Lesson 3

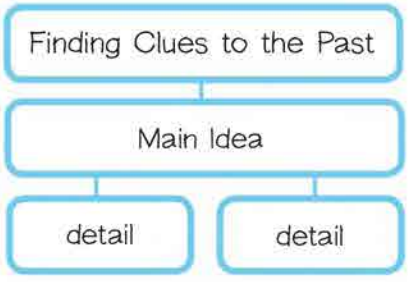
MAIN IDEAS

1. **Science and Technology** Archaeologists are scientists who work to uncover the story of early people.
2. **Science and Technology** Archaeologists have found evidence that tells us a great deal about early humans.
3. **Culture** Human culture developed during the prehistoric period known as the Stone Age.

TAKING NOTES

Reading Skill: Finding Main Ideas

The main idea of a passage is a sentence that sums up its most important point. Details in the passage help support the main idea. As you read Lesson 3, use a diagram like the one below to identify the main idea of each section.



Skillbuilder Handbook, page R2

▲ **Footprint** This footprint was made by a humanlike being about 3.6 million years ago. Footprints and other remains are the kind of evidence archaeologists study to learn about the past.

Words to Know

Understanding the following words will help you read this lesson:

remains parts of a dead body (page 28)
They were able to determine the age at which the man died from his ***remains.***

dawn to first appear or begin (page 32)
After the Stone Age ***dawned,*** *society slowly began to change.*

sophisticated complicated or complex (page 33)
Their remarkable variety of tools suggests that their society was very ***sophisticated.***

How Archaeologists Study the Past

TERMS & NAMES
- artifact
- fossil
- hominid
- Paleolithic Age
- Mesolithic Age
- Neolithic Age

Build on What You Know When you read a detective story, you use clues in the story to try to solve the mystery. Now you will find out how people solve the mysteries of the past without any written clues.

Finding Clues to the Past

1 **ESSENTIAL QUESTION** How do archaeologists uncover the story of early peoples?

When you think about most researchers at work, you probably imagine them in libraries and book-lined studies. A day at the office for an archaeologist, on the other hand, often means sifting through the dirt in a small plot of land. Archaeologists are scientists who learn about early people by digging up and studying the traces of early settlements. On archaeological digs, these scientists search for bones and other evidence that might tell them about life long ago.

Archaeologists The archaeologists at this dig site use small shovels and brushes to carefully unearth and examine their findings. ▼

Working Together Archaeologists work with teams of other researchers and scientists to make new discoveries about how prehistoric people lived. Some of the other scientists help archaeologists figure out when **artifacts**, or human-made objects, were made and what they might mean. The artifacts can help archaeologists answer old questions and lead them to ask new ones.

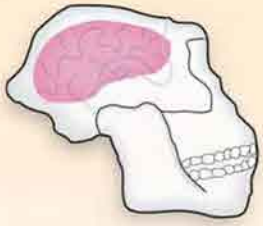
Scientists called anthropologists often work with archaeologists too. Anthropologists study culture, which is the way of life of a group of people. Culture includes a people's beliefs, common language, and shared ways of doing things. The information collected by anthropologists helps archaeologists make connections between the past and present.

Studying Fossils Evidence of early people can be found in **fossils**, remains of early life preserved in the ground. Human fossils often consist of small pieces of teeth, skulls, and other bones. Figuring out the approximate age of fossils is one of the archaeologist's greatest challenges. Archaeologists use complicated techniques to calculate the ages of ancient fossil remains and artifacts.

REVIEW What do archaeologists do?

Hominid Development

This time line is based on the findings of archaeologists.



Australopithecine

- lived from about 4.5 million to 1 million B.C.
- found in southern and eastern Africa
- first humanlike creature to walk upright

Homo habilis

- lived from about 2.5 million to 1.5 million B.C.
- found in East Africa
- first to make stone tools

4 million B.C. — **3 million B.C.**

Homo habilis

Australopithecine

The Search for Early Humans

2 ESSENTIAL QUESTION What have archaeologists learned about early humans from the evidence they have found?

The search for our earliest ancestors has taken archaeologists to Africa, where most scientists believe that humans began. There, they have answered many questions about the first humans.

