Gathering, Gardening, & Agriculture

Plant-based Foodways in the Southeastern United States

A Fifth Grade Social Studies Curriculum

Arkansas Archeological Survey

Jodi A. Barnes, Emily Beahm, Elizabeth Horton, and George Sabo

2017

Supported by the Southeastern Archeological Conference, the Arkansas Archeological Society, the Arkansas Humanities Council, and the National Endowment for the Humanities.

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The Arkansas Archeological Survey (ARAS) is a unit of the University of Arkansas System dedicated to education, preservation, and research.

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Teaching Social Studies through Archeology

Why Archeology?

Gathering, Gardening, and Agriculture: Plant-based Foodways in the Southeastern United States is aligned with the 5th grade Arkansas Department of Education (ADE) Social Studies Curriculum Framework. It promotes the use of archeology in social studies education in Arkansas's public schools. Each year, hundreds of 5th grade educators teach their students about pre-Columbian societies and early European exploration in North America (ADE 2014), a period known largely through archeology. Archeology is a scholarly discipline that integrates elements of social studies, humanities, and science to reconstruct and study past human communities. Because of its interdisciplinary nature, many upper elementary and secondary educators find archeology an engaging way to teach social studies, history, and science. This curriculum offers lessons and activities to help teachers and students explore pre-Columbian societies and early European exploration, while highlighting specific sites and events in Arkansas.

This curriculum takes a comparative approach to cultural development, while exploring both long- and short-term effects of European colonial influences in the Americas and Arkansas (ADE 2014:H.12.5.1-H.12.5.4). Through this curriculum, students learn key episodes in history, patterns of change through time, and the ways scholars view, construct, and interpret the past (ADE 2014:16). We hope public school educators will use this curriculum to help convey the importance of preserving the past and to generate a more comprehensive understanding of the many ways people have lived in the world.

Archeology studies the human past through objects that people made, lost, discarded, or left behind. It is the record of the past and our database for learning about the people, cultures, and environments that came before us. Archeologists regularly employ conceptual tools such as observation, inference, context, evidence, and chronology to study the record of the human past, as do other scientists and historians. These tools make archeology a hands-on and fun way for educators to teach social studies and for students to experience the past. With its comparative perspective, archeology also offers a way to use knowledge about the past to inform the present and future. It provides an effective viewpoint for teaching cultural understanding, because it allows students to compare different cultural perspectives. Even though nearly all humans need the same things to survive -- food, water, shelter, and companionship, the ways people meet these basic needs can be very different. By examining the creative ways people met those basic needs, students realize that people are more similar than they are different. Archeology is a way to help students see their ancestors in a very human way.

Archeologists, like historians, are interested in change over time. Archeology is one of the few ways to learn about people who left no written records. In North America, this is 97 percent of human occupation and for the rest of the world the percentage is even higher. Archeology and history have similar goals. Both seek to reconstruct and understand the human past. Archeology uses material evidence such as artifacts, buildings, stone walls, fire hearths, butchered animal bones, and charred seeds to reconstruct the past. By looking at changes in the material evidence, like stone tools or plant remains, archeologists can identify both continuity and innovation over

time. In addition, archeologists working on more recent sites often borrow from history to use written evidence such as letters and public documents. When used together these sources complement one another and teach students how to think critically and construct a more detailed picture of the past.

Why Plants?

Plants are the backbone of life on Earth. They are essential for human life and are integrally related to air, water, and climate. Plants are vital to our everyday lives. They are the foundation for diverse habitats. They are an important part of a nutritious diet. Archeologically, plants provide a lens into past social and cultural changes. People have a long and complicated history of plant use. Plants are and have been vital to people for food, for medicine, as a raw material resource for building homes or boats, and for making tools. As critical parts of our foodways, plants not only fulfill nutrient needs, they teach us about culture, history, and economics. Biologically, people need food to survive, but what we eat is part of our history and culture. In fact, plants have been so important that we often forget how much of our lives and our history are based in plants.

There is another reason why the ancient use of plants is such an important part of Arkansas history. Arkansas, along with the surrounding mid-South region, is one of only ten world centers of independent crop domestication. Preserved plant remains excavated from dry bluff shelters in the Arkansas Ozarks (and now curated at the University of Arkansas) represent most of the evidence supporting this identification. This curriculum is designed in part to celebrate this important aspect of our past.

The Arkansas Archeological Survey

The Arkansas Archeological Survey (ARAS), a unit of the University of Arkansas system, consists of a Central Office in Fayetteville and ten research stations around the state. It shares a close working relationship with the Arkansas Archeological Society, a network of citizen volunteers concerned with learning about and preserving Arkansas cultural heritage. Our mission is to study and preserve Arkansas's past and to share what we learn with the public. Arkansas has significant archeological resources spanning a 12,000 year record of history, ranging from the bluff shelters of the Ozark Mountains to the extensive mound complexes of the Central Mississippi River Valley. Although the ARAS, along with citizen volunteers and local, state, and federal partners, campaigns for archeological education and preservation, our state's sites and the archeological record face continued threats from development, agricultural land-leveling, and looting. Education is a way to help protect Arkansas's archeological heritage. We hope this curriculum expands student's content knowledge of the important contributions that southeastern Indians and European, African, and early American populations made to Arkansas history. We also hope it fosters a greater sense of the importance of preservation among teachers and their students.

Gathering, Gardening, and Agriculture: A Fifth Grade Social Studies Curriculum

The curriculum consists of five lessons to be taught over the course of one week. The lessons introduce archeological thinking with an examination of pre-agricultural American Indian societies who occupied the southeastern United States many thousands of years ago. They trace the origins of agriculture and its effects on diet and foodways, land use, and community organization through time. The fifth lesson addresses the dietary impacts of European exploration and colonization in Arkansas and the South, and a bonus sixth lesson gives students an opportunity to

explore the Columbian Exchange that altered food-producing economies around the world. Each lesson is approximately one hour in length and aligns with ADE 5th grade "History Standards for Era 1: Beginnings to 1820" (ADE 2014:15). The lessons use the 5E's Instructional Model (Engagement, Exploration, Explanation, Elaboration, Evaluation) and focus on a temporal comparison of plant use in the southeastern United States that draws specific examples from Arkansas.

The lessons in this curriculum model the processes of archeological inquiry pertaining to plant-based foodways. Students will look at archeological evidence, including site maps, artifacts, and seeds, and their relationship to each other (context) to reconstruct and interpret the past. Students use archeology to discover how diets changed when people shifted from hunting, fishing, and gathering wild foods to growing their own food through gardening and agriculture. In a bonus lesson, students can explore the effects of European colonization in the Americas by mapping the exchange of plants on a global scale. This curriculum provides hands-on activities and guided investigation of three archeological sites in Arkansas (Rock House Cave, Toltec Mounds, and Parkin) in which students learn scientific literacy while gaining new knowledge about Native American plant-based foodways in the southeastern United States.

Common Core State Standards and the Arkansas Social Studies Curriculum Framework

This curriculum provides many opportunities for students to practice English Language Learning per the Common Core State Standards with social studies and science content. It is aligned with Arkansas Department of Education Social Studies Curriculum Framework, and address each of the four primary strands (government and civics, economy, geography, and history) along with many of the associated rubrics. Archeology is inherently interdisciplinary as archeological inquiry allows students to integrate knowledge across subjects: social studies, science, art, and literacy. The lessons engage students in discussion, collaborative work, and learning and using domain specific words in context. Students read non-fiction texts for content, perspective, and key ideas and employ the graphics provided to enhance their understanding. The lessons encourage students to evaluate sources of information, draw and build upon ideas, explore issues, examine data, and analyze events from the full range of human experience to develop critical thinking skills essential for being productive citizens.

Achieving Scientific Literacy: The 5Es

An important part of social studies education is the ability to actively engage students in ways that promote success in using new information to build knowledge and understanding. Archeological inquiry provides young students with an engaging way to learn social science practices and their underlying concepts. As a scientific endeavor, archeologists ask questions, plan and conduct investigations based on those questions, collect data both quantitatively and qualitatively, and construct interpretations and explanations based on evidence. This curriculum is organized around the *Biological Sciences Curriculum Study 5E Instructional Model* (1987) that promotes an inquiry based approach to learning, where students are actively engaged in acquiring knowledge in ways that promote student success. The 5E Instructional Model includes 5 phases: **engagement**, **exploration**, **explanation**, **elaboration**, and **evaluation** and follows the natural way we learn in everyday life.

The 5E model emphasizes teaching for deep understanding of big ideas or broad concepts rather than acquisition of isolated facts. This is referred to as enduring understanding (Wiggins and McTighe 1998: 10). These enduring understandings, or lesson objectives, are supported

by "essential questions [critical thinking questions] that facilitate student learning rather than memorizing facts."

Each lesson in this curriculum is based on the 5E model. A lesson is framed around a lesson objective (the enduring understanding) and critical thinking questions (essential questions). A lesson begins by sparking initial curiosity and **engagement**. Engagement connects students' past and present experiences, creates interest, generates curiosity, and uncovers students' current knowledge and misconceptions. To begin, the teacher asks a question, shows something interesting, or poses a problem. The teacher accesses the learners' prior knowledge and helps them become engaged in a new concept through the use of short activities that promote curiosity and elicit prior knowledge. The activity should make connections between past and present learning experiences, expose prior conceptions, and organize students' thinking toward the learning outcomes of current activities. Students come to the classroom with preconceptions about how the world works. If their understanding is not engaged, they may fail to grasp the new concepts and information that are taught, or they may learn them for purposes of a test but revert to their preconceptions outside of the classroom.

Next is an **exploration** that provides students with a common base of activities within which current concepts, processes, and skills are identified and conceptual change is facilitated. Learners complete activities that help them use prior knowledge to generate new ideas, explore questions and possibilities, and design and conduct a preliminary investigation. It offers opportunities for creative thinking and skills development. In the lessons, students make observations, record observations and ideas, make connections, and ask questions. The lessons encourage students to work in groups and the teacher to act as a coach or facilitator.

The next phase of the model is **explanation** where students focus attention on a particular aspect of their engagement and exploration experiences and demonstrate their conceptual understanding, process skills, or behaviors. This phase also provides opportunities for teachers to directly introduce a concept, process, or skill. Learners explain their understanding of the concept. Students describe their observations and come up with explanations. They listen critically to others' explanation, develop vocabulary, and learn to apply and interpret evidence. Teachers guide students' reasoning, ask appropriate questions, and direct students to additional helpful resources.

For the **elaboration** phase, teachers challenge and extend students' conceptual understanding and skills. The lessons provide new experiences for the students to develop deeper and broader understanding, more information, and adequate skills. Students apply their understanding of the concept by conducting additional activities. Students use information to propose solutions and extend their learning to new situations. The teacher helps students broaden their understanding and extend their ideas to other situations so that they can draw broader conclusions.

The final phase is **evaluation**. This phase encourages students to assess their understanding and abilities and provides opportunities for teachers to evaluate student progress toward achieving the educational objectives. Everyone involved evaluates. Students demonstrate understanding of a concept or skill (what has been learned) and evaluate their own progress. Teachers evaluate students' and their own progress, and rely on alternate strategies of assessment.

Lesson Organization

This curriculum is designed to be taught in sequence and as a whole to ensure student mastery of the lesson objectives. Each lesson is organized in two main parts. It includes information for

the teacher to prepare and teach the lesson framed around the 5E's. It also includes the subjects covered, standards filled, approximate duration of the lesson, and appropriate class size. The pages for the educator are designated "Teaching Archeology" at the bottom of the page. The curriculum also includes activities and reading material for students. These are designated with "Student Archeologist" at the bottom of the page. There is a finding aid to help identify the materials for each lesson on page 8.

Overview: Summarizes the key ideas in the lesson and makes connections between lessons.
Lesson Objective: The key ideas that students will acquire and a summary of the activities students will complete to learn the concepts and grasp the enduring understandings.

Critical Thinking Question(s): The essential questions that guide the lesson.

Materials: Items needed to complete the lesson, divided into items needed for each student, for the class as a whole, and for teacher-led instruction. Most materials are provided in this book and are available for download at: http://archeology.uark.edu/gga. Other materials are inexpensive and easy to find and prepare.

Background: Information on the direction of the lesson, how to plan for it, and content to be shared with students.

Getting Ready to Teach: Step-by-step procedures to prepare to teach the lesson and coordinate all activities. In some cases, materials need to be prepared or students assignments made a few days in advance of teaching the lesson.

Key Terms: Vocabulary words for reference and use in writing assignments.

The 5E's Informational Model
Engagement: An activity to discover what students know about the concepts to be taught.

Exploration: An activity or activities designed to teach new concepts and understandings.

Explanation: Reflection on the content and concepts taught to reinforce the new knowledge; review of Background information.

Elaboration: An activity or activities designed to challenge and extend students' conceptual understanding and skills.

Evaluation: A method for students to demonstrate their grasp of the concepts and objectives.

Unit Organization

Lesson One: Archeology Is about People. This lesson defines archeology, dispels common misconceptions, and introduces students to the critical thinking and analysis processes that archeologists use to study the past. Students explore chronology, observe objects and infer their use in an archeological context, and use evidence to answer questions about the past. It introduces students to the importance of chronology and context in the study of archeology.

Lesson Two: Foraging Foodways. Students participate in the foraging foodways simulation and learn about early foragers. Students explore the basic need for food and learn about foodways and nutritional, cultural, and economic practices related to the production and consumption of food cross-culturally.

Lesson Three: First Gardens. This lesson introduces students to the basics of stratigraphy and students learn how archeologists determine the relative age of artifacts. Here students look at domesticated plant seeds and learn how Native American cultures changed with the development of gardening.

Lesson Four: Changing Gardens and Evolving Fields. Lesson Four introduces students to changes associated with the adoption of corn agriculture, introduced from Middle America during late prehistoric times, using both archeological and Native American perspectives.

Lesson Five: Stability and Change in Early Colonization. Lesson Five introduces students to the use of primary historical sources. They learn how to study maps and accounts written by early explorers to identify evidence of additional changes in Native American foodways.

Bonus Lesson: Many People, Many Plates. In this bonus lesson, students learn about the Columbian Exchange and map the origin and spread of plants and think about how this historical process shaped their diets.

Assessments

Assessment is an integral part of each instructional event and the lesson as a whole. Assessments are designed to determine if students have grasped the enduring understandings, and all learning activities are designed to enable students to complete the assessment successfully. In most cases, assessments are simulations of problems, issues, or challenges that a professional archeologist might face. They are usually performance based, allowing students to relate what they are learning to real-life contexts and situations. Assessment in the unit is primarily formative, to check and refine understanding as learning progresses. All activity sheets can be picked up and graded to assess reading comprehension, question development, use of sources and evidence, and communication. There are also a number of Optional Writing Prompts at the end of lessons that could be assigned as assessments. Students should be encouraged to use the Key Terms to respond to the questions.

Lesson	Activity	Assessment
Lesson One: Archeology Is about People		
	Timelines and Telephones	-
	Context Is Everything	-
Lesson Two: Foraging Foodways		
	Foraging Foodways in Arkansas Ozarks	• Archaic Period Timeline • Optional Diary Entry
Lesson Three: First Gardens		
	Seed Change in the Arkansas River Valley	• Woodland Period Timeline
Lesson Four: Changing Gardens and Evolving Fields		
	Foodways and the Environment	• Mississippi Period Timeline • Optional Writing Prompt
Lesson Five: Stability and Change in Early Colonization		
	Every Map Tells a Story Early Explorers, Plants, & Primary Sources	• Age of Exploration Timeline • Optional Writing Prompt

Bonus Lesson: Many People, Many Plates		
	The Columbian Exchange	• Optional Writing Prompt
	Mapping Your School Lunch	-

Seeds, the Curation Shelf, Case Studies, and Other Tools

In this curriculum, we reference a few teaching tools that may not be common practice. One is the "Curation Shelf." It is a way to encourage students to ask questions, but avoid distraction from the current topic of study or delay for discussion in a future lesson. The Curation Shelf is a place to record questions to let students know the questions are important. It is also a visual reminder for the teacher to revisit it. Set aside a piece of chart paper or a place on the board and label it "The Curation Shelf" and use it to record questions while teaching this curriculum.

Lessons Two through Five include an "Arkansas Case Study" reading assignments for students. They should be assigned as homework, or students should be given time to read them before the lesson is taught. These short essays provide students with background information for the upcoming lessons. They may include unfamiliar terms and students may have questions. We suggest prior to teaching the lesson that teachers ask students what questions they have and record those questions on the Curation Shelf. Tell students they will learn the answers to these questions by doing the activities and participating in class discussion. The terms will be defined in the Key Words log.

Lessons Two through Five include period-appropriate recipes that students can take home and make with their parents, or experiment with at school. These recipes help students see that the plants discussed in each lesson are real foods that people ate in the past and in some cases continue to eat today.

Lesson Three focuses on Arkansas's first gardeners and the domestication of local wild plants. It is helpful to show students examples of the seeds and plants. Packets of the sunflower, goosefoot, maypop, and sumpweed seeds highlighted in the lesson are available upon request from the Arkansas Archeological Survey. The availability may be variable by season.

The activities and course materials are available as pdfs on the Arkansas Archeological Survey's website to make duplication and class preparation easier. The course materials and contact information for the seed packets can be found here: http://archeology.uark.edu/gga

Acknowledgements

This project was supported in part by the Arkansas Humanities Council, the National Endowment for the Humanities, the Southeastern Archaeological Conference, and the Arkansas Archeological Society. We are grateful for their support. In addition, we would like to thank Katy Gregory, Rachel Whitman, Shelle Stormoe (Arkansas Historic Preservation Program), Allison Reavis (Arkansas Historic Preservation Program), Sarah Matlock (Glen Rose Middle School), and Brynn Sims (Oakdale Middle School, Rogers). Thanks to Larry Porter and Jane Kellett (Arkansas Archeological Survey) for the beautiful illustrations. Thanks to Lydia Iris Rees (Arkansas Archeological Survey) and Denise Baldwin (University of Arkansas at Monticello) for reading early drafts of this curriculum and providing thoughtful feedback. Carol Colannino-Meeks (Southern Illinois University Edwardsville) was influential in the development of this curriculum. Without her initial idea, project planning, grant writing, and thoughtful comments on previous drafts this project would not have happened.

Finding Aid

Lesson 1: Archeology Is about People

Overview: Archeology is the study of the human past through the objects that people made and left behind. Students learn common misconceptions about archeology and how archeologists study the past. This lesson provides the foundation for the exploration of Native American foodways.

Lesson Objectives: Learn how to define archeology and dispel popular misconceptions about it. Gain an understanding of the importance of context and chronology in archeology.

Critical Thinking Questions: What is archeology? How do archeologists study the past?

Subjects: social studies, language arts, science

Duration: 60 minutes

Class size: any

National standards: AID, AQDP D2.His.16.3-5, D3.2.3-5, D4.1.3-5, D4.2.3-5, L.5, R1.7, W.1.b W.4, WHST.1, WHST.4

Arkansas Social Studies standards: D1.1, D1.2, D1.3, D4.7

Materials:

For each student: A copy of "Context Is Everything" worksheet, (p. 20); three copies of the "Key Terms" (p. 24); a pocket folder to store unit materials.

For the teacher: Index cards; a 20-foot tape measure; paper clips or clothespins; "A Brief Timeline of Life on Earth" (p. 16) and "A Spear Point" (p. 18) to project; a copy of "Telling Time with Telephones" (p. 17); chart paper or board space for the student's "Curation Shelf" questions.

Background

Archeology is a social science that employs the methods of science. Archeologists study the human past by looking at the objects that people made, lost, discarded, or left behind. They employ the scientific method, or systematic observation, measurement, and experiment, along with the formulation, testing, and modification of hypotheses. Archeologists use physical tools, like trowels, measuring tapes, line levels, microscopes, and GPS units. They also use conceptual tools, like observation and inference, context, stratigraphy, and chronology to understand culture and deep time. This lesson introduces students to archeology and some of the conceptual tools that archeologists use.

Archeologists do not study dinosaurs. People often confuse archeology with paleontology because archeologists employ some of the same methods and concepts used by paleontologists. But paleontology is the study of prehistoric plant and animal fossils, including dinosaurs. Archeologists study animal remains, but only when they are related to human activity. Dinosaurs died out 65 million years ago, so humans

and dinosaurs only coexist in the movies (see "The Brief Timeline of Life on Earth," p. 16).

Popular movies like "Indiana Jones" and "Lara Croft Tomb Raider" depict archeology as destruction, adventure, and the discovery of rare objects. Cartoons, like Calvin and Hobbes, depict archeology as mind-numbing, tedious excavation. It is true archeologists do often travel to exotic locations, but they also conduct research closer to home. They sometimes find one-of-a-kind artifacts, but more frequently they find people's broken things or the trash people discarded long ago. It is a careful science. An archeologist is like a detective who employs the methods of science to piece together a puzzle. Archeologists document their findings systematically, because archeology is destructive and once the artifacts are dug up that information is gone. Archeologists develop and test hypotheses, record their observations, and take careful measurements to learn what life was like in the past.

People did not begin writing until 5,000 years ago, so archeology is one of the few ways to learn about people who left no written records. In North America, this is 97 percent of human occupation and for the rest of the world the percentage is even higher. This makes archeology particularly important for learning about the history of Arkansas prior to 1541 when the first Europeans (with writing) traveled to the state.

Chronology and **context** are two important conceptual tools archeologists use. When trying to understand the past the proper sequence of events must be known. **Chronology** is a tool we use everyday. When someone tells a story or when we watch a news report, the story is told in the order that it happened. Archeologists, like historians, are especially interested in understanding the order in which things happened in the past. When did people first occupy a site or region? When did they leave? When did the bow and arrow replace the spear? When did Indians begin to make and use pottery? When did they domesticate their first plant foods? When did Arkansas Indians start growing plants, like corn, that were domesticated in other regions? When events like these are arranged in order of occurrence, an archeologist has established the chronology. A **timeline** is used to display events visually in chronological order. Archeologists have established a timeline of Native American history. It is divided into five cultural periods that are based on similarities in the way people lived over time (see p. 15). Through this curriculum, students will explore and recreate this timeline.

The second concept is **context**. For archeologists, context is similar to "context clues" in language arts. By paying attention to the clues in a sentence, a reader can figure out the meaning of an unfamiliar term. Similarly, archeologists learn about artifacts and sites, by carefully documenting the clues nearby. The things a person owns provide clues about the owner. If an archeologist looked inside a student's bedroom, the things in the room could provide clues to that person's age, gender, and interests. For example, a baseball bat and a football jersey in someone's bedroom suggest that the owner likes sports. Paints, colored

pencils, and an easel could mean that the person is an artist. The artifacts tell a story if they are found together, where their owners left them (in context). Archeologists rely on the artifacts and where people left them (context) to learn about the past.

Archeologists preserve the context of artifacts they recover from sites by recording the location of everything they find. The artifact and its context provide more information to the archeologist than the artifact alone. When context is lost, information is lost. In this lesson, the tape measure activity helps students understand deep time and the "Context Is Everything" worksheet demonstrates that removing artifacts from a site removes them from their context and makes it very difficult to get a complete understanding of what people did in the past.

Getting Ready to Teach

1. Print copies of "Context Is Everything" (p. 20) and three copies of the "Key Terms" log (p. 24) for each student.
2. Print and cut out "Telling Time with Telephones," p. 17.
3. Prepare "A Brief Timeline of Life on Earth" (p. 16) and "A Spear Point" (p. 18) to project.
4. Prepare an index card with a month and year from the last 10 years for each group of students and a card that reads "2007" and one that reads "2017".
5. Review the Background information.
6. Write the Key Terms and the Critical Thinking Questions on the board.

Key Terms

Archeology: A social science that uses science to study the human past through objects that people made and left behind.
Archeological site: A place where people lived and left objects behind.
Artifact: Any object made or used by people.
Chronology: An arrangement of events in the order in which they occurred.
Context: The relationship artifacts have with one another and the location and position where they were found.
Excavation: A dig. The process of removing layers of soil at an archeological site.
Timeline: An overview of events in chronological order.

Engagement

1. Pair students up. Tell students: List all of the ideas and images that come to mind when you hear the word archeology? What images do you see when you picture an archeologist?
2. Have students report back and write the ideas and terms on the board.
3. Underscore that archeologists do not study dinosaurs or other fossils, use the Background information to discuss the difference between the two. Help the students pick out the concepts that refer to archeology.
4. Share the "A Brief Timeline of Life on Earth" to illustrate that dinosaurs and humans did not exist at the same time. Before continuing ensure that students understand that archeologists study people who lived in the past.

Exploration

1. Project "A Brief Timeline of Life on Earth." Tell students that the timeline represents billions of years. Explain that for most of those years, there are no written records.

2. Ask students the following questions: If you wanted to know about an event that happened last week what would you do? (Read newspapers, look on the internet, ask a friend.) If you wanted to find out about an event that happened in 1900 or what life was like then what would you do, other than read a textbook? (Visit a museum or the archives, read old newspapers, and look at other primary sources.) If you wanted to know about an event that happened in North America in 5000 BC what would you do? (Archeology - the study of people through the things they made and left behind.)
3. Tell students: To be able to study the deep past, archeologists create timelines to see how people's ways of life change over time. Use a tape measure to help students assess time in visual increments. Extend a tape measure to its full extent across the front of the classroom and lock it open. Let each two foot increment equal one year and each two inch segment will equal one month. Write the scale on the board: 2 feet = 1 year; two inches = one month. Add a card with the start year (2007, for example) and the end year (2017) to the tape.
4. Write a month and a year (between 2007 and 2017) on 6-8 index cards. Ask groups of two students to select one of the index cards. Have the students come forth and locate their year/month on the tape measure.
5. As each group comes forth to clip their card to the tape measure, ask them:
   - How old were you on this date?
   - Could you read and write?
   - What was your favorite food?
6. Once all of the index cards have been placed, show students the four telephones. Ask them, Which of these phones have you used or seen? Tell students that telephones are **artifacts** of our current time. Have the students put the telephone on the tape measure. For the rotary dial phone, have students envision where it would go on the timeline if time extended around the room in ten year intervals.

Explanation

1. Explain to students that by identifying when things were made, archeologists can construct a timeline of past events that can be used to understand the lives of past people. Just like we can see the changes in phone technology overtime, by studying sites and artifacts archeologists can see change over time long ago.
2. Tell students: We are going to use archeology to learn about Native American history, so that we can better understand how people lived in the past. We will study, as archeologists do.
3. Introduce students to the "Key Terms" log. Distribute three copies to each student and assist them with defining **archeology, artifact**, **chronology**, and **timeline**. Hand out folders for them to store their course materials.

Elaboration

1. Divide the class into groups. Pass out the "Context Is Everything" worksheet and have the students look at the excavation units and answer the questions.
2. Review the answers and explain that the context - the site's cultural, georgraphical, and environmental relationships as

well as the locational position of the artifacts help archeologist piece together Native American history prior to writing.

3. Have students get out their Key Terms log and help students define **archeological site, excavation,** and **context**.

Evaluation

1. Project "A Spear Point" image. Read the brief scenario. Have pairs of students discuss what Dr. Boxwood can learn about the spear point.
2. Have the students report back. Ask them how Dr. Boxwood would know? Review what Dr. Boxwood could know (the type, a relative age, the kind of material). Underscore that she may be able to know how old the point is (and put it into the timeline of Native American history), but without the context she can learn little about the people who made and used it.
3. Explain that archeologists carefully document the context of the artifacts they excavate in order to learn not only how old an artifact is (chronology), but also how people used it.
4. Ask students: What questions do you have? Record questions in the "Curation Shelf" and check them off as they are answered.

Cultural Periods in Arkansas

Archeologists name time periods in Native American history, based on changes in American Indians' cultures. Cultures differ based on the environment, the type of foods people ate, the tools they used, the sites they lived in, and what their communities looked like. By studying American Indian's ways of life and how they changed over time, archeologists identify cultural periods, or lengths of time when people share similar ways of life. In the southeastern United States, there are five broad time periods.

Paleoindian Period (11,500 – 8500 BC): This is when Indians first arrived in Arkansas, at the end of the last Ice Age. They hunted large animals including mammoths and mastodons using atlatls, or spearthrowers, but gathered only a little plant food.

Archaic Period (8500 – 600 BC): Archaic Indians hunted, fished, and gathered many wild plants. They camped in a different place every year.

Woodland Period: (600 BC – AD 900): Woodland Indians lived in small villages all year long. They grew garden crops during the summer. They made and used pottery. They hunted with the bow and arrow instead of a spear thrower and collected nuts and berries.

Mississippi Period: (900 – 1600 AD): Mississippian Indians lived in large towns. They grew corn, beans, and squash in large fields. They hunted and fished, and collected a little wild plant food.

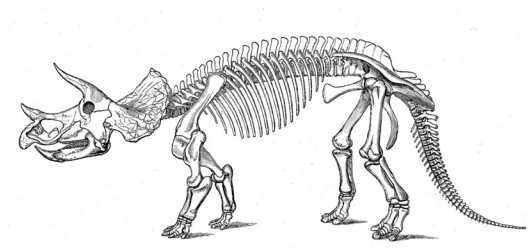
Age of Discovery (1500 - 1700 AD): The era of European discovery and exploration of North American, when Native Americans and Europeans first met

In Lessons 2 through 5, students will complete a timeline for each of these periods and the important changes that take place.

