



Big Era Two
Human Beings almost Everywhere
200,000 - 10,000 Years Ago



Panorama Teaching Unit
What Does It Mean To Be Human?
The Early Career of Homo sapiens
200,000 – 10,000 BCE

[PowerPoint Overview Presentation](#)
[Human Beings almost Everywhere](#)

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Why this unit?

This unit aims to help students understand what makes our species, known as *Homo sapiens*, unique. It also shows what humans shared with their near relatives among the genus *Homo*. Ninety-five per cent of human history falls within this Big Era, which spans the period from the emergence of *Homo sapiens* to the beginnings of agriculture.

The unit raises several big questions:

- What makes a human being human?
- In what ways did early *Homo sapiens*, the species “like us,” differ from or resemble other representatives of the genus *Homo*, particularly our near relatives, the Neanderthals?
- What can historical evidence tell us about how our ancestors lived before about 10,000 years ago? How reliable are our conclusions from that evidence?
- What features of the way of life of modern humans before 10,000 years ago paved the way for the emergence of the complex societies, or civilizations?
- How do we assess what is historically important using information about this Big Era?

The lessons in this unit focus on three important aspects of the era.

- In Lesson 1 students compare Neanderthals with *Homo sapiens* of pre-30,000 years ago, discussing the question, “Should the U.N. Declaration of Human Rights apply to both species? One of them? Neither of them? Why?”
- In Lesson 2 students draw conclusions about the way of life in an imaginary sub-arctic settlement of about 24,000 years ago. Their investigation is based on site-plans, pictures of finds, and descriptions in form of field-notes.
- Lesson 3 considers on the questions of how well art of this era fits definitions of art, what part it played in the societies creating it, what attempts have been made to decode its meaning, and what it reveals about ways of life and thought of its creators.

Unit objectives

Upon completing this unit, students will be able to:

1. Explain large-scale patterns of change that occurred between 200,000 and 10,000 BCE.
2. Explain the shift in human history from change associated with biological evolution to change associated with culture.
3. Evaluate cause and effect connections between developments in Big Era Two and the emergence of complex societies (civilizations), which occurred in Big Era Three.
4. Assess archaeological evidence, including both its strengths and limitations, and to infer conclusions from archeological evidence.
5. Pose and assess questions about the meaning and significance of historical events.

Time and materials

Each of the three lessons may stand on its own, and each should take one-to-two fifty-minute class periods. Time taken will vary, depending on how long the class spends on introductory activities, discussions, and assessments. If teachers have time for only one lesson, Lesson Two is recommended.

Authors

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Introductory activities

1. Ask students to come up with a list of the things that might be found in the trash (including recyclables) of a family like theirs in a week's time. This listing may be done individually, in groups, or as a class. Then ask students:
 - If all the items they come up with were taken to the dump, covered with ten feet of earth, and left there, what would still be identifiable if someone dug the items up after 100 years? After 20,000 years? After 100,000 years?
 - Suppose the whole contents of a neighbor's home was covered by a volcanic eruption with ten feet of ash, then left to be further covered by twenty more feet of wind-blown earth. What would still be identifiable if someone dug the house up after 100 years? After 20,000 years? After 100,000 years?
 - What might be told about how we live and think by looking at our garbage dumps? What could not be told?
2. This activity could serve as a review of the Big Era One Panorama Teaching Unit.
 - Divide class into groups, and assign each group one of the types of hominids studied in Big Era One (such as the Australopithecines, *Homo habilis*, or *Homo erectus*).
 - Ask half the students in each group to pool their ideas and information about ways in which their type of creature was like humans. Ask the other half to describe ways in which their creature was unlike humans. (Prompts might include upright walking, brain size, controlled use of fire, or per cent of shared DNA.)
 - Ask students to come up with hypotheses about possible reasons for changes in the direction of increasing resemblance to anatomically modern humans.
 - Then ask, "What kinds of evidence would help to disprove or confirm their hypotheses?"

3. Ask the class to share their answers to the following:

- If you had to choose the one characteristic that, for you, defines a human being (that distinguishes clearly between what is human and what is non-human), what would that characteristic be? Why?
- In a follow-up discussion of students' answers, encourage them to think not only in terms of evolution but also about contemporary legal or moral issues, such as abortion, disconnection of life-support machines, or the “dehumanization” of groups considered to be inferiors or enemies.

As an extension activity, suggest that students consider a cluster of characteristics that might define humanness, rather than a single one. Discuss their selections.

Lesson One
Neanderthals and Homo sapiens: Kissing Cousins or Distant Relatives?

Preparation

Ask students to discuss in groups or as a class:

- What kind of a person would you think of if someone said: “Oh, he’s a Neanderthal!”?
- If a group of living Neanderthal people (*Homo Neanderthalensis*) were discovered today, should the U.N.’s Universal Declaration of Human Rights apply to them? Why or why not?

Ask students to read the following information about differences and similarities between Neanderthals and *Homo sapiens*. Then expand the discussion about the application of human rights to Neanderthals by considering the questions that follow Student Handouts 1.1-1.3.

Lesson 1

Student Handout 1.1—Similarities and Differences

Similarities between Neanderthals and *Homo sapiens* up to about 30,000 years ago:

- Both were hunter-gatherers.
- Both lived in small bands.
- Both controlled fire.
- Both produced the same style and range of tools using the same technology: striking flakes off a core of rock and then shaping the flakes into various scraping, cutting, and chopping tools; both set chipped stone into hafts.
- For neither is there evidence for storage of food or raw materials.
- Brain size of both is in same general range.
- Casts of brains show evidence suggesting that they were both right-handed.
- Casts of brains suggest that the two main brain areas involved with language were as well developed in both as they are in living *Homo sapiens*.
- The one undamaged Neanderthal hyoid bone found, a bone associated with pronouncing words clearly, looks like that of *Homo sapiens*.
- Both practiced human burial showing evidence of a deliberate arrangement of bodies and grave-goods.
- For both there is evidence that ill or injured individuals were cared for by the group.

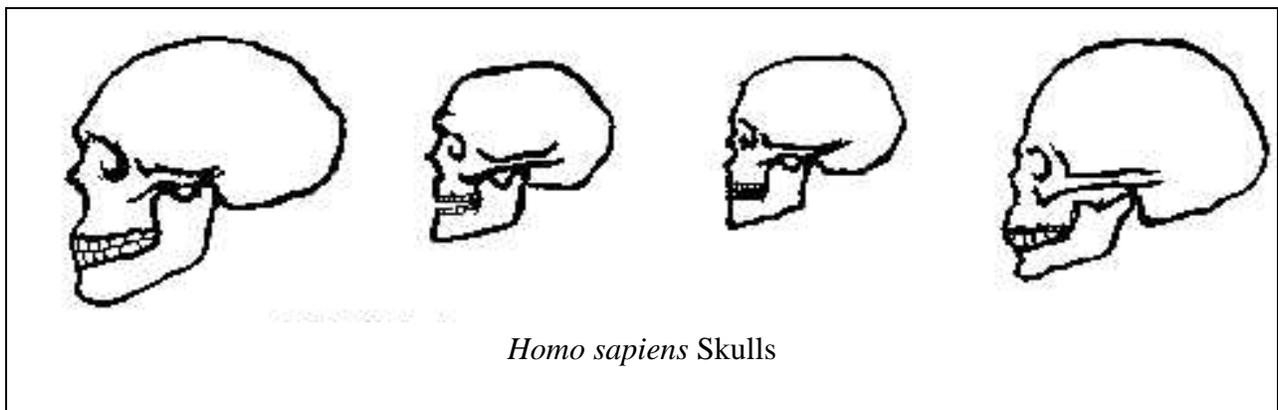
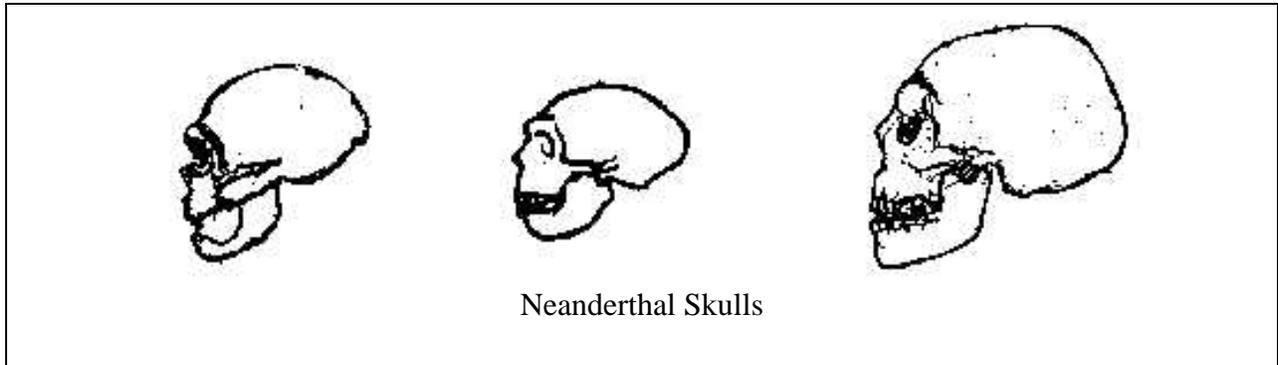
Differences between *Homo sapiens* and Neanderthals up to about 30,000 years ago:

- Genetic study shows that Neanderthal and *Homo sapiens* DNA differ significantly.
- Neanderthals had larger brain capacity (1245-1740 cc) than *Homo sapiens* (1220-1600 cc).
- Neanderthals' larynx (which contains the vocal chords) was higher up in the throat, leaving less of the airspace that helps in pronouncing words.
- Neanderthals had an average height of 5'4" compared to 5'8" for fossil *Homo sapiens*.
- Neanderthal bodies were more cold-adapted with large noses and sturdy, stocky builds, and heavy bones. Those living in warmer conditions in Western Asia were lighter in build.
- The Anatomy of Neanderthals' hand suggests they had a stronger but possibly less precise grip than *Homo sapiens*.
- Between about 200,000 and 30,000 years ago, *Homo sapiens* spread from Africa to Asia, Australia, Europe, and perhaps America, while no Neanderthal remains have been found outside of Europe and Western Asia.
- Neanderthals used raw materials from no more than about 30 miles away; *Homo sapiens*, from hundreds of miles away.