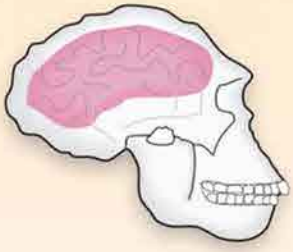
Earliest Humans Some of the earliest humanlike beings that archaeologists have found are called australopithecines (aw•STRAY•loh•PIHTH•ih•SYNZ). These beings and other creatures that walk on two feet—including humans—are called **hominids**. Most scientists believe that australopithecines learned to walk on East African grasslands about 4.5 million years ago.

About 2.5 million years ago, a hominid called *Homo habilis* (HOH•moh HAB•uh•luhs), which means "man of skill," also appeared in East Africa. Archaeologists believe that these hominids used stone tools to cut meat and crack open bones.

Most scientists believe that *Homo erectus* (HOH•moh ih•REHK•tuhs), or "upright man," first appeared about 1.6 million years ago. Scientists think this hominid may have gradually developed into our own large-brained species, *Homo sapiens* (HOH•moh SAY•pee•uhnz), or "wise man."

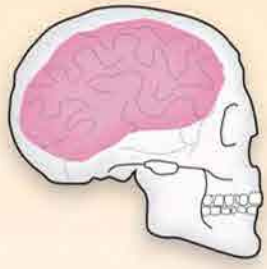
Vocabulary Strategy

Hominid comes from the Latin **root word** *homo,* meaning "man." The names of human species, such as *Homo sapiens,* all derive from this root word.



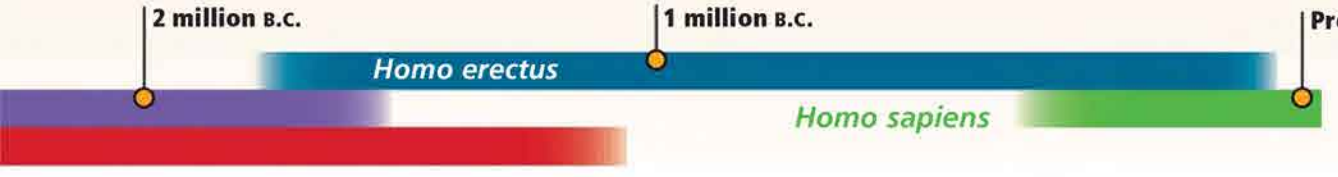
Homo erectus

- lived from about 1.6 million to 250,000 B.C.
- found in Africa, Asia, and Europe
- first to move out of Africa



Homo sapiens

- has lived from about 400,000 B.C. to the present
- Early *Homo sapiens* found in Africa, Europe, and Asia
- physically modern humans



In 1974, American archaeologist Donald Johanson discovered an unusually complete skeleton of an australopithecine. He and his team named the hominid Lucy. You will learn more about Lucy in the History Makers feature below. In 1978, Mary Leakey uncovered more information about australopithecines. She also became the first to discover a set of footprints made by these hominids. You can see a photograph of one of these footprints on page 26.

The Leakeys' son, Richard, also became an important archaeologist. He and his team found a 1.6-million-year-old skeleton of a *Homo erectus* in 1984. It is one of the most complete skeletons ever found.

More recent findings have added to our understanding of early humans. In the early 1990s, American anthropologist Tim White found apelike fossils that led to the naming of a new hominid species. In 2002, a team of archaeologists found a hominid skull in Chad. The 6- to 7-million-year-old skull belongs to our earliest human ancestor so far discovered. (You can read an excerpt from a novel about archaeologists and their discoveries in the Literature Connection on page 34.)

Primary Source Handbook
See the excerpt from *Disclosing the Past*, page R35.