Vandalism of Archeological Sites

When an archeological site is vandalized or artifacts are removed, knowledge about the past cultures is lost forever. Unauthorized digging destroys the context and the information that could be obtained under controlled scientific excavation. The removal of artifacts from a site often removes all possibility of determining the site's age. If you see anyone digging in an archeological site or taking artifacts from public land, report them to law enforcement authorities.

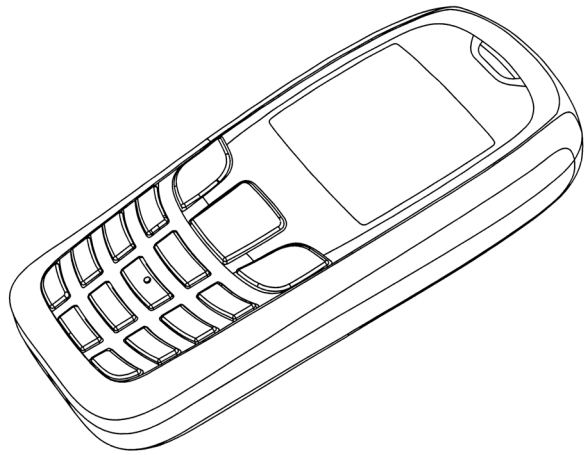
For information about who to contact if a site is identified, see Additional Resources on page 122.

Earth Formation	5 billion	
	4 billion	
Life on earth	3 billion	
	2 billion	
	1 billion	
Dinosaurs evolve	600 million 220 million	
Dinosaurs extinct	65 million 20 million	
homo sapiens	200 thousand	
Plant domestication	12 thousand	
Writing	5 thousand	
The present		

A Brief Timeline of Life on Earth.

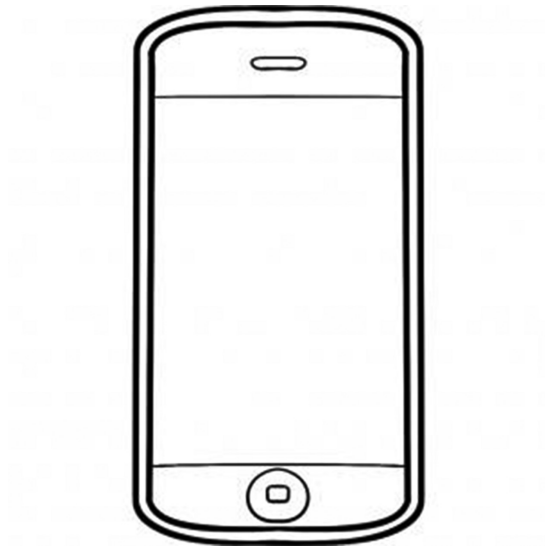
Telling Time with Telephones

2004



2000

1954



2007

A Spear Point

Dr. E.L. Boxwood was visiting a friend. He showed her a spear point, or arrowhead, he found a long time ago. He can't remember where.

What information can Dr. Boxwood get from this spear point? What does it tell archeologists about the people who made and used it? For instance, can you tell what kind of animals they hunted with it?

Evidence-based Answer Key

Archeologists could tell that the point was a spear point rather than an arrow point because arrow points are much smaller They can identify the type of rock that people used to make it. This point is made from chert. They can compare it to other spear points found in archeological contexts to deduce its type. This one is a White River Side Knotched point. Based on its similarities to other points, archeologists know that it is an Archaic Period spear point that dates between 7,000 - 6,000 BP. But without contextual information archeologists can learn little about the people who made and used it.

Evidence-based Answer Key

Context Is Everything

Questions 1-3

Artifacts (Objects)	Context	Use or Function
Animal bones	By the hearth and pottery in the NE corner of the excavation unit.	Food
Pottery	By the hearth and animal bones in the NE corner of the excavation unit.	Store and prepare food
Burned nut shell	Near hearth and pottery in NE corner	Food
Hearth	In NE corner surrounded by pottery, burned shell, and animal bones.	Cooking food, warmth

Question 4. a. The Native Americans used the pot to cook food.
b. They were eating deer or other animals.
c. They were processing nuts to eat.

Questions 5-7

Artifacts (Objects)	Context	Use or Function
Animal bones	Near spear point, scraper, and knife in NW part of unit.	Food
Spear point	Near knife, scraper, and animal bones in NW part of unit.	Hunting
Knife	Near spear point, scraper, and animal bones in NW part of unit.	Butchering
Scraper	Near spear point, knife, and animal bones in NW part of unit.	Preparing hide for making clothing to wear.

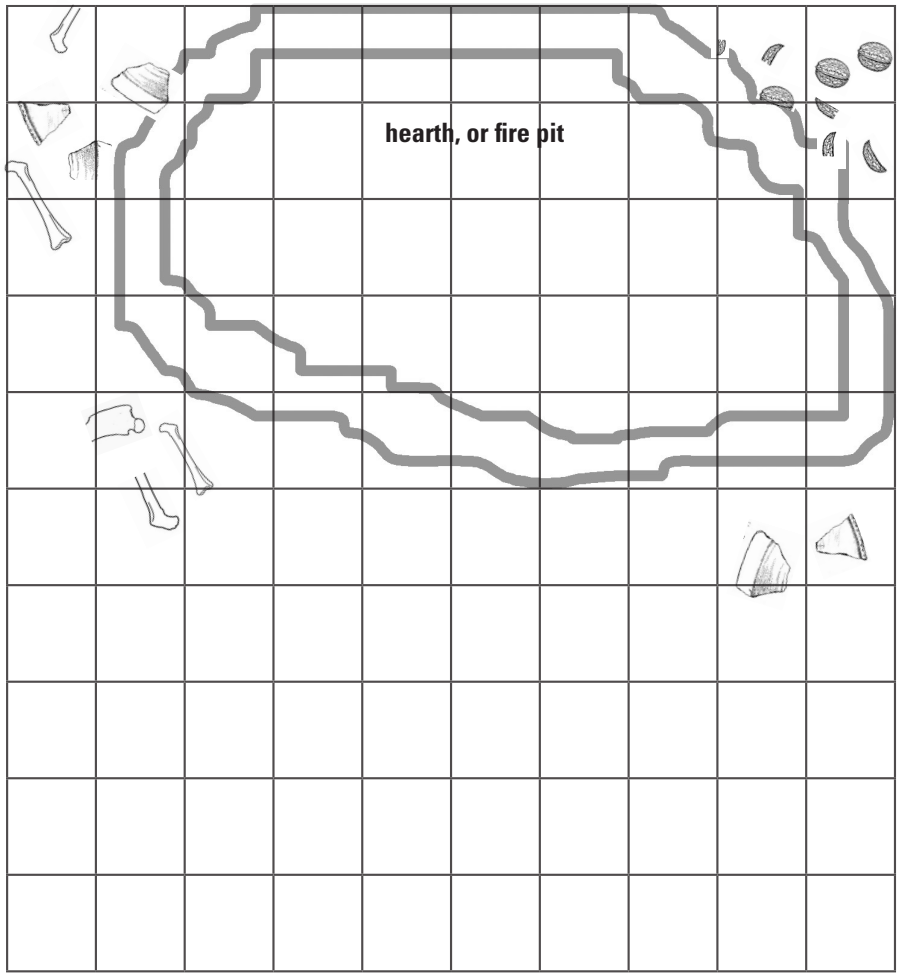
Question 8. a. The Native Americans used the spear point to hunt and kill a deer.
b. They used the knife to butcher a deer to eat.
c. They used the scraper to scrape deer hides or other animal skins to make clothing.

Question 9. Native Americans are preparing food at both parts of the site. In Excavation Unit A, it appears that they are in a house or at a camp site cooking and preparing food. In Excavation Unit B, they are hunting and processing the animal.

Context Is Everything

Dr. E. L. Boxwood, an archeologist, conducted a dig, or **excavations**, at an archeological site in Arkansas. An **archeological site** is a place where people lived and left objects, like their trash, behind. Dr. Boxwood studied the site by digging away soil in layers and recording everything she found in each layer. She recorded the **artifacts** that she found and where people left them (the context) to learn about the lives of people in the past. By looking at the location of the artifacts and their relationship to one another (context), she is able to piece together a picture of the things the people who lived at this site did. Dr. Boxwood very carefully drew maps of two excavation units, Unit A and Unit B. Help Dr. Boxwood by using the maps to answer the questions.

Excavation Unit A

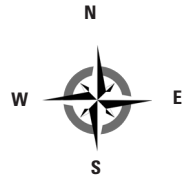


The Acorn Site
Excavation Unit A - Plan Map Key

Burned shell - Pieces of burned hickory or acorn shell.

Pottery fragments - Pieces of a broken bowl or cooking pot.

Animal bones - Pieces of deer bones from someone butchering the animal.



Dr. E. L. Boxwood
15 October 2016

Name _____ **Date** _____

1. The first step in archeological research is to take field notes about what you see or find. Archeologists look at their excavation units very carefully and write notes about everything they see. This helps archeologists learn about the people who left the things at the site. To begin your notes, look at Excavation Unit A and list the artifacts that Dr. Boxwood found in the table under **Artifacts (Objects)**.

2. Where is each artifact located, or what is it near? This is the artifact's context. Write this information in the table under **Context**.

Excavation Unit A Table

Artifacts (Objects)	Context	Use or Function
Hearth	Northwest corner surrounded by pottery fragments, animal bones, and burned shell.	Warmth, cooking and preparing food.

3. Archeologists try to say what an artifact was used for by studying where it was found and what other things are nearby. Look at what you wrote for each artifact in the Context column of the table. What does the context tell you about each artifact's use (or function)? Write your answer in the **Use or Function** column.

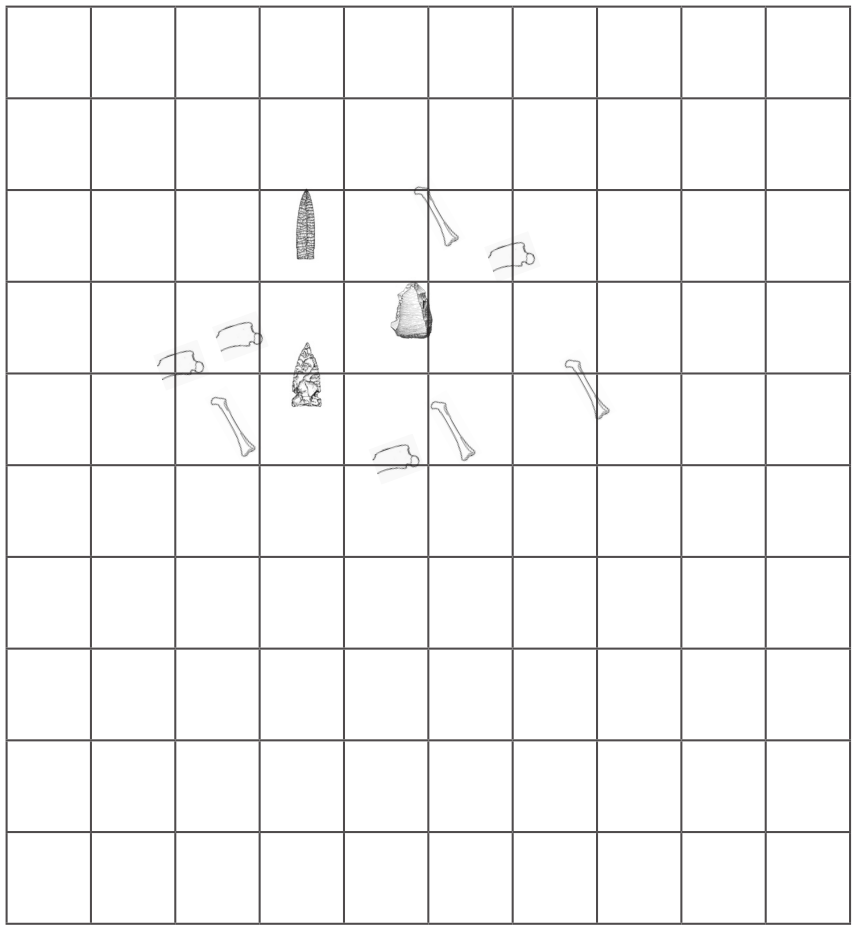
4. Now take a look at your table. Choose three artifacts and write three sentences that explain what people did with them. For example, why are their broken pieces of ceramic pots near the hearth, or fire pit? Why are nut shells and animal bones also found near the hearth? What does all of this tell us about the activities of the Native Americans who left the things at this site?

a.

b.

c.

Excavation Unit B



The Acorn Site

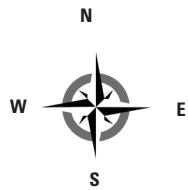
Excavation Unit B - Plan Map Key

Spear point - The sharpened point of a spear. It is made of stone and used for hunting. It is often mistakenly called an arrowhead.

Scraper - A tool made of stone that is used to scrape a deer hide or other animal.

Knife - A stone tool used to cut up and butcher a deer or other animal .

Animal bones - Pieces of deer bones or other animal from someone butchering the animal.



Dr. E. L. Boxwood
15 October 2016

5. Look at Excavation Unit B. List the artifacts that Dr. Boxwood found in the **Artifacts (Objects)** column of the table.

6. Write the context (what is it near) of each artifact in the **Context** column.

7. What does the context of each artifact tell you about its use? Write your answer in the **Use or Function** column.

Excavation Unit B Table

Artifacts (Objects)	Context	Use or Function

8. Look at your table for Excavation Unit B, choose three artifacts and write three sentences about what people did with each one. Hint: Why is there animal bones in the same place as the spear point and scraper?

   a.

   b.

   c.

9. Compare Excavation Unit A with Excavation Unit B. How are they similar? How are they different?

10. Draw a picture or write a short story about what Native Americans were doing in these two areas of the archeological site.

Gathering, Gardening, and Agriculture: Key Terms

New Terms	Definitions

Name _____ Date _____

Lesson Two: Foraging Foodways

(Adapted from World History for Us All, Be the first to practice domestication: An archaeology-based simulation, 2016).

Overview: This lesson defines foodways and examines the cultural, nutritional, and economic practices related to what early foragers, or hunter gatherers, produced and ate in the southeastern United States between 9,000-650 BC during the Archaic Period. It focuses on Rockhouse Cave in Petit Jean State Park. Archeological sites in the Arkansas's Ozarks, like Rockhouse Cave, contain well preserved plant remains that hold evidence of the foodways of Archaic Indians and later Indians. Students learn about the antiquity of the foods they eat.

Lesson Objectives: Understand that archeologists study plant remains to learn about people's foodways and cultures in the past. Explore how Native Americans' foodways and lifeways changed during the Archaic Period.

Critical Thinking Questions: What are foodways? How did foragers live in the Archaic Period?

Subjects: social studies, language arts, science, geography, history

Duration: 45 to 60 minutes

Class size: any

National standards: AID, AQDP, D3.4.3-5, D4.2.3-5, D2.Geo.2.3-5, D2.Geo.4.3-5, D2.Geo.5.3-5, D2.Geo.6.3-5, D2.His.1.3-5, D2.His.16.3-5, D2.His.17.3-5, AQDP, L.5, PC0I, RH.4, RI.7, WHST.4

Arkansas Social Studies standards: D1.3, E.4.5.1, G.9.5.1, G.10.5.1, H.12.5.1, H.12.5.2

Materials:

For each student: "Rockhouse Cave, 8000-1200 BC: A Case Study" (p. 32) with the "Nut Butter: A Gathering Recipe" (p. 34); "Foraging Foodways in the Arkansas Ozarks" (p. 35); and "Archaic Period Timeline" (p. 42) worksheets.

For each group: "Seasonal Foodways: Plant and Animal Foods" worksheet (p. 40-41).

For the class: Scissors and glue.

For the teacher: "Excavation Unit B" (p. 22), "Rockhouse Cave, 8000-1200 BC: A Case Study" (p. 35), and a map of Arkansas showing water bodies, mountain ranges, and physiographic regions to project; and a copy of the "Archaic Period Timeline: Evidence-based Answer Key" (p. 31).

Background

All humans need the same things to survive -- food, water, shelter, and companionship. The ways Native Americans met these basic needs changed over time. How did they build their shelters? How did they cover their bodies to protect themselves from cold, rain, and the burning sun? What did they eat and how did they get their food? By answering these questions, archeologists can learn a lot about how people lived and what was important to them. Also, by looking at the different ways that people meet basic human needs in different environments, archeologists are able to see cultural difference and change over time.

Technology, environment, available animals and plants, cultural preferences, and historical events shape what people eat. The environment and the climate influence the availability of plants that people can use for food. The type of technology available influences the ways meals are prepared (ovens or fire hearths, for example) and the tools used to eat foods (forks or chopsticks). What people eat also depends on the occasion and setting of the meal. Is the meal an everyday lunch or is it part of a celebration or holiday, like Thanksgiving?

Archeologists refer to the nutritional, cultural, and economic practices related to how people produce and eat food, as **foodways**. Foodways are about nutrition. The nutrients in food help people grow, play hard, and stay healthy. Deer meat and sunflower seeds have different amounts of vitamins, minerals, fiber, and protein. Eating a variety of foods not only keeps meals interesting, but also helps the body get the nutrients it needs to be healthy. Foodways are also a part of people's **culture**, or the shared customs, beliefs, laws, and ways of living among a group of people. Everyone needs food, but everyone has a different idea of what food should look like and how it should taste. A study of food is also a study in **economics**, because whether people are gathering food as prehistoric foragers or participating in an agricultural economy, to understand foodways it is necessary to know how people use natural resources, what kind of labor is required, and how resources are shared between groups. One of the central tenets of economics is that people want certain things and will change their behavior to get those things. Native Americans did not have incentives like buy one get one free hamburgers, but population increase and the desire to be sedentary were incentives for people to change their foodways over time. Archeologists who study ancient plant remains, like burned seeds, help recreate the foodways of people in the past.

During the Ice Age, people living in the southeastern United States were **nomadic**, or constantly on the move, hunting large megafauna like mastodon and mammoth. When the Ice Age ended and these animals became extinct, people had to change their methods for getting food, which in turn affected their overall way of life. After the Ice Age, between 9500 and 650 BC (the time period archeologists call the Archaic Period), people still moved around but not as much as before. Many Archaic Indian communities were nomadic, living in base camps and moving from place to place on a seasonal round of hunting and collecting many kinds of plant foods. These people traveled a regional circuit, visiting places that provided ready access to food and raw materials. This guaranteed a variety of meat, fish, nuts, and wild plant foods in their diets. Bluff shelters, like Rockhouse Cave, were used seasonally for short periods of time by small foraging parties or bands who lived at other kinds of sites during different times of the year.

Getting Ready to Teach

1. Make copies of "Foraging Foodways in the Arkansas Ozarks" (p. 35), "Rockhouse Cave, 8000-1200 BC: A Case Study" (p. 32), and the "Archaic Period Timeline" (p. 42) for each student.

2. Make a copy of "Seasonal Routes" worksheet (p. 40-41) for each group.
3. Prepare "Excavation Unit B" (p. 22), a map of Arkansas, and "Rockhouse Cave, 8000-1200 BC: A Case Study" (p. 32) to project.
4. Post the Critical Thinking Questions and the Key Terms.
5. Review the Case Study and the Background information.

Key Terms

Band: A small group of related people, who are primarily organized through family bonds. The foodways of most bands around the world are based on foraging.
Cultural period: A length of time when people shared similar cultures and ways of life.
Culture: The customs, beliefs, laws, ways of living, and all other results of human work and thought that people of the same society share.
Egalitarian: A form of community organization where all people are equal.
Foodways: The nutritional, cultural, and economic practices related to how people produce and eat food.
Foragers: People whose foodways are based on making a living by hunting, fishing, and gathering wild plants.
Nomadic: Movement throughout the year to obtain animal and plant foods and rock for tools.

Engagement

1. Ask students: Where do you get your food? Where does the grocery store or the restaurant get the food?
2. Follow up this discussion by asking: Do you gather food from any wild plants (berries, fruits, nuts, etc.)? Do you hunt or fish? Could you live by hunting and gathering alone?
3. Tell students, 5,000 years ago, southeastern Indians were foragers who got their food by hunting and gathering.

Exploration

1. Ask students: What is the purpose of food? (It provides nutrition; it is a basic human need.)
2. Pair students up and have them discuss why people eat different types of food or prepare foods differently? Prompt students with the questions below to show how culture, history, environment, technology, and intended use (function) influence food choices.
   - What do you like to eat? What is a "typical" meal? (culture)
   - What edible plants grow near you? What is the climate like? (environment)
   - How do you prepare meals? What kind of equipment is used to prepare foods (ovens for baking or fire hearths for BBQ)? What kinds of tools do you use to eat (forks or chopsticks)? (technology)
   - Do you eat different foods for different occasions? Do you eat the same thing for lunch or as a holiday meal, like Thanksgiving? (function)
3. Project "Excavation Unit B" from Lesson One. Ask students: What do the artifacts and their context tell us about the foodways of the people who lived at this site? (They are hunting wild animal with spears and butchering the animals to eat. The protein and fat from the animal meat provide energy and keep them healthy. They make a living as hunters.)
4. Tell students that Dr. Boxwood could tell that the people who made the site

were hunting and butchering their food by the animal bones, spear point, and the scraper used to prepare the animal hide. There is no fire, so she knows they were not eating the meat there. The artifacts provide clues to people's foodways.

Explanation

1. Help students define **foodways** and **culture** in the Key Terms log.
2. Explain to students that during the Archaic Period, people hunted and gathered to get their food. They were foragers. The ways they got their food, the sites they lived in, the tools they used, and the communities they lived in (egalitarian bands) were a part of their culture and their foodways.

Elaboration

1. Divide the students into groups of 2 or 3. Distribute a copy of the "Foraging Foodways in the Arkansas Ozarks" worksheet to each student and a copy of the "Seasonal Foodways: Plants and Animal Foods" sheet to each group. Have one of the students in the group use the scissors to carefully cut out each of the animal and plant food foods.
2. Have students read the text and answer the questions.
3. Review the answers as a class. Ask the students: What are some of the benefits and challenges of foraging? (scarcity of food in the winter; loss of stockpiled food) What would it be like to live in the winter with limited food options?
4. Ask students: Why are Arkansas bluff shelters important archeologically? Archeologists often find the remains of plants that document the domestication of plants.
5. Review the terms, **band**, **foragers, egalitarian**, and **nomadic**, and help students define them in their Key Terms log.

Evaluation

1. Pass out the "Archaic Period Timeline." Have students complete the sheet by using information from the "Rockhouse Cave, 8000 - 1200 BC: A Case Study" to identify the key dates of occupation, the artifacts, foodways, and social organization. This assignment could be completed as a class, as a group, or as individual homework/assessment.
2. Review the Archaic Period. It is a long time period in southeastern Indian history when people lived in bands, hunted and fished, and gathered wild plants for their food. They use spears and spear throwers to hunt and grinding stones to turn nuts into meal. Use the "Archaic Period Timeline: Evidence-based Answer Key" as a guide for discussion.
3. Review "Curation Shelf" questions and make sure all the questions were addressed.
4. Tell students about the Nut Butter recipe (with the Rockhouse Cave case study) to take home and cook with their parents.

Optional Assessment

You would like future archeologists to know about your life. Take out a piece of paper and write a diary entry. Tell the future archaeologist what life is like for a member of your band. Describe the things you do each day. Make sure to include how your day to day activities change each season. (Of course, students could not really have made diary entries 5,000 years ago because writing had not been invented!)

Evidence-based Answer Key

Foraging Foodways in the Arkansas Ozarks

Question 1. Students' creative answers for naming their band.

Question 5. The answer will depend on their seasonal route. They should describe where they go each season and which plant and animal foods they eat. Check the answers with the Seasonal Routes table on p. 40.

Questions 6-11. The answers will depend upon which plants they choose to graph. Check the answers with the Seasonal Routes table on p. 40.

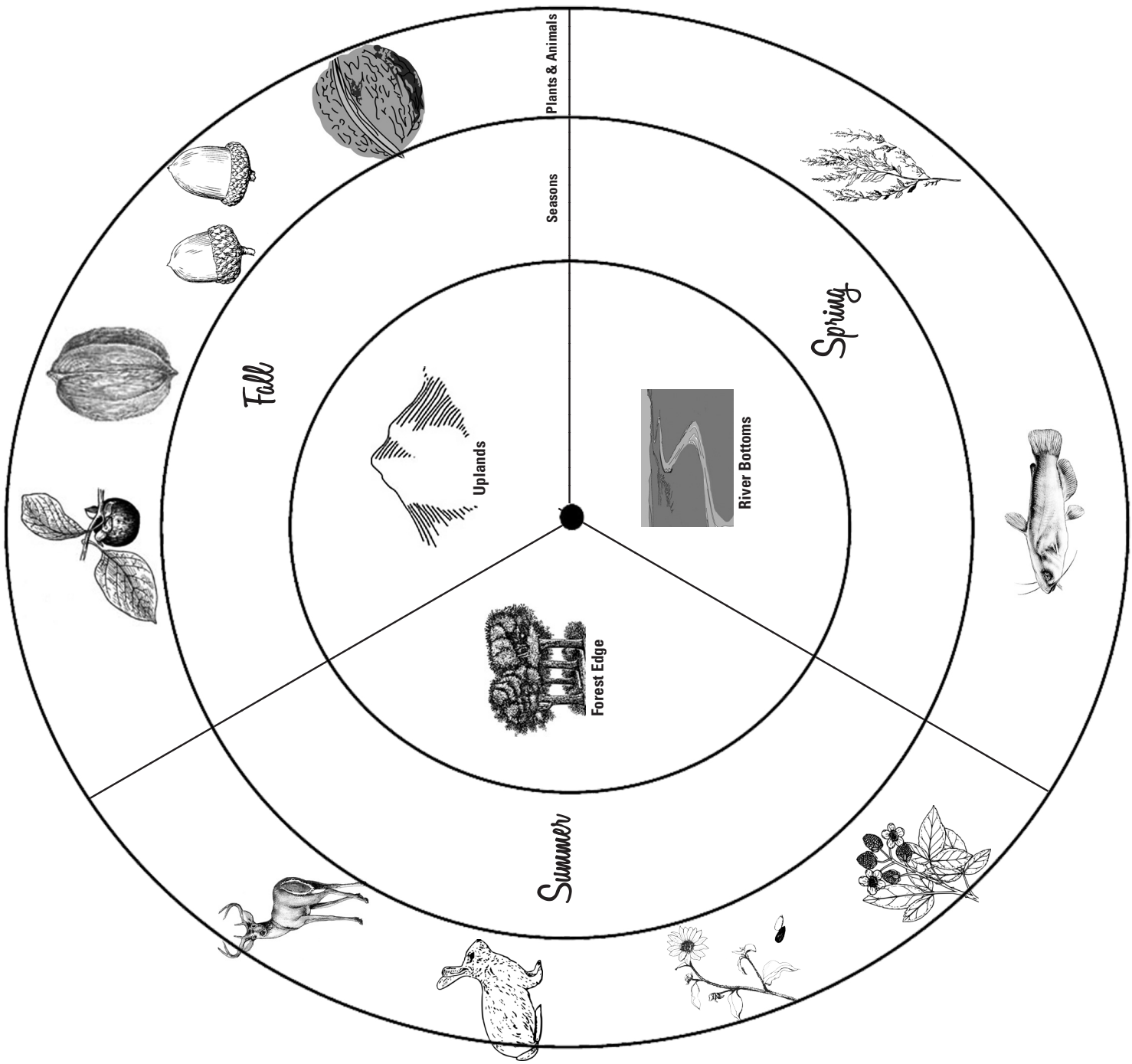
Question 12. This answer will be based on their personal preference.

Question 13-14.

Foodways	Plant and animal foods	Activities
Hunt	Deer, elk, turkey, waterfowl	Travel to get rock to make spear points, knives, and scrapers; locate wild animals, kill animals, get animal back to camp, butcher animal, cook it.
Gather/collect	Hickory nuts, goosefoot leaves, acorns, sunflower seeds	Travel to locate seasonal plants, pick nuts and berries, shell nuts, grind into meal, store, prepare into food, cook.
Fish/collect	Fish, turtle, shellfish	Make nets/fish hooks, fish, clean fish, prepare/cook.

Question 15. This question assesses whether they would change the answer to Question 12 based on the amount of work required to get the food.

Question 16. Egalitarian



Seasonal Foodways: Answer Key

Community organization	**Nomadic** **Small bands** **Egalitarian**	
Artifacts	**Hammerstones adzes and drills** **Fishhooks weights and nets** **Spear points, knives, and scrapers** **Atlatl or spearthrower** **Woven baskets**	
Foodways	**Foragers** **Gathered** fruit, nuts, & leaves **Fished** **Hunted** deer and small animals	
Site types	**Base camps** **Special use camps** **Cemeteries**	
Important events/changes	**Change in climate - warmer weather** **Large mammals go extinct** **Shift to more sedentary lifeways** **Gradual shift to plant domestication**	

12,000 9000 BC 600

Paleoindian	**Archaic Period**	Woodland
*	**8000 BC 1200**	

Site name	Rockhouse Cave	
Site description	Rockhouse Cave is a bluff shelter used by Archaic Indians as a special purpose site to store food, while hunting, gathering, or getting stone.	

