalworkers in Sumer’s cities turned out bronze spearheads by the thousands.

The period called the **Bronze Age** refers to the time when people began using bronze, rather than copper and stone, to fashion tools and weapons. The Bronze Age began in Sumer around 3000 B.C., but the starting date varied in different parts of Europe and Asia.



The wedge-shaped symbols of cuneiform are visible in this close-up of a clay tablet.

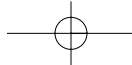
Background
Toolmakers discovered how to combine copper with a small amount of tin to make bronze. Bronze is harder than copper.

PATTERNS OF CHANGE: Key Traits of Civilizations

Characteristics	Examples from Sumer
Advanced Cities	<ul style="list-style-type: none"> • Uruk—population of about 10,000, which doubled in two centuries • Lagash—population of about 19,000 • Umma—population of about 16,000
Specialized Workers	<ul style="list-style-type: none"> • priests • metalworkers • scribes • soldiers • teachers • weavers • merchants • government officials • potters • farmers
Complex Institutions	<ul style="list-style-type: none"> • Formal governments with officials and laws • Priests with both religious and political power • A rigorous education system for training of scribes
Record Keeping	<ul style="list-style-type: none"> • Cuneiform tablets—records of business transactions, historical events, customs, and traditions
Advanced Technology	By around 3000 B.C.: <ul style="list-style-type: none"> • The wheel, the plow, and the sailboat probably in daily use • Bronze weapons and body armor that gave Sumerians a military advantage over their enemies

SKILLBUILDER: Interpreting Charts

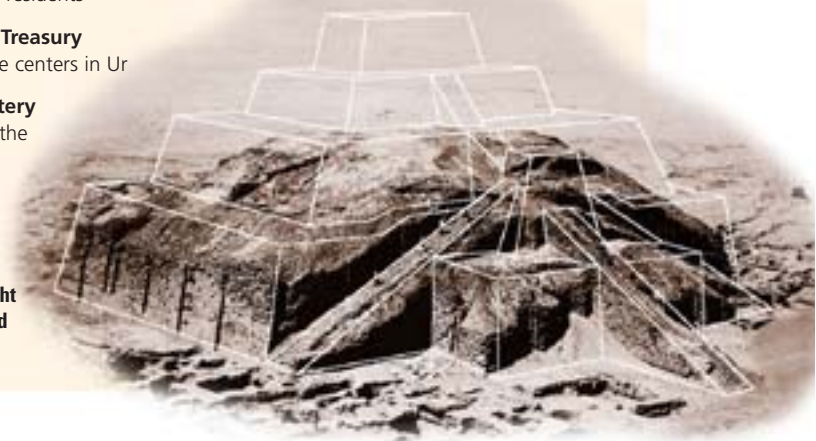
1. Based on the chart, what is one important feature of a city?
2. What kinds of social behavior are basic to the five characteristics of civilizations?



The City of Ur

- 1 Ziggurat** A massive temple
- 2 Court of Nanna** Sacred place of Ur's moon god
- 3 Home of the High Priestess** Place where a woman with great religious authority lived
- 4 Surrounding Wall** Defense for protecting Ur residents
- 5 Temple and Treasury** Administrative centers in Ur
- 6 Royal Cemetery** Burial site of the queen and king of Ur

The white lines indicate the shape of the original structure, which once rose as high as 80 feet.



Aerial photograph of Ur taken in 1930.

The underlying photograph at the right shows how the temple mound looked after Leonard Woolley excavated it during the 1920s and 1930s

CASE STUDY: Ur in Sumer

Civilization Emerges in Ur

Ur, one of the earliest cities in Sumer, stood on the banks of the Euphrates River in what is now southern Iraq. Some 30,000 people once lived in this ancient city. Ur was the site of a highly sophisticated civilization.

After a series of excavations from 1922 to 1934, English archaeologist Leonard Woolley and his team unraveled the mystery of this long-lost civilization. Woolley's archaeological dig at Ur revealed important clues about Ur's past. Woolley concluded that around 3000 B.C., Ur was a flourishing urban civilization. People in Ur lived in well-defined social classes. Priests and rulers wielded great power. Wealthy merchants profited from foreign trade. Artists and artisans created many extraordinary works, such as lavish ornaments and jewelry, musical instruments, and gold helmets and daggers. Woolley's finds have enabled historians to reconstruct scenes illustrating Ur's advanced culture.