- Neanderthals continued to produce the same kinds of tools the same way during their entire existence, though evidence from about 35,000 that at some sites suggests that they made tools like those of nearby *Homo sapiens*. Also, *Homo sapiens* began to use radically new raw materials and technologies from about 40,000 years ago, and did so increasingly fast.
- Neanderthals tended to occupy their living sites, often caves, year-round, and had to range far daily to find and carry back food to home base. *Homo sapiens*' sites were quite often in the open, and the species moved seasonally or occasionally to be near resources, which overall meant less walking and carrying.
- Neanderthal life expectancy was less than 40 years; *Homo sapiens*' life expectancy was about 50.
- Neanderthal populations numbered fewer than sapiens under the same conditions. Their more robust bodies and their need to walk and carry more required more calories. Therefore, even with similar resources and methods of resource use, a given environment could support fewer Neanderthals.

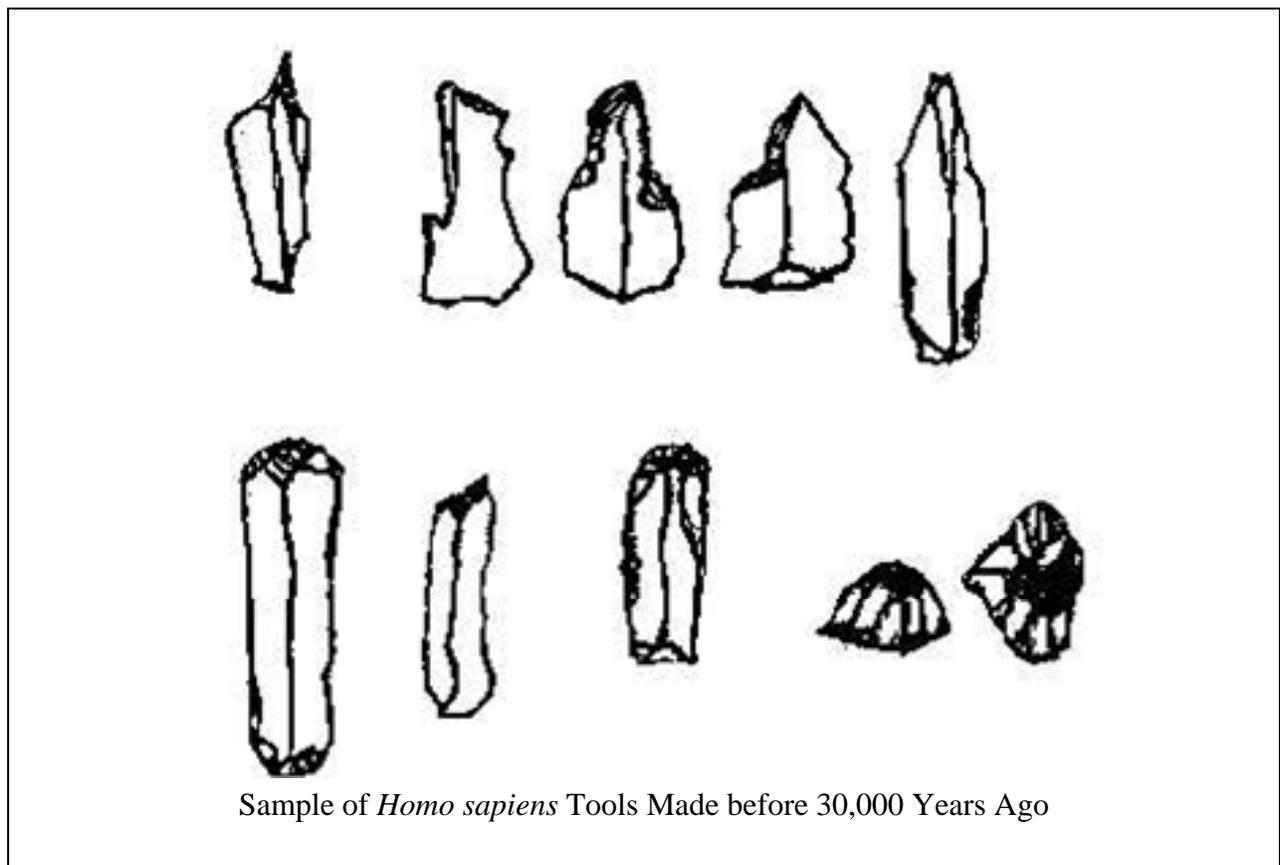
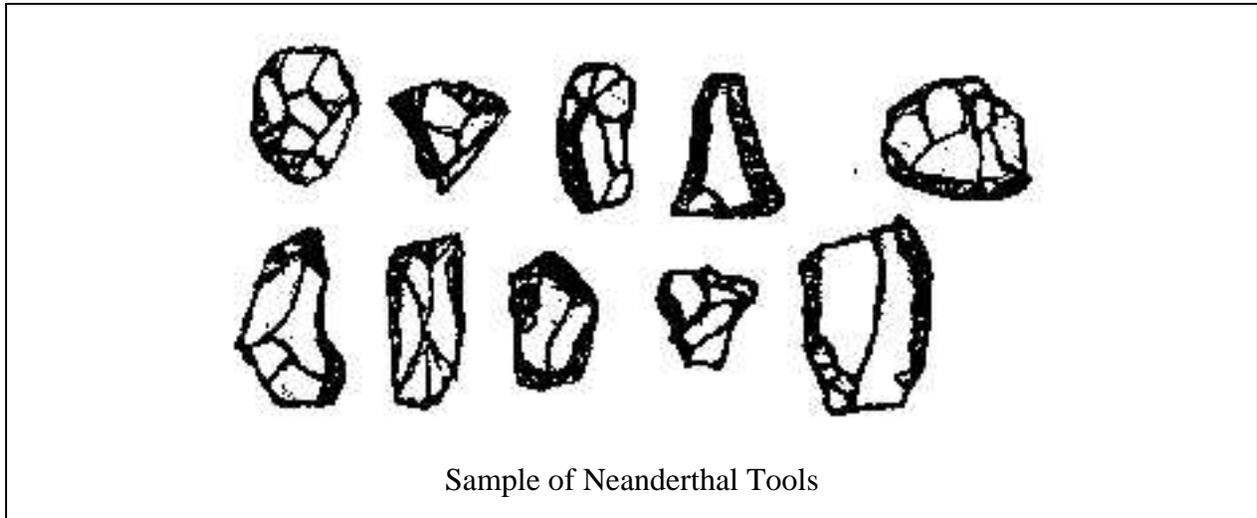
Lesson 1

Student Handout 1.2—Similarities and Differences: Skulls



Lesson 1

Student Handout 1.3—Similarities and Differences: Tools



Discussion Questions

1. What would you say were the three most important similarities and the three most important differences between Neanderthals and *Homo sapiens*? Explain your answer, including how you decided what was “important”.
2. Do you think Neanderthals and *Homo sapiens* were more different or more similar? Explain your answer.
3. What important questions about Neanderthals and *Homo sapiens* does the information above leave unanswered? What additional kinds of evidence might help answer these questions?
4. Compare what different students considered “important” in establishing similarities and differences between the two species? What measures did students use to establish importance? How would you account for the differences in what people considered important?
5. The U.N. Universal Declaration of Human Rights’ First Article reads: “All human beings are born free and equal in dignity and rights. They are endowed with reason and conscience, and should act towards one another in a spirit of brotherhood.” How would you argue in favor of the hypothesis that both Neanderthals and *Homo sapiens* were “endowed with reason and conscience”? On what basis would you argue against it? What questions would you like to have answered before you would vote on giving either Neanderthals or *Homo sapiens* before 30,000 years ago “equal dignity and rights” with yourself?
6. Would you agree with the statement that “a human is anyone other humans accept as human?” Why or why not?
7. Besides the question of “how human were they,” what other question or questions about Neanderthals would you consider historically important? Why?

Assessment

Assume that a small population of Neanderthals has just been discovered living in a remote area. At a meeting of the United Nations, delegates are arguing the case for including them under the protection of the Universal Declaration of Human Rights. You are a lawyer charged with arguing the case. It is up to you, based on the information available to you, to argue in favor (taking into account all the possible objections) or against (taking into account all the possible points in favor) the case. Write out your argument, based on as much as possible of the information available to you.

Lesson 2

Be an Archaeologist!

This lesson asks students to reconstruct the way of life of a people who, about 24,000 years ago, shared their world with glaciers and mammoths. The clues in the student reading, and the accompanying illustrations, will help them do this. They will have to draw on the detailed evidence given, make inferences from it, decide what information is important, and use their imaginations.