***Look at the timeline. Add a beginning and an end date to show when people lived at this site. Shade it in.**

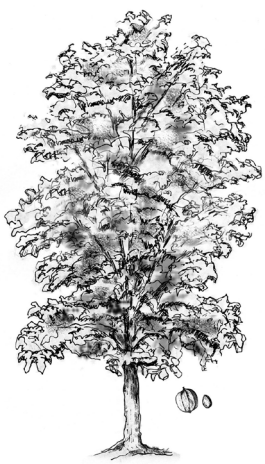
Archaic Period Timeline: Evidence-based Answer Key

Rockhouse Cave, 8000 - 1200 BC: A Case Study

What is the Archaic Period?

American Indians' cultures differ based on the environment, the type of foods they ate, the tools they used, the sites they lived in, and what their communities looked like. By studying American Indians' cultures and ways of life and how they changed over time, archeologists identify cultural periods. A **cultural period** is a length of time when people share similar ways of life. In Arkansas, these cultural periods include the Paleoindian, Archaic, Woodland, and Mississippi periods. The Archaic Period is a time between 8500 – 600 BC, when people ate similar foods, used similar tools, and lived in similar sites and communities.

What kind of food did Archaic people eat? How did they get their food?

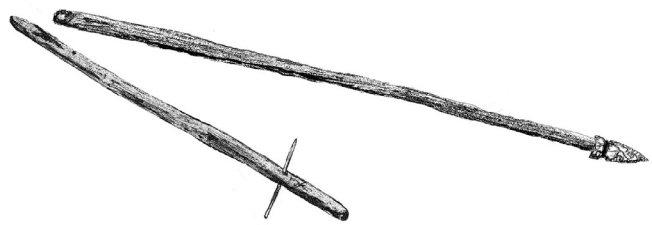


A hickory tree and nut.

During the Ice Age, people hunted really big animals, like mastodon or mammoth. When the Ice Age ended and the Archaic Period began, the weather warmed up. All the big animals that once lived in Arkansas went extinct. So people changed the way they got food. Archaic Indians hunted deer, small mammals, and turkey, and they fished. The first Archaic Indians did not plant foods or have gardens. They gathered wild plant foods such as fruit, seeds, and nuts. It seems like it would be hard to be an Archaic Indian, but there were many plants and animals they could eat. They traveled to places where fruits were ripe, where nuts were ready to pick, or where it was best to fish. This allowed Archaic Indians to have diets of many different types of foods.

What kind of tools did Archaic Indians use?

Archaic Indians used spears and spear throwers (atlatls) to hunt deer and small mammals. Archeologists don't find ancient things made of materials like wood, because they rot easily. So they don't find the wood shafts of the spear. Instead, archeologists find large stone spear points that Archaic Indians attached to the end of wooden spears. They used stone to make many of their tools. Archaic Indians made and used stone knives. Once they killed an animal, they used the stone knives to butcher the animal and cut the meat. They used deer skins to make some clothes, like shoes and robes. They used stone scrapers to soften the animal skins and stone knives to cut the leather. They made bone needles to sew the animal skin. They also made stone drills to make holes in wood and bone to make necklaces.



An atlatl (spear thrower) and spear used for hunting.

A fishing hook made from bone.

Archaic Indians ate a lot of nuts. They used hammerstones to break open nut shells. They used grinding stones to grind nuts and seeds into meal, similar to cornmeal, that could be made into dough. They made stone axes to cut down trees and adzes for other woodworking, such as canoe-making. They carved fish hooks out of bone and made fishing nets by tying stones to one edge of a net woven from plant fibers. The weights made one end of the net sink to the bottom of the river. The other end floated catching the fish that tried to swim through the net.

An adze for woodworking.

What did Archaic Indians' communities look like?

Archaic Indians lived in **bands**, or small groups of people related to each other. Most bands had 30 to 50 people living together. Young adults found husbands and wives from neighboring bands. The leader of

Name _____ Date _____

a band was the person with the most knowledge and skill. In this kind of community, everyone did the same work and was treated equally. This is called an **egalitarian** society.

What types of sites did Archaic Indians create?

During the Archaic Period, people lived in base camps for a year or so, before moving to another place. There were no stores to buy food, tools, and clothes. Archaic Indians traveled around to find animals to hunt, plants to gather, and stones to make into tools. When they traveled, Archaic Indians stayed in special purpose sites near their base camp. Archaic people also had special places where they buried family and community members who died, much like the cemeteries we use today.

□ **Base Camp:** The main place where people lived. A base camp is where people built their homes and did their day to day activities. Archaic Indians moved their base camps to new locations each year, but they usually built them along rivers and streams.

◆ **Special Purpose Site:** Special purpose sites are places where people stayed for a few days or a few weeks, while they hunted, butchered animals, gathered plant foods, or collected rocks to make tools. These sites are located near base camps in the uplands, forest edges, or river bottoms.

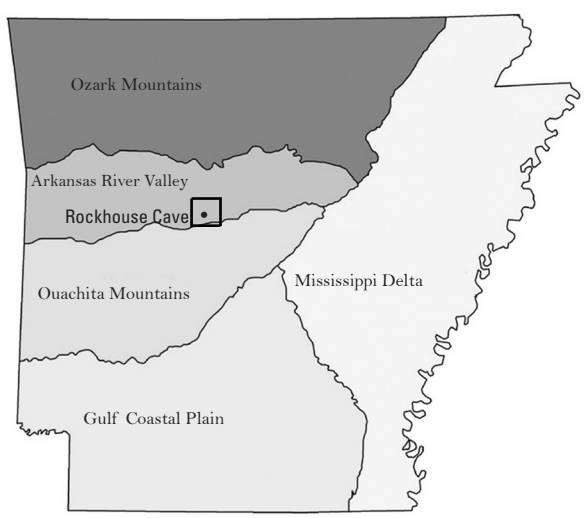
Δ **Cemetery:** A cemetery is place where people who died were buried. Cemeteries were located in the river bottoms near the base camp. Archaic Indians buried their loved ones with some of the tools and objects they used during their lives, like spear points, hammerstones, or drills.

The inside of Rockhouse Cave. Photo by Jodi A. Barnes.

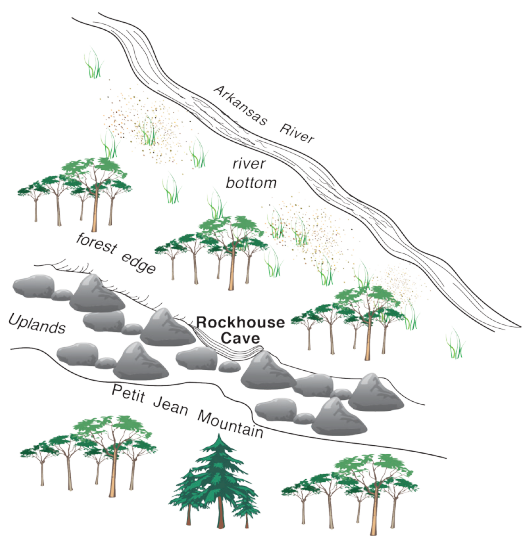
What is Rockhouse Cave?

Rockhouse Cave is a special purpose site located in the uplands on top of Petit Jean Mountain. Petit Jean Mountain is part of the Ozark Mountain chain. The site is located south of the Arkansas River. Rockhouse Cave is a very large bluff shelter. Bluff shelters are shallow, cave-like openings formed in the rock of a mountain. Rockhouse Cave's floor is bigger than two basketball courts put together! Archaic Indians used Rockhouse Cave between 8000 and 1200 BC.

Archaic Indians camped in the bluff shelter while they hunted and gathered nuts, because it was dry. They cooked meals over a campfire. They also repaired and sharpened some of their tools. Archaic



Location of Rockhouse Cave in Arkansas.



Location of Rockhouse Cave on Petit Jean Mountain, showing nearby uplands, river bottoms, and forest edge.

Indians also used Rock house Cave to store their nuts and seeds for the winter, since its dryness created an ideal environment for food storage. Because of this dryness, archeologists found artifacts that usually decay more quickly in damp soils, like seeds, baskets, and clothing. Indians who camped at Rockhouse Cave thousands of years later painted most of the images that you can still see on the walls, but Archaic Indians may have painted some of them.

Drs. George Sabo and Emily Beahm showing a filmmaker the rock art on the walls of Rockhouse Cave in Petit Jean State Park. Photo by Elizabeth Horton.

Pictographs on Petit Jean Mountain

You can visit Rockhouse Cave in Petit Jean Mountain State Park.

Learn more at:
https://archeology.uark.edu/ozarkbluff-shelters/learn-more/visit-a-shelter/

On the walls and ceiling of Rockhouse Cave, Arkansas Indians drew a large number of rock art images, or pictographs, in red iron oxide pigment between 900 - 1600 AD. Images on Petit Jean Mountain include nested diamonds, concentric circles, rayed circles, and animal figures, such as snakes and fish. It also includes edible plants like corn, goosefoot, and young fiddlehead ferns that show the importance of these plants in the foodways of Arkansas Indians.

Left, a young fiddlehead fern; right, a goosefoot leaf on the walls of Indian Cave on Petit Jean Mountain. Photos by George Sabo III.

Nut Butter: A Gathering Recipe

Ingredients:

1 cup of pecans, walnuts, or hickory nuts

Instructions:

Using a mortar and pestle or a food processor, grind the nuts into a paste.
If it isn't sweet enough, add a little honey.
Use nut butter like you would use margarine, butter, or peanut butter.

Do not use acorns.

Foraging Foodways in the Arkansas Ozarks

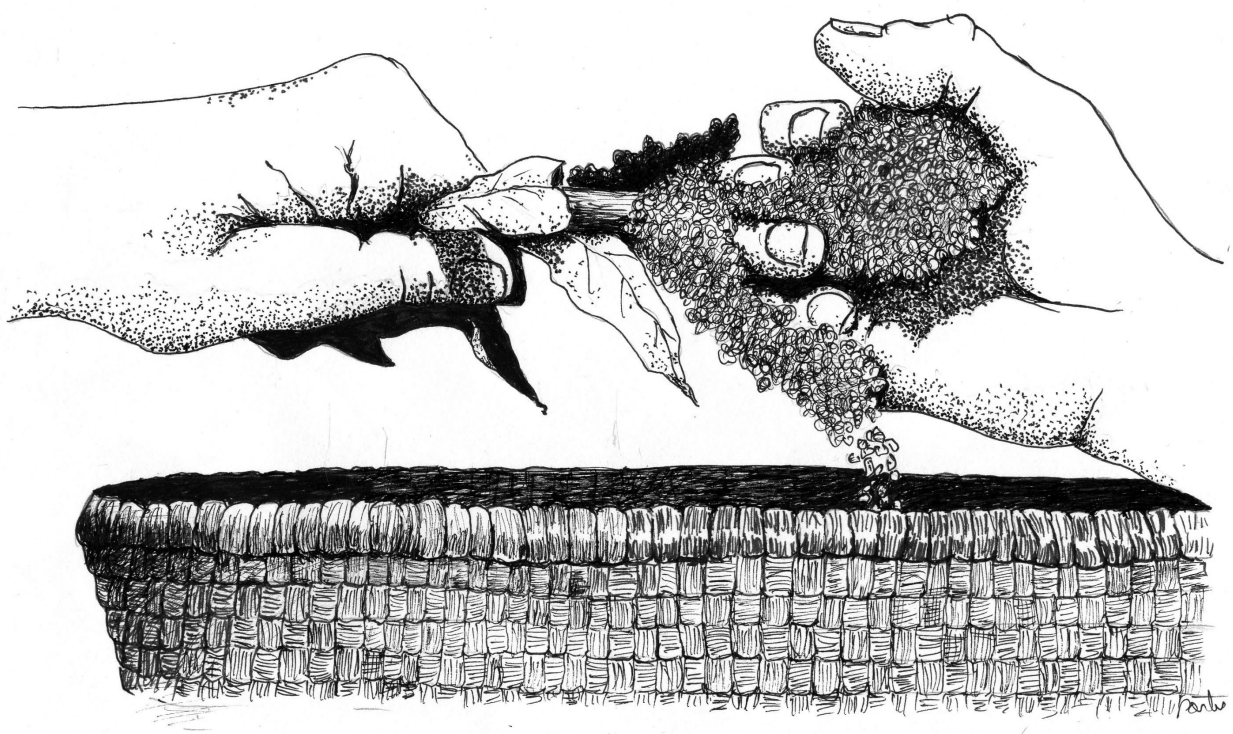
For this activity, you are going to do some Archaic Indian role play. You are the Archaic Arkansans described in the following essay. Read the essay and respond to the questions that follow.

Foraging Foodways

You belong to a group of Archaic Indians living in Arkansas about 5,000 years ago. Your group, or band, of about 50 related people includes everyone from babies to elders. You make a living by hunting and fishing wild animals and gathering wild plants. You hunt deer and elk when the herds are nearby. You also get small animals, fish, turtles, shellfish, turkeys, pigeons, and geese with spears, nets, and traps. You walk a long way from your home (your base camp) and stay at special purpose sites, like Rockhouse Cave, to collect nuts and acorns from hickory and oak trees, fruits, berries, and greens in season.

You have to make choices about which plant foods are the most nutritious and how much work it takes to gather each one. Some foods provide many calories. Calories are a measure of how much energy the food gives. Some foods give lots of protein, fat, and vitamins. Others provide less. Some foods are difficult to get (so you spend more energy, or effort), while others are easy (costing you less energy). What mix of foods gives you the most nutrition for the best cost? You need to take into account the daily requirements for men (2,500 – 3,000 calories) and for women (2,000 -2,500 calories). Everyone needs protein and vitamins, and people (like you) who hunt and gather also need fat in their diet because it is also a source of energy.

For example, you can gather 100 grams of hickory nuts in 15 minutes, but you have to walk a half-mile from your home to reach the forest. You can collect 100 grams of sunflower seeds just outside your home, so you don't have to walk far but it takes an hour to gather that much. Roasted



Harvesting wild edible seed was an important fall activity for Archaic foragers. Tightly woven baskets, like this one, were important tools for harvesting these small seeds. Drawing by Larry Porter.

Name _____ **Date** _____

deer meat is delicious, but you might spend all day tracking the deer over two or three miles. If you kill a deer, you have to drag it all the way back to camp. And if you miss, you've done all that work for nothing. You can collect 100 grams of goosefoot leaves right outside your base camp in about a half-hour. It gives you far less calories and protein, but lots of vitamins.

Your band moves from one place to another during different seasons of the year, so you are close to the forests, fields, and streams where food and other things you need are available. Your base camp is located in the river bottom. River bottoms are flat areas along rivers. At your base camp, you live in a circular house with pole frameworks, bark-covered or mud plastered walls, and a grass or bark-covered roof. You do a lot of work, like preparing food and making tools, in work areas just outside your house.

You travel to the uplands and the forest edge to gather wild plant foods. Uplands are mountain areas in forests with some small creeks. Oaks, hickory, pecan, and walnut trees grow in the uplands. Fruit trees like persimmon and paw paw trees also grow in upland forests. The forest edge is located between the uplands and the river bottoms. Animals like deer and rabbits live in the forest edge.

You eat many different foods that change with the seasons. You eat deer meat, nuts (especially hickory nuts and acorns), and fish often. You roast meat in hot ashes or over open fires. You also pound meat, nuts, and seeds into powder and use them to thicken liquids and add flavor to the meal. Sometimes you make cakes, like persimmon cakes, by pounding dried meat, dried seeds, and the persimmon fruit into meal. You mix the meal with grease to shape the cakes and bake the cakes in hot ashes. You harvest the gourds and use them as containers to store foods through the winter. Within your band, youngsters, women with children, and older people usually do the gathering and tending plants and capture smaller animals, like rabbits and fish, close to home. Some men and women travel farther away to hunt larger animals or look for other food. In the fall, you gather and store the most nutritious plant foods, so that you will not go hungry in the winter when foods are hard to find.

1. What is the name of your band?

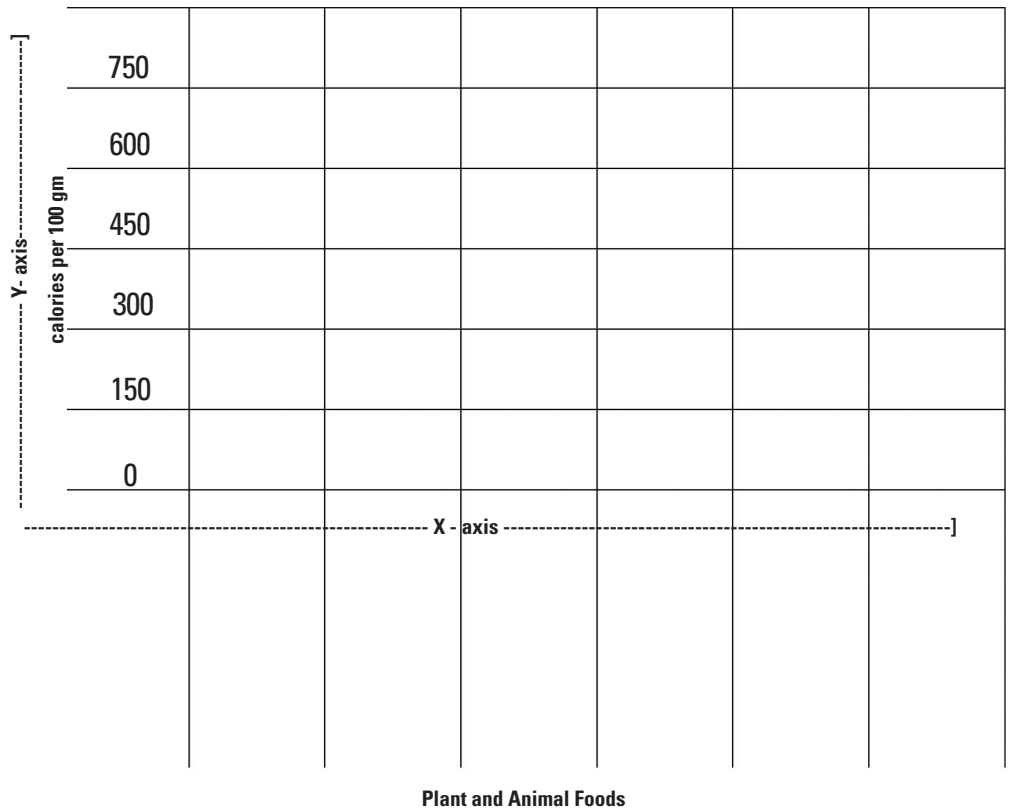
2. Look at the season and location information in the Seasonal Foodways table (on page 40). Where will your band travel to get food in the spring, summer, and fall? Think about the food resources you want to eat and the nutrients they give.

3. Look at your bullseye (on page 41). In the middle ring of the bullseye labeled "Season," write down which season you will be in each environment (spring, summer, and fall). In the winter, you will eat the food your band stores throughout the year.

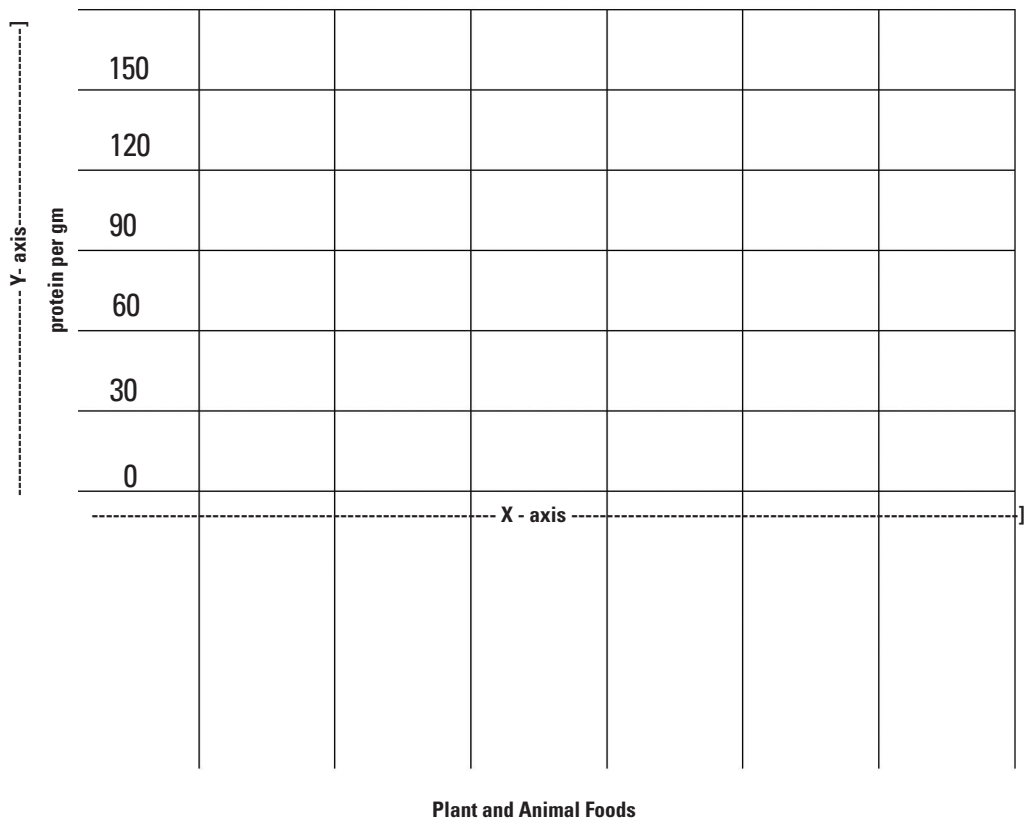
4. Cut out the plants and animals. Glue the plants and animals in the environment that you will visit during each season. For example, if you are hunting and gathering plants along the Forest Edge in the summer, glue the sunflower seeds, raspberry fruit, and deer in the Forest Edge section of the outer ring of the bullseye.

5. Describe your seasonal route. Where will you go each season and what will you eat?

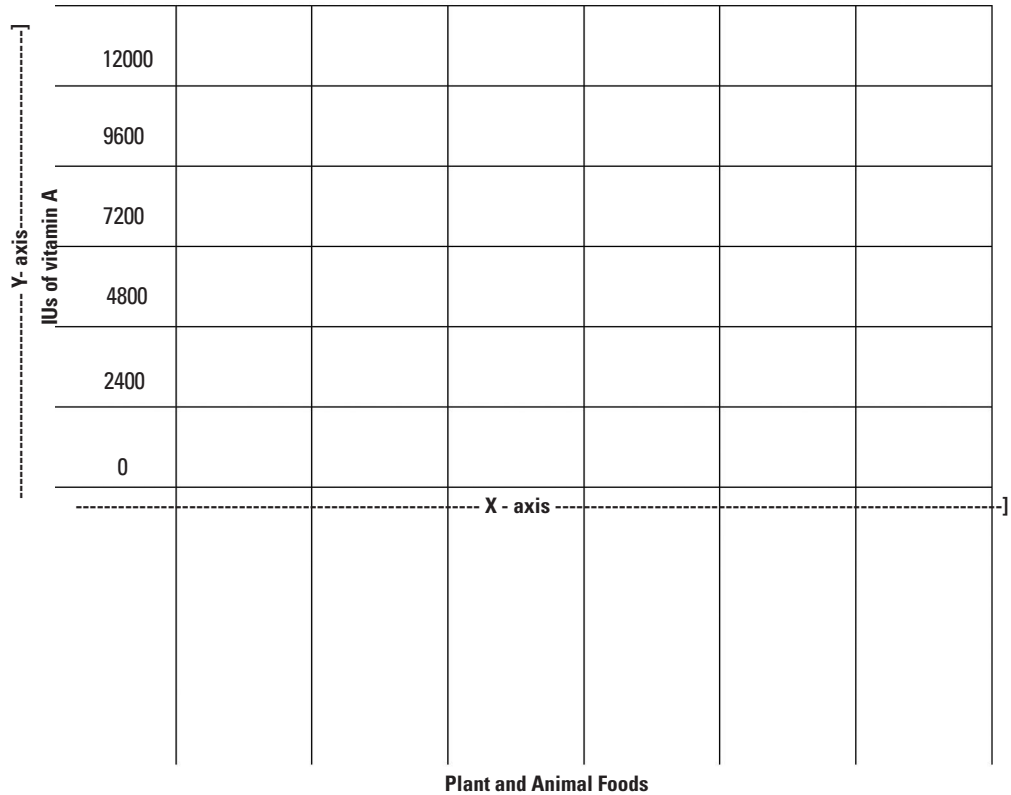
6. Look at the Seasonal Foodways table on page 40. Select plant and animal foods that your band eats regularly. Record each food item on the on the x axis of the bar graph. Create a bar to show the *number of calories per 100 grams* for each plant and animal food.



7. Record the same six plant foods from Question 5 on the x axis of the bar graph. Complete the bar graph to show the amount of *protein* per 100 grams for each plant and animal foods.



8. Record the six plant foods from Question 5 on the x axis of the bar graph. Complete the bar graph to show the *IUs of vitamin A* per 100 grams for each plant and animal foods.



9. Based on your bar graphs, which food offers the most calories? _____

10. Which food offers the most protein? _____

11. Which food provides the most IUs of Vitamin A? _____

12. Which foods would you want to include in your diet?

13. Think back to the things you do everyday from the essay. You and your band gather plants, hunt, and fish. What foods do you get from each method? List the plant and animal foods in the table in the **Plant and Animal Foods** column.

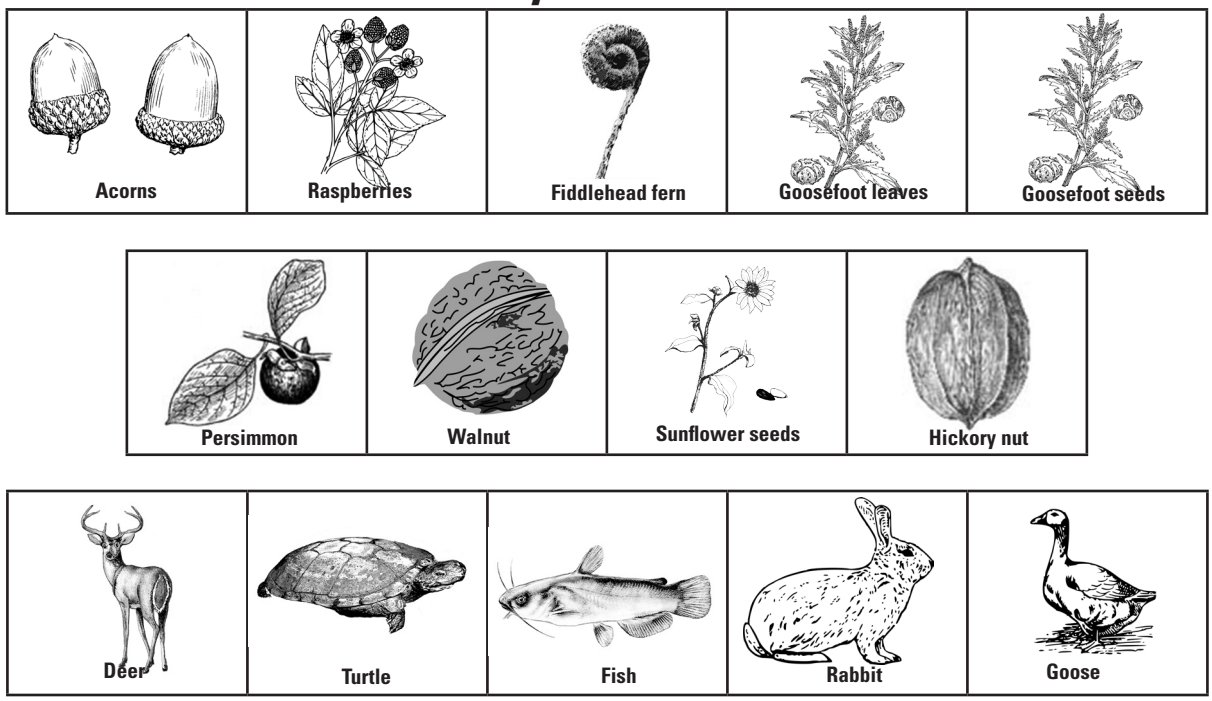
14. What activities do you and your band have to do in order to eat the foods? List the things you do in the table in the **Activities** column.

Foodways	Plant and animal foods	Activities
Gathering		
Hunting		
Fishing		

15. Based on the amount of work you will have to do to get the foods, is your answer to question 12 still the same? Why or why not?