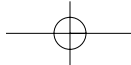
An Agricultural Economy Imagine a time nearly 5,000 years ago. Outside the mud-brick walls surrounding Ur, ox-driven plows cultivate the fields. People are working barefoot in the irrigation ditches that run between patches of green plants. With stone hoes, the workers widen the ditches. The ditches carry water into their fields from the reservoir a mile away. The people of Ur have developed this large-scale irrigation system to provide Ur with food surpluses, which keep the economy thriving. The government officials who plan and direct this public works project ensure its smooth operation.

A Glimpse of City Life A broad dirt road leads from the fields up to the city's wall. Inside the city gate, the city dwellers go about their daily lives. Most people live in small, windowless, one-story, boxlike houses packed tightly together along the street. However, a few wealthy families live in two-story houses with an inner courtyard.

Down another street, accomplished artisans work full-time in their shops. A metalworker makes bronze by carefully mixing molten copper with just the right quantity of tin. Later he will hammer the bronze to make sharp spears—weapons to help Ur's well-organized armies defend the city. As a potter spins his potter's wheel, he expertly shapes the moist clay into a large bowl. These artisans and other craftworkers produce trade goods that help the city of Ur prosper.

THINK THROUGH HISTORY B. Analyzing Causes

How did Ur's agricultural way of life foster the development of civilization there?



Ur's Thriving Trade The narrow streets open out into a broad avenue where merchants squat under their awnings and trade farmers' crops and artisans' crafts. This is the city's bazaar, or marketplace. People do not use coins to make purchases because money has not yet been invented. However, merchants and their customers know roughly how many pots of grain a farmer must give to buy a jug of wine. This way of trading goods and services without money is called **barter**. More complicated trades require the services of a scribe. He carefully forms cuneiform signs on a clay tablet. The signs show how much barley one farmer owes a merchant for a donkey.

The Temple: Center of City Life Farther down the main avenue stands Ur's tallest and most important building—the temple. Like a city within a city, the temple is surrounded by a heavy wall. Within the temple gate, a massive, tiered structure towers over the city. This pyramid-shaped monument is called a **ziggurat** (ZIHG-uh-RAT), which means “mountain of god.” On the exterior of the ziggurat, a flight of perhaps 100 mud-brick stairs leads to the top. At the peak, priests conduct rituals to worship the city god who looms over Ur. Every day, priests with shaved heads climb these stairs. They often drag a plump goat or sheep for a sacrifice. The temple also houses storage areas for grains, woven fabrics, and gems—offerings to the city's god.

A Religious Ritual Recorded A poem preserved in cuneiform tablets reveals Sumerians' burial rituals and their belief in an afterlife. The following is a lament for a young woman's lover who was killed in a distant land. These lines describe what foods she will provide for his spirit when his body is returned home for his funeral:

A VOICE FROM THE PAST

I will offer him cakes and herbs of the grove,
 I will provide him with the fruits of the field,
 I will provide him with roasted barley and dates . . .
 I will provide him with grapes on the vine,
 I will provide him with apples of the wide earth,
 I will provide him with figs of the wide earth . . .
 I will provide him with dates on their cluster.

Quoted in *From the Poetry of Sumer* by Samuel Kramer

The fruits, grains, and other foods mentioned in these lines also suggest the wide range of crops that Sumerians either grew themselves or received as trade goods.

The first early cities such as Ur represent a model of civilizations that continued to arise throughout history. While the Sumerians were advancing their culture, civilizations were also developing in Egypt, China, and other countries in Asia.

CONNECT to TODAY

Ziggurat's Role in Persian Gulf War

After 4,000 years, the city of Ur is still making history. During the Persian Gulf War in 1991, the Iraqi military established an air base near the site of the city of Ur. The ziggurat there had been reconstructed.

Hoping that U.S. and Allied forces would not risk destroying the ancient ziggurat, Iraqi forces parked aircraft next to the structure at Ur for protection. However, enemy planes targeted the city of Ur. Exploding bombs caused large craters at the site. Machine-gun attacks from enemy planes also left many bullet holes in the sides of the ziggurat itself.