The settlement described in their reading is an imaginary one based on a composite of information from real archaeological sites. These sites are located in the Czech Republic, the Ukraine, and Russia. Archaeologists date them to between about 28,000 and 14,000 years ago. The sites share many cultural features.

Teachers who wish to simplify this lesson may do the following: Use Student Handouts 2.1-2.3 illustrations and in the student reading use the first three paragraphs (omit preparing way for civilization), the Location and Date of Site, and the first four paragraphs of the Background Information. Omit discussion question 3 and adjust Assessment 1 as needed.

Instructions

Imagine that you are the archaeologist who has just finished excavating a site. The following description is a summary of the field notes from your team. After reading the description, and discussing it with your classmates, you will be asked to report either to your home newspaper or to the research foundation that financed the excavation. Also, refer to Student Handouts 2.1-2.3. You as team-leader are going to:

1. Draw conclusions based on the evidence discovered about the people who inhabited the site.
2. Identify features of their way of life that might have prepared the way for the more complex way of life often called “civilization.” That complex way of life included stored economic surpluses, specialized jobs, organization of people in increasingly large groups, unequal power-holding, and communication using writing systems.

Location of Site

The site is in modern Ukraine. At the time of occupation by humans, the site was located on a plain with a few outcroppings of rocks and about 15 miles from a river rich with fish but frozen over in winter. The site was about 300 miles south of an ice sheet that extended from the Arctic. Temperatures dipped to -35° F in winter and rose to 70° F during the short summers. The earth was permanently frozen at depths of 2-4 feet. The surroundings were a tundra/steppe ecology with sparse vegetation and few trees. Large herds of mammoth, woolly rhinoceros, reindeer, bison, horses, wolves, arctic foxes, as well as ground squirrels, grouse, and other birds and rodents occupied the neighborhood.

Date of Site

Dated by carbon 14 method to between 24,000-23,000 years ago.

The Site and Finds at the Site (See Student Handouts 2.1-2.3)

There are five areas, two of them roughly elliptical and three of them roughly round. They were shallowly hollowed out to depths of about 1-3 feet, varying in size from about 450 (Area 3) to 990 square feet (Area 1).

In each area were several holes about 12-24 inches deep and some 10 inches around, as well as mammoth skulls, jaws, tusks, long bones, and shoulder blades. Bones of the same mammoth were found in different areas. More than half of the mammoth bones came from individual animals (850 different individual mammoths' bones were identified at the site) that had lived at very different time periods, some long before the human occupation of the site. Different bones (skulls, long bones, or jaws) were dominant in the different areas.

Area 1, the largest, contained numerous mammoth bones and several large limestone chunks. There were 5 depressions, each 2-3 feet around with ashes in them, partly from burnt bones. Also found were 7 smoothed bones pointed at one end and split at the base, 2 of them broken; 362 shaped flint flakes with more than a dozen different kinds of tools, some of them broken, and several hundred flint fragments; 8 baked clay figurines 3-6 inches in size representing meat-eating animals and, in one case, a human female; one holed wolf-tooth and 12 holed mammoth-ivory beads. (See Student Handouts 2.2 and 2.3.)

Area 2 contained 23 tons of mammoth bones, a single mammoth skull elaborately decorated with lines and dots in red ochre paint, two rings of stones with traces of ash and a few partly-burnt bones of hare and reindeer, and flint blade tools of two dozen different types. A small pit near the inside edge of the area contained an upright female figurine of carved mammoth bone, earth mixed with red ochre, and a mammoth shoulder-blade over the top. (See Student Handout 2.3)

Area 3 contained 385 mammoth bones. Near its middle, a depression roughly 3 foot around and outlined by stones had in it a layer of ashes and charcoal identified as burnt mammoth bones. There were also multiple examples of 17 different types of flint scrapers and a selection of flint blades, a few broken. Many paw-bones of small mammals were found inside, but not other parts of mammal skeletons.

Area 4 contained 12 tons of mammoth bones, 15 large chunks of limestone, two circular patches of ash about 2 feet around, broken animal bone pieces, 3 large chunks of flint weighing 25-36 pounds each, and 29,000 flint waste flakes and fragments (10 per cent of them of a superior flint found only some 300 miles away). The team also found two small pits about a foot deep and two feet around filled with completed flint blade tools with many examples of a few types. Finally, the area included a few each of some three dozen different kinds of tools; 86 wolf and 21 arctic fox teeth, many with holes; 7 pieces of red ochre showing use-wear; and 3 stones hollowed out

as though for grinding, with remains of bones and pigments in the hollows but no traces of vegetable matter. (See Student Handout 2.3.)

Area 5 contained 215 mammoth bones; 11 complete animal and bird figurines about 6 inches and made of clay mixed with powdered bone ash and fired; and more than 5,700 figurine fragments. The area also contained a fired, clay-lined depression with ash deposits and fired clay fragments and a narrow channel leading from it to the area's edge. Tests show that the figurines were fired at temperatures of 500-800 degrees centigrade and that breakages were not accidental. The way the figurines fractured shows they must have been deliberately placed in the hottest part of the fire while still wet. Therefore, they were deliberately caused to explode.

Between Areas 1 and 2 were found complete skeletons of two male adults (one in his 20s, the other in his early 30s) and one teenaged male *Homo sapiens*. Holed ivory beads and wolf-teeth were laid around the adults' skulls and hips. A large patch of red ochre was next to the right hand of the teenager.

At distances of 12-18 feet from Areas 1 and 5 and from each other were 6 pits each about 6 feet in diameter and 3-4 feet deep, extending below floor level. Pit 1 had piles of small mammal skeletons mostly complete except for missing paws. Pits 2 and 3 contained mixed animal bones, broken terra-cotta and flint pieces. Pits 4 and 6 contained a layer of ashes mixed with some charred bones. Pit 5 had several dozen flat baked clay pieces 3-16 inches in size, some of them showing imprints of twisted and interlaced plant fiber, which suggested traces left by baskets, netting, or weaving. (See Student Handout 2.1.)

The many bones, other than mammoth, found at the site were identified as about 30 per cent small meat-eating mammals (such as fox and wolf), 20 per cent hares, 20 per cent reindeer, 10 per cent bison, 9 per cent birds, 7 per cent horses, and 4 per cent fish. Many of these bones show cut marks and/or traces of burning.

A number of sea-shells were found in several places on the site. Some of them were holed and they can only have come from sources over 1000 miles away.

In several locations within a 5-mile radius of the human-related remains, large, random accumulations of mammoth bones were found, weathered to different degrees. They dated from various times (some from centuries before human occupation of the site) and showed no cut marks or charring.

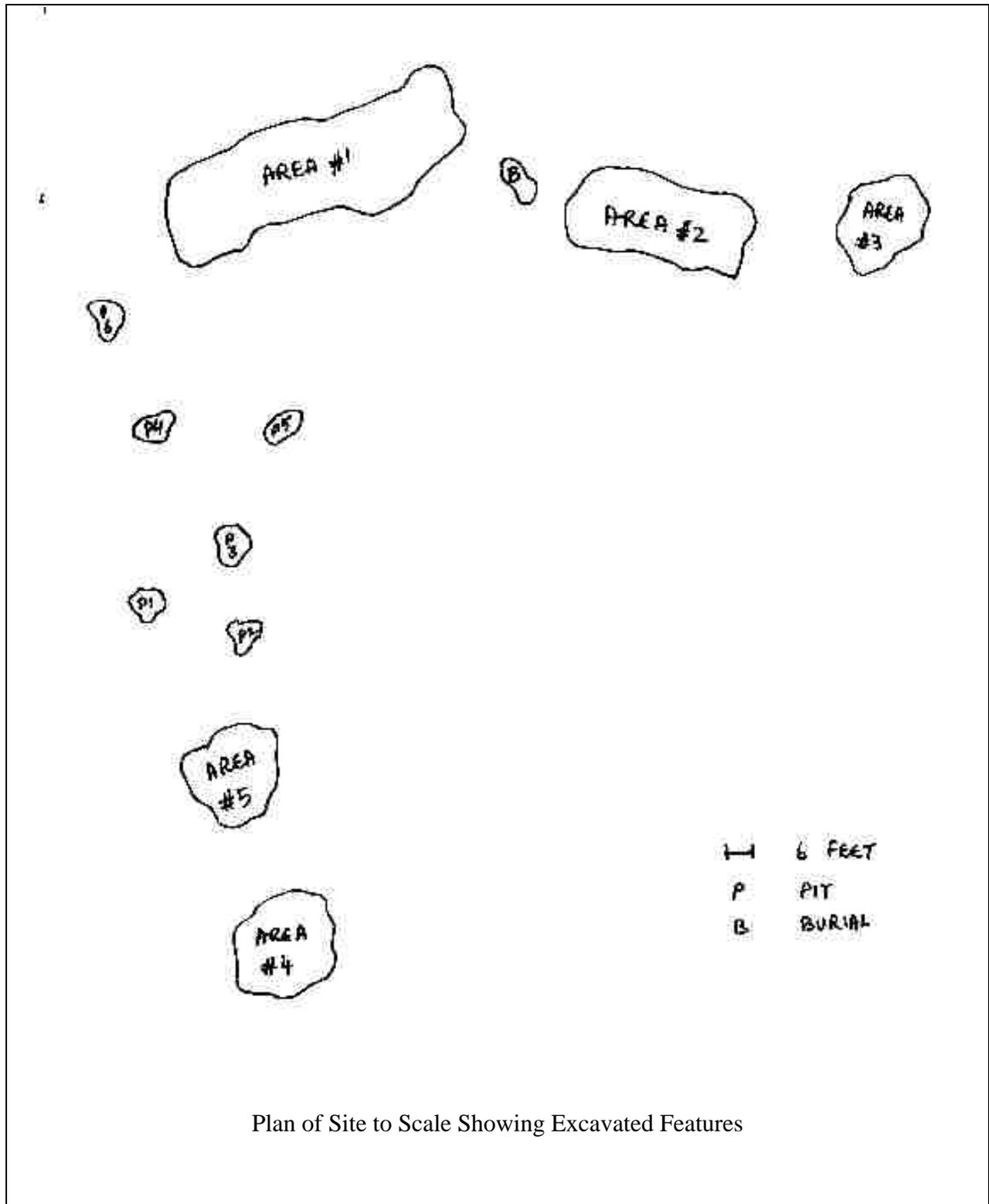
Some Background Information:

1. Live mammoths stood about 10-14 feet tall at the shoulder. A single mammoth skull, about 4 feet tall, weighs about 180-220 pounds. A tusk, up to about 10 feet long, may weigh about 440 pounds.