REVIEW What are the names of some early hominids?

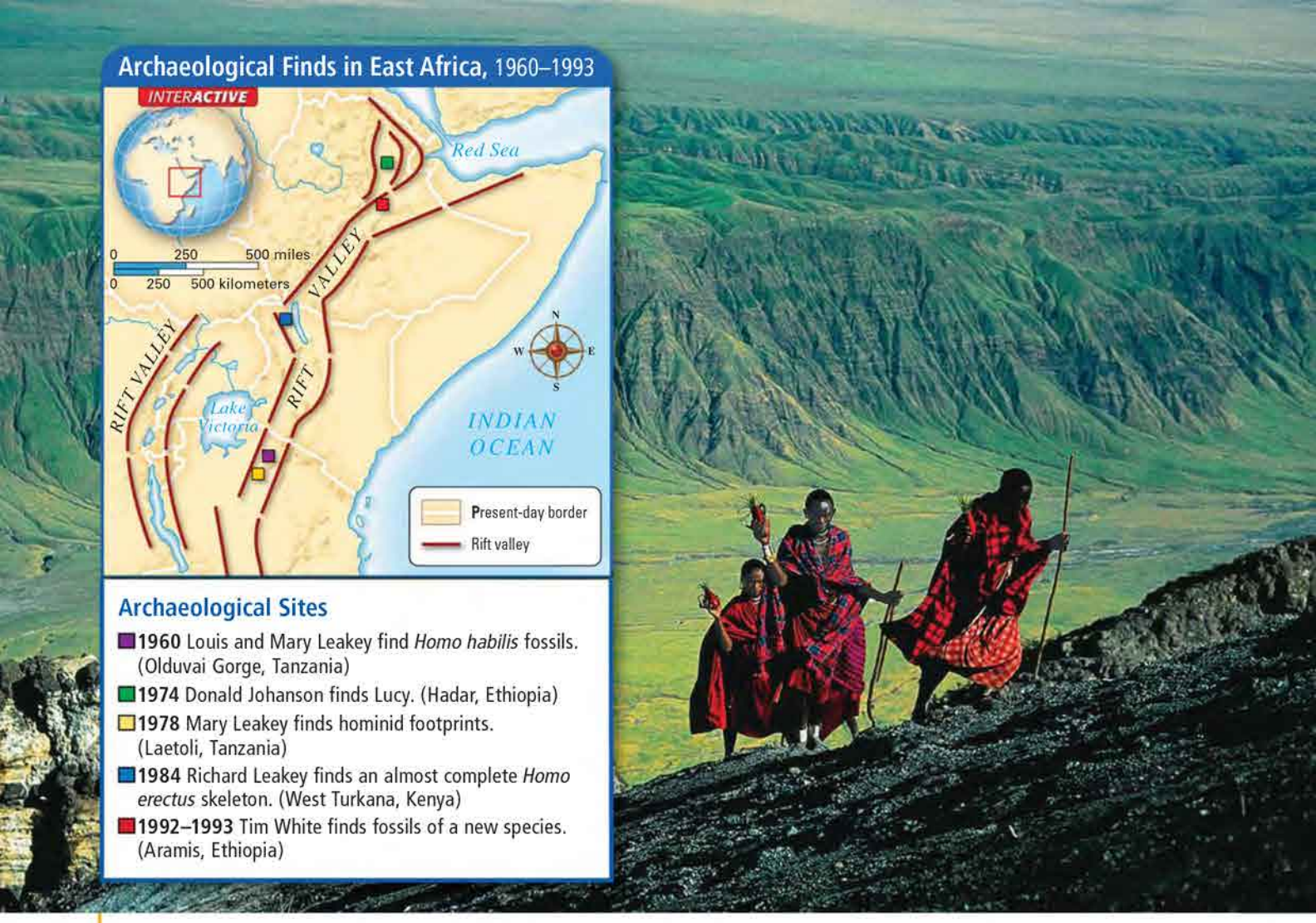
History Makers

Lucy (lived around 3.5 million B.C.)