Background

The ziggurat of Ur was a huge temple dedicated to the moon god Nanna. The tiers are supposed to represent steps leading toward the heavens.

Section 3 Assessment

1. TERMS & NAMES

Identify

- civilization
- specialization
- artisan
- institution
- scribe
- cuneiform
- Bronze Age
- barter
- ziggurat

2. TAKING NOTES

Create a two-column chart like the one below. List the five characteristics of civilization and give an example from Ur.

Characteristics of Civilization	Example from Ur
1.	
2.	
3.	
4.	
5.	

3. MAKING INFERENCES

In what ways does the ziggurat of Ur reveal that Sumerians had developed an advanced civilization?

THINK ABOUT

- the skills required to build the monument
- the various purposes of the ziggurat
- its location

4. THEME ACTIVITY

Economics Role-play a character from Ur who has a specialized skill, such as an artisan, a trader, or a scribe. Write a monologue explaining how you contribute to the economic welfare of the city.



Chapter 1 Assessment

TERMS & NAMES

Briefly explain the importance of each of the following to human prehistory.

1. artifact
2. culture
3. technology
4. hunter-gatherer
5. Neolithic Revolution
6. domestication
7. civilization
8. specialization
9. institution
10. Bronze Age



Interact *with* History

On page 6, you played the role of an amateur archaeologist as you tried to figure out the uses of three prehistoric tools. Now that you've read the chapter, what new clues have you discovered that would help you unravel the mystery of who made the tool with the wedge-shaped blade, and why? What evidence can you use to support your conclusions about its purpose? Discuss your ideas with a small group.

REVIEW QUESTIONS

SECTION 1 (pages 7–11)

Human Origins in Africa

11. What kinds of evidence do archaeologists, anthropologists, and paleontologists study to find out how prehistoric people lived?
12. Why did the ability to walk upright and the development of the opposable thumb represent important breakthroughs for early hominids?
13. Why is the prehistoric period called the Stone Age?
14. What evidence supports archaeologists' beliefs that Neanderthals developed a form of religion?

SECTION 2 (pages 12–16)

Humans Try to Control Nature

15. Why do some archaeologists believe that women were the first farmers?
16. What role did the food supply play in shaping the nomadic life of hunter-gatherers and the settled life of farmers?
17. In what areas of the world did agriculture first develop?

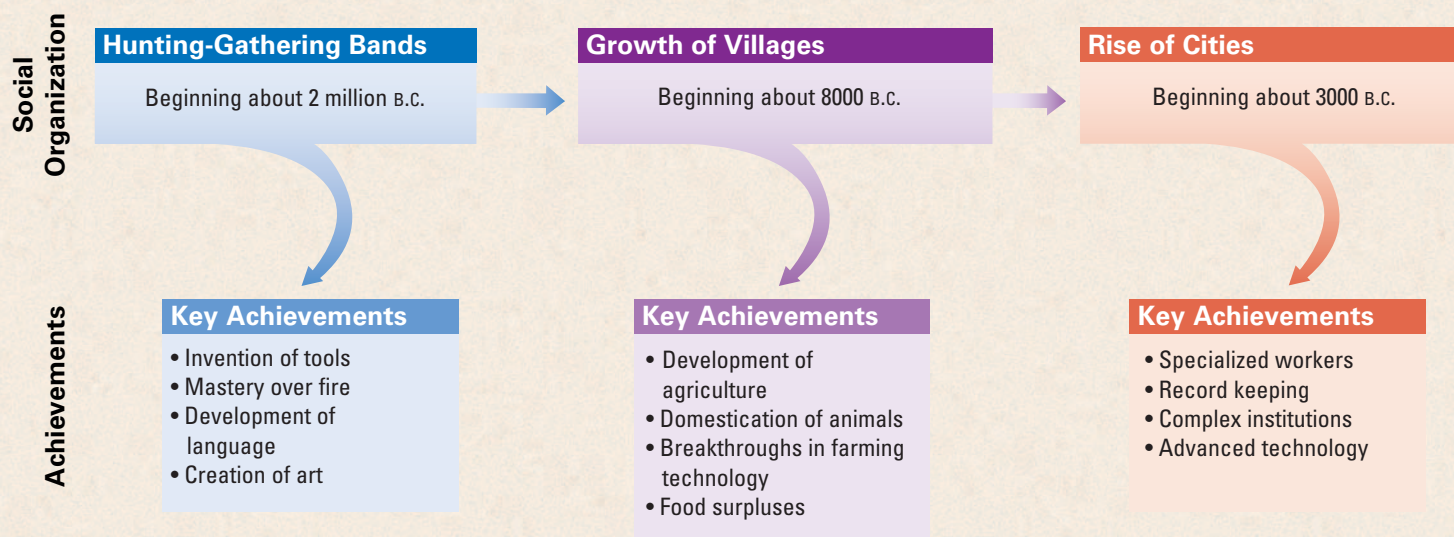
SECTION 3 (pages 17–21)