2. There is evidence from well before 24,000 years ago of both bone and flint points having been fixed to wooden hafts to make spears. But not until thousands of years later is there any evidence of use of spear-throwers or bows and arrows to propel points long distances.
3. Female figurines very similar to the one at the site have been found all across Eurasia from Spain to Siberia. They have been dated variously between 28,000 and 15,000 years ago.
4. The territory needed to support a group of hunter-gatherers depends on how rich the resources are in that territory. Estimates vary from 2 square miles needed per individual in rich environments to 77 square miles needed in barren ones.
5. Studies among present-day hunter-gatherers show most of them living together in groups (usually known as bands) of 20-70 people (roughly 1-3 dozen adults, plus children). The members are mostly connected by birth or marriage and typically space their children about 4 years apart.
6. To avoid unhealthy inbreeding, a group of at least 475 individuals from which to select mates is required.
7. Most hunter-gatherer bands known from historical times are more or less loosely joined with other bands to form a larger group commonly known as a tribe. This larger group meets only occasionally (though often at regular intervals), and ranges in size from about 500 to 800 people.
8. Red ochre is known to have been used in various places in historical times to smooth animal skins, treat human wounds, and to decorate the body.

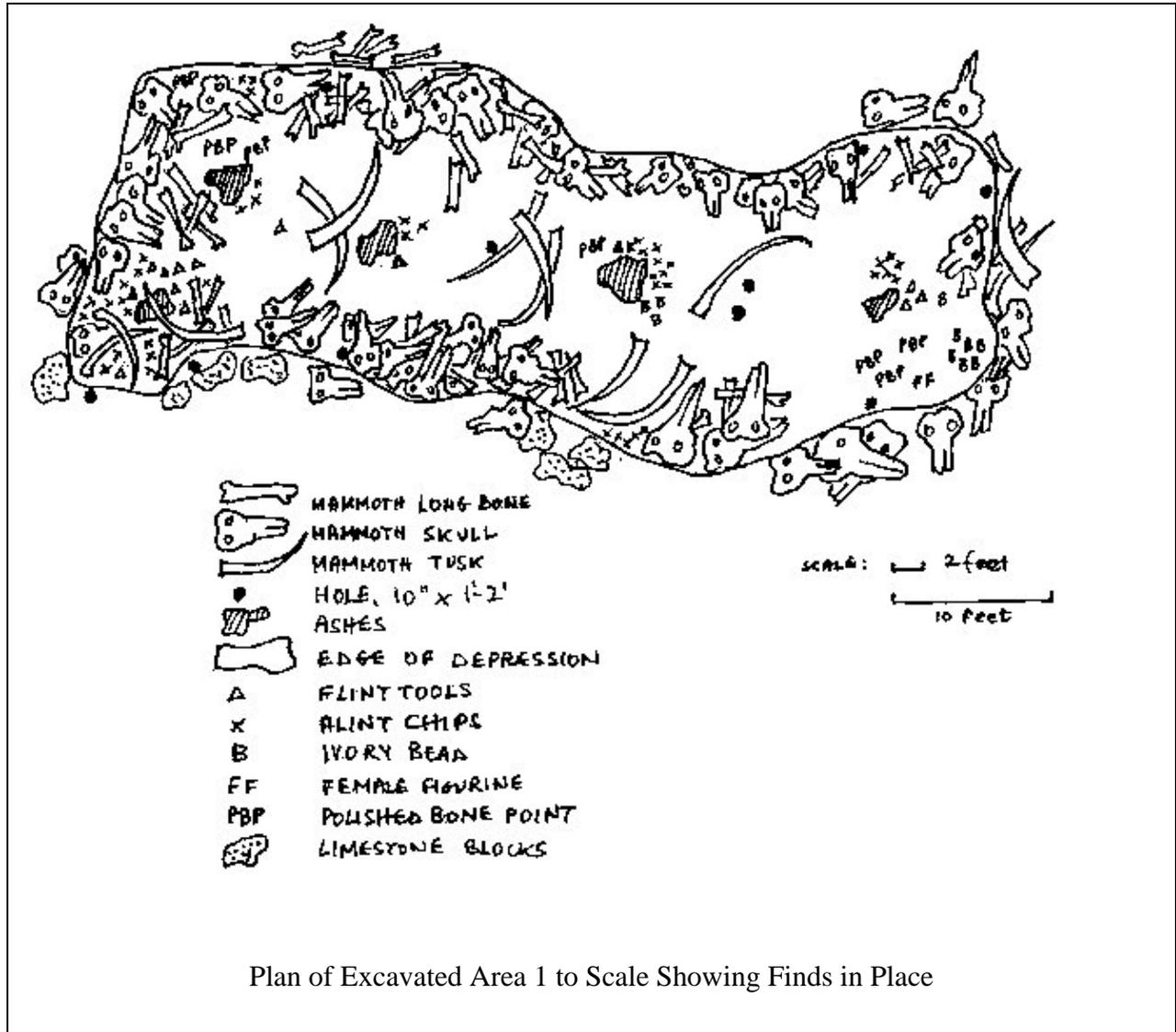
Lesson 2

Student Handout 2.1—Excavated Features



Lesson 2

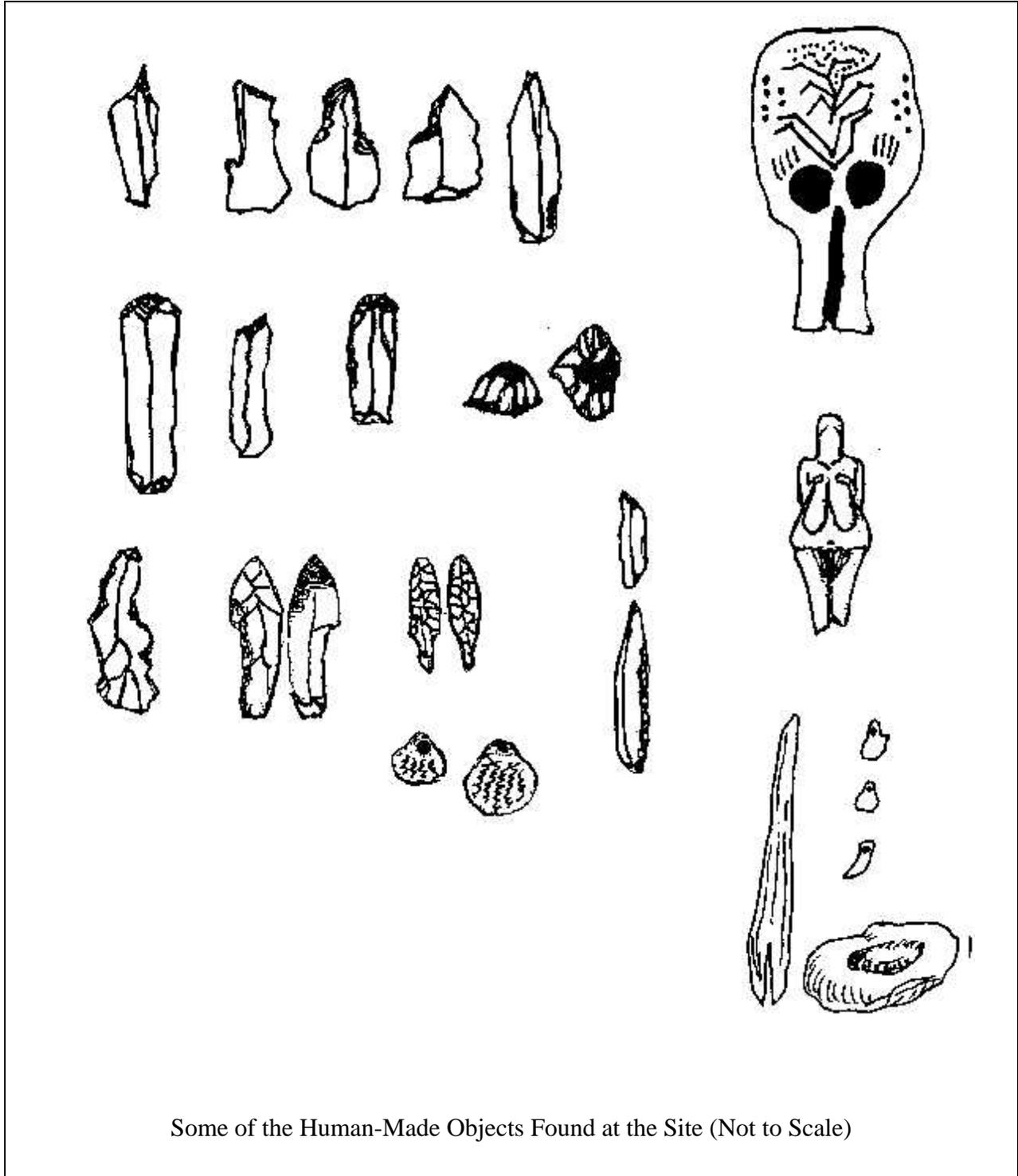
Student Handout 2.2—Finds in Place



Plan of Excavated Area 1 to Scale Showing Finds in Place

Lesson 2

Student Handout 2.3—Human-Made Objects



Discussion questions

1. What are the most important conclusions you would draw from this excavation. What evidence would you base them on, and why do you consider them the most important?
2. What important questions about the people who lived there are left unanswered by the evidence of the remains? Why do you consider those questions important, and what sort of new evidence might answer those questions?
3. What was there in the way of life of the people living at the site that set the stage or prepared the way for the emergence of the more complex societies, often called civilizations, which have stored surpluses, specialized jobs, an organization of people into increasingly large groups, unequal power distribution, and communication using visual symbols?
4. Would you agree or not agree with the idea that the life of the people occupying the site must have been “poor, nasty, brutish, and short”? Why or why not?
5. An extension question: Imagine that you are living in Ice Age Ukraine. Given the same environment and having the same resources as the people who inhabited on the site, what would you have needed to keep yourself alive? Could you improve on the ways they had of keeping themselves alive? How?

Activities

1. Based on the evidence shown in the plan of Area 1, as well as other information from this lesson:
2. Give a description, or make a picture, of what the area would have looked like at the time that people lived there.
3. Imagining that you lived on the site 24,000 years ago and knew how to write (which of course no one in that era could actually do!), compose a set of diary entries describing daily events, as well as the behavior and feelings of yourself and members of your household.
4. Estimate the number of person-hours per day it would have taken to produce sufficient food and other resources for the people who inhabited Area 1. Consider the time needed to find, gather, hunt, and prepare food, provide for shelter and warmth, and look after children.
5. What hypotheses might explain why no fish bones were found at the site? What evidence might help to validate any of these hypotheses? Which hypotheses do you find most convincing and why?

Assessment

1. With reference to the site, ask students to formulate conclusions, as well as explanations and certainties of their conclusions) about such things as:

- Everyday life (such as keeping warm, getting and preparing food and water, building shelter, storing goods, making clothing, and engaging in leisure).
- The number of adults and children who are likely to have lived there.
- Relationships among people who lived there and to people of neighboring sites. (Consider job specialization, egalitarianism and hierarchy, relations between women and men, and trade and gift exchange).
- Ideas and beliefs.

2. Tell students: You are the archaeologist who excavated the site. You will:

- Write an article for your home-town newspaper about your discoveries, giving an account of the life of the people who lived on the site based on the evidence of field notes and your interpretations of them. Give some idea of the reliability of your conclusions by using words such as “definitely,” “probably,” and “perhaps.” (This activity is good for grades 6-9).
- Report to the Trustees of the Foundation that supported the excavation. Give an account in as much detail as you can of the way of life of the people whose remains are described. Take as much of the evidence into account as you can. Assign reliability values (where 10 is certain and 1 is a plausible guess) to your statements. (For instance, “Women did the cooking” might be given a 4. “People deliberately buried their dead” might be given a 10”). In a concluding paragraph, sketch what characteristics of the way of life of these people might have foreshadowed the possibilities of civilizations.

Lesson Three
Art Before 10,000 Years Ago
Graffiti, Magic, Vision-Quest, or What?

Introductory Activities

Ask students to take notes of the results of the following activities and to keep these notes in mind while reading and discussing the information below about art in Big Era Two.

1. Ask students to come up with and share five examples of what they would consider “art.” Ask what characteristics (if any) the examples given have in common. Then ask: What does each of the following have that makes it art, or what does it lack that prevents it from being art? (Different groups might be assigned to work on one or two items each, then share the outcomes with the whole class.)

- costume jewelry
- tattoos
- the pictures and designs you draw on the margins of your text or notebook pages
- a child's finger painting