On November 30, 1974, Professor Donald Johanson and his student Tom Gray were searching the hot, dry ground of Hadar, Ethiopia. There they discovered a tiny piece of an arm bone. Several other bones lay nearby. They belonged to a type of australopithecine Johanson had never seen before.

Excited by the find, members of the expedition went back and retrieved 40 percent of the creature's skeleton, which is shown here. The pelvis indicated that she was female, and the archaeologists named her Lucy, after the Beatles' song "Lucy in the Sky with Diamonds."

At about 3.5 million years old, Lucy was older than any hominid discovered up to that time. She had a smallish brain, like a chimp's, and very long arms. But she walked upright. Lucy challenged the theory that a bigger brain had led to walking.



▲ **Rift Valleys** Many archaeological digs have been carried out in East Africa's rift valleys. These valleys average 30 to 40 miles wide. They were formed as continental plates pulled apart over millions of years.

Modern Humans Human culture developed significantly with the appearance of *Homo sapiens*. Early *Homo sapiens* buried their dead, created cave paintings, and made sharper tools. In time, these humans began to farm, developed writing systems, and built complex villages. Some physically modern *Homo sapiens*, called Cro-Magnons (kroh•MAG•nuhnz), first appeared about 35,000 years ago. Cro-Magnons migrated from North Africa to Europe and Asia.

Important Finds Our understanding of early people is based on the findings of many archaeologists and anthropologists. Some of the most significant contributions have been made by the Leakeys, a family of British archaeologists.

Louis and Mary Leakey first began searching for early human remains in East Africa in the 1930s. In 1960, they found *Homo habilis* fossils in East Africa. Their discoveries showed that human evolution began in Africa. The Leakeys also established that *Homo habilis* was our ancestor.

The Stone Age

3 ESSENTIAL QUESTION Who lived and what happened during the prehistoric period known as the Stone Age?

The invention of tools, the mastery of fire, and the development of language and farming are some of humankind's most important achievements. Scientists believe that these advances took place during the prehistoric period known as the Stone Age. This period dawned when hominids made and used the first stone tools.

The Stone Age is often divided into three phases: the Old Stone Age, the Middle Stone Age, and the New Stone Age. The Old Stone Age, also called the **Paleolithic** (PAY•lee•uh•LIHTH•ihk) **Age**, lasted from about 2.5 million to 8000 B.C. The Middle Stone Age, also called the **Mesolithic** (MEHZ•uh•LIHTH•ihk) **Age**, occurred roughly between 10,000 and 6000 B.C. This period served as a sort of bridge between the Old and New Stone Age. The New Stone Age, or **Neolithic** (NEE•uh•LIHTH•ihk) **Age**, began about 8000 B.C. and ended as early as 3000 B.C. You can compare the characteristics of the three periods in the chart below.

The Stone Age

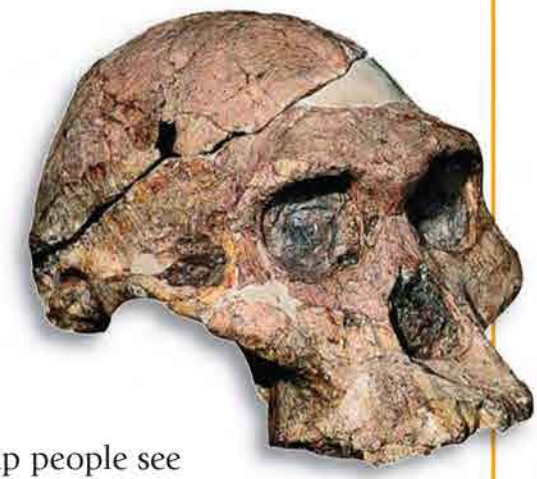
Period	Dates	Characteristics
Paleolithic Age	2.5 million–8000 B.C.	• *Homo habilis*, *Homo erectus*, and *Homo sapiens* lived during this period. • Early humans lived as hunters and gatherers. • People used simple stone tools with single sharp edges to cut and chop.
Mesolithic Age	10,000–6000 B.C.	• Mesolithic peoples developed needles and thread, harpoons, and spear throwers. • They began to control fire and develop language. • In some places, people specialized in hunting particular animals. • Gatherers developed grindstones to prepare the vegetables they collected.
Neolithic Age	8000–3000 B.C.	• Only *Homo sapiens* lived during this period. • People learned to polish stone tools and make pottery. • They began to grow crops, raise animals, and settle in villages.