PATTERNS OF CHANGE: CIVILIZATION

18. What economic changes resulted from food surpluses in agricultural villages?
19. Why did the growth of civilization make government necessary?
20. Why did a system of record keeping develop in civilizations?

Visual Summary

The Peopling of the World





CRITICAL THINKING

1. EFFECTS OF TRADE

THEME ECONOMICS What impact did trade have on the development of civilization?

2. STONE AGE CULTURES

Create a comparison chart like the one below to show the differences between Paleolithic and Neolithic cultures.

	Paleolithic	Neolithic
Source of food		
Means of living		
Technology		
Type of community		

3. THE ROLE OF RELIGION

What trends occurred in religious beliefs over the course of the Stone Age? Consider the religious practices of the Neanderthals, the villagers of Catal Huyuk, and the city dwellers of Ur.

4. ANALYZING PRIMARY SOURCES

The following quotation from Richard Leakey's book *The Making of Mankind* explains how archaeologists learn about the past. Read the paragraph and answer the questions that follow.

A VOICE FROM THE PAST

Litter of the past is the basis of archaeology. The coins, the pottery, the textiles and the buildings of bygone eras offer us clues as to how our [early ancestors] behaved, how they ran their economy, what they believed in and what was important to them. What archaeologists retrieve from excavations are images of past lives. . . . [These images] are pieced together slowly and painstakingly from the information contained in objects found.

- Why is the "litter" that humans leave behind so valuable to archaeologists?
- If archaeologists inspected a week's worth of your family's household trash, what conclusions might they draw about your way of life?

CHAPTER ACTIVITIES

1. LIVING HISTORY: Unit Portfolio Project

THEME INTERACTION WITH ENVIRONMENT Your unit portfolio project focuses on showing the ways in which hominids interacted with the environment. For Chapter 1, you might use one of the following ideas:

- Make a poster featuring how early humans adapted to the changing environment. Draw a series of pictures or cartoons showing how they used fire, built shelters, made clothing, and found new sources of food.
- Write a "Top 10" list of important steps that early humans took to control their environment. Read them aloud to your class. Be prepared to explain your rankings.
- Imagine you are an archaeologist working on the first dig of Ur at Sumer. You must organize the artifacts and discuss how Sumerians may have used them to adapt to their environment. Write your findings as field notes.

2. CONNECT TO TODAY: Cooperative Learning

THEME SCIENCE AND TECHNOLOGY In early civilizations, ox-drawn plows turned the soil, and elaborate irrigation systems expanded planting areas. Today, breakthroughs in technology continue to revolutionize farming methods in the United States and other countries.

Work with a team to create a chart explaining the latest high-tech equipment and machines used on a modern industrialized farm.



Use the Internet or books to research your topic. Look for information that explains the most recent advances in farming technology.

- Find diagrams that illustrate how farm machines work. You may wish to focus on computerized farm equipment.
- Make comparisons between these labor-saving farm machines and the simple farming tools and methods of early farmers.

3. INTERPRETING A TIME LINE

Revisit the unit time line on pages 2–3. Think of two or more events to add to the Chapter 1 segment of the time line.

FOCUS ON FINE ART

Study this cave painting created during the Stone Age in Argentina.

- What is depicted in the painting?
- What do you think the hands represent?

Connect to History Do you think the painting portrays a scene from daily life, represents religious beliefs, or shows an illustrated story about an important event? Support your answer with reasons.



Additional Test Practice,
pp. S1–S33