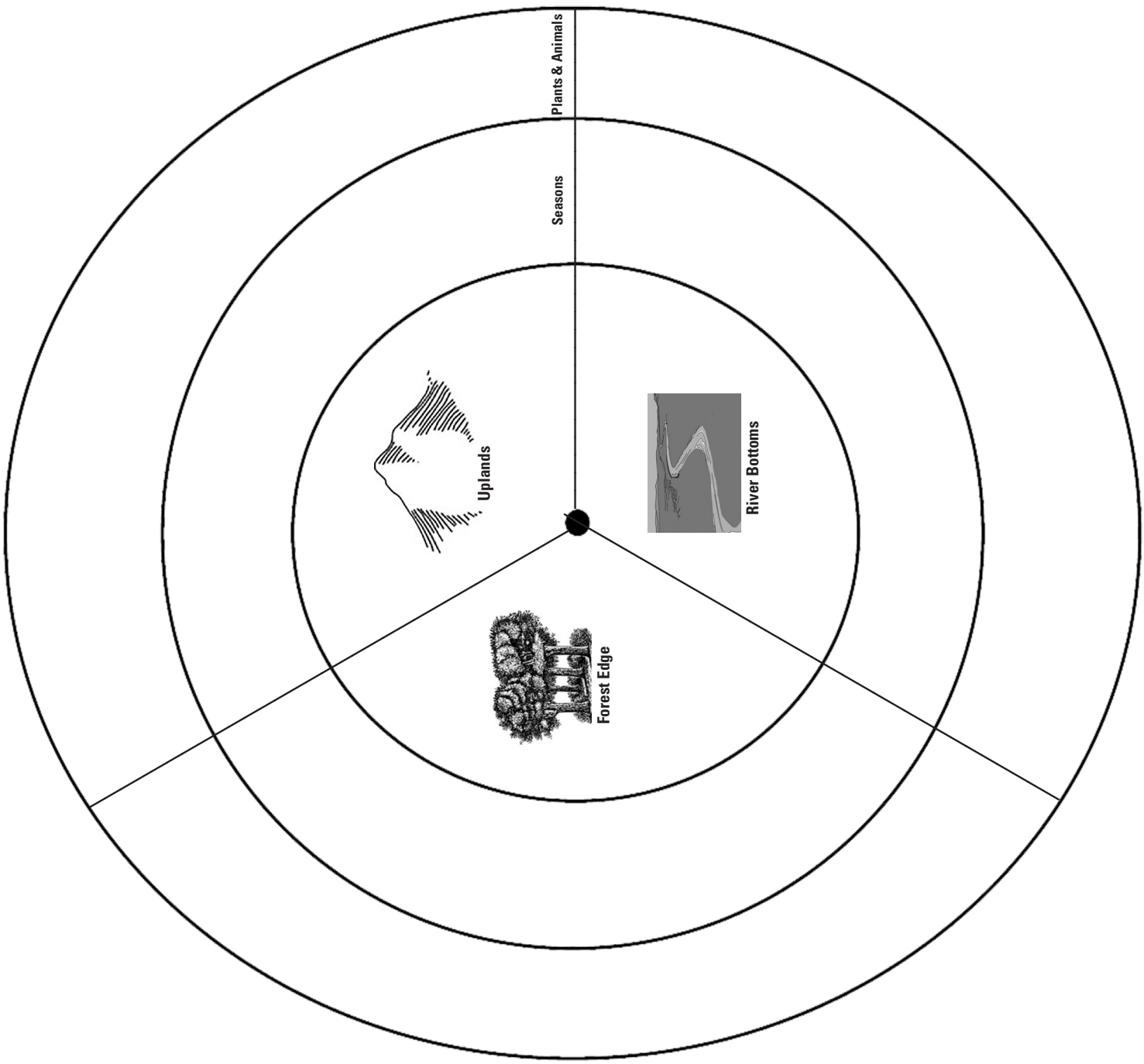
16. In your band everyone does the same kinds of work to get food. Think back to the Rockhouse Cave case study, what do you call this type of community organization?

Seasonal Foodways: Plant and Animal Foods



Seasonal Foodways Chart

Food	Calories (per 100 gm)	Protein (gm)	Fat (gm)	Vitamin A (IU)	Vitamin C (mg)	Season	Location
Hickory nuts	657	13	64	131	2	Fall	Uplands
Walnuts	618	24	59	40	1.7	Fall	Uplands
Acorns	509	8	31	0	0	Fall	Uplands
Sunflower seeds	584	21	51	2917	43	Summer	Forest Edge
Goosefoot leaves	43	18	5	11600	80	Spring	River Bottom
Goosefoot seeds	400	16	7	14	0	Fall	River Bottom
Fiddlehead ferns	34	23	0	3617	27	Spring	Uplands
Persimmon fruit	127	0	0	0	66	Fall	Uplands
Raspberry fruit	52	1	1	33	26	Summer	Forest Edge
Deer	715	139	11	0	0	Fall best, or year round	Forest Edge
Rabbit	114	22	2	0	0	Summer	Forest Edge
Fish	117	19	4	123	1	Year Round	River Bottom
Turtle	89	20	0	100	0	Summer	River Bottom
Goose	371	16	34	55	4	Fall	River Bottom


Plants & Animals
Seasons
Uplands
River Bottoms
Forest Edge

Name

Date

Community organization		
Artifacts		
Foodways		
Site types		
Important events/changes		

12,000	**9000**	**BC**	**600**	
Paleoindian	**Archaic Period**			Woodland
*				
Site name				
Site description				

***Look at the timeline. Add a beginning and an end date to show when people lived at this site. Shade it in.**

Archaic Period Timeline

Lesson Three: First Gardens

(Adapted from "Archaeobotany: Intrigue of the Past," LEARN NC, Research Laboratories of Archaeology, 2008).

Overview: An internet search for Native American gardens results in a number of hits for the three sisters garden -- corn, beans, and squash. But the first gardens in the southeastern United States did not look like this. Archeologists who specialize in the study of plants and seeds have shown that by 3000 years ago, Native American communities domesticated and cultivated local crop plants and were increasingly relying on gardening as a critical part of their foodways. The first domesticated and cultivated crops were derived from locally available wild plants. During the Woodland Period (600 BC – 900 AD), the Indians who lived at Toltec Mounds and throughout the Central Arkansas River Valley cultivated these crops in addition to using wild plants. In this lesson, students learn about Arkansas's first gardeners, while continuing to develop the conceptual tools of archeology. They examine stratigraphy, identify seed samples, and infer ancient plant use by interpreting the samples.

Lesson Objectives: Understand that archeologists study stratigraphy and plant remains to learn about past foodways and past cultures. Learn how plant domestication and gardening changed Native American foodways and ways of life.

Critical Thinking Questions: How did gardeners live? How did plant domestication and gardening change people's diets, foodways, and cultures?

Subjects: social studies, language arts, science, history, math

Duration: 45 to 60 minutes

Class size: any

National standards: AID, AQDP, D3.4.3-5, D4.1.3-5, D4.2.3-5, D2.Geo.2.3-5, D2.Geo.4.3-5, D2.Geo.5.3-5, D2.His.16.3-5, D2.His.17.3-5, L.5, PC01, RH.4, RI.7, WHST.4

Arkansas Social Studies standards: D1.1, D1.2, D1.3, E.4.5.1, G.8.5.1, G.8.5.2, G.9.5.1, G.9.5.2, G.9.5.1, G.9.5.3, G.10.5.1, H.12.5.1, H.12.5.2

Materials

For each student: "Toltec Mounds, 650-1050 AD: A Case Study" (p. 54); "Seed Change at Toltec" (p. 57) and "Woodland Period Timeline" (p. 63) worksheets; "Dinner at AD 700: The Plum Bayou Casserole" (p. 64).

For the teacher: Five books of different thicknesses and colors; "Magnified Seeds" master (p. 49), "Seasonal Plant Use in the Woodland Period Table" (p. 50), and "Toltec Mounds, 650-1050 AD: A Case Study" (p. 54) to project; a copy of the "Woodland Period Timeline: Evidence-based Answer Key" (p. 31). if possible, pictures or plants and seeds of the domesticated plants (e.g., sumpweed, goosefoot).

Background

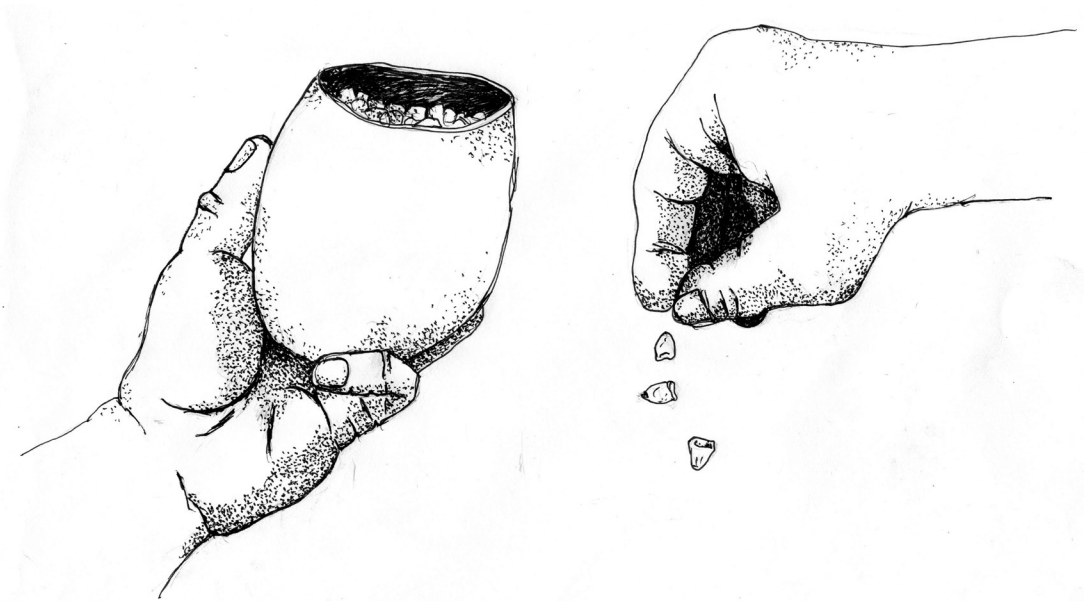
Archeologists excavate square holes in order to establish the relative age of the sites, artifacts, and events that they are studying. The goal is to place the artifacts in chronological order. By putting the artifacts in the order in which they occurred, archeologists

can piece together the overall story of the past.

Natural materials such as rocks, soil, and plant and animal remains occur on the earth's surface and can accumulate in layers. Archeologists can tell each layer or **stratum** apart by its physical characteristics: color, texture, and structure. In the same way, materials of human origin are also deposited onto the earth's surface. In archeological sites, natural and human-created materials occur together in layers. These layers, called **strata**, form a record of past events that archeologists analyze and interpret. The study of strata is called **stratigraphy**.

The materials left first are the oldest and are always found at the bottom if the stratigraphy is not disturbed. The most recently deposited materials are the youngest and are always at the top. Strata in archeological sites provide archeologists with information about time and where events happen on the landscape. All of the artifacts in a given stratum will be approximately the same age, while those in strata above or below will be younger or older respectively.

By looking at seeds and where they are located stratigraphically, archeologists have learned that by 3,000 years ago the Native American communities of the southeastern United States domesticated and cultivated local crop plants. These ancient Arkansans left an archeological record showing the importance of gardening and farming as a critical part of their foodways. Gardening started with people becoming more **sedentary**, or living in one place, because many plants and animals thrived there. It was in these sedentary communities that the independent invention of plant **domestication** occurred. Arkansas, along with the surrounding mid-South region, is one of ten world centers of independent crop domestication. People living in villages cleared surrounding vegetation and exposed more ground area to sunlight. Their living areas also accumulated greater amounts of trash. Like compost piles today, the location



Sowing seeds. Unlike Arkansas Indians in earlier periods, the Woodland people actively planted seeds in specially prepared areas like gardens and small fields located near their houses. Drawing by Larry Porter.

where they dumped their garbage became rich and fertile places for plants to grow. Some of the plants that people gathered for hundreds of years were opportunistic pioneer plants that thrived in disturbed areas. As people settled, cleared forests, and accumulated trash, these weedy "camp followers" grew thicker than their native stands along forest edges and streams. Over many years of planting the best seeds, the plants began to change. They developed traits that made them easier to grow and better to eat. The first cultivated crops were domesticated from locally available wild plants, including goosefoot (*Chenopodium berlandieri*), sumpweed (*Iva annua*), sunflower (*Helianthus annuus*), and squash (*Cucurbita pepo var. ovifera*). People also planted, tended, and harvested other plants, such as erect knotweed (*Polygunum erectum*), maygrass (*Phalaris caroliniana*), and little barley (*Hordeum pussilum*), although they were not necessarily domesticated.

Dr. Gayle Fritz (Washington University in St. Louis), an archeologist who studies ancient plants, identified plant remains from Toltec Mounds that indicate by AD 600–1000 Woodland Indians were using many of the same locally domesticated crop plants seen at other sites across the southeast. Dr. Fritz identified these plants by using a microscope to look closely at the seeds recovered during excavation.

Seeds have several valuable features that make them useful for archeologists to study. If they are carbonized, they can be preserved over long periods of time in the ground. Carbonization occurs when a seed is burned and turned to charcoal, which often happens around cooking fires. Other plant parts, such as leaves, flowers, or roots, are far less likely to be preserved, except in rare cases, like dry caves and bluff shelters. Different types of plants produce seeds that look different from each other. Even when carbonized, the distinctiveness of seeds allows researchers to identify the plant species.

When archeologists excavate a site, they regularly collect samples of soil to examine for the presence of seeds. Seeds are recovered through a procedure called **flotation**, which involves placing the soil samples in a container of swirling water. The soil, which is heavy, drops to the bottom of the container, while the seeds float to the top, where they can be scooped off and set aside to dry. Archeologists examine the seeds under a microscope and compare them with modern identified seeds and illustrations of seeds. Archeologists can tell if a plant has been domesticated by observing changes in seed and fruit form and size and comparing with known wild (undomesticated) specimens. For example, sumpweed seeds increased in size with domestication.

A flotation tank. Drawing courtesy of Dorian Fuller (https://sites.google.com/site/archaeobotany).

Carbonized seeds become deposited in the ground through people's activities. Seeds show up in areas of the site where people prepared and used plants, such as in hearths, or cooking fires, trash pits, or **middens**, and storage pits. Just as we don't throw our trash in any old place, neither did Arkansas Indians. Their garbage heaps, called middens, are a rich source of archeological information about their foodways. Layers of trash tell a story over time. Archeologists excavate middens slowly and carefully, recording the location of artifacts and samples recovered from the midden. They analyze the tiny fragments of Native Arkansans' meals (bone fragments and seeds), along with pottery and charcoal from cooking fires. By identifying the animals and plants preserved in these remains, archeologists learn much information about the foodways of past people.

During the Woodland Period, after the domestication of plants, people began to use plants more heavily and eventually constructed permanent villages and gardens. After ancient Arkansans succeeded in domesticating several plant species, they began to use them much more as a source of food than the gathered wild plant foods. An important advantage of cultivated plant foods is that the amount people don't consume right away can be stored for later use. Communities that were able to store plant foods had greater food security than provided by gathering wild plant foods. With the addition of gardens and ways to store the extra harvested seeds and fruits, populations increased and villages grew and were occupied for longer periods of time. People living in permanent villages still acquired many natural resources, such as wood for building and fuel, stone for tool production, and clay for pottery making. People also hunted animals using the bow and arrow and still collected wild plant foods, including nuts and berries. Therefore, villagers traveled to other locations in the territory surrounding their homes to acquire these goods. But gardening, population increase, and residence in permanent villages changed the landscape and the foodways of southeastern Indians.

About 2,500 years ago, the challenge of cooking with seeds, grains, and other foods not easily roasted on a stick or toasted over a fire was resolved with the introduction of **pottery**. People made pottery vessels with local clays and hardened them around campfires without the use of kilns. The fire hardened containers were used repeatedly for soups, stews, and other "one pot" meals.

At first, Woodland Indians used very simple tools for gardening. Axes with chipped or ground stone blades, developed thousands of years earlier, were used to clear trees to prepare garden plots. Wood handled stone hoes, with blades made much like axe blades, provided a means to break up the soil and prepare garden beds. Seeds were planted using simple digging sticks with a sharpened and fire-hardened point at one end. Harvested seed heads were collected in woven baskets made in a variety of shapes and sizes. Some recipes called for grinding the seeds into meal using stone mortars and pestles.

For Woodland Indians, the domestication of plants coincided with a number of changes in their foodways as well as their everyday lives. Pottery and the ability to store food provided greater security, resulting in increased sedentism, larger popula-

tions, and permanent villages. It also resulted in increased ceremonialism as people established ceremonial centers, like Toltec Mounds, as places where neighbors from the region gathered to participate in collective ceremonies and feasting. Seeds provide important clues to the way southeastern Indians lived during this period.

Getting Ready to Teach

1. Gather five books of different thicknesses and colors.
2. Make copies of the "Toltec Mounds, 650-1050 AD: A Case Study" (p. 54), the "Seed Change at Toltec" (p. 57) worksheet, and "Dinner at AD 700: The Plum Bayou Casserole" recipe (p. 64).
3. Prepare "Magnified Seeds" (p. 49), "Seasonal Plant Use in the Woodland Period" table (p. 51), and "Toltec Mounds, 650-1050 AD: A Case Study" (p. 54) to project.
4. Get pictures of plants and samples of seeds from domesticated plants (sunflower, sumpweed, or squash). Seed packets are seasonally available from the Arkansas Archeological Survey.
5. Review Background information and "Toltec Mounds, 650-1050 AD: A Case Study" (p. 54).
6. Post the Critical Thinking Questions and Key Terms.

Key Terms

Domestication: The biological process of adapting wild plants and animals for human use.
Flotation: The process of removing seeds from soil by using water.
Gardeners: People who practice small scale farming, by clearing a plot of land to plant and grow domesticated seed crops.
Midden: A large trash or garbage heap associated with human activity.
Sedentary: The practice of living in one place for a long time.
Stratigraphy: The layering of soil and artifacts in archeological sites. Artifacts and soil become buried over time. The layer on the bottom is the oldest, the layer on top is the youngest.
Stratum: A layer. Strata, plural.

Engagement

1. Ask students: Have you ever grown a plant from a seed? What did you do? (Buy or gather seed, prepare soil, learn about the ideal growing conditions for that particular plant, plant seeds, water them regularly, make sure they are kept warm and get enough sunlight, get rid of pests, and weed the garden.)
2. Tell students that during the late Woodland period (between 650-1050 AD), southeastern Indians increasingly grew plant crops.

Exploration

1. How did gardeners live? How did plant domestication and gardening change people's diets and foodways? Inform students that these questions will guide their learning.
2. Tell students that in order to see change archeologists examine the stratigraphy of a site. Stack five books, preferably of different thicknesses and colors, on a table.
3. Tell students that the books were placed one at a time. Ask students: Which book was placed first? Which was placed last?
4. Explain to students that each book represents a layer (stratum) of soil that

is deposited over time. **Stratigraphy** is the study of strata (multiple layers) and archeologists use stratigraphy to study the relative age of buried artifacts.

5. Separate the class into groups of 2-3 students and pass out the "Seed Change at Toltec Mounds" worksheet. Have the students read the scenario and complete questions 1-3.

Explanation

1. Review the answers and the Background information about stratigraphy as necessary. Tell students that the location of the seeds and artifacts help tell the story about what people were doing in the past.
2. Assist the students in defining **stratigraphy** and **stratum** in their Key Terms.
3. Project the master of "Magnified Seeds." Ask the students to guess what they are seeing.
4. Review the Background information. Explain to students how people domesticated plants (tending "camp followers," saving the best seeds, and planting them again) and how archeologists do seed analysis to learn about plant use and foodways (flotation and looking at seeds under a microscope to compare with other samples).
5. Review each seed and which plant it comes from. Show examples of the seeds from the domesticated plants (sunflower or sumpweed) if possible. Use the "Seasonal Plant Use in the Woodland Period" table.

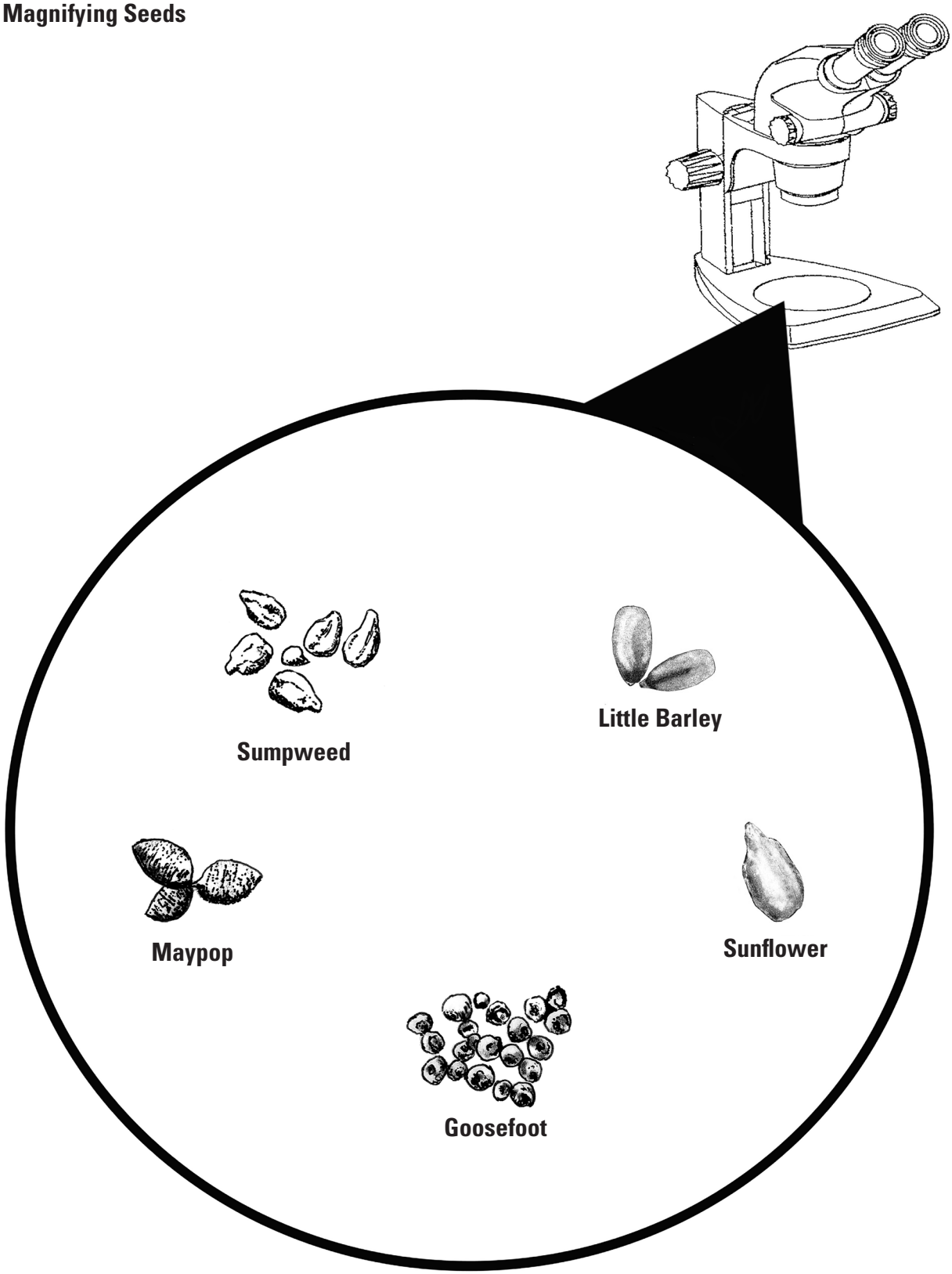
Elaboration

1. Have students complete the remaining questions for the "Seed Change at Toltec Mounds" worksheet.
2. Review the answers and ask students: What kinds of information can seeds from archeological sites tell us? (What people ate, when they domesticated plants.)
3. Ask students: Why is it important for sites to be left undisturbed if archeologists are to use seed analysis to learn about past foodways? (If a site is disturbed it becomes impossible to interpret the foodways of past people).

Evaluation

1. Review the terms, **domestication**, **flotation, gardeners,** and **midden**, and help students define them in the Key Terms.
2. Pass out the "Woodland Period Timeline." Have students complete the sheet by using information from the "Toltec Mounds, 650-1050 AD: A Case Study" to identify the key dates of occupation, the artifacts, foodways, and social organization. This assignment could be completed as a class, as a group, or as individual homework/assessment.
3. The Woodland Period is a period in Native American history marked by population increase, pottery-making, gardening, long-term residence in villages, and mound centers. Use the "Woodland Period Timeline: Evidence-based Answer Key" as a guide for discussion.
4. Review the "Curation Shelf" questions and make sure all of the questions were addressed.
5. Pass out the "Dinner AD 700" recipe for students to take home and cook with their parents.

Magnifying Seeds



Seasonal Plant Use in the Woodland Period

Domesticated Plants		
Plant name	Season	Use
bottle gourd	fall	Used as a container.
erect knotweed	fall	Starchy seeds eaten as food.
goosefoot	fall	Used as food and medicine. Leaves are high in vitamins.
little barley	spring	High in fiber and vitamins.
maygrass	spring	Starchy seeds.
squash	summer	Rind, flesh, and seeds used as food; dried rind used as containers.
sumpweed	fall	Source of protein, vitamins in minerals.
sunflower	summer	Oil and starchy seeds.
Wild Plants		
acorns	fall	Rich in carbohydrates, key minerals, and protein.
blackberries, blueberries, elderberry	summer	Lots of vitamins. Can be dried and stored.
hickory nuts	fall	High in calories, fat, protein, and important minerals.
persimmon and grapes	fall	High in vitamins. Can be dried and stored.
maypop	fall	Edible fruit, high in Vitamin A.
walnuts	fall	High in fat, fatty acids, protein, and minerals.

Evidence-based Answer Key

Seed Change at Toltec

Question 1. a. Modern park visitors b. The Knapp family
c. Woodland Indians e. Archaic Indians

Question 2. Archaic Indians

Question 3. Modern Park visitors

Question 4. Sample #1

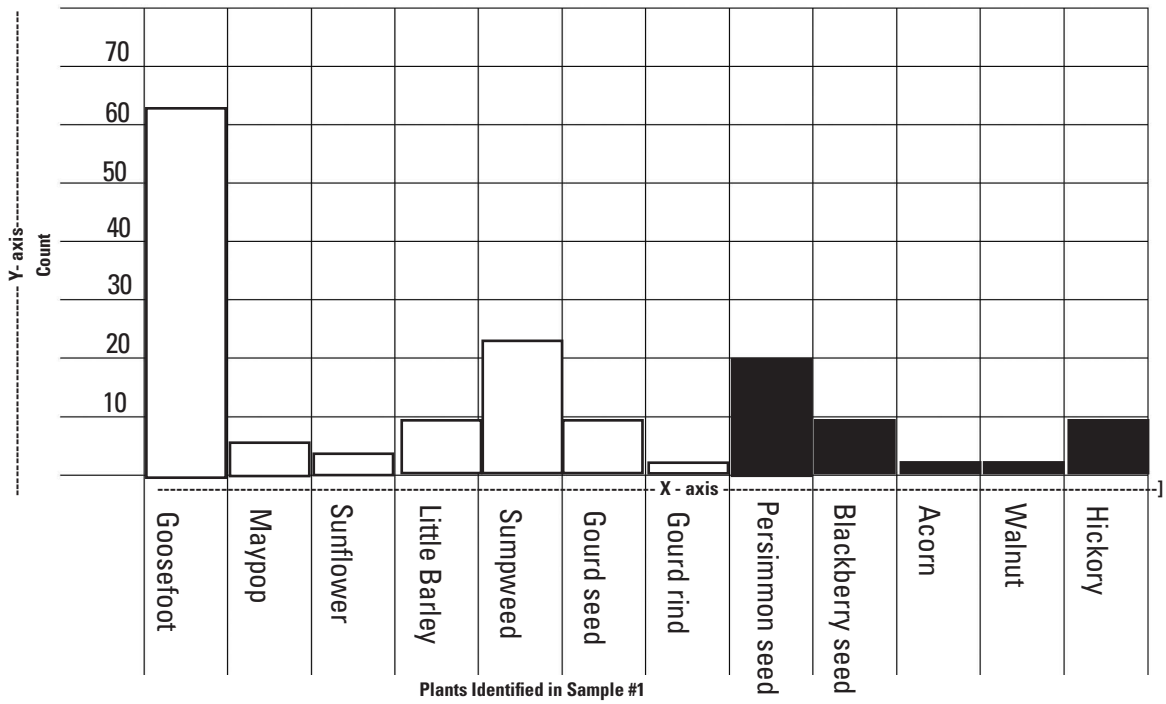
Seed #1: Sumpweed, count 24 Seed #2: Little Barley, count 10
Seed #3: Sunflower, count 4 Seed #4: Maypop, count 6
Seed #5: Goosefoot, count 63

Sample #2

Seed #1: Maypop, count 18

Question 5. Add information from Question 4.

Questions 6 & 7.