- illustrations in a field guide to identifying animals
- a framed canvas painted with squares and rectangles
- a watercolor of horses
- a classical Greek statue of the nude Goddess of love

After discussing the responses, ask students to come up with a summary of the characteristics that, for them, define “art.”

2. Ask students to speculate on what the purposes and uses of art are. Why do artists make art, and what does it do for them? What does art do for the viewer or listener and for the society in which it is produced?
3. Ask students how they would explain why humans are the only creatures that produce art.

Instructions

Ask students to read Student Handout 3.1 and to study the illustrations in Student Handouts 3.2-3.4. The readings are divided into segments of 1-2 pages each. Groups of students may each be given a different segment of the reading, then the groups may be recombined to share information before all-class discussion of the discussion questions that follow the handouts. Students will find it helpful to refer to the illustrations before, during, and after doing the

reading. It will also be helpful for students them to take a “virtual tour” of decorated caves of paleolithic times. These tours can be accessed on web sites listed under Resources at the end of this unit.

Lesson 3

Student Handout 3.1—Readings on Art

The Art Revolution: Who, When, and Where?

Humans are the only creatures to make their mark on their environment by creating art, and our species alone has unambiguously and consistently done this. Many scholars say that language and art are the hallmarks of humanity. Both are means of communication that use symbols to represent the imaginary, the abstract, and real things that are distant in time and space. This could not be done by the gestures, facial expressions, and calls that all primates use for communication.

Both language and art also depend on agreement within a particular group of people as to the meaning of particular sounds or images. “Hund,” “chien,” “kalb,” and “dog” are words that all sound different, but each refers one specific species of animal. Particular kinds of arrangements of colors and lines are considered beautiful or striking by some groups but not others. The same image may have varying meaning for different groups. The swastika is an example.

Language can convey complicated ideas, for example “If you are free of sin, you will go to Heaven after death.” or “Let’s humiliate them by giving them lavish presents, knowing they will be too poor to give us gifts in return.” Art can portray imaginary animals and composite creatures that are part animal and part human (cave paintings of the paleolithic era do this). A single image can carry much information and meaning, which may be shared and understood by many.

A few examples dating to 90,000 or more years ago show deliberate human creation of what might be called forerunners of art. Semi-circles, zigzags, and parallel lines engraved on bone, stone, and rock have been found in different parts of Afroeurasia. An unworked rock that roughly resembles a human female has human-made grooves carved around its “neck” and “arms.” Archaeologists have uncovered shells and animal teeth with grooves cut around the top, as well as deliberately shaped ochre “crayons” that show wear from use. (Ochre is a yellow, brown, or red iron oxide found in lumps in some areas.) Scattered in space and in time, the dating of these objects is often disputed.

From about 35,000 years ago on, we have consistent and abundant evidence of *Homo sapiens* making art of various kinds: paintings, engravings, and sculptures in stone, bone and clay, as well as music-making and probably dancing. From this period we have many unquestioned examples of art from Afroeurasia and Australia, though not the Americas, where humans only arrived 30,000 to 12,000 years ago.

In the Dark: Art in Caves

The most striking examples of Ice Age art are found in more than 300 caves, some 80 per cent of which are concentrated in southern France and northern Spain. Several caves are clustered elsewhere in those two countries, in Sicily, and in a few are scattered places across central and eastern Europe. People produced this cave art between 32,000 and 11,000 years ago, when the population of Europe is estimated to have been as little as 12,000.

Explorers and archaeologists were still finding new caves with in the 1990's. Many suitable caves in France and Spain, however, have no art in them. We do not know why people chose to work in some caves and not in others. In many of the caves that were favored, people created images during several different time periods, sometimes hundreds or even thousands of years apart. The pictures were often drawn or painted on top of each other haphazardly, so that later work might cover up or confuse earlier painting and engraving.

The art works were typically created deep within the caves, well beyond the reach of daylight and often hard to get to. Reaching the work often meant crawling on hands, knees, or stomach through tight, muddy, and winding passages. One might also have to sidle along narrow ledges next to steep drop-offs, climb up through clefts, or descend into pits. Sometimes one had to cross underground rivers or lakes. Danger of making a wrong turn and losing the way always lurked. Many pictures were so high up on walls that scaffolding must have been used to produce them. (In a number of cases, slots in the rock and holes in the floor to support scaffolding have survived). Other pictures, located under low rock ledges, could only be seen by sliding on one's back.

In Africa, Australia, and Europe, we have also found designs in many accessible "daylight" places such as in shallow rock shelters or on free-standing rocks. These works date from the whole range of time from 35,000 to 11,000 years ago, some even earlier. Many more creations probably existed but have not survived to the present.

Small-scale moveable art objects, including engraved and shaped bone, antler, stone, and rock, have often been found in decorated caves, as well as in open sites. Some sites contained thousands of moveable objects. Others had none, or only a few. Art also decorated useful objects such as spear-throwers or lamps. So many small, moveable pieces of art in decorated caves have been in broken condition that some scholars suggest that people must either have deliberately damaged them or have brought broken pieces to the caves from elsewhere.