Paleolithic Age figure ▶

Neolithic Age figure ▶

The development of farming in the Neolithic Age greatly changed people's lives. Instead of wandering from place to place, people began to settle down and build communities. As time passed, these early humans' skills and tools for surviving and adapting to the environment became more sophisticated. You will learn more about these early people and their communities in Chapter 2.

REVIEW What achievements occurred during the Stone Age?



Australopithecine Skull These hominids had small brains, but their thumbs could cross their palms. This meant that they could pick up small objects and use tools. ▼

Lesson Summary

- Studying ancient artifacts and fossils helps reveal early human history.
- The first humanlike creatures developed in Africa.
- During the Stone Age, people began to use tools, control fire, speak, grow crops, and raise animals.

Why It Matters Now . . .

Learning about our common beginnings can help people see that our similarities outweigh our differences.

3 Lesson Review

Homework Helper ClassZone.com

Terms & Names

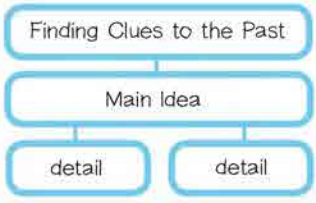
1. Explain the importance of

artifact — hominid — Mesolithic Age
fossil — Paleolithic Age — Neolithic Age

Using Your Notes

Finding Main Ideas Use your completed diagram to answer the following question:

2. What is the main idea of the section "The Search for Early Humans"?



Main Ideas

3. What can archaeologists learn by studying artifacts and fossils?

4. What have archaeologists learned about early hominids?

5. How did people live during the Paleolithic and Mesolithic ages?

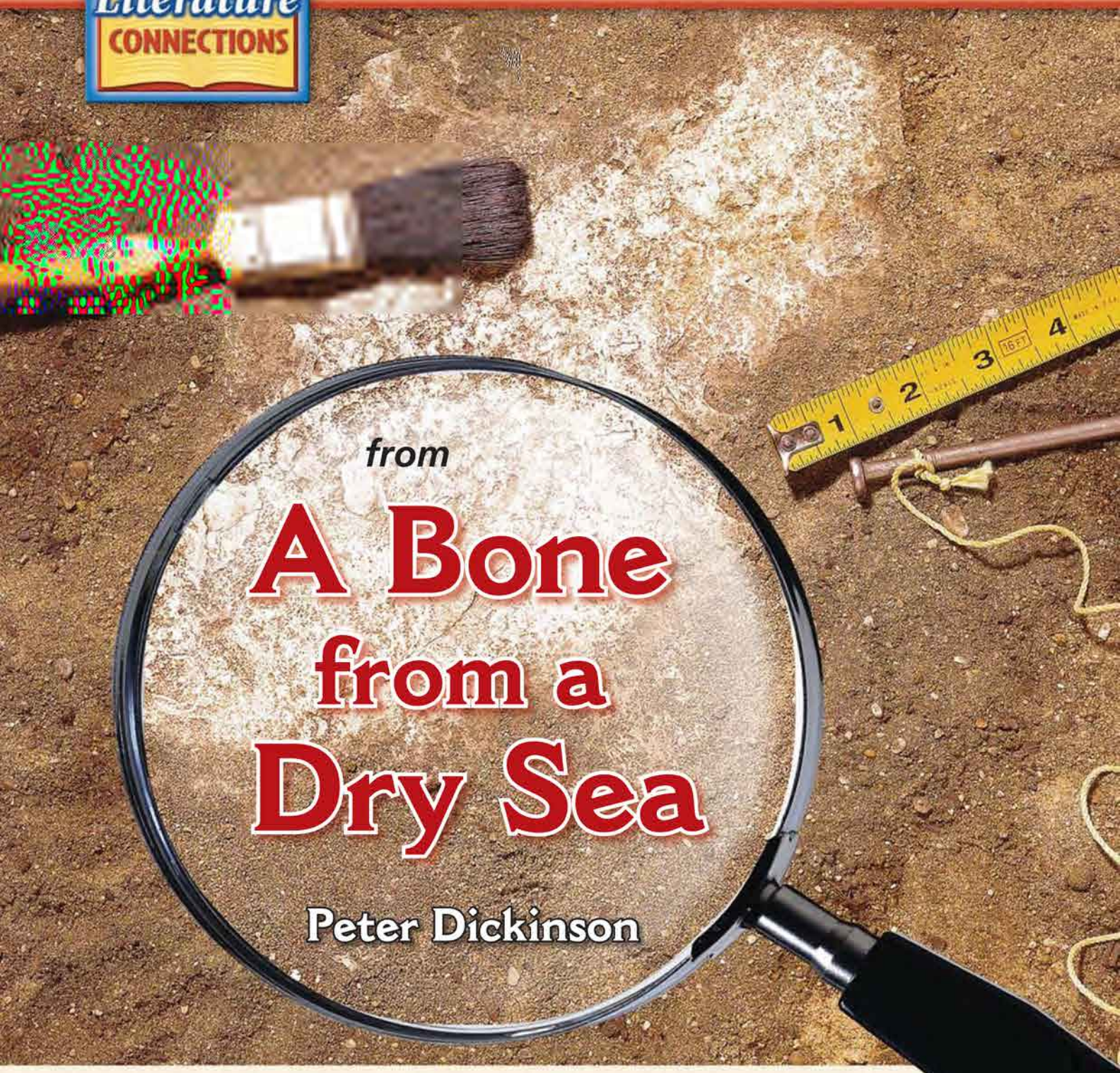
Critical Thinking

6. **Understanding Continuity and Change** What kinds of changes probably encouraged the development of early hominid societies?

7. **Identifying Issues and Problems** Why is studying early people so hard?

Activity **Internet Activity** Use the Internet to research one of the archaeologists named in this lesson. Present your findings, including pictures and maps, on a poster you can share with the class.

INTERNET KEYWORD: *archaeologist's name*



from

A Bone from a Dry Sea

Peter Dickinson

Background: In the novel *A Bone from a Dry Sea* by Peter Dickinson, 12-year-old Lavinia (Vinny for short) is happy living with her mother, her stepfather Colin, and her half-brothers in England. But she misses her father, Sam, an archaeologist. So Vinny asks to join her father in Africa, where he is part of a team searching for hominid fossils.

One day, Vinny goes to explore a site with the team leader, Dr. Joe Hamiska. And then Vinny makes her own discovery.

It seemed to be thin and flat and to lie almost level in the hill so that its left edge actually broke through the sloping line of tuff.[1] The outer edge had been snapped off where it reached the surface, and the right corner, about half a square inch, was cracked and loose from the main bit. [Vinny] was working not down but sideways into the hill, digging out a hollow like a miniature quarry[2] with the bone as its floor. Dr. Hamiska's boots crunched on the rock above her. She rose to let him see what she'd been doing.

"That's great," he said. "We'll have to employ you full-time."

"What is it? Do you know?"

"A fragment of scapula, I think. Shoulder blade to you, Vinny. Some fair-sized beast. Don't try and lever it out or you'll break it—you'll have to undercut it first. Look how the sequence[3] runs at the back there—that's beautiful."