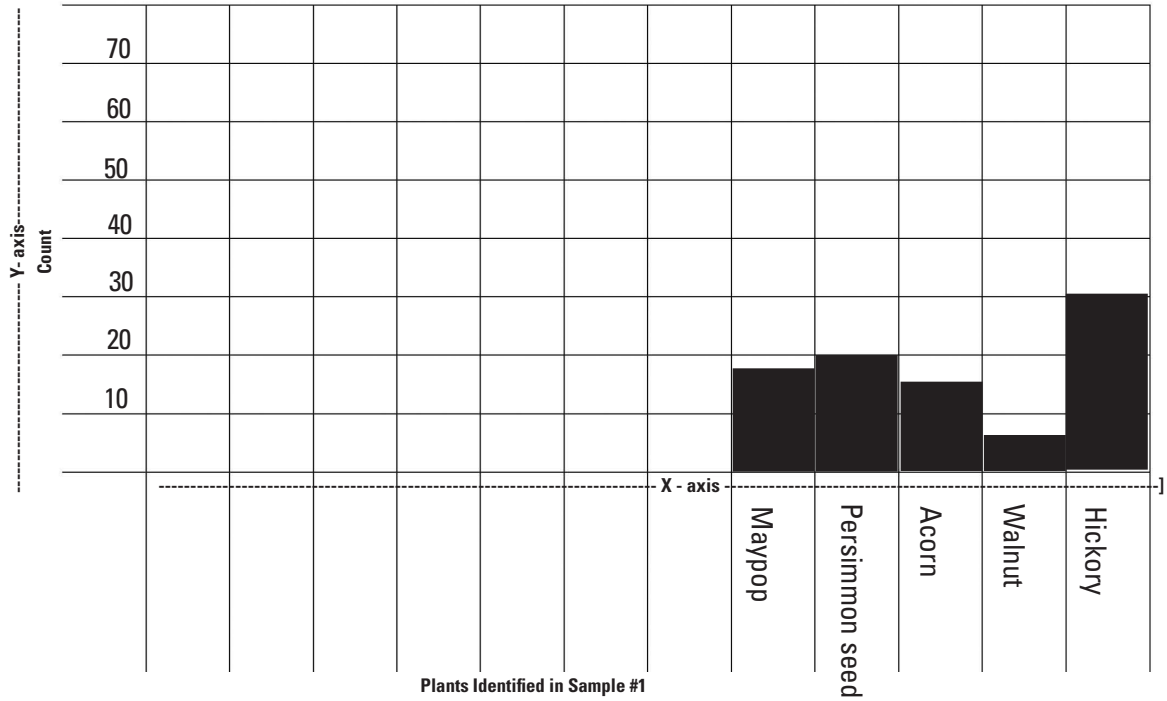
Question 8.

Spring	Summer	Fall	Winter
Little Barley	Goosefoot	Hickory	
	Sunflower	Walnut	
	Blackberry	Acorn	
		Persimmon	
		Bottle gourd	
		Sumpweed	
		Maypop	

Question 9. Woodland Indians were foraging for wild plant foods AND growing domesticated plants. There are both domesticated and wild plant foods in Sample #1.

Question 10. Add information from Question 4.

Questions 11 & 12.



Question 13.

Spring	Summer	Fall	Winter
		Hickory	
		Walnut	
		Acorn	
		Persimmon	
		Maypop	

Question 14. Archaic Indians were foraging for wild foods at this base camp during the fall.

Question 15. Sample #1 date range: 900–1300 years ago, Woodland Period
Sample #2 date range: 9,000–4,000 years ago, Archaic Period

Question 16. Woodlland Indians were harvesting and saving and storing some of the seeds and fruits from the spring and summer to be used for a ceremony later in the year.

Question 17. Archaic Indians used the base camp in the summer and fall but not during the spring. In the spring, they ate all of the foods available instead of storing them.

Question 18. People became more sedentary and started living in villages. Population increased. People started making pottery. People domesticated plants and started gardening. There was increased ceremonialism with people gathering at mound centers for feasts.

Community organization	**Live in villages** **Sedentary** **Less egalitarian**	
Artifacts	**Pottery**  **Axes, hoes, and digging sticks** **Bow and arrow**  **Mortar and pestle** **Woven baskets**	
Foodways	**Gardeners** **Hunt and gather**  **Grow domesticated crops like sumpweed**	
Site types	**Ceremonial centers** **Villages** **Special use sites** **Cemeteries**	
Important events/changes	**Pottery making begins about 600 BC** **Bow and arrow introduced 600 AD** **Increased ceremonialism** **Population increase** **Corn introduced 800 AD**	

600		**BC 0 AD**		**900**
Archaic		**Woodland**		Mississippian
*	**650 BC**			**1050 AD**
Site name	Toltec Mounds			
Site description	Toltec Mounds is a ceremonial center occupied during the Woodland Period between 650 BC and 1050 AD. It is not a village.			
***Look at the timeline. Add a beginning and an end date to show when people lived at this site. Shade it in.**				

Woodland Period Timeline: Evidence-based Answer Key

Toltec Mounds, 650 BC - AD 1050: A Case Study

What is the Woodland Period?

The Woodland Period is a time in American Indian history between 650 – 900 AD. During this period, people domesticated plants and tended gardens. Woodland Indians used similar tools, lived in villages, and their communities were less egalitarian than the Archaic Indians before them.

What kind of food did Woodland Indians eat? How did they get their food?

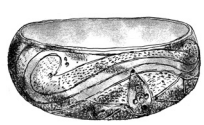
Woodland Indians collected wild foods, such as blueberries, wild grapes, and hickory nuts, just like the Archaic Indians. But as Woodland Indians became more **sedentary**, or lived in one place most of the time, they started living in villages. They cleared the vegetation around their villages and exposed more ground area to sunlight. They also built up a lot of garbage nearby. Their garbage, which was mostly plant and animal waste, created rich soil with lots of nutrients. Some of the seeds of the plants they had been gathering for hundreds of years, grew into plants in the trash. People started using these plants more and more, and doing things to help them grow. They saved the best seeds to plant next year. Over many years of planting the best seeds, the plants began to change. They developed traits that made them easier to grow and better to eat. This is how Woodland Indians domesticated plants in Arkansas. **Domestication** takes place when changes in the traits of a plant are caused by the ways humans use them.

Woodland Indians cleared areas of land to grow these domesticated plants. Today, people don't eat most of the crops that Woodland Indians grew. You probably haven't eaten little barley, sumpweed, goosefoot, or maygrass. One plant that you likely have eaten that Woodland Indians farmed is squash. You may also have eaten quinoa, a plant much like goosefoot. Although archeologists know many of the plants Toltec people grew, archeologists have identified a seed from a plant that remains a mystery. The seed is from a domesticated grass and to this day archeologists have not been able to find which grass this seed comes from. Woodland Indians cooked seeds from these plants into stews and porridges. They also hunted, trapped, and fished for meat.

A goosefoot plant.

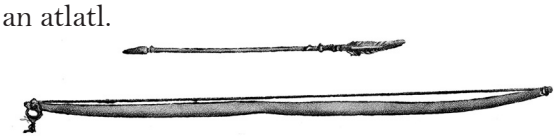
What kind of tools did Woodland Indians make and use?

Woodland Indians used the animal bones to make tools and the skin to make leather. They made pottery bowls and jars by shaping clay and baking the shaped clay in a very hot fire. During the Archaic Period, people used baskets, leather bags, and containers made out of gourds or carved out of stone or wood. With pottery, Woodland Indians could cook their meals directly over fires. They often decorated their pottery in ways that showed which family or village made it.

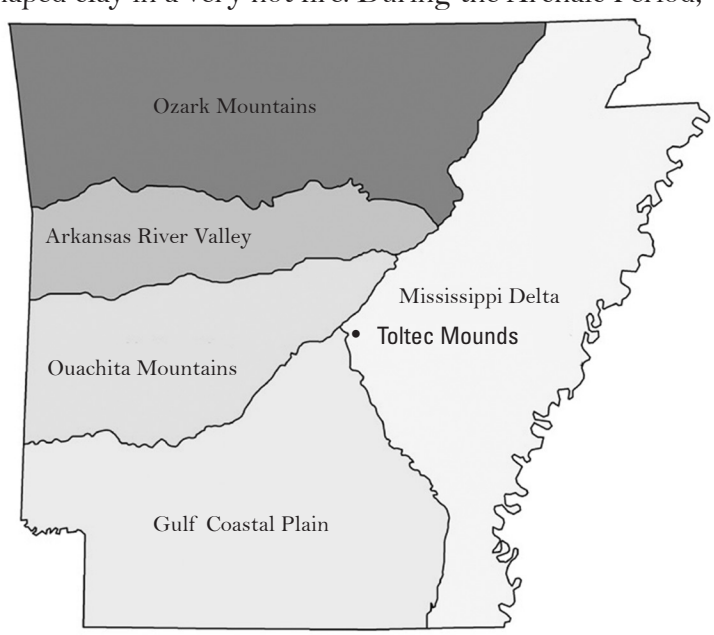


Decorated pottery.

Arkansas Indians hunted using spears and atlatls, or spearthrowers. Beginning around AD 600, Woodland Indians started hunting with bows and arrows. A bow and arrow can shoot even farther and aim better than an atlatl.



Bow and arrow.



Location of Rockhouse Cave in Arkansas.

Name _____ Date _____

Toltec Mounds. Photo by Elizabeth Horton.

What kind of sites did Woodland Indians create?

Woodland Indians were more **sedentary** than the Archaic Indians who lived before them. Where Archaic Indians lived in base camps in small bands, Woodland Indians lived in many small villages with a number of families. Some of the people who lived in the village were not closely related.

⊙ **Village:** Most Woodland Indians lived in a village year round. People built houses and grew gardens nearby. They built round houses with thin poles for wall posts. They tied the thin, flexible poles together at the top to make a roof, and covered it with hides, sheets of bark, or grass thatch. They built villages near river bottoms to provide good soil for gardening and close to places where they could hunt and gather wild plants, like nuts and berries. Deer and wild plant foods are most often found in the hilly upland areas.

◆ **Special Purpose Site:** Woodland Indians continued to use special purpose sites to do things they could not do at their home. A fishing camp near the river or the place they gather clay to make pottery are examples.

Δ **Cemetery:** People buried their loved ones in cemeteries. Some of the dead were buried in round earthen mounds.

⊗ **Ceremonial Center:** A ceremonial center is a place where people come together to celebrate special events and have religious ceremonies and feasts. Toltec is an example.

Where is Toltec?

Toltec is the name of an ceremonial center located to the southeast of Little Rock, Arkansas in the region called the Mississippi Delta. The Toltec name for the site dates to the 19th century, when people thought the impressive mounds must have been built by the Toltec Indians of ancient Mexico. Today, the site is protected as a state park where you can visit to learn more about the people who built and lived at Toltec. Woodland Indians created and used Toltec over a thousand years ago (between AD 650 and AD 1050).

What kind of site is Toltec?

Toltec is a large ceremonial center. When the Woodland Indians created the site, they built a wall made of soil around three sides of it. The wall was eight to ten feet high and over a mile long. There is a lake on the fourth side of the site. The wall had places where people could go in and out. They also built 18 mounds out of soil. You can see three of the largest mounds at Toltec Mounds Archeological State park today. The tallest mound is about four stories tall. Modern farming damaged the rest of the smaller mounds. They can no longer be seen, but archeologists know where they were.

One mound that you can see today is low with a rounded top. This was a new kind of cemetery. Another one of the mounds that still stands looks like a flat-topped pyramid. This mound had a building on top of it. The Woodland Indians built the mounds around a flat, open area called a plaza. They used the plaza for group activities like feasts, dances, and religious ceremonies.

Toltec Mounds from Plum Bayou. Photo by Elizabeth Horton.

Even though Toltec is a large site with many mounds, archeologists have found that few people lived there. Rather than living at Toltec, Woodland Indians visited this ceremonial center for big yearly or seasonal events for everyone living in the area. It was the gathering place for people from nearby villages to come together for celebrations. People held large feasts at Toltec. Archeologists know this because they have found areas of the site with a large amount of animal bones and decorated pottery. Archeologists think that many people brought food in their finest decorated pottery and prepared deer and other animals for a large meal. The large number of animal bones suggest that people came from all around to be a part of the feasts.

What did Woodland Period communities look like?

Growing population increased the size and number of villages. Trade between communities also increased. For example, Woodland Indians traded for copper from Michigan and marine shell from the Gulf Coast.

Ceremonial Centers, like Toltec, brought people from area villages for community celebrations. The celebrations tie people from many villages into a single community. Archeologists think the Woodland Indians were less egalitarian. The people buried in the mounds were highly respected members of the community. People gained respect and became leaders by their skill in hunting or success in trading. Leaders organized important social and ceremonial events and made sure people got along.

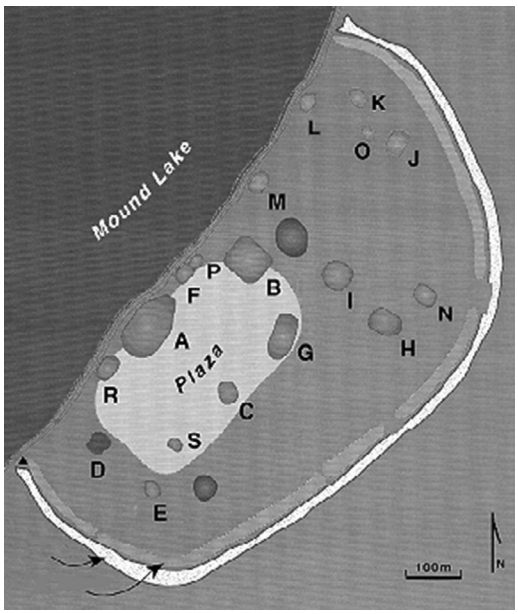
The Plum Bayou Garden at Toltec Mounds Archeological State Park. Photo by Elizabeth Horton.

The Plum Bayou Garden at Toltec Mounds Archeological State Park

Visitors to Toltec Mounds Archeological State Park can see how Woodland Indians used the land to create gardens. Before Arkansas Indians started growing corn as one of their main foods, they planted and tended crops local to Arkansas. These ancient crops included sumpweed, maygrass, little barley, sunflower, goosefoot, erect knotweed, squash, and bottle gourds. Indians of Arkansas grew and ate the kinds of plants grown in the Plum Bayou Garden for hundreds of years before people started farming mostly corn.

Learn more here: http://archeology.uark.edu/learn-discover/current-research/plum-bayou-garden/

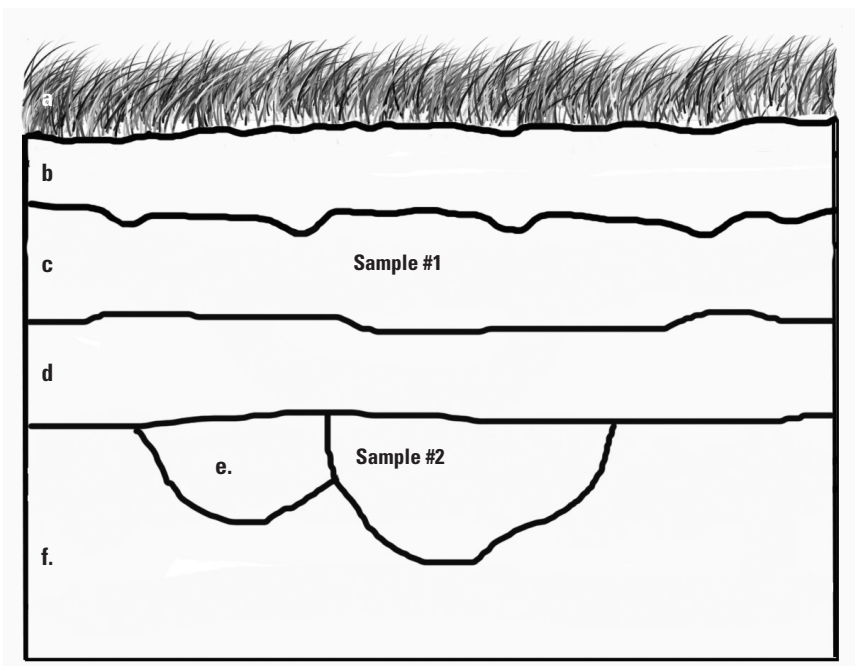
Seed Change at Toltec



Plan map of Toltec.

Dr. Boxwood excavated next to Mound S near the edge of the plaza at Toltec. It was a deep unit with many layers, or **stratum**. In one of the upper strata, it had a thick **midden,** or trash, layer with large amounts of deer, fish, and turkey bones, and well made, decorated pottery (Sample #1). In the lower stratum, below an undisturbed layer of soil with no artifacts, Dr. Boxwood found several small pits (Sample #2). A pit is a hole dug into the ground and used to store things, like seeds and nuts. Unlike the midden strata, there was no pottery in the small pits. But Dr. Boxwood found an older style spear point. Archaic Indians filled up the pits with trash when they stopped using them for food storage.

During the excavation, Dr. Boxwood drew a map like the one you looked at in Lesson One and a profile map. A profile map is a carefully measured, detailed drawing of the side of an excavation unit. A profile map shows the **stratigraphy,** or layers of soil from the top of the ground down to however deep the archeologist dug the excavation unit. It is like a timeline. The layers on the bottom of the profile are older (date to longer ago) than the deposits higher up, which were deposited later and are younger. To get started, let's look at Dr. Boxwood's profile map to examine the stratigraphy of the site.



Modern park visitors, 0-40 years ago

The Knapp family, 40-180 years ago

Woodland Indians, 900 - 1300 years ago

Undisturbed soil with no artifacts

Archaic Indians, 9,000 - 4,000 years ago

Undisturbed soil with no artifacts

1. Who left the artifacts in each level?

   a. _____

   b. _____

   c. _____

   d. No artifacts found

   e. _____

   f. No artifacts found

2. Which people came first?

3. Which people came last?

Name _____ **Date** _____

Seeds are too small for archeologists to find with their digging tools. But seeds tell archeologists what people grew and ate in the past. During the excavations, Dr. Boxwood collected two soil samples to find ancient seeds. She took Sample #1 from the upper midden deposit and Sample #2 from the small pits. Dr. Boxwood sent the soil samples to Dr. A. Triloba, an archeologist who studies ancient seeds. She also sent the profile map to help Dr. Triloba understand the context. Dr. Triloba put the soil samples in a machine that uses flowing water to separate the seeds from the soil. Use the profile map and seeds to help Dr. Triloba with the analysis.

4. Look at the magnified seeds that your teachers is projecting. Compare them with the ones Dr. Triloba found in the flotation samples. Name and count the seeds for each sample.

Sample #1, upper midden strata

Seed #1 _____

Count _____

Seed #2 _____

Count _____

Seed #3 _____

Count _____

Seed #4 _____

Count _____

Seed #5 _____

Count _____

Sample #2, lower midden filled pits

Seed #1 _____

Count _____

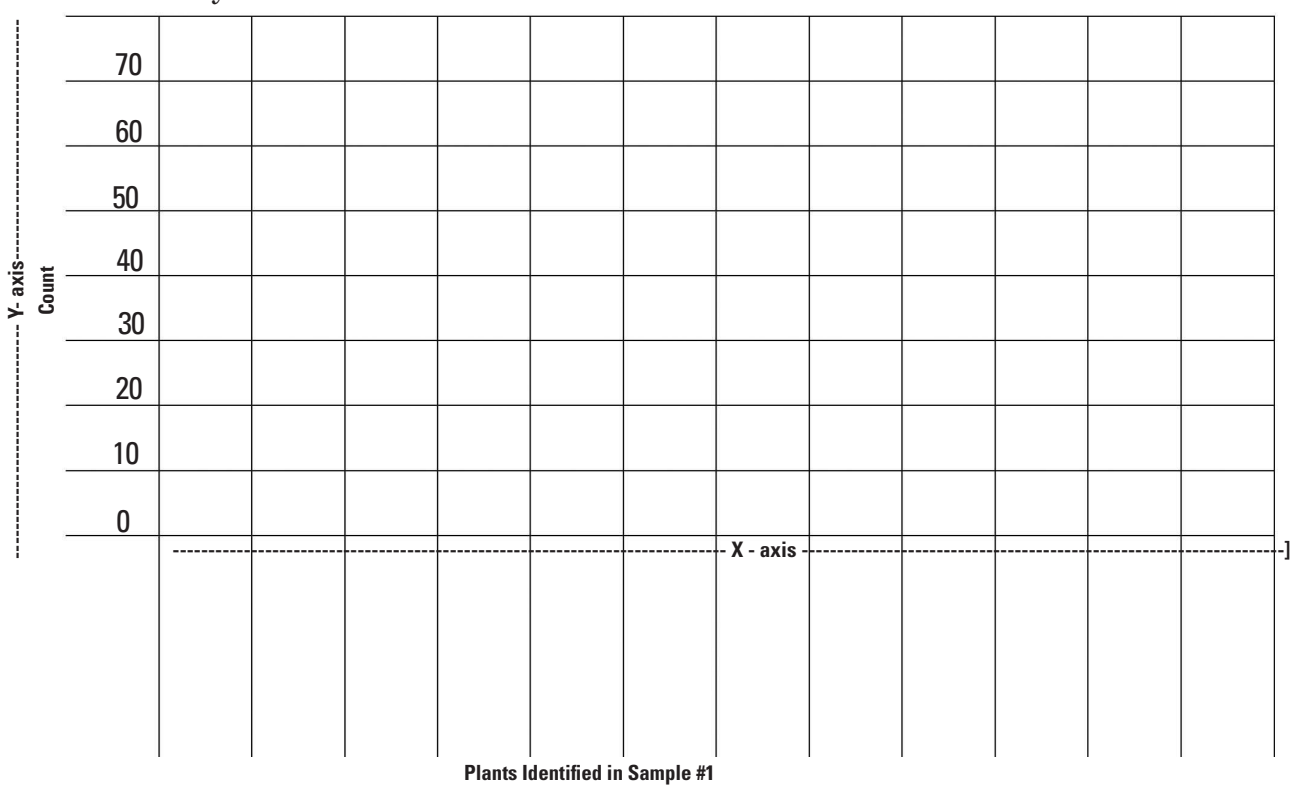
5. Dr. Triloba is completing the Triloba Lab Worksheet with the plants she identified from the samples. Add the name and the total number of seeds that you named from Sample #1 to help her complete the form.

Triloba Lab Worksheet

Sample # ___1___ Test Unit ____A___ Initial Sample Size _10 liters_ Date_____

Identified plant remains	**Count**
Hickory	__10____
Walnut	__2_____
Acorn	__2_____
Blackberry seed	__10____
Persimmon seed	__20____
Bottle gourd rind	__1_____
Bottle gourd seed	__10____
Seed #1_____	_____
Seed #2_____	_____
Seed #3_____	_____
Seed #4_____	_____
Seed #5_____	_____

6. Look at the Triloba Lab Worksheet. Write the names of all of the plants identified in Sample #1 on the x-axis. Use the count for each plant to complete the bar graph, but do not fill in or shade the bars yet.



7. Look at the **Seasonal Plant Use in the Woodland Period** table. Which of the plants from Sample #1 are wild plant foods? Which are domesticated plant foods? Shade in the columns of all of the wild plants in the bar graph.

8. Use the **Seasonal Plant Use in the Woodland Period** table to look up each plant from Sample #1. Record the season the plant is harvested and eaten.

Spring	Summer	Fall	Winter

9. Now it is time to help Dr. Triloba interpret the findings. Based on the graph and the table for Sample #1, were people foraging for wild foods or farming plants? How do you know?

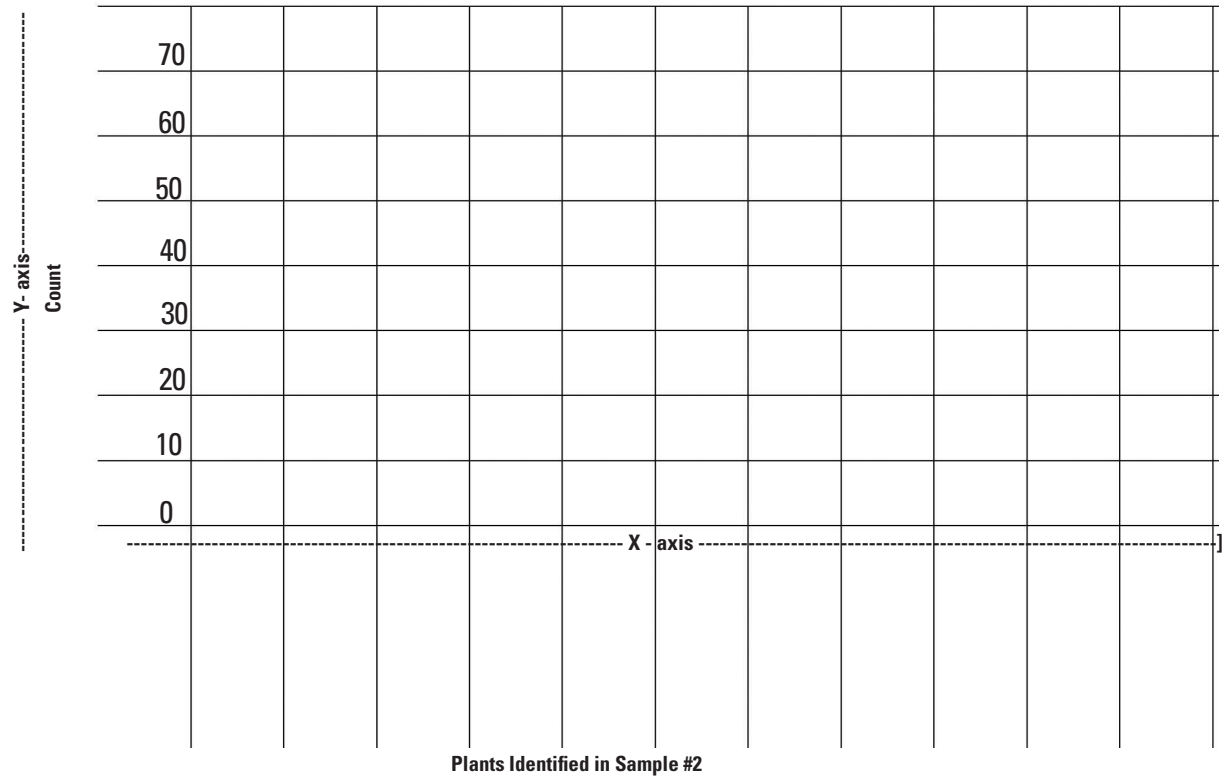
10. Help Dr. Triloba complete the Triloba Lab Worksheet for Sample #2. Add the name and the total number of seeds that you identified to the form.

Triloba Lab Worksheet

Sample # 2 Test Unit A Initial Sample Size 10 liters Date_____

Identified plant remains	Count
Hickory	30
Walnut	5
Acorn	15
Persimmon seed	20
Seed #1_____	_____

11. Look at the Triloba Lab Worksheet. Use the count for each plant to complete the bar graph. Write the names of the plants identified in Sample #2 on the x-axis. Do not fill in the bars yet.



12. Look at the **Seasonal Plant Use in the Woodland Period** table. Which of the plants from Sample #2 are wild plant foods? Which are domesticated plant foods? Shade in the columns of all of the wild plants in the bar graph.

13. Look at the **Seasonal Plant Use in the Woodland Period** table. Look up each plant from Sample #2 on the Triloba Lab Worksheet and record what season it is harvested and eaten in the table. You can place the plant in more than one season.

Spring	Summer	Fall	Winter

14. Let us help Dr. Triloba interpret the findings. Based on the graph and the table for Sample #2, were people foraging for wild foods or gardening? What is your evidence?

15. Look back at the profile map, based on the location of Sample #1 and Sample #2 in the stratigraphy, what are the dates for the samples?

Sample #1 date range _____

Sample #2 date range _____

16. Remember that the Toltec Site is a ceremonial center during the Woodland Period. The midden had lots of deer bones and decorated pottery. If the ceremony took place in the fall, what do the seeds in Sample #1 tell you about ceremonial food?

17. If Toltec was a base camp during the Archaic Period, what do the seeds from Sample #2 say about Archaic Period foodways?

18. Think back to the Toltec Mounds case study, list the changes that took place between these two periods.

Name

Date

Community organization		
Artifacts		
Foodways		
Site types		
Important events/changes		

600	BC	0	AD	900
Archaic	Woodland			Mississippian

*		
Site name		
Site description		

*Look at the timeline. Add a beginning and an end date to show when people lived at this site. Shade it in.

Woodland Period Timeline

Dinner at AD 700: The Plum Bayou Casserole

Even though some of the foods that the Woodland Indians ate, like the domesticated forms of sumpweed, goosefoot, and erect knotweed are "lost crops," it is possible to cook and enjoy a meal that is very close to what a family may have eaten for dinner over a thousand years ago. This recipe uses a domesticated cousin of the Arkansas native goosefoot (*Chenopodium berlandierie)*, known as Quinoa (*Chenopodium quinoa)*. Quinoa is a staple crop in Peru and Bolivia where it was domesticated around the same time that Indians in the southeastern United States domesticated goosefoot. Quinoa has become increasingly popular and can be found in most major groceries stores. Woodland Indians did not have access to dairy products, but may have cooked with other animal fat. Here we use butter. They likely had access to salt, as archeologists have evidence that later Mississippian Indians were processing, trading, and using salt. People evaporated saline rich waters, like that found in parts of what are known today as Saline County and along the Saline River, to create salt.

Ingredients:

1 small white onion
1 cup of quinoa
Salt to taste
2 acorn squash
½ cup roasted and chopped pecans

Instructions:

Preheat oven to 350 degrees. Peel and slice the acorn squash and white onion in relatively thin slices. Be careful acorn squash is hard raw and can be difficult to slice! Cook 1 cup of quinoa following directions on package. Put a thin layer of butter on the bottom and sides of a casserole dish, and layer in the quinoa, acorn squash, and onions. Add a little salt to taste. Sprinkle pecans over the top of the final layer.

Cover in tinfoil. Bake about 30 minutes or until squash is fork tender.

This dish makes a good vegetarian meal or a tasty side serve with baked, roasted, or sautéed turkey.

Lesson Four: Changing Gardens and Evolving Fields

Overview: In Lesson 3, students learned how archeologists identified evidence for southeastern Indians' domestication of a variety of plant foods. Through time, plant foods continued to be an important part of people's diets, as the local domesticates were replaced by other plants -- especially corn, beans, and squash -- domesticated by Indians from ancient Mexico. The shift from foraging to gardening to agriculture changed Native American foodways and this in turn changed other aspects of culture for people living during the Mississippi Period (AD 900-1600). In this lesson, students learn about American Indian views on how their ancestors first acquired corn, beans, and squash, explore how and why certain locations were better suited for large scale agriculture, and examine maps of Archaic, Woodland, and Mississippian sites to identify similarities and differences between people living during successive time periods with different foodways, living arrangements, and community organization.

Lesson Objectives: Learn how Native American foodways changed with the shift to agriculture and how this changed people's overall lifeways and community organization during the Mississippi Period. Compare evidence from Native American stories, environmental studies, and archeological sites to learn how each source helps archeologists understand changes in Native American foodways through time.

Critical Thinking Questions: How did agriculturalists live? How did people's foodways change with the transition from foraging to gardening to agriculture? How did the shift to agriculture affect how people interacted with other members of their community?

Subjects: social studies, language arts, science, history, geography

Duration: 45 to 60 minutes

Class size: any

National standards: AID, AQDP, D3.4.3-5, D4.1.3-5, D4.2.3-5, D2.Geo.2.3-5, D2.Geo.4.3-5, D2.Geo.5.3-5, D2.His.1.3-5, D2.His.16.3-5, D2.His.17.3-5, L.5, PC01, RH.4, RI.7, WHST.4

Arkansas Social Studies standards: D1.1, D1.2, D1.3, E.4.5.1, G.8.5.1, G.8.5.2, G.9.5.1, G.9.5.2, G.9.5.1, G.9.5.3, G.10.5.1, H.12.5.1, H.12.5.2

Materials

For each student: "Parkin, 1350 - 1600 AD: A Case Study" (p. 73); the "Foodways and the Environment" (p. 76) and the "Mississippi Period Timeline" (p. 81) worksheets, and the "Three Sisters Succotash Recipes" recipe (p. 82).
For the teacher: A copy of "The Legend of the Three Sisters" (p. 71).

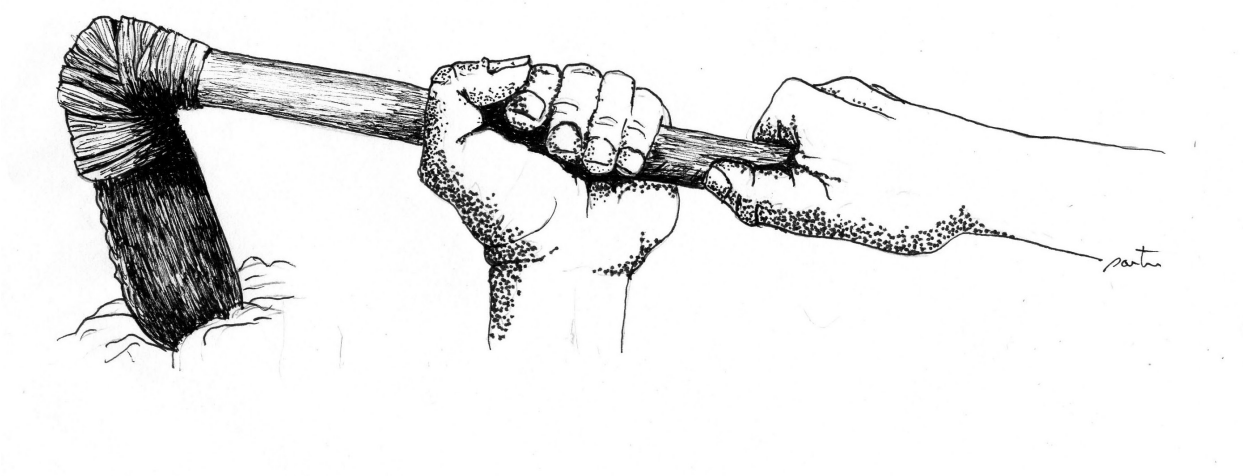
Background

This lesson begins with a Native American legend, "The Three Sisters," because American Indians have their own perspectives on the past. These perspectives include accounts about the creation of their societies and how they changed through time. These accounts are very different from the reconstructions offered by archeologists and historians, but they are no less important for a

complete understanding of Indian history. American Indians' historical perspectives are based on stories and ceremonies passed from generation to generation. Modern Indian communities actively maintain this information and texts written after the arrival of Europeans preserve additional material. In these accounts, time extends from the present back to an era long ago (that is not measured in years) when events that formed the present world began to take place. Examining Native American stories alongside archeological data offers a fuller picture of what life was like during the Mississippi Period, between 1000 AD and contact with Europeans in the 1500s.

In this lesson, the traditional story provides the backdrop for analyzing archeological evidence to understand the transition from garden production of locally domesticated plants to agriculture, farming corn and other crops. Like archeologists, students use both scientific evidence and Native American stories to better understand the origins and importance of corn both in the Native American diet and overall way of life. Like the complementary nature of corn, beans, and squash, these multiple lines of evidence help archeologists get a fuller picture of the nutritional and cultural importance of corn during this period.

The transition from foraging wild foods to gardening to agriculture is one of the most significant series of events in history and one in which archeologists worldwide are still studying. The human species has spent most of its time (about 99.9%) on earth living as foragers. Some of the earliest domesticated plants come from the Middle East and date to only about 10,000 years ago. Only ten independent centers of domestication have been identified around the world. The Southeastern United States, including Arkansas, is one of those centers. As people became more dependent on domesticated crop plants, they shifted from mixed economies of foraging and gardening to intensive, full time **agriculture**. This shift was not without risks and disadvantages. Being dependent on crops places people at the mercy of climate and



A hoe made from stone. Drawing by Larry Porter.

pests. Some crops, while more productive than wild resources, were also less nutritionally balanced, creating challenges to people's health. Being dependent on crops also requires having access to and control of agriculturally fertile land.

In Arkansas, most Mississippian farming settlements were located along the rivers in the Mississippi River Valley. These locations took advantage of the excellent, high fertility soils of the natural levees. The availability of fish and shellfish from the rivers was an added benefit. Fishing proved highly important to Mississippian Indians because heavy dependence on corn alone can result in nutritional deficiencies (see Parkin, 1350 - 1600 AD: A Case Study).

In the southeastern United States, people made the shift from mixed gardening and foraging to full time agriculture around 900 AD during what archeologists refer to as the Mississippi Period. With the advent of agriculture and increased populations, southeastern Indians lived in societies known as **chiefdoms** led by hereditary rulers. They established a variety of year-round settlements across the landscape—such as towns, villages, hamlets, and farmsteads. Mississippian towns display striking similarities throughout the southeast. Common elements include square or rectangular houses about 35 square meters in size, houses aligned in orderly patterns, centrally placed plazas, stockades or embankments surrounding the town, and sometimes flat-topped earthen mounds upon which stood the house of the chief, or hereditary leader, or sometimes a temple. They conducted long-distance trade in copper, marine shell, and other valuables, fortified their towns with stockades, and conducted warfare.

During the Mississippi Period, territories with multiple towns were ruled by chiefs. **Chiefdoms** were a form of community where leaders claim descent from a long line of ancestors. These chiefdoms were less egalitarian than the earlier Archaic or Woodland Period communities. Chiefs and people related to the chiefs had higher social statuses and better access to necessity items or luxury goods. In the Mississippi River Valley, competition over productive agricultural lands frequently led to warfare between groups as access to more land became even increasingly important with large scale agriculture. In this lesson, students explore how the shift to agriculture changed Mississippi Indians foodways and other elements of their lives.

Getting Ready to Teach

1. Print copies of the "Parkin, 1350 - 1600 AD: A Case Study," (p. 73), the "Foodways and the Environment" (p. 76) and the "Mississippi Period Timeline" (p. 81) worksheets, and the "Hoe Cake and Three Sisters Succotash" recipes (p. 82).
2. Hand out "Parkin, 1350 - 1600 AD: A Case Study" (p. 73) prior to teaching Lesson Four.
3. Review the Background information and Case Study.
4. Write Key Terms and Critical Thinking Questions on the board.

Key Terms

Agriculture: The science, technology, and skill of cultivating the soil, growing crops, and raising livestock; farming.

Chiefdoms: A form of community where leaders claim descent from a long line of

ancestors. Other people inherit importance from the family they belong to, with some families having higher status than others.

Legends: Stories about ancestors and past events that convey important morals, principles, or cultural themes.

Engagement

1. Ask students: Why is turkey the traditional centerpiece of the Thanksgiving meal? For most people, this is connected to the story about the Pilgrims. Explain to students that the story of the Pilgrims and Indians is a fable, or a legend. The "facts" of the story are beside the point. The story provides a reason to be thankful for what we have. The turkey and the Thanksgiving meal symbolize the origins of the United States and encourages us to appreciate what we have.

Exploration

1. Read the "Legend of the Three Sisters" to the class.
2. Ask students: What plants are discussed in the story? (Corn, squash, and beans.)
3. Ask students: Why did Native Americans plant the Three Sisters together? (Plants complement each other when grown together, people need the nutrients from each in order to digest the corn, and it is a part of the Native American belief in the circle of life.)
4. What does The Three Sisters story tell us that archeology doesn't? (What Indians thought about the plants they were growing.)

Explanation

1. Explain that the Legend of Three Sisters is similar to the story about the pilgrims. It provides a moral and lesson about the origins of corn.
2. Ask students to think back to the Parkin case study, ask students to list three changes that came with the shift from growing locally domesticated plants in gardens to raising corn, beans, and squashes in larger fields. (Different gardening tools, more ceramics, larger crop fields and more work, extra crops to store, more people and larger towns, more powerful leaders, etc.) Supplement with the Background information.
3. Help students define **legends, chiefdoms,** and **agriculture** and add the words to their Key Terms log.

Elaboration

1. Pass out the "Foodways and the Environment" worksheets. Have students answer the questions individually or as small groups.
2. Review the answers.

Evaluation

1. Pass out the "Mississippi Period Timeline." Have students complete the sheet by using information from the "Parkin, 1350 - 1600 AD: A Case Study" to identify the key dates of occupation, the artifacts, foodways, and social organization. This assignment could be completed as a class, as a group, or as individual homework/assessment.
2. The Mississippi Period is a period in Indian history between 1000 AD and European contact in the 1500s that is marked by corn agriculture, mound building, and chiefdom level community organization. Use the "Mississippi Period Timeline:

Evidence-based Answer Key" (p. 72) as a guide for discussion.

3. Pass out the "Hoe Cake and Three Sisters Succotash" recipes for students to take home and cook with their parents.

Optional Assessment

1. **Writing Prompt:** Imagine you are in a time machine that bumps you around Arkansas. Your first stop is Toltec Mounds where people are cultivating the Arkansas crops. Your next stop is Parkin in 1350 - 1600 AD, where corn agriculture was recently introduced. Write a story about the people you meet, what you eat, and how these plant foods changed Native Americans diets and ways of life.

To expand on this activity, you could plant the Three Sisters Garden in your school or community garden.

Evidence-based Answer Key

Foodways and the Environment

Questions 1 & 2.

Site Type	Activities	Environment
Base Camp: □	Day to day activities: eat, sleep, cook, play games, etc.	Uplands, Lowlands, and sometimes near river and streams
Special Purpose Camp: ◆	Hunt and butcher animals, gather plant foods, collect rocks for making tools, visit with family	Uplands and Lowlands, often near river and streams
Cemetery: Δ	Bury people who died	Uplands and Lowlands, near base camps

Question 3. People moved between the uplands and the lowlands to gather plant foods, hunt and fish, and get materials to make tools. They traveled seasonally based on available resources.

Questions 4 & 5.

Site Type	Activities	Environment
Residential Site: ⊙	Day to day activities: cook, eat, sleep, garden, build houses, hunt, gather plant foods, make stone tools, make pottery	Edge of Uplands and Lowlands, near rivers and streams
Special Purpose Site: ◆	Hunt, gather plant foods, collect rocks for making tools or clay to make pottery.	Edge of Uplands and Lowlands near rivers and streams
Cemetery: Δ	Bury people who died	Edge of Uplands and Lowlands near residential sites
Ceremonial Center: ⊗	Large family and group gatherings, religious rituals, feasts	Edge of Uplands and Lowlands, near rivers and streams

Question 6. People lived on the edge of the Uplands and the Lowlands so they could hunt, fish, gather plant foods, and collect rocks or clay from both regions.

Questions 7 & 8.

Site Type	Activities	Environment
Residential Site: ⊙	Day to day activities: Cook, eat, sleep, build houses, play games, farming, gather plants, make pottery, make stone tools.	Uplands, in the flood plains along rivers
Special Use Site: ◆	Gather wild plant foods, hunt, collect rocks for making tools and clay for making pottery	Uplands and Lowlands
Ceremonial Center: ⊗	Bury high status people, store food, feasts, religious events, protection	Lowlands, along rivers.

Question 9. Residential sites are located in the Lowlands, because this is where the most fertile land is for large scale agriculture.

Question 10.

Similarities	Differences
• All three time periods have short term special use sites, including sites for acquiring raw material for stone tool making in both uplands and lowland areas	• People lived in both upland and lowland areas during the Archaic Period, at the edge of the Upland and Lowland areas in the Woodland Period and in the Lowland areas during the Mississippi periods. • Archaic Period did not have Ceremonial Centers

Question 11. When people were hunting and gathering, they moved around between different environments to get a variety of foods. During the Woodland Period people took advantage of both the Upland forest resources and the Lowland farming lands. When people started large scale agriculture, they needed more suitable land for farming and moved further into the Lowland areas.

Question 12.

Archaic: Wider variety of food options in the spring, summer, and fall. Risk of food shortage in the winter.

Woodland: Wide variety of food options in the spring, summer, and fall. Able to store food through the winter. More work to cultivate gardens. Increased hierarchy between people.

Mississippi: Agriculture allowed for surplus and storage of food during the winter. Less nutritious food, possible shortage of iron causing health problems, high sugar in corn caused cavities. Heavy labor caused arthritis and other health issues. More hierarchical.

Question 13. The one on the mound. The chief's family had higher status and better access to nonlocal material like copper and marine shell and well crafted tools.

The Legend of the Three Sisters

Once upon a time very long ago, there were three sisters who lived together in a field. These sisters were quite different from one another in their size and also in their way of dressing. One of the three was a little sister, so young that she could only crawl at first, and she was dressed in green. The second of the three wore a frock of bright yellow, and she had a way of running off by herself when the sun shone and the soft wind blew in her face. The third was the eldest sister, standing always very straight and tall above the other sisters and trying to guard them. She wore a pale green shawl, and she had long, yellow hair that tossed about her head in the breezes. There was only one way in which the three sisters were alike. They loved one another very dearly, and they were never separated. They were sure that they would not be able to live apart.

After awhile a stranger came to the field of the three sisters, a little Indian boy. He was as straight as an arrow and as fearless as the eagle that circled the sky above his head. He knew the way of talking to the birds and the small brothers of the earth, the shrew, the chipmunk, and the young foxes. And the three sisters, the one who was just able to crawl, the one in the yellow frock, and the one with the flowing hair, were very much interested in the little Indian boy. They watched him fit his arrow in his bow, saw him carve a bowl with his stone knife, and wondered where he went at night.

Late in the summer of the first coming of the Indian boy to their field, one of the three sisters disappeared. This was the youngest sister in green, the sister who could only creep. She was scarcely able to stand alone in the field unless she had a stick to which she clung. Her sisters mourned for her until the fall, but she did not return. Once more the Indian boy came to the field of the three sisters. He came to gather reeds at the edge of a stream nearby to make arrow shafts. The two sisters who were left watched him and gazed with wonder at the prints of his moccasins in the earth that marked his trail.

That night the second of the sisters left, the one who was dressed in yellow and who always wanted to run away. She left no mark of her going, but it may have been that she set her feet in the moccasin tracks of the little Indian boy.

Now there was but one of the sisters left. Tall and straight she stood in the field not once bowing her head with sorrow, but it seemed to her that she could not live there alone. The days grew shorter and the nights were colder. Her green shawl faded and grew thin and old. Her hair, once long and golden, was tangled by the wind. Day and night she sighed for her sisters to return to her, but they did not hear her. Her voice when she tried to call to them was low and plaintive like the wind.

But one day when it was the season of the harvest, the little Indian boy heard the crying of the third sister who had been left to mourn there in the field. He felt sorry for her, and he took her in his arms and carried her to the lodge of his father and mother. Oh what a surprise awaited her there! Her two lost sisters were there in the lodge of the little Indian boy, safe and very glad to see her. They had been curious about the Indian boy, and they had gone home with him to see how and where he lived. They had liked his warm cave so well that they had decided now that winter was coming on to stay with him. And they were doing all they could to be useful.

The little sister in green, now quite grown up, was helping to keep the dinner pot full. The sister in yellow sat on the shelf drying herself, for she planned to fill the dinner pot later. The third sister joined them, ready to grind meal for the Indian boy. And the three were never separated again. Every child of today knows these sisters and needs them just as much as the little Indian boy did. For the little sister in green is the bean. Her sister in yellow is the squash, and the elder sister with long flowing hair of yellow and the green shawl is the corn.

Community organization	**Sedentary**			**Ranked Society**				**Chiefdoms**	
Artifacts	**Hoe blades** 	**Bow and arrow**	**Adzes and axes**	**Prestige goods**	**Woven baskets**		**Pottery** 	**Spanish trade goods**	
Foodways	**Agriculturalists**		**Fish, hunt, and gather**				**Grow corn, beans, and squash**		
Site types	**Residential Sites** Large towns, villages, and single family sites			**Special Purpose Sites**			**Ceremonial centers with mounds and palisade**		
Important events/changes	**Introduction of corn from Mexico** **Population increase**							**De Soto Expedition**	

900	**AD**	**1600**

Woodland	**Mississippi Period**		
*		**1350 AD 1600**	
Site name	Parkin		
Site description	Parkin is a Mississippi Period site that was occupied between 1350 and 1600 AD. It was a ceremonial center with mounds and palisades.		

***Look at the timeline. Add a beginning and an end date to show when people lived at this site. Shade it in.**

Mississippi Period Timeline

Parkin, 1350 - 1600 AD: A Case Study

What is the Mississippi Period?

The Mississippi Period is a time in Native American history between 900 – 1600 AD. Archeologists call this the Mississippi Period, because people shared similar ways of life. They lived in towns, farmed corn, beans, and squash, and built mounds. Their communities were organized into chiefdoms.

What kind of food did Mississippian Indians eat? How did they get their food?

Like people in earlier time periods, Mississippian Indians gathered some wild foods to eat. The environment also provided lots of fish, shellfish, turtles, and other animals to eat. Unlike the Woodland Indians before them, Mississippian Indians farmed large fields of corn, beans, and squash.

Corn plant with seeds. Drawing by Jane Kellett.

Every year, Mississippian Indians planted a little more corn, beans, and squash than they needed for that year. This extra food is called a surplus. The chief stored the surplus of corn, beans, and squash for times when people needed extra food. You might think that with a food surplus, Mississippian Indians would be healthier than the Woodland gardeners and Archaic gatherers before them. But that is not true. If the plants did not do very well for a year or more, Mississippians would not have enough food to eat. Corn also contains a lot of sugar (look at the ingredients in a cola: corn syrup is one of the first ingredients). The large amounts of sugar in corn caused Mississippian Indians to have a lot of cavities. Cavities are easy for a dentist to take care of today, but before there were dentists, cavities could develop into very serious health problems. People also had health problems caused by not having the right levels of nutrients in their bodies. Many Mississippian Indians did not have enough iron in their diets, because corn, beans, and squash do not contain very much iron. The lack of iron caused people to get sick. Working in the fields was hard work, and people often got arthritis from doing the same motions, like hoeing, over and over. Finally, there was more chance for people to catch an illness from other people because people were living close together during the Mississippi Period. Farming resulted in more food most of the time, but it was also hard work and provided a diet that was not always nutritious.

Bean plant with seeds. Drawing by Jane Kellett.

What kind of tools did Mississippian Indians make and use?

Mississippian Indians made tools for tending plants in their fields. They made hoes with large blades made from stone, mussel shell, or bone for weeding their fields. Mississippian people hunted many kinds of animals. Like their Woodland Period ancestors, they used bows and arrows for hunting. They made stone axes for cutting down trees when they needed to clear land to make fields for growing plants.

A hoe made of stone.

They also made stone adzes for carving and shaping wood into all kinds of things like tool handles or bows. Although they do not preserve for archeologists to find, the people of Parkin made and used baskets for gathering and storing plant foods. Like people living during the Woodland period, Mississippian Indians made fired clay pottery for cooking and storing food and water. They made more and different shapes of clay pots than their Woodland Period ancestors.

Parkin Punctate pot. Drawing by Jane Kellett.

Name _____ Date _____

What kind of sites did Mississippian Indians build?

Mississippian farmers lived in areas with lots of fertile soil. Flat land next to a river was best, because floods kept soil fertile. Archeologists find many Mississippian towns located along rivers and streams. People still traveled to nearby uplands to get wild plant foods, to hunt animals, and to get stone and other material for making tools. They just didn't live there.

⊙ **Residential Sites:** Sites where people lived all year long. These sites are different from region to region in Arkansas. Some were small, single family sites (farmsteads), but there were also hamlets with several houses and towns with many houses and maybe a mound or two. Some very large towns had dozens of houses and a few mounds enclosed by walls or palisades. Since people got most of their food by farming, they lived near fertile land in the river bottoms that was good for growing crops. Sometimes Mississippian Indians buried their dead under or near their houses or in cemeteries.

◆ **Special Purpose Sites:** Special purpose sites include quarries, where people got stone for making tools or salt-making sites, where people made salt from salty water. Sites with stone tools where hunters butchered animals for food and hides are another example.

⊗ **Ceremonial Center:** Ceremonial centers, like Parkin, are the biggest sites built by Native Americans. They have many mounds. Ceremonial centers were the capitals of **chiefdoms**, where a chief lived along with many other people in large towns. The chief's house stood on a mound, and temples were built on other mounds. Mississippian Indians also buried some of their dead in the mounds. They built places to store grain from nearby villages and plazas for celebrations, ceremonies, and feasts. The ceremonial center was surrounded by a wall, or palisade, to protect it from their enemies.

Where is Parkin?

Parkin Archeological State Park is located along the St. Francis River in the Mississippi Delta, an area with forests and many lakes, wetlands, and swamps. During the Mississippi Period, around 650 years ago, Native Americans built the ceremonial center. Archeologists think that Parkin is one of several places visited by the Spanish explorer Hernando de Soto in 1541. The explorers wrote that the town was then called Casqui. They also wrote about the Indians, but because they stayed at Casqui for only a few days, they didn't write much.

In the 1960s, archeologists excavating at Parkin found two Spanish artifacts that date to the 1540s. One is a small brass bell from a horse harness. The other is a multi-colored glass bead. De Soto and his men traded these kinds of objects with Mississippi Indians. The artifacts found at Parkin suggest that de Soto visited in 1541.

What kind of site is Parkin?

Parkin is a large ceremonial center where Native Americans lived between 1350 – 1650 AD. Little Rock is the capital of Arkansas today, and back then Parkin was the capital for many nearby towns. Parkin had a wall, or palisade, around it. The palisade surrounded the mounds and neighborhoods with dozens of houses. Outside the wall, there was a moat, or large ditch, that was filled with water from the St. Francis river.

Location of Parkin in Arkansas.

An artist's drawing of what Parkin may have looked like.

The palisade and moat helped protect the ceremonial center from enemies.

The Parkin mounds are made of dirt, piled one basket load at a time. The largest mound is flat on top, like the one at Toltec. It is taller than six men standing on each other's shoulders. The chief lived on top of this mound. The area where people lived contained dozens of houses and other buildings for storing food and other items. There was a plaza, or open area, in the center of town where feasts and celebrations took place.

What did Mississippian communities look like?

During the Woodland Period, most Native Americans lived in small villages. Most Mississippian Indians lived in larger towns. Each town had leaders to make sure people cooperated with each other and lived peacefully. Some leaders, or chiefs, ruled over all the towns and villages in an area. People living in those towns gave the chief a portion of their food. The chief stored the extra food to give away when families ran short. People from nearby villages also traveled to Parkin for social and religious events.

Today we vote for our leaders, but Mississippian chiefs inherited the job, much like kings and queens of Europe. When a chief died, a close relative took over. People belonging to the chief's family enjoyed better food and own other valuable objects that identified their ranked positions. People not related to the chief were commoners. They did the farming and other hard work.

The Mississippian Garden at Parkin

Dr. Mel Harvey showing a filmmaker the cushaw squash (*Cucurbita moschata*) in the Parkin Mississippi Period Garden.

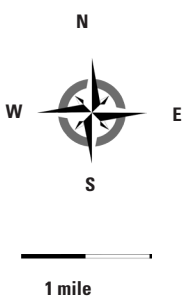
Mississippian Arkansans grew different plants for food and tools. Corn, beans, and squash, sometimes referred to as the "three sisters," were cultivated and created a balanced diet. Sunflowers were grown for the oil in their seeds and sunchokes were harvested as a starchy root vegetable. The wild grains, fruits, and nuts and the hunted and fished proteins enjoyed by the earlier cultures continued to be important in the diet. They also grew non-food plants like rattlesnake master for fiber (for sandals, baskets, nets, and mats) and gourds (for containers and musical instruments). Intensive corn agriculture is what set the Mississippian Indians apart from earlier cultures, and this is probably what allowed their civilization to grow to such heights. The Mississippian Garden at Parkin Archeological State Park features these plants.

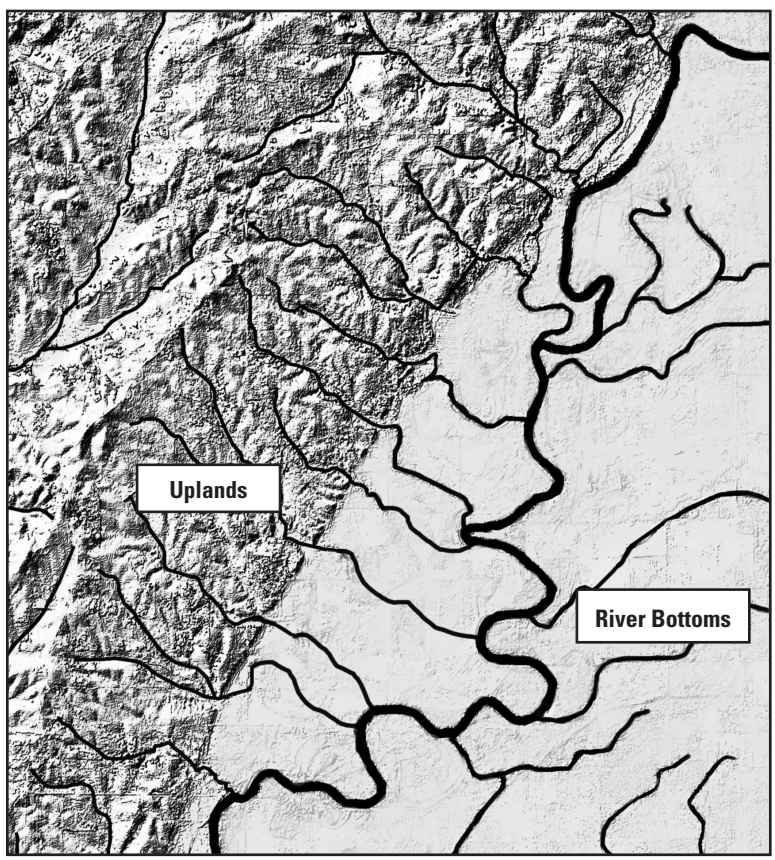
You can visit Parkin Archeological State Park. Learn more here:

https://www.arkansasstateparks.com/parkinarcheological/

Foodways and the Environment

In Lesson 2, you learned about the upland, hilly or mountainous, environment where Archaic Indians hunted and gathered wild plant foods like walnuts and persimmons. You also learned about the flat river bottoms along rivers, where people fished and gathered food plants like goosefoot and sumpweed. Dr. Boxwood is studying the location of sites, the activities people were doing in different environments, and how they changed over time. She is looking at where Indians built their residential sites, their base camps and their villages. She is also looking at where they established special purpose sites, where they hunted deer, gathered wild plants, or got stone for spear points. She is interested in where they put their cemeteries to bury their loved ones. How did the locations change over time? How did people's diets and foodways change with the change in location? Dr. Boxwood is comparing the location of different site types during the Archaic, Woodland, and Mississippi Periods and she needs your help. Use this information and the case studies for Rockhouse Cave, Toltec, and Parkin to answer the following questions and help Dr. Boxwood with her research.





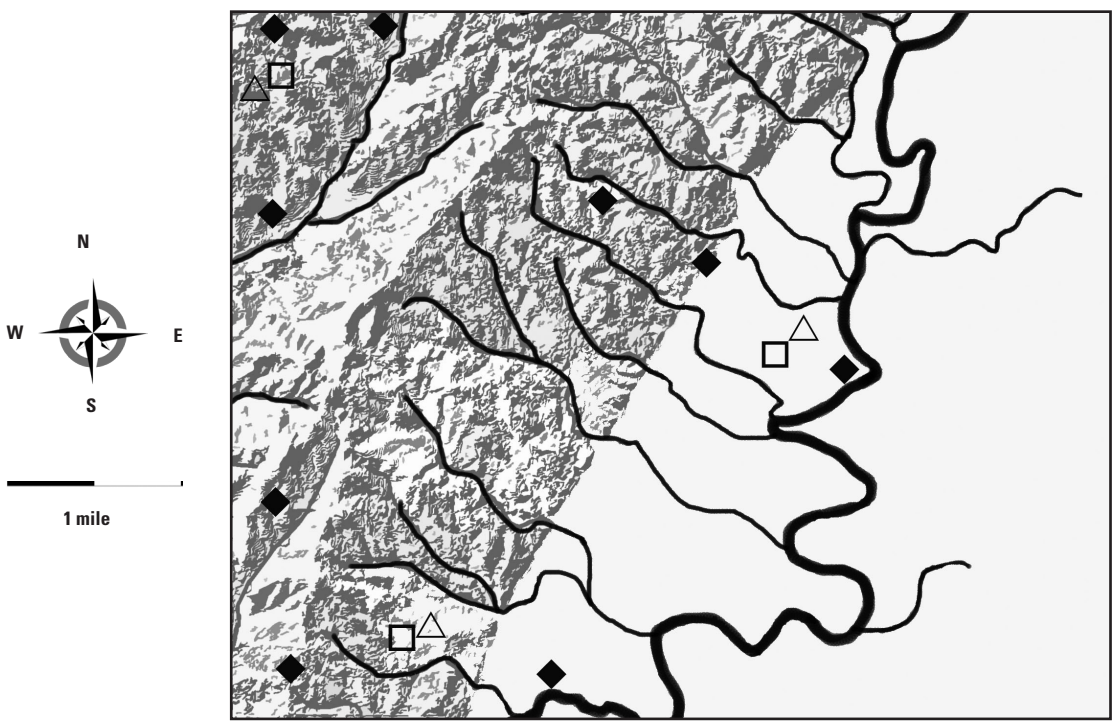
Name _____ Date _____

Archaic Period Sites

1. Look back at "Rockhouse Cave, 8000 - 1200 BC: A Case Study" from Lesson Two. Reread the descriptions of the sites that Archaic Indians built and lived in. What activities did Archaic Indians do at each of the sites? List the types of activities that people did in the Activities column in the table.

Site Type	Activities	Environment
Base Camp: □		
Special Purpose Camp: ◆		
Cemetery: Δ		

2. Look at the map of Archaic Indian sites. Find the symbols that correspond to each site type on the map. In the Environment column, describe where each of the site types are located. Note whether they are close to rivers or streams.



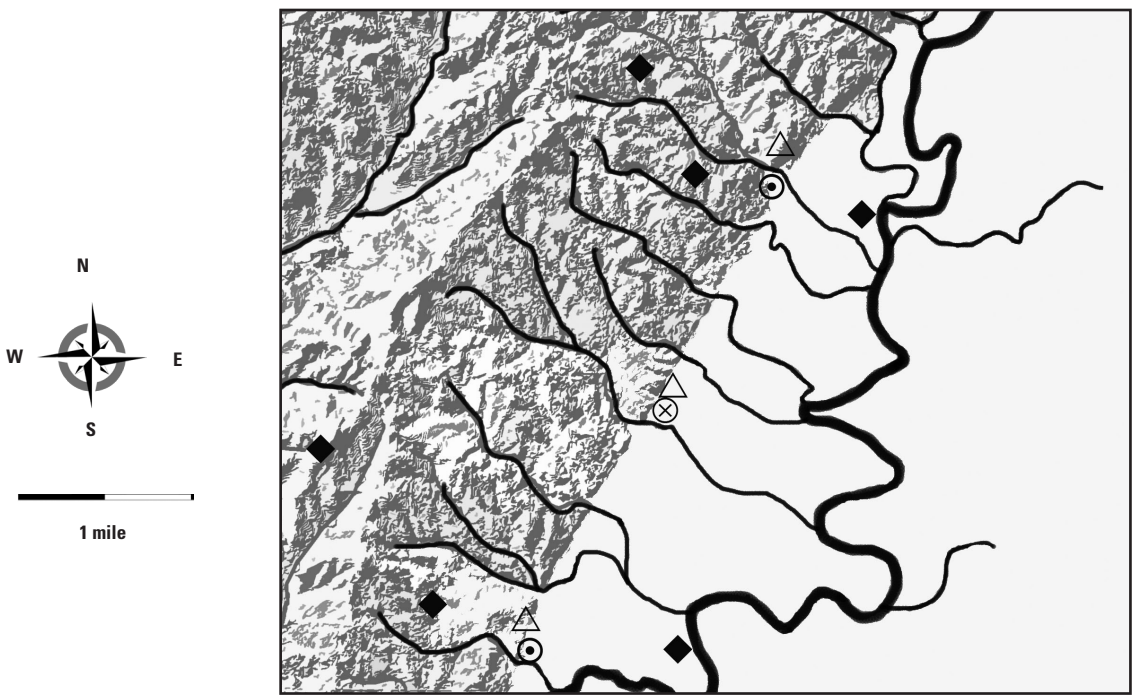
3. Why are base camps located in different types of environments? What does that tell us about Archaic Indians' foodways and ways of life?

Woodland Period Sites

4. Look back at "Toltec Mounds, 650 BC - AD 1050: A Case Study" from Lesson Three. Reread the descriptions of the sites that Woodland Indians built and lived in. What activities did Woodland Indians do at each of the site types? List the types of activities that people did at each kind of site in the Activities column below.

Site Type	Activities	Environment
Residential Site: ⊙		
Special Purpose Site: ◆		
Cemetery: △		
Ceremonial Center: ⊗		

5. Look at the map of Woodland Indian site types. Find the symbols that correspond to each site type on the map. In the Environment column, describe where each of the site types are located.



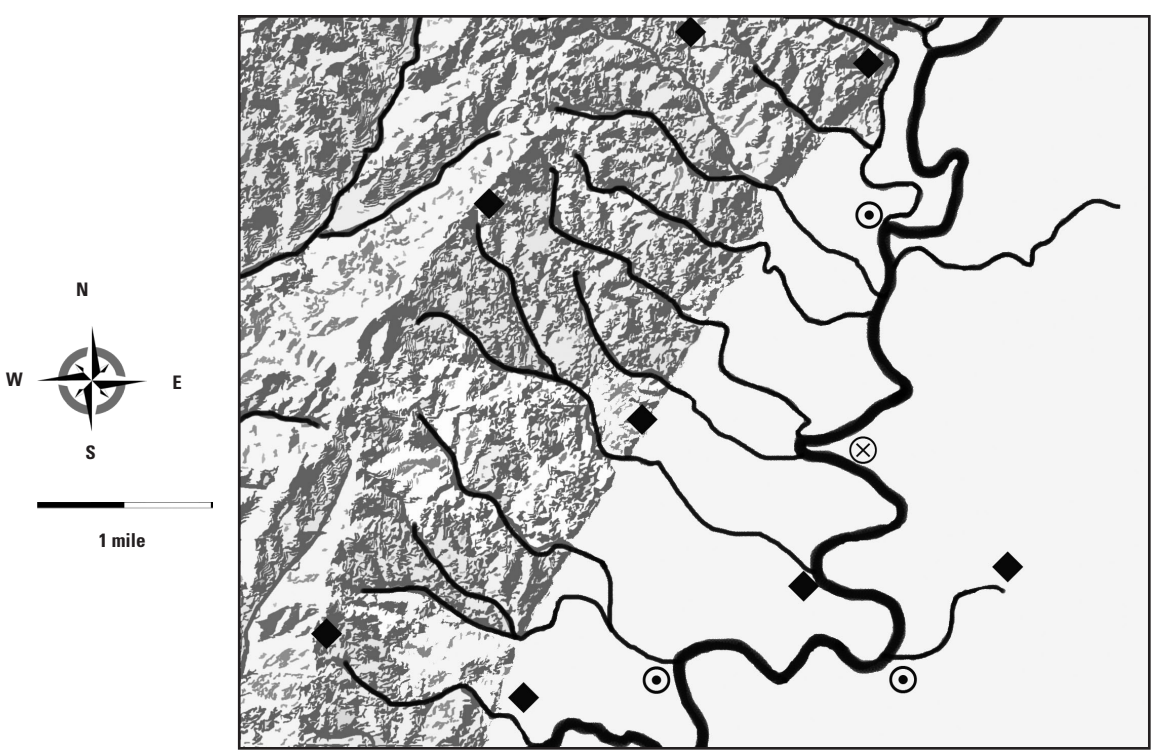
6. What can you infer about people's strategies of getting food from the location of residential sites during the Woodland Period?

Mississippi Period Sites

7. Look back at "Parkin, 1350 - 1600 AD: A Case Study." Reread the descriptions of the type of sites that Mississippian Indians built and lived in. What activities did Mississippian Indians do at each of the sites? List the activities in the Activities column of the table.

Site Type	Activities	Environment
Residential Site: ⊙		
Special Use Site: ◆		
Ceremonial Center: ⊗		

8. Where were these different sites located? Find the symbols that correspond to each site type on the map. In the Environment column, describe where each of the site types are located.



9. Why are residential sites located in this environment?

10. Look at the maps of the site types from the Archaic, the Woodland, and the Mississippi period side by side. List the ways the maps are similar and the ways they are different.

Similarities

Differences

11. How do changes in people's foodways explain these differences in site locations?

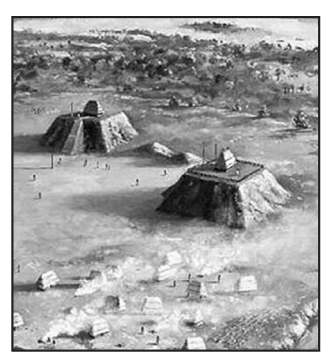
12. How were people's lives easier or more difficult in each of these periods? What risks and challenges did people face during each of the time periods?

Archaic:

Woodland:

Mississippi:

13. Dr. Boxwood excavated two Mississippian houses at a site in Arkansas. One (House A) is located on top of a large flat-topped mound and the other (House B) in a flat area a little distance away. In House A, Dr. Boxwood found pieces of copper that came from Michigan and some beads made out of shell that came from the Gulf of Mexico. Dr. Boxwood also found a well-made stone knife in House A. In House B, Dr. Boxwood found deer bone pieces and broken pottery. Which of the two houses do you think belonged to a member of the chief's family?



What is your evidence?

Name

Date

Community organization	
Artifacts	
Foodways	
Site types	
Important events/changes	

900	AD	1600

Woodland	Mississippi Period
*	
Site name	
Site description	

*Look at the timeline. Add a beginning and an end date to show when people lived at this site. Shade it in.

Mississippi Period Timeline

Three Sisters Succotash

Ingredients

12 ounces green beans, trimmed, cut into ¾-inch pieces
¾ teaspoon salt, divided
2 large ears fresh corn, husked
2 tablespoons extra-virgin olive oil
2 small summer squash or zucchini, cut into ½-inch pieces
¼ teaspoon freshly ground pepper
2 scallions, finely chopped

Directions

Place beans in a large saucepan; add water to cover. Add ½ teaspoon salt. Bring to a boil. Cover, reduce heat to maintain a simmer and cook until the beans are tender, 20 to 30 minutes. Cut corn kernels from the cobs: Hold an ear by its stem end in a deep bowl. Use a small sharp knife to cut off the kernels, letting them fall into the bowl. Then scrape down the cob with a small spoon, scraping the "milk" and remaining corn pulp into the bowl. (Discard the cobs.) When the beans are done, drain, reserving the cooking liquid. Heat oil and butter in a large, heavy skillet over medium heat. Add the corn and "milk." Stir to coat well, then add squash (or zucchini), the beans and 2 tablespoons of the bean- cooking liquid. Cook, stirring occasionally, until the corn and squash are tender, 8 to 12 minutes. Add more bean-cooking liquid if necessary to keep the mixture from sticking to the pan. Season with the remaining ¼ teaspoon salt and pepper. Sprinkle with scallions and serve immediately.

Lesson Five: Stability and Change in Early Colonization

(Adapted from *Engaging Students with Primary Sources*, Smithsonian National Museum of American History).

Overview: European colonization of the Louisiana Territory (which includes present-day Arkansas) during the 17th and 18th centuries affected southeastern Indian tribes in many ways. New diseases, technologies, and social and religious institutions brought changes--small and large--to many of the hundreds of Indian communities living in what is now Arkansas. Indian foodways, on the other hand, remained comparatively stable. New crops and domesticated animals including poultry and livestock were transplanted onto native lands, but took hold slowly. During the early period of colonization, Europeans adopted native foodways more than the other way around. When Indians accepted new foods, such as watermelons or chickens, it was because planting or tending requirements were similar to native species (like squash or turkeys). Archeologists learn about colonial era foodways from two sources: plant and animal remains preserved at archeological sites dating to that period and written records (such as ship manifests or merchant inventories) produced by Europeans. Studies that use both sources of information require a combination of archeological and historical methods.

Lesson Objectives: Learn how primary sources help archeologists and historians understand the ways Native Americans adopted new plant based foods, while continuing to rely on their traditional diets. Explore the strengths and limitations of primary sources by critically examining the accounts for bias.

Critical Thinking Questions: How do archeologists study the past? How do historians? How can we combine the results of archeological and historical studies to understand Native American foodways during the time of European exploration and colonization in the Southeast?

Subjects: social studies, language arts, science, history, science

Duration: 60 minutes

Class size: any

National standards: AID, AQDP, D3.4.3-5, D4.1.3-5, D4.2.3-5, D2.Geo.2.3-5, D2.Geo.4.3-5, D2.Geo.5.3-5, D2.His.1.3-5, D2.His.16.3-5, D2.His.17.3-5, L.5, PC01, RH.4, RI.7, WHST.4

Arkansas Social Studies standards: D1.1, D1.2, D1.3, E.4.5.1, E.4.5.2, G.8.5.1, G.8.5.2, G.9.5.1, G.9.5.2, G.9.5.1, G.9.5.3, G.10.5.1, H.12.5.1, H.12.5.2, H.12.5.3

Materials

For each student: "Arkansas Indians, 1541 - Present: A Case Study" (p. 95), the "Every Map Tells a Story" (p. 97), "The "Early Explorers, Plants, and Primary Sources" (p. 98), and the "Indians of Arkansas Timeline" (p. 102) worksheets; and the "Hoe Cake Recipe (p. 103).

For the teacher: The map of "New France" attributed to Louis Jolliet (p. 90) and "World Maps" (p. 147) to project; examples of primary and secondary documents, like photographs, census records, maps, and a text book.

Background

When we think about early European exploration of North America, the year 1492 usually comes to mind. Columbus was on a quest for gold and spices. Like other informed people of his time, he knew the

world was round and he anticipated sailing west to reach Asia. Since Marco Polo and others had brought back marvelous things from their overland expeditions centuries before, and Portuguese sailors were seeking a route around the southern tip of Africa, the Spanish attempted to sail across the Atlantic Ocean. On this voyage, Columbus came upon the Americas—a continent between Europe and Asia that Native Americans had inhabited for thousands of years, building civilizations in many regions that astounded early European explorers with their size, sophistication, and grandeur.

In the early 16th century, Italian, English, French, Spanish, and Portuguese sailors charted the eastern coast of the continent, setting up missions and colonies such as the Spanish settlement of St. Augustine in 1565 (in modern Florida), the French settlement Charlesfort (in present-day South Carolina) in 1562, or the English settlement in Jamestown (in Virginia) in 1607. Within several decades, European adventurers headed into the interior. The explorers faced intense cold and exhausting heat, vast plains and unfordable rivers, antagonized Indians and cunning guides, hunger and thirst, and disease and death. Yet they learned about the peoples and landscapes of this New World.

The region that became Arkansas was unknown to Europeans until the 1540s. On June 18, 1541, Hernando de Soto's Spanish expedition, which began on the gulf coast of Florida, crossed the Mississippi River and they became the first Europeans to enter Arkansas. For the next two years, the Spaniards explored Arkansas in the hope of finding the kinds of riches—especially ornaments crafted of gold—that they had seized from indigenous populations in Mexico and Peru. Many southeastern Indian communities did, indeed, produce exquisite artworks, but these were crafted from other materials, including copper, marine shell, colorful stone, fired clay ceramics, or woven fabric. Though de Soto's chroniclers described Indian settlements in Arkansas as "the best towns [in all of La Florida] they had seen up to then, and better palisaded and fortified, and the people of more beauty," they eventually departed when it became clear that these people valued a different form of wealth than that after which the Spaniards sought.

When the de Soto expedition ended in 1543, the explorers were the last Europeans to see Arkansas for 130 years. In 1673, Father Jacques Marquette, a Jesuit missionary, and Louis Joliet, a *coureur de bois* (a trader who lived in Indian country), led a French expedition to explore the Mississippi River Valley and find the mouth of the river. They hoped the river flowed west and might be a route to the Pacific. It was the first step to extend French influence into the middle of the continent in order to convert the native peoples and set up a French-Indian trade network. Near the mouth of the Arkansas River, the Frenchmen encountered the Quapaw, whom they called the Arkansas, and named the river and the region after the tribe. At this time, Arkansas was sparsely populated with isolated villages and tribes but with an abundance of wild game and other resources.

Marquette's expedition was followed by René-Robert Cavelier, Sieur de La Salle's 1682 expedition. In return for serving in

LaSalle's 1682 expedition, Henri de Tonti, a French officer born of Italian parents, received land and a trading concession at the juncture of the Arkansas and Mississippi rivers. In the summer of 1686, he arranged with the local Quapaw to establish a trading post, where they would exchange French goods for beaver and deer furs. They founded Arkansas Post near the Quapaw town of Osotouy in present-day Arkansas County.

In Arkansas, the focus of the colonial era was not on the promotion of immigration but on the exploitation of wild game for trade. Vast settlement did not begin until the 1840s. But by the end of the colonial era, individuals and families of French, Spanish, German, Dutch, Anglo-American, and African descent joined the Indian peoples and a myriad of tribes from across the continent in Arkansas.

As students learned in Lesson Four, Native Americans did not produce written records (though artistic images, like rock art, can be examined as a form of picture writing). European explorers, who began to visit North America in the 16th century, produced written accounts of their own activities and their observations of and encounters with Native Americans. Europeans introduced new plants and animals, diseases, and customs. Their written accounts often include information on how Native Americans incorporated these new plants, animals, and customs into their daily lives and how disease and change affected them. Because these accounts are generally based on eye-witness testimony, historians regard them as **primary sources**.

Similar to artifacts, every piece of paper that people left behind is full of clues to learn about the past. Historians spend a lot of time in archives studying documentary evidence to learn about the circumstances of everyday life and about significant events. These first-hand, original accounts and records about a person, place, object, or an event are known as **primary sources**.

Primary Sources Strengths and Limitations Table

Strengths	Limitations
Provide information on the who, what, where, when, why, and how of an event;	Are not thoroughly objective sources;
Provide written, printed, or graphic information;	Bias and agenda of the author to be considered;
Can clarify the purpose of the communication or transaction;	Often more to the story than what is presented;
Can be a clue to the level of education of the author;	The identity of the author is often unclear (especially in the case of government documents);
Sometimes offer evidence of emotion, or the mood of an event;	Author is often no longer living and therefore unavailable to consult or verify;
Can stimulate the personal involvement of the reader.	Possibly difficult to read: handwriting difficult to decipher; words or phrases that are unfamiliar, or their meaning changed over time.
All primary sources should be evaluated in conjunction with other evidence to determine whether the document presents information that is exceptional or conforming with previously established patterns.	

Oral histories, objects, photographs, and documents such as newspapers, ledgers, census records, diaries, journals, and inventories, are primary sources. Primary sources differ from secondary sources in that a **secondary source** is an account, record, or evidence derived from an original or primary source. A textbook is an example.

To be useful, documents must be studied carefully and critically. Who is the author? What was the author's relationship or observational vantage point relative to the circumstances or event described? What was the author's intention in putting his or her observations into writing? For example, a male missionary living among Indians in the 17th century might provide very useful information about the town in which he resided, but his characterization of native religious ceremonies might be influenced, or **biased**, by his own religious beliefs. In addition, he probably had little to no access to activities performed by women and the children in their care, so his descriptions of daily activities might overemphasize the male sphere of work.

Researchers, both students and professionals, must look beyond the intended meaning to consider hidden agendas, unintended meanings, and **bias,** or the point of view of the creator of the document. Other elements to analyze include tone, grammar, word choice, and style. For example, 17th century French and Spanish as spoken and written in Arkansas are both very different from modern usages. Document type and purpose are also significant considerations: population census records, trading post record books, maps, diaries, formal reports by government officials, and ship passenger logs all contain different kinds of information organized and presented in very different ways. Primary sources have strengths and limitations. The "Primary Sources Strengths and Limitations Table" includes a summary for discussion.

Getting Ready to Teach

1. Photocopy "Arkansas Indians, 1541 - Present: A Case Study" (p. 95) "Every Map Tells a Story" (p. 97), "Early Explorers, Plants, and Primary Sources" (p. 98), the "Indians of Arkansas Timeline" (p. 102), and the "Hoe Cake Recipe" (p. 103).
2. Prepare map of "New France" attributed to Louis Jolliet (p. 90) and "World Maps" (p. 91) to project.
3. Read through accounts of early explorers and note any words that may be difficult for students (that are not included in the Key Terms).
4. Post the Critical Thinking Questions and the Key Terms.

Key Terms

Bias: Interpreting a situation according to standards of one's culture or worldview.
Colonization: The phenomenon of one group or society taking control of a territory beyond its homeland, whether or not it was already inhabited by others.
Cross-cultural encounters: The contact and interactions of various types, whether peaceful or violent, between people from different backgrounds.
Exploration: The action of traveling in or through an unfamiliar area in order to learn about it.
Primary sources: Any document (written description, photo, map, etc.) produced

at the same time and place as the events described; an eye-witness account.
Secondary sources: An account sometimes based on an original or primary source, but produced at another time and/or place.

Engagement

1. Show students a photograph and an Arkansas history text book. Ask students to identify which is a primary source and which is a secondary source. Discuss why the photograph is a primary source and why the book is a secondary source.
2. Project the map of "New France" attributed to Louis Jolliet. Ask students: What stand out as the most prominent features of the maps? (The Great Lakes and the Mississippi River and its major tributaries.) Discuss the fact that maps produced during the age of French exploration of eastern North America emphasized major bodies of water, because most exploration involved travel by watercraft following lake and river travel routes. (A form of bias.)
3. Have students take a closer look at the borders of the Mississippi River and its tributaries. What do they see? The riverbanks are marked with symbols (tiny triangles) that are labeled with place names. It's not necessary to read the names, but these are the locations of Indian villages that French explorers visited or heard about on their travels.
4. Discuss why Indian villages locations are shown on maps like this one. French explorers and colonists wanted to establish trade relations with Indians, and created alliances with Indian tribes to provide assistance and safety for colonial settlers. (Another form of bias.)
5. Discuss maps as primary sources. Tell students that maps are valuable documents that provide information about how people view the world.

Exploration

1. Tell students: People get to know the places where they live so well, having traveled its streets and paths hundreds of times, that they can see its map in their minds. Ask students to draw a map of where they live, placing their home in its neighborhood and showing nearby houses, buildings, roads, what's in their yards (gardens, a swing set, etc.), parks, lakes, or rivers, etc. Instruct students not to show their map to anyone else.
2. Have the students write a few short notes about what they think the maps says about them (for example: they live in the city (or the country); they live in a house, duplex, or apartment; their family grows some of its own food or grows flowers in their back yard).
3. Create teams of two and distribute the "Every Map Tells a Story" worksheet to each student. Have students exchange maps, but not discuss them yet.
4. Have each student complete the worksheet using their partner's map. When finished, ask each to share their worksheet answers with their partners.
5. Based on discussion with their partners, each student should add new information or correct inaccurate information on their worksheets.
6. Ask students to refer back to what they wrote down when asked what their map says about them, and ask: Did your classmates see the same things in the map? Ask each team to share what they

learned by discussing the maps and worksheet answers with their partners.

7. Note that experience and familiarity shape the ways people see and remember a place. This is also a form of bias.

Explanation

1. Using information provided in the Background text and the "Primary Sources Strengths and Limitations" table, review how the exercises show how bias shape the information contained in any primary source. Note that more biases occur in secondary sources.
2. Help students define **bias**, **primary sources** and distinguish them from **secondary sources** for their Key Terms.

Elaboration

1. Project the 1492 map of the world. Explain to students that this is the way Europeans viewed the world prior to the age of exploration (late 15th and early 16th centuries). Remind students that Columbus and other early explorers expected to sail east, across the Atlantic Ocean, to reach Asia. They knew the earth was a globe, but they did not realize that it was much larger than they thought. Two continents inhabited by millions of American Indians, who had lived there for many thousands of years existed between Europe and Asia.
2. Project the modern world map and have students identify the continents and bodies of water. Ask students: What would it be like to encounter another continent with people with long histories? Ask students to imagine how this might influence the way Europeans viewed Native Americans.
3. Separate the class into groups of two or three and hand out the "Early Explorers, Plants, and Primary Sources" worksheet. Review the instructions and explain that the worksheet contains excerpts from primary sources about early European explorations of Arkansas, where writers included observations of Indian uses of plant foods. These sources show how Europeans introduced changes to Native American foodways.
4. Have the students report back on their work. Ask students to look back at how Native Americans are portrayed in these accounts. Define **cross-cultural encounters** and explain that people often describe others in terms of their own standards, which may not apply to people with different cultures.
5. Explain that primary sources, like maps and journal accounts must be studied with other evidence. Discuss the ways the information in primary sources could be verified. (Additional primary sources, such as photographs, other documents, and oral histories, can be helpful. Archeology is an especially useful way to critically analyze or verify and correct information found in historical sources.)
6. Help students define **cross-cultural encounter**, **colonization**, **exploration** and add the terms to their Key Terms.

Evaluation

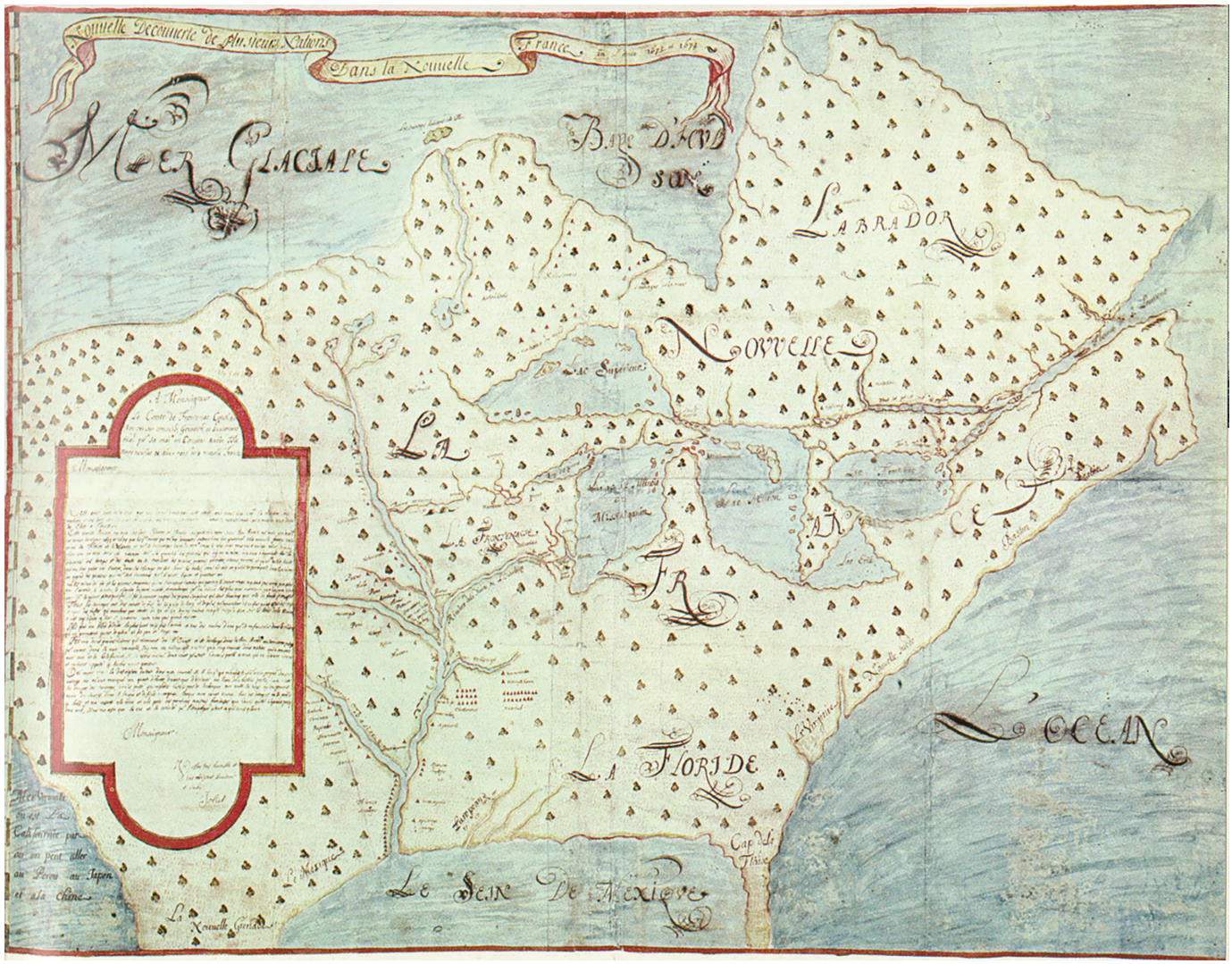
7. Pass out the "Early Colonization Timeline." This timeline is set up differently to account for the different tribes in Arkansas, rather than an emphasis on a single site. Have students complete the

sheet by using information from the "Arkansas Indians, 1541 - Present: A Case Study" and the primary sources to identify key dates, the artifacts, foodways, and social organization. For instance, add the foods discussed by the Gentleman of Elvas from his visit in 1541. This assignment could be completed as a class, as a group, or as individual homework/assessment.

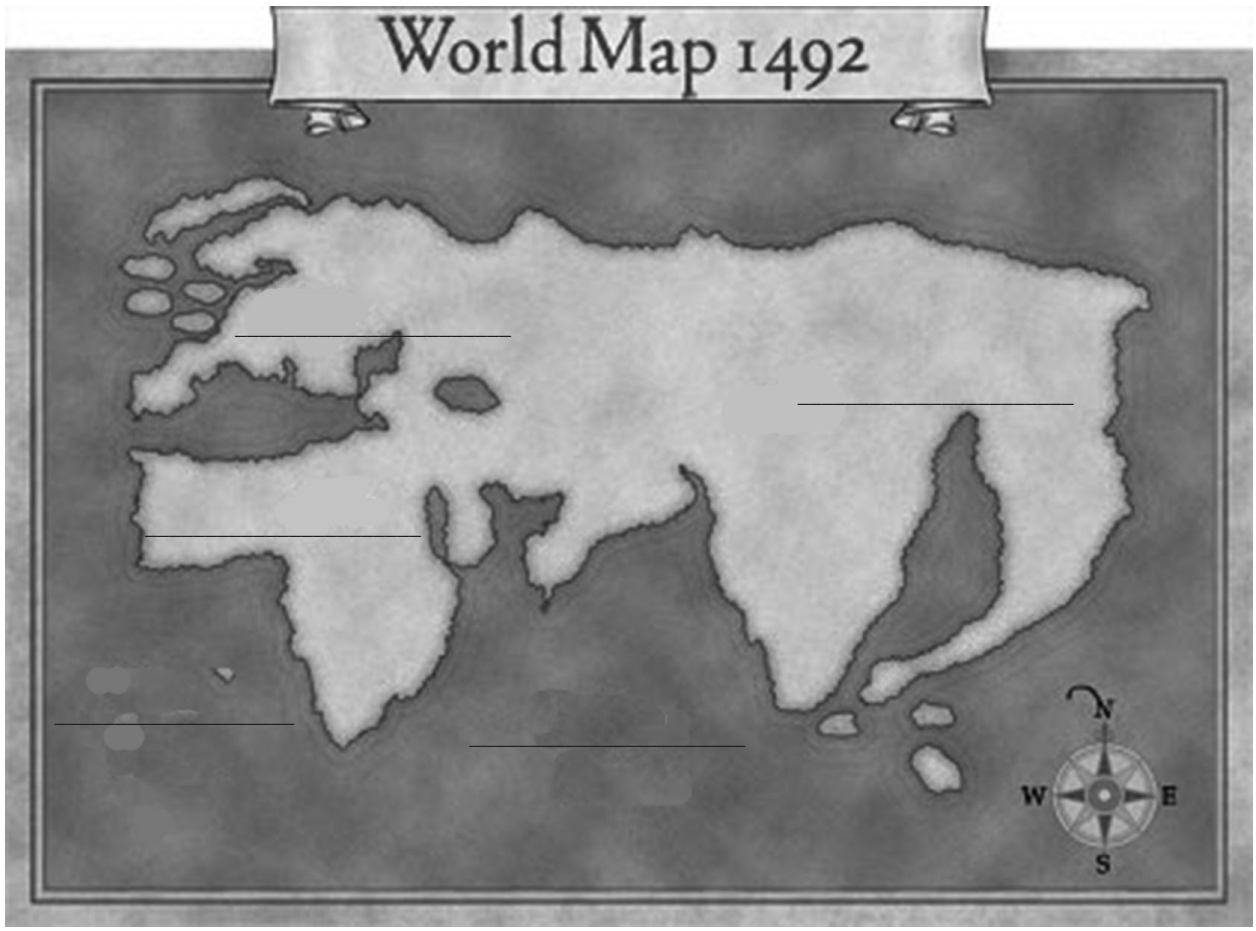
8. Early Colonization begins with the age of discovery and the cross-cultural encounters that resulted from American Indians encountering European explorers and traders. It is marked by the introduction of trade goods, new crops and animals, disease, and new social and religious institutions. Looking at the timeline, ask students: How did Native Arkansans foodways change during the 16th and 17th centuries? Review the long-term changes that can be seen in the timeline. Use the "Early Colonization: Evidence-based Answer Key" as a guide for discussion.

Optional Assessment

1. **Writing Prompt:** What are the differences between Indian legends, European accounts, and archeological studies of the past? Why is it important for archeologists to understanding Indian traditions? How do those traditions help archeologists interpret the artifacts of past activities? Why is it important to look at European accounts? How are these accounts helpful for archeological interpretations? Finally, how does the combination of the three perspectives enlarge our understanding of the past?



New France by Louis Jolliet (1673-1674). Courtesy of Brown University archives.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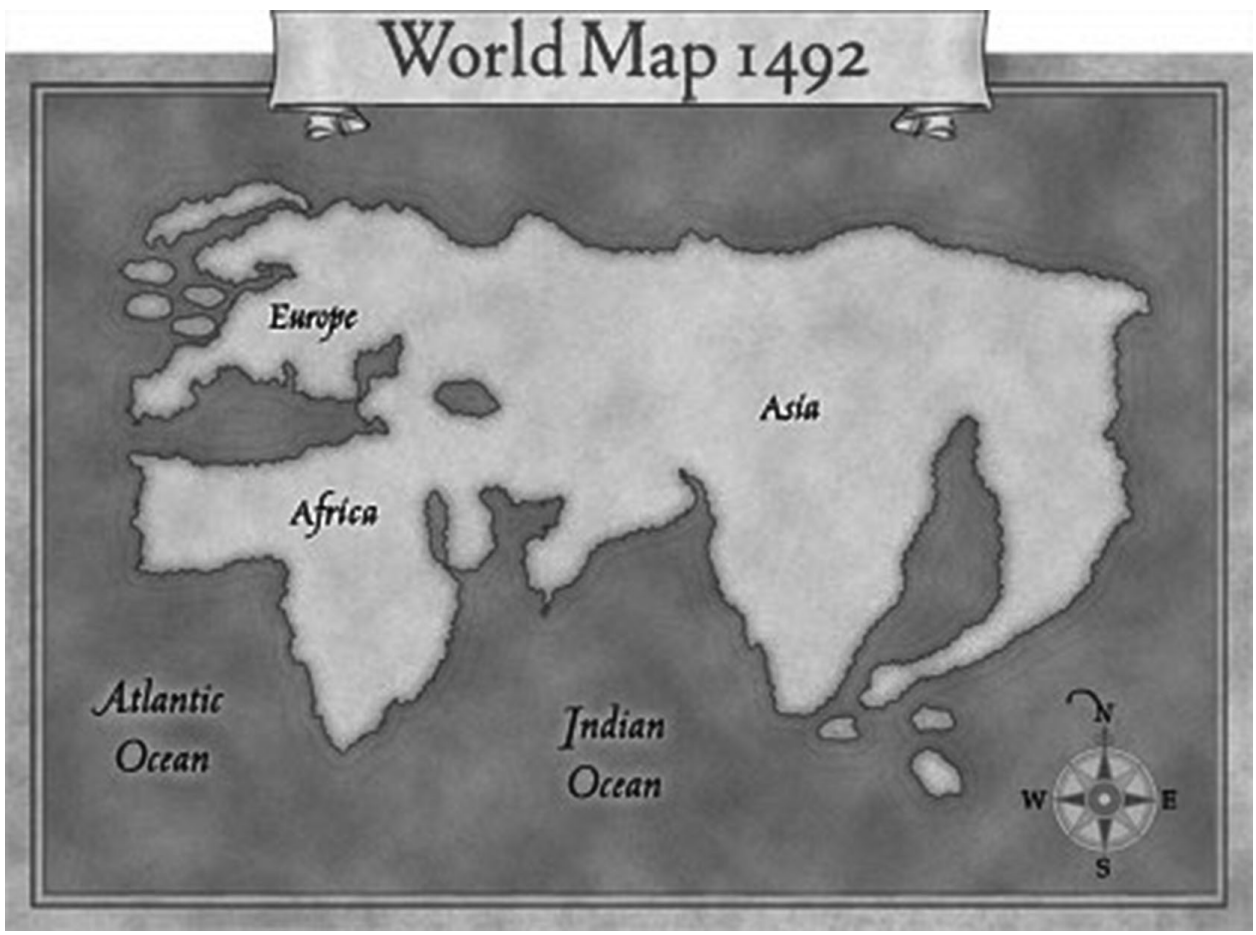

World Map 1492
Europe
Asia
Africa
Atlantic Ocean
Indian Ocean
N
W
E
S


Arctic Ocean
North America
Europe
Asia
Atlantic Ocean
Mediterranean Sea
Pacific Ocean
Pacific Ocean
Africa
Indian Ocean
South America
Australia
Antarctica

Evidence-based Answer Key

Every Map Tells a Story

Question 1. House, storage building, barn, garage, dog house, slide, store, etc.

Question 2. It is a neighborhood, or farm. There are (or are not) many people living in this area.

Question 3. People eat and sleep in this location. People farm and grow food here. People play here. Workplaces?

Question 4. Depends on the map. Make note of use of street names, business or institution names

Question 5. Depends on the map.

Question 6. Ask the map's creator. Look at a different map. Go visit the actual location.

Early Explorers, Plants, and Primary Sources

Questions 1-8.

Account #	Who Wrote this Account?	Date(s)	Location	People and Places	Plants	Inferences
1	The Gentleman of Elvas	1539-1543	Parkin, AR	They built houses on higher, dry ground; stored food in their houses; cultivated open fields & groves of trees.	Walnuts, mulberry, plums (red and grey), and other trees.	The Indians cleared fields to plant trees for food; they stored nuts for later use; they ate walnuts, mulberry, and plums.
2	The Gentleman of Elvas	1539-1543	North-central AR	People lived at the base of a mountain near a river/in a river valley; they grew the "three sisters" and stored corn.	Maize (corn), beans, pumpkin.	The Indians had a surplus of food; they located their town in a place well-suited for agriculture.
3	Henry Joutel	1687	Village of Osotuoy, AR	Men, women, and children greeted them; the Indians smoked tobacco; the fields were plentiful producing 2-3 crops per year, they made tamale-like and persimmon breads;	Corn, beans, watermelon, pumpkin, tobacco, peaches, plums, nuts, persimmon, mulberries, grapes, fruits he didn't know the name of.	The Indians were welcoming and fed the travelers well; their food was plentiful; the Europeans didn't always know what the food plants were, the fields were abundant with crops.

Question 9. Indians were practicing agricultural production and gathering wild plants in the 16th and 17th century. They had large agricultural fields.

Question 10. They were growing corn, beans, and pumpkins in both the 16th and 17th centuries. They were gathering wild plant foods at both times too.

Question 11. The later account includes additional food not in the earlier account such as watermelon and peaches - introduced by Europeans (as well as tobacco, persimmon, and grapes).

Question 12. A typical meal during early colonization would be smoked meat, bread made out of corn and/or beans, beans, pumpkin, and fruit like plums, persimmons, or peaches.

Arkansas Indians	Location	Site types	Foodways	Important events/changes
Quapaw	Along Arkansas and Mississippi Rivers; Mississippi Delta.	Towns with longhouses	Grew corn, beans, and squashes; gathered wild plants; hunted.	Visited by Henri Joutel in 1687; U.S. government bought their land in 1803; moved to Oklahoma.
Osage	Southwest Missouri and northwest Arkansas	Towns with longhouses	Grew corn, bean, squashes; traded food with Europeans;	Forced to sell land in 19th century; moved to Kansas then Oklahoma
Tunica	Along Mississippi River in southern AR and northern Mississippi	Farms with circular (mud wall) houses	Grew corn, beans, squash; gathered wild plants, hunted; made salt; traded salt with Europeans	Joined the Biloxi Indians in 19th century; currently live near Marksville, LA.
Caddo	Southwest AR and parts of Texas, Louisiana, and Oklahoma	Farms with circular (grass-thatched) houses	Grew corn, beans, squash, pumpkins, and fruits; hunted and fished; produced salt.	Forced from land after 1840; moved to Texas then Oklahoma.
Cherokee	Moved to AR from the east; located on Arkansas River near Russelville	Log cabins	Farmed	Trail of Tears; forced to move to Oklahoma after 1828.

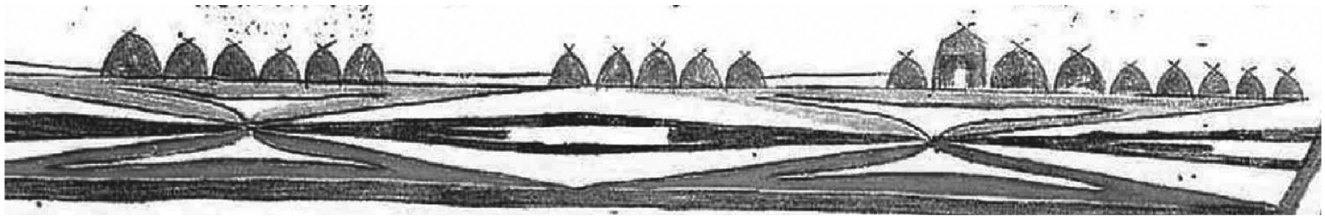
1492 **1539-1543 De Soto** **LaSalle Expedition 1687** **1850**

Indians of Arkansas - Cross-cultural Encounters

Additional key events: Spread of disease, new religion, trade, etc.

Indians of Arkansas Timeline: Answer Key

Arkansas Indians, 1541 - Present: A Case Study



When Europeans arrived in the Louisiana Territory (which includes present-day Arkansas) during the 17th and 18th centuries, they encountered hundreds of Indian communities living in what is now Arkansas. These brief summaries provide a peek into the lives of Arkansas Indians between 1541 and the present.

Quapaw Village. Courtesy of Kugee Supernaw.

Quapaw. Quapaw Indians lived on the lower Arkansas River where it joins the Mississippi. They built a type of house called a "longhouse," with bark-covered walls and roofs. Quapaws grew corn, beans, squashes, pumpkins, and gourds in nearby fields. They gathered wild plants and hunted deer, bear, buffalo. They caught fish, small animals, and birds. When the United States bought their land in 1803, Quapaws moved to Oklahoma. Today, more than 2000 Quapaws live near Miami, Oklahoma.

Osage. Osage Indians lived in southwest Missouri but hunted buffalo and other animals in Kansas, Oklahoma, and Arkansas. They raised corn, beans, squashes, pumpkins, and other crops in nearby fields. They built longhouses much like the Quapaws. Osages traded food, hides, and other animal products to European and American settlers. This trade brought wealth and power but Osages were forced to sell their lands in the 19th century. They moved first to a reservation in Kansas, and later to Oklahoma. Today, more than 10,000 Osages live near Pawhuska, where they have the oldest Native American museum in the country.

Osage traders. Courtesy of Charles Banks Wilson.

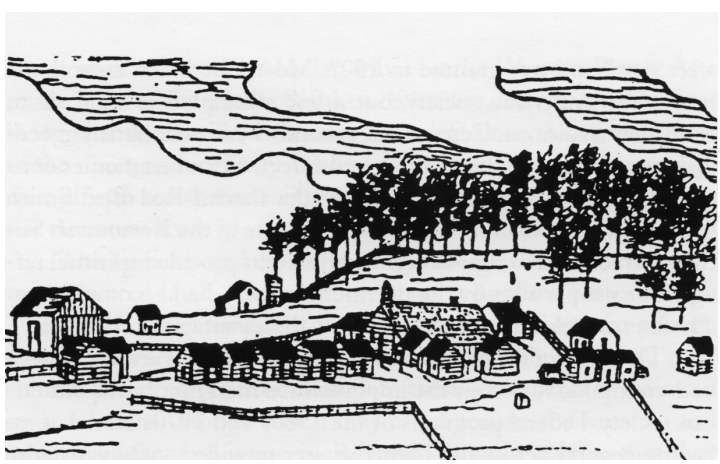
To learn more about Arkansas Indians, check out: http://archeology.uark.edu/indiansofarkansas/index.html

Tunica Saltmakers. Courtesy of the Tunica-Biloxi Museum.

Tunica. Tunica Indians lived along the Mississippi River in southern Arkansas and northern Mississippi. Their villages had circular houses with mud-plastered walls and grass-thatched roofs. They raised corn, beans, squashes, and other crops, and gathered wild plant foods and hunted and fished. They made salt from salt-water springs, trading it with other Indians and Europeans for food and other goods. In the 19th century, Tunicas joined Biloxi Indians living near Marksville, Louisiana, where they continue to live today.

Caddo. Caddo villages were scattered across southwest Arkansas and parts of Texas, Louisiana, and Oklahoma. Families had their own farms with one or two circular, grass-covered houses, work areas, and crop fields. Families grew corn, beans, pumpkins and squashes, and fruits, and hunted and fished in nearby forests, fields, and streams. They also produced salt for their own use and for trade. When the United States forced Caddos from their lands after 1840, they moved first to central Texas and later to Oklahoma. More than 5,000 Caddos live near Binger and Oklahoma City today.

A Caddo farmstead. Courtesy of Ed Martin.



Cherokee community along the Arkansas River. Courtesy of the Arkansas History Commission.

Cherokee. Cherokees moved into Arkansas in the late 1700s, from their homelands farther east. By the early 1800s, their villages were located along the Arkansas River near modern Russellville. Cherokees built log cabins, used horses to plow their fields, and dressed in store-bought clothes. They were forced to move to Oklahoma after 1828. They built new homes and farms and even a college for women. Modern Cherokees live near Tahlequah, Oklahoma, where they have a museum on the old college grounds.

Name _____ Date _____

Every Map Tells a Story

Use your classmate's map to answer the questions.

Observing and Collecting Data

1. Make a list of the objects/buildings in the map (observations).

2. How would you describe the place? (observations)

3. What activities take place in this location? (inference)

4. Where is this site located? (inferences) What is your evidence?

5. What questions do you have about the map?

6. How could you get more information to answer your questions?

Name _____ **Date** _____

Early Explorers, Plants, and Primary Sources

Early explorers left accounts, or detailed descriptions, of their interactions with American Indian groups during their travels. Read the excerpts from their travels and answer the following questions in the table.

Part 1

The Gentleman of Elvas (Elvas is a town in Portugal) was a Portuguese nobleman who accompanied Hernando de Soto on his 1539–1543 exploration of La Florida. They followed a route from the present-day Florida through the interior Southeast. The expedition spent more than a year traveling through what is now Arkansas.

– Gentleman of Elvas, as translated in *The De Soto Chronicles: The Expedition of Hernando de Soto to North American in 1539–1543* (Clayton et al. 1993).

Account 1

On approaching Casqui, believed to be the archeological site today preserved as Parkin Archeological State Park, Elvas writes:

> "*That land is more high, dry, and level than the land of the river behind it which they [the Spaniards] had thus far seen. In the open field were many walnut trees with soft nuts shaped like acorns; and in the houses were found many which they Indians had stored away… There were many mulberry trees and plum trees having red plums like those of Spain, and others gray, differing, but much better, and all the trees verdant all year as if set out in gardens and in a clear grove*" (Vol. I, p. 114).

1. When reading primary sources, it is important to know who wrote the account and why. List the author of Account 1 and why they wrote the account in the column: **Who Wrote the Account?**
2. Primary sources can tell archeologists about the time period in which the document was written. Record the date the account was written in the table under **Date**.
3. Some primary sources provide information about specific places. Record the place the author is talking about in the table under **Location**.
4. While examining primary sources, archeologists also take note of their first observations of the people and the places described. What strikes you as interesting about the people and places described in the account? List your observations in the **People and Place** column.
5. Read through the account carefully. List of all of the plants in the **Plants** column.
6. From this first account, what can you infer about life in Arkansas during the de Soto Expedition? List two inferences in the table under **Inferences**.
7. Complete the steps for Account 2.

2 On arriving at Coligoa, possibly along the White River in north central Arkansas along the eastern Ozark escarpment:

> "*The town of Coligoa was situated at the foot of a mountain in a field of a river… It was a fertile land and so abundant in maize that the old was thrown out in order to store the new. There was also a great quantity of beans and pumpkins, the beans being larger and better than those of Spain; and the pumpkins likewise. When roasted the latter have almost the taste of chestnuts*" (Vol. I, p. 123).

Account #	Who Wrote the Account?	Date(s)	Location	People and Place	Plants	Inferences
1						
2						
3						

8. Read Part 2 and complete the steps for Account 3.

Part 2

Henri Joutel was one of only a half-dozen survivors of La Salle's fateful attempt to establish a French colony along the Gulf Coast (located in present-day Texas). He led a group of survivors across Texas and into Arkansas, visiting many Caddo Indian villages before arriving, on July 24, 1687, at the Quapaw village of Osotuoy.

Account — Henri Joutel, *The La Salle Expedition to Texas* (Foster 1998).

3 "*A short time before arriving at their fields [surrounding the village], or clearings as they were called there, we encountered several bands and troops of Indians who, having heard of our arrival, came to meet us … They led us to a hut in the middle of their field where they had corn, beans, watermelon, pumpkins, and other things in abundance*" (p. 263).

"*On arriving at the hut, we found a crowd of people gathered, men as well as women and girls, who were waiting for us … At length, as soon as we were seated, the women brought us a large number of watermelons which they grow in quantities in this region… This melon is well named "water melon." The pulp is, so to speak, only water. ... The Indians also gave us a kind of bread that they prepare in a particular way: they mix with it beans which they leave whole and wrap the bread in corn shucks which they then boil.*" (pp. 263-264).

"*The chief of the village came to invite us to eat… "After the chief's speech and several other speeches were over, he had food served to us: smoked meat, several kinds of cornbread, watermelons, pumpkins, and other similar things according to what was available to them. After this, they offered us tobacco to smoke*" (p. 269).

"*They [Quapaws] also have several kinds of good fruit including very good peaches. Although the peaches were not quite ripe, they boiled them to eat. They also have a large number of plum trees; in France I have seen many places where the plums were not as good. Their nuts, several kinds, are very good. There is, among others, one kind that is smaller; it is shaped almost like an acorn with a rather tender shell. The others are good as well, but their shells are much harder. The have besides a fruit that they call piaquiminia [probably a persimmon] which resembles the French medlar in shape, but it is much better, with a very pretty color and more delicate. They make a kind of bread with it that is similar to gingerbread in appearance, but it does not taste the same. They have a great many mulberry trees whose fruit are very good in season, as well as grapes and many other sorts of fruit in quite some abundance whose names are unknown to me*" (pp. 270-171).

"*The soil there is very good, and very fine corn grows there, producing two or three crops a year, at least two. Indeed, I noticed fields where they had harvested corn that year and had already replanted. In other fields, they had it at all stages of growth, as well as beans and other kinds of vegetables*" (p. 276).

9. Based on the data in your table, what do these accounts tell you about Indian hunting, plant collecting, or agricultural practices in the 16th and 17th centuries?

10. Compare your lists of plants from the earlier 16th century and later 17th century accounts. How are they similar?

11. How are the lists of plants from the earlier 16th century and later 17th century accounts different?

12. From the 16th and 17th century accounts, create a menu for a typical Native American meal during early colonization.

Arkansas Indians	Location	Site types	Foodways	Important events/changes

1492	1850
	Indians of Arkansas - Cross-cultural Encounters

Additional key events: Spread of disease, new religion, trade, etc.

Indians of Arkansas Timeline

Hoe Cake Recipe

Ingredients:

1 cup of cornmeal
½ teaspoon of salt
¾ cup water
2 tablespoons pork fat, butter, or shortening

Instructions:

Mix the cornmeal and salt together in a bowl. Boil the water. While constantly stirring the cornmeal mixture, slowly add the boiling water and beat until smooth. Let the mixture stand a few minutes. Heat a large cast iron skillet with the pork fat, butter or shortening. For each Hoe Cake, drop 2 tablespoons of the mixture into the hot skillet and pat into flat circles about 4 inches wide. Cook the cakes for about 2 minutes on each side or until they are golden brown. If needed, add more fat to the pan for the remaining cakes. Serve cakes as soon as they are cooked. The Hoe Cakes may be topped with molasses or maple syrup.

Many People, Many Plates: A Bonus Lesson:

(Adapted from *Redefining Progress*, 2005).

Overview: This bonus activity can be used as a final performance of understanding for the *Gathering, Gardening, and Agriculture* curriculum or as a separate lesson. Students explore the origins of plant foods and the mechanisms by which they came to be common ingredients in the foods we eat today. By mapping their food, students learn about geography, trade, and history, and see the immediate effects of colonization and cross-cultural interactions, as related to plant use.

Lesson Objectives: Learn about colonization and the Columbian Exchange. Gain a basic understanding of plants found in the "New World" that originated in the "Old World" versus plants that are native to the "New World." Explore the origins of plant foods and the mechanisms by which they came to be common ingredients in the foods students eat today. Map their food to see the effects of colonization and cross-cultural interactions. Examine some of the economic impetuses for colonization through plant-based resources.

Critical Thinking Questions: What is the Columbian Exchange? How did the Columbian Exchange shape foodways in the United States?

Subjects: social studies, language arts, science, history, science, geography

Duration: 45 to 60 minutes

Class size: any

National standards: AID, AQDP, D3.4.3-5, D4.1.3-5, D4.2.3-5, D2.Geo.2.3-5, D2.Geo.4.3-5, D2.Geo.5.3-5, D2.His.1.3-5, D2.His.16.3-5, D2.His.17.3-5, L.5, PC01, RH.4, RI.7, WHST.4

Arkansas Social Studies standards: D1.1, D1.2, D1.3, E.4.5.1, E.4.5.2, G.8.5.1, G.8.5.2, G.9.5.1, G.9.5.2, G.9.5.1, G.9.5.3, G.10.5.1, H.12.5.1, H.12.5.2, H.12.5.3

Materials

For each group: A world map (p. 92); "The Columbian Exchange" activity sheet (p. 117); the "Origins of Plants" table (p. 119); 5-10 cards from the "Old and New World Plants Cards" (p. 113); and the "Hoppin John Recipe" (p. 121).
For the teacher: A world map (p. 92) and "A School Lunch Menu" (p. 112) to project; a copy of the "Old and New World Plants Table" (p. 108) and "The Brief History of Plants" table (p. 112).

Background

In discussions of exploration and colonization, historians often refer to different parts of the world as the "Old World" and the "New World." The "Old World" refers to Europe, Africa, Australia, and Asia and the "New World" refers to the Americas (North, Central, and South America). Scholars recognize that the European explorers did not discover a "new" world, but places and people who had lived on this continent for thousands of years. Yet viewing the world from the European perspective offers a way to see **colonialism** and

the **Columbian Exchange** as important historical processes.

Columbus, early explorers, and later colonial settlers wanted to establish new fields of plenty in the Americas. On his later voyages, Columbus brought crops he hoped might flourish there. He and his followers brought the familiar food grains of Europe: wheat, barley, and rye. They also brought Mediterranean plantation crops such as sugar, bananas, and citrus fruits, which all originated in South or Southeast Asia. At first, many of these crops fared poorly, but eventually they flourished.

Establishing these crops in the "new" world offered some people the economic incentive of landownership and resulted in new social organization. **Colonialism** is the practice of acquiring full or partial political control over another country, occupying it with settlers, and exploiting it economically. It involves the establishment of colonies that administer state control, manage interactions, and extract labor, raw materials, and surplus. This large scale process resulted in cross-cultural interchanges, which are often referred to as the **Columbian Exchange**. This interchange of people, cultures, plants, animals, and diseases between the Americas, Europe, and Africa dramatically altered lifeways globally.

As English, Scots, Irish, Scots-Irish, French, and German peoples began to settle in the new colonies in the Americas, peoples with diverse backgrounds interacted and created new cultures and lifeways in the Americas. To support this agrarian economy, the **Trans Atlantic Slave Trade** brought peoples of diverse African cultures from various geographic locations on the West African coast and West Central Africa to labor in the Americas. These European and African peoples met Native Americans with differing cultural traditions. So the cultures that formed in the southeastern United States were not related to a single African, Native American or European culture, but to a diverse mix of cultures and languages of peoples from varying environments. From these different landscapes, people brought disease, plants, and animals as well as diverse cultural traditions and an array of foodways.

The Columbian Exchange also turned plants into commodities. After 1640, sugar became the mainstay of the Caribbean and Brazilian economies, becoming the foundation for large enslaved societies. The production of rice and cotton, both imported in the Columbian Exchange, together with tobacco, formed the basis of slave society in the United States. Wheat, which thrived in the temperate latitudes of North and South America and in the highlands of Mexico, became a fundamental food crop for tens of millions of people in the Americas. These crops drastically changed the economy of the Americas and supported the European settler societies and their African slave systems.

Slave communities developed out of interactions among those in bondage and between slaves and slave owners. The Trans Atlantic Slave Trade shaped the southeastern United States through the people it forced to migrate, and the women who gave birth to the children who formed the new African-American population. As more children were born to the enslaved

laborers on plantations, and the western frontier opened up, the Carolinas and the Chesapeake became exporters of slaves in an internal slave trade within the United States.

The Columbian Exchange, and the