Researchers, fascinated and often baffled, have exhaustively studied and speculated about cave and moveable art for well over a hundred years. Their ideas and conclusions have varied a great deal and have been influenced by their own various backgrounds, interests, and points of view.

A Bewildering Wealth of Shapes

Most often shown and studied in books, films, and museums are the amazing lifelike portraits of animals that appear on paleolithic cave walls. In fact, people produced a much greater number of pictures of geometrical shapes, dots, stencils of hand prints, and puzzling marks such as the “spaghetti” created by moving several fingers along a wall. In European cave art, animals featured are overwhelmingly prime adults. A small minority of animal images, especially on bison, show marks that some scholars have interpreted as “wounds.” These may appear in association with images of what may be lances, arrows or traps. What species of animals artists depicted and in what proportions differed from cave to cave and period to period, depending partly on what animals were hunted at the time and place the art was produced.

The styles in individual caves varied. Some techniques are found in only one area, for example, modeling or outlining in clay. Nevertheless, there is an overall unity of style and custom in the cave paintings and engravings spanning some 20,000 years and distributed over hundreds of miles. Most of the work may be consistently identifiable as “ice age art.”

The images are accurately observed and life-like but are in outline and not to scale. For example, a painted mammoth may be smaller than a horse placed right next to it. The animals are almost always shown in profile. The whole animal is shown (generally smaller than life-size) most often. Animals are depicted with no surrounding context: no ground line, no setting of natural features, no horizon. No images have been found of natural features such as mountains, rivers, sun, stars, trees, or plants, or of human-made tools. There are very few “scenes” of interaction that show, for example, fighting, mating, or a narrative story. Images of pregnant or baby animals are extremely rare.

There are many more examples of animal than human images in known cave art. Two exceptions are the very abundant stencils of hands, which often appear with part or all of one or more fingers missing, as though either amputated or held bent. Only about twenty of the human images on cave walls show the complete figure. Compared to the animals, they are crudely drawn and not naturalistic. Mixed animal-human images (See Student Handouts 3.3 and 3.4) are even fewer.

Virtually every decorated cave features many abstract patterns such as wavy bands, dots in random or patterned shapes, zigzags, grids, lines, and rectangles with cross-hatchings. (See Student Handout 3.2). Abstract shapes also appear on decorated bone and antler pieces. After about 11,000 years ago, purely geometric images take over and naturalistic animal pictures disappear.

Many thousands of Big Era Two moveable art examples are known from Europe alone. They are both two and three dimensional and feature painting and engraving. They show basically the same range of subject matter as does the cave art. One distinct difference in the 29,000 to 21,000 years ago time frame is the presence of many striking female images. Virtually no unambiguously male images are known from this time. About 150 palm-sized sculptures of nude

women, generally known as “Venus figures,” have been found. They show exaggerated breasts, buttocks, and in some cases bellies. They also typically have small, sketchy, and faceless heads, thin arms or none, hands missing or barely indicated, and short tapering legs that end in a rounded point or tiny feet. A few depict hairstyles, aprons, shoulder straps, neckbands or waistbands.

About a third of the female figures are complete. Most were carved in stone, ivory, or bone and a few were made of fired clay. They have been found in caves, storage pits, and what may have been houses at 24 different sites, ranging from France and Italy through Central Europe and the Ukraine to Siberia. They vary somewhat by time and place, but they show a strong similarity in style and in the details of bodily distortions, even though they have been recovered from a region thousands of miles across.

The Technology of Art: How Did They Do it?

Red paint was made from ground-up and powdered iron oxide, black from manganese oxide or charcoal, and brown or yellow from ochre heated to different temperatures. Varying shades of color resulted from mixing several ground minerals. Natural features in rock walls, such as bulges or cracks suggesting animal shapes, probably influenced the placement of images. An artist might scrape a rock surface before applying paint. He or she might also mix pigment with plant oils, animal fat, or mineral-rich cave water, though in many cases finely powdered pigment was blown or dabbed directly onto the damp cave wall.

Artists sometimes formed lumps of pigment into crayons. They also applied paint with brushes, their fingers, pads made of animal fur, and their mouths by blowing it through hollow bones. Containers for paint varied from hollowed-out rocks to shells and vertebrae. To light up caves they used fireplaces, torches, and, from about 20,000 years ago, lamps made by floating a wick in animal fat. Archaeologists have found traces of these light-producing devices.

Music and Dance

Scholars have identified more than 30 flutes, equipped with 3 to 7 finger holes each, dating mainly to 30,000 to 20,000 years ago. The majority, made from hollow bird bones, have been found in France. Others, made of reindeer and bear bone, originated in central and eastern Europe. A few “bullroarers,” that is, flat oval objects that make a loud hum when whirled on a string, have also been found.

Footprints of adults, teenagers, and children have been discovered in several of the caves along with art. In some caves the prints have been identified as having been made by a few people, in other cave, by very many. In some, the footprints form patterns that look as if they were made by people dancing.

Decoding the Meaning

Scholars have put forward the following explanations for the art described above. All of these theories have followers, but no single one has been generally accepted. They are listed in chronological order, starting with the earliest.

- Theory 1: Art for art's sake. People of the paleolithic era were excellent big-game hunters, who consistently brought home large amounts of food. So they did not need to work very hard and had plenty of leisure time. They spent some of this time producing artistic decorations for pleasure.
- Theory 2: Sympathetic magic. The idea that making an image of something gives the maker power over that which is imaged and that what is done to an image affects whatever the image represents has been characteristic of a number of societies. Depicting wounded or incomplete animals or drawing lines over or obliterating pictures of animals was a way actually to create wounded, dead, or weakened animals, thereby helping to feed the band. Showing animals in their prime may help produce and give power over such animals. Statues of women with exaggerated breasts, buttocks, and bellies may be intended to represent pregnancy, thereby helping to create pregnant women and add new members to the band.
- Theory 3: Handbook of information about hunting. Abstract figures and shapes show tracks, droppings, and marks made by deer rubbing their antlers on trees. Details of the animal images sometimes show which prey were desirable and which were dangerous. Art during this time may have been a teaching tool. Exposing young people to it taught them lessons about the hunt. Painting may also have been a kind of information storage system—a remote forerunner of CD-ROMS!
- Theory 4: Vision quest for spirit-animals. Paleolithic people may have thought of walls and floors of caves as boundaries between this world and the spirit-world, which many spirit-animals inhabited. A shaman, or specialist in communicating and interpreting supernatural phenomena, could, according to belief, get in touch with spirit-animals while under the influence of sensory deprivation (dark, silence, isolation), hallucinogenic drugs, or pain (handprints on cave walls sometimes show mutilated hand prints). Geometric images may be interpreted as similar to what we know of the early stages of trance. Most features of cave art can be related to altered states of consciousness known from various societies in later historical periods.

Scholars have also given radically different explanations for specific kinds of art. For example, female or “Venus” figurines have been variously interpreted as:

- Fertility magic—showing figures of women as pregnant to help make women pregnant.
- Erotic objects for men.
- Forerunners of the mother-goddesses of later times.

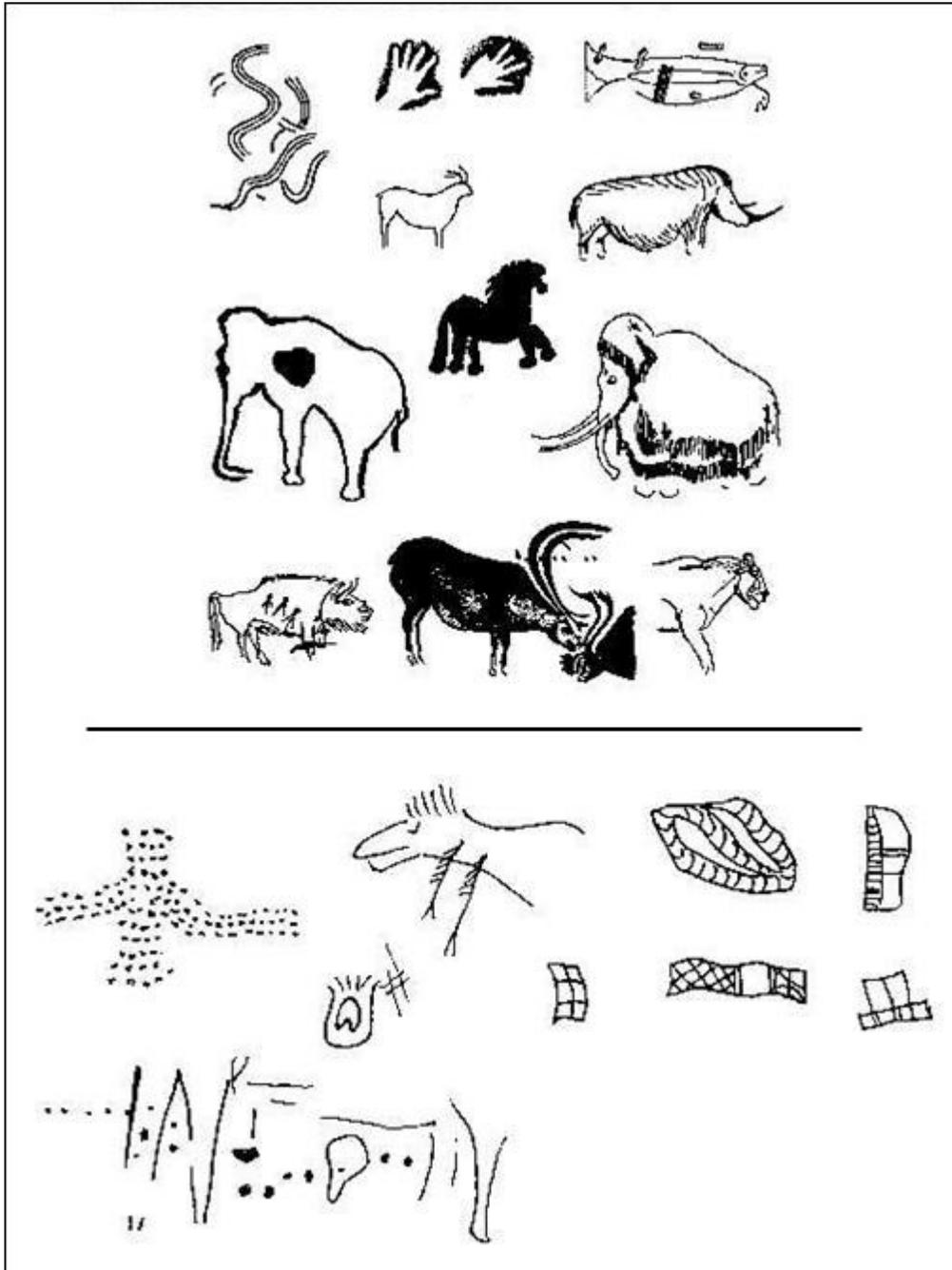
- Female ancestor figures in societies where descent and inheritance were reckoned through women.
- Objects by which women communicated ideas and messages to one another.

Stencils of handprints, which have appeared in large numbers cave walls or rocks in Europe, Australia, and the Americas, have been interpreted as:

- An effort to seal the hand to the world of spirits that lies behind the wall or to reach through the wall to enter that world.
- The artist's signature.
- The message, "I was here!" (Like carving one's initials into a surface or painting graffiti.)
- A territorial claim on the part of a group.

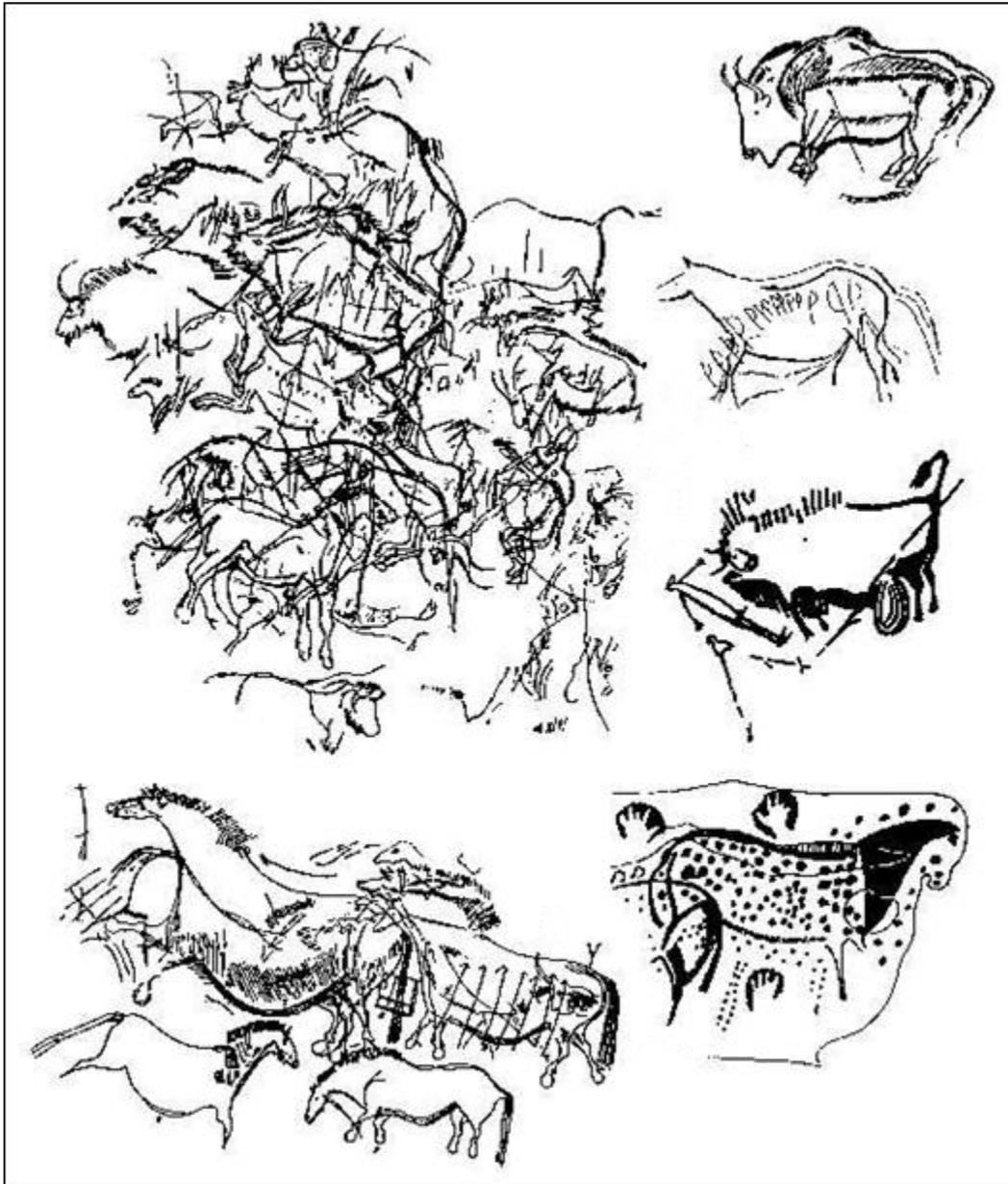
Lesson 3

Student Handout 3.2—Cave Art from Various Sites and Dates, 35,000-10,000 BCE



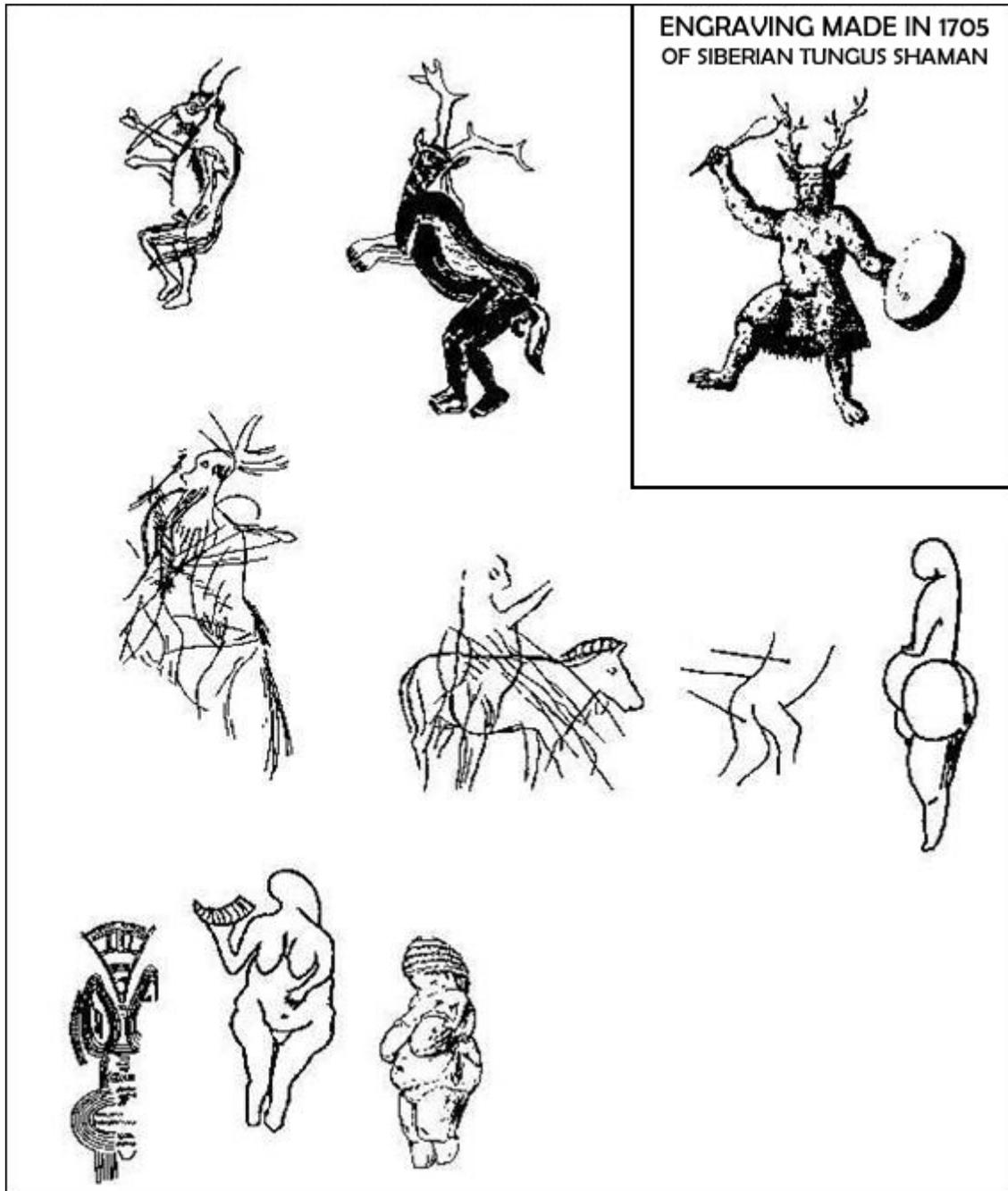
Lesson 3

Student Handout 3.3—Cave Art from Various Sites and Dates, 35,000-10,000BCE



Lesson 3

Student Handout 3.4—Cave Art from Various Sites and Dates, 35,000-10,000BCE



Discussion Questions

1. What in the account of art produced in Big Era Two fits your own, and the class' definitions of art? What, if anything, in paleolithic art is similar to examples of art discussed as part of the Introductory Activities?
2. What would you say art during Big Era Two did for the artist—why did they produce the art? What did the art do for those who saw or heard it?
3. What might this art have done for the society in which it was produced?
4. What in the reading supported, and what contradicted, your explanation of why humans are the only creatures to produce art?
5. What could be said in favor of or against the claim that art rather than language is the most important characteristic defining human beings?
6. What is there about art made during Big Era Two that you consider to be of the greatest historical importance? How are you measuring importance? Compare the measures used by students in class to establish importance. What part does point of view play in the ways importance is measured? Are all measures of importance equally valid? Why or why not? How could historians validate the measures of importance they use?

Activity

What evidence in the information given in this unit can you find that supports, and what evidence contradicts, each of the four art-making theories listed under the “Decoding the Meaning” section in Student Handout 3.1. Having discussed all the evidence pro and con for each theory, which one do you yourself find most convincing, and why? What other theory might you propose, and why? This activity lends itself to small group work.

Assessment

What conclusions can you draw from the evidence of art about the following aspects of *Homo sapiens* life between about 35,000 and 11,000 years ago?

- technology
- economy
- social organization (division of labor, power-relations, the influence of gender)
- ideas about the relationship between humans and the environment
- religion

For each of your conclusions, explain what evidence you are drawing on, and your reasoning in interpreting that evidence. On a scale of 1-10 explain how certain you think your conclusions are.

Unit Summary Activity

What Is Important?

This may be either an individual or a small-group activity. Explain to students that a writer created the following chronology to accompany a textbook chapter on the history of humanity before the introduction of agriculture. The publisher, however, has asked that the chronology be condensed to the 15 most important items on the list.

Discussion Questions

Which entries would you choose to drop, and how would you justify your judgment that the ones you take out are less important than the top 15?

Compare the items recommended by different students (or groups of students) to be dropped and the justifications for doing so. How would you account for the differences in what individual students or groups consider important?

Assessment

Assume you are the chair of an advisory board of historians who are asked to settle the matter for the publisher and to give her your justification for your recommendations. Write the recommendations and your justifications of them, drawing on both your own ideas and on class work.

Summary Activity***Student Handout—Chronology of Events*****Chronology of Events****(All dates below are approximate and tentative.)**

<u>Years ago</u>	<u>Event</u>
3,500,000	Australopithecines walk upright on two feet; no reliable evidence for tool-making at this time.
2,600,000	Earliest evidence for tool-making: pebble tools.
2,000,000	Skulls found in Africa in association with stone tools show possible evolution of hominid brain.
2,000,000	<i>Homo ergaster</i> , a hominid species much larger than Australopithecines, emerge in Africa.
1,800,000	<i>Homo erectus</i> , a species related to <i>Homo ergaster</i> , shows evidence of starting to spread from Africa into Southwest Asia, Java, and China; evidence that this species knew how to control fire.
1,500,000	New style of stone technology dominated by hand axes appears; it continues to be produced for hundreds of thousands of years with little change in time or variation from place to place; both <i>Homo erectus</i> and early <i>Homo sapiens</i> produce hand axes.
280,000	New stone technology: some African groups produce blade tools, getting more cutting edge from the same amount of raw material.
200-100,000	DNA studies suggest that a <i>Homo sapiens</i> population directly ancestral to us and estimated to number about 10,000 adults emerges in eastern and southern Africa and gradually spreads across that continent.
200,000-30,000	Neanderthal species in Europe and Southwest Asia the first known to deliberately bury their dead.
90,000	First <i>Homo sapiens</i> migrate from Africa into Southwest Asia.

70-90,000	Art in southern Africa: evidence of notched and cross-hatch-incised bones and red ochre.
60-50,000	<i>Homo sapiens</i> first colonized Australia.
40,000	Total world <i>Homo sapiens</i> population estimated at 200,000.
40,000	New symbolic behavior: in Australia humans cremated their dead and engaged in painting.
35,000	Cave painting and sculpture in southwest Europe; art in southern Africa.
30-28,000	Last known Neanderthal people live in Spain; last known <i>Homo erectus</i> people live in Java. Soon after, <i>Homo sapiens</i> becomes the only human-like creature left in the world
30,000	Total world <i>Homo sapiens</i> population estimated at 300,000.
28,000	New technology: fired clay (terra-cotta) figurines
22,000	New technology: heat treatment of flint cores before chipping to make higher quality products more easily.
19-17,000	Oldest known human-associated cereal grains: charred wheat and barley, roasted seeds, pounding and grinding tools in Egypt.
15,000	New technology: bows and arrows, spear-throwers.
12-15,000	Earliest reliably dated evidence of human occupation of the Americas. Disputed dates of human occupation date to 35,000 or more years ago.

This unit and the Standards in Historical Thinking

Historical Thinking Standard 1: Chronological Thinking

The student is able to (F) reconstruct patterns of historical succession and duration in which historical developments have unfolded, and apply them to explain historical continuity and change.

Historical Thinking Standard 2: Historical Comprehension

The student is able to (H) utilize visual, mathematical, and quantitative data presented in charts, tables, pie and bar graphs, flow charts, Venn diagrams, and other graphic organizers to clarify, illustrate, or elaborate upon information presented in the historical narrative.

Historical Thinking Standard 3: Historical Analysis and Interpretation

The student is able to (H) hold interpretations of history as tentative, subject to changes as new information is uncovered, new voices heard, and new interpretations broached.

Historical Thinking Standard 4: Historical Research Capabilities

The student is able to (A) formulate historical questions from encounters with historical documents, eye-witness accounts, letters, diaries, artifacts, photos, historical sites, art, architecture, and other records from the past.

Historical Thinking Standard 5: Historical Issues-Analysis and Decision-Making

The student is able to (C) identify relevant historical antecedents and differentiate from those that are inappropriate and irrelevant to contemporary issues.

Resources

Instructional resources for teachers

Bahn, Paul G. and Jean Vertut. *Journey Through the Ice Age*. Berkeley: University of California Press, 1997.

Bogucki, Peter. *The Origins of Human Society*. Malden, Mass.: Blackwell, 1999.

Burenhult, Goran, ed., *The First Humans*. New York: American Museum of Natural History, 1993.

Clottes, Jean and David Lewis-Williams. *The Shamans of Prehistory: Trance and Magic in the Painted Caves*. New York: Harry N. Abrams, 1996.

Deacon, Terrence. *The Symbolic Species*. London: Penguin, 1997.

- Diamond, Jared. *Guns, Germs and Steel: The Fates of Human Societies*. New York: W.W. Norton, 1997.
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- Johnson, Allen W. and Timothy Earle. *The Evolution of Human Societies*. 2nd ed. Stanford, CA: Stanford University Press, 2000.
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- - -. *Ice-Age Hunters of the Ukraine*. Chicago: University of Chicago Press, 1973.
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- Smith, Noel W. *An Analysis of Ice Age Art*. New York: Peter Lang, 1992.
- Soffer, Olga. *The Upper Paleolithic of the Central Russian Plain*. Orlando, FL: Academic Press, 1985.
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Instructional resources for students

- Bailey, Jill and Tony Seddon. *Young Oxford Book of the Prehistoric World*. London: Oxford University Press, 1999.
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- McIntosh, Jane. *Eyewitness Books: Archaeology*. New York: Alfred A. Knopf, 1994.
- Middleton, Chris, ed. *Time-Frame: The Human Dawn*. Alexandria, VA: Time-Life Books, 1990.
- Netzley, Patricia D. *The Stone Age*. San Diego: Lucent Books, 1998.
- Wilkinson, Philip. *Eyewitness Books: Early Humans*. New York: Alfred A. Knopf, 1989.

Correlations to National and State Standards

National Standards for History

Era One: The Beginnings of Human Society, 1A: The student understands early hominid development in Africa. 1B: The student understands how human communities populated the major regions of the world and adapted to a variety of environments.

California: History-Social Science Content Standards

Grade Six, 6.1: Students describe what is known through archaeological studies of the early physical and cultural development of humankind from the Paleolithic era to the agricultural revolution.

New York State Learning Standards for Social Studies

Unit One: Ancient World – Civilizations and Religions (4000 BC – 500 AD), A. Early peoples, 2. Hunters and gathers-nomadic groups. 4. Migration of human early populations.

Virginia Standards of Learning

World History and Geography to 1500 AD. Era I: Human Origins and Early Civilizations, Prehistory to 1000 B.C. WHI.2: The student will demonstrate knowledge of early development of humankind from the Paleolithic Era to the agricultural revolution by: a) explaining the impact of geographic environment on hunter-gatherer societies; b) listing characteristics of hunter-gatherer societies, including their use of tools and fire; c) describing technological and social advancements that gave rise to stable communities; d) explaining how archaeological discoveries are changing present-day knowledge of early peoples.