"Do you think it was killed in the eruption?"

"Could be, could be. Your father's here to answer questions like that. The ash would have been soft, mind you, so the creature could have died after the eruption and then the bones partly embedded themselves. Lend me your trowel, will you? I could get a column of the sequence out there—something to show them on Thursday. Blind them with science, eh?"

Still chuckling, he forced the blade vertically down at the back of Vinny's quarry, as if he were cutting the first slice out of a birthday cake. The slice broke in two when he eased it out but he fitted the pieces together and laid them carefully out on the slope.

"Now if you'll ask Jane for a bag and a label," he said, "and then we'll—Hold it! Hold everything!"

▲ **Trowel** Archaeologists use trowels, or small shovels, to carefully dig for bones and artifacts.

1. **tuff:** a layer of fossilized ash from a volcanic eruption.
2. **quarry:** hole in the ground.
3. **sequence:** layers of earth.

Fossil hominid bones are arranged on a display. The fossils in the upper right are toe bones.

He pushed his sunglasses onto his forehead and stared into the slice-shaped cut he had made. His breath hissed between closed teeth. With Vinny's brush he swept the loose bits from a pale lump which had been exposed on one side of the cut, just above the tuff. He took a magnifying glass from his shirt pocket and gazed intently through it.

"Jane," he called. "Come here a moment."

He'd changed. A moment before he'd been the friendly old professor showing off to the visitor. Now he'd forgotten she was there. Mrs. Hamiska came and crouched beside him. Every line of their bodies expressed enthralled[4] excitement. Two terriers at the same rabbit hole.

"Oh, yes," said Mrs. Hamiska. "I think so. I really do think so."

"Whoopee!" bellowed Dr. Hamiska, standing and flinging his cap into the air. It landed halfway down the hillside.

"Let me have a go," said Mrs. Hamiska. "You're a bit too excited."

REVIEW Why do you think Dr. Hamiska is so excited?

Without waiting for an answer she started to chip the clay away from the other side of the cut. Vinny fetched Dr. Hamiska's cap, and then helped him measure and peg out an area around the find. Standing on the rock he began to draw a sketch map. By now Mrs. Hamiska had opened the cut enough for Vinny to see that the fossil was a stubby cylindrical[5] bone with a bulge at each end.

"Is it part of someone's hand?" she said.

4. **enthralled:** absorbed with interest.
5. **cylindrical:** circular, in the shape of a cylinder.

"Their foot, Vinny, their foot!" crowed Dr. Hamiska. "It's a distal phalanx—a toe bone to you, Vinny. You are looking at the left big toe of a creature that walked on its hind legs five million years ago! It's going to be datable by the tuff! And either my name's not Joseph Seton Hamiska or the rest of the skeleton is all there, right under our feet! The oldest fossil hominid yet found! I knew it! I knew it! I knew the moment I woke up that this was my day, and this was going to be the place! Whoopee!"

You could have heard his shouts a mile across the plain. Mrs. Hamiska straightened and watched him, like Mom watching Colin and the boys let the sea run into the moat[6] of their sandcastle, yelling with triumph as it swirled around their ramparts.[7]

"I think you'd better get Sam out here, darling," she said.

"Yes, yes, of course. And Fred and the others—as many witnesses as we can. . . . I'll call them up."

He charged down the hill toward the jeep, where he'd left the two-way radio, but halfway down he stopped and turned.

"Vinny!" he shouted. "Didn't I tell you, the moment I set eyes on you, you were going to bring us luck!"

REVIEW What does Vinny's discovery lead Dr. Hamiska to find?

6. **moat:** water-filled ditch around a castle.
7. **ramparts:** defense barriers around a castle.

Reading & Writing

1. **READING: Character** What impact does Dr. Hamiska's personality have on the story?
2. **WRITING: Narration** What do you think will happen next? Write a scene in which Dr. Hamiska and Vinny present their find to the rest of the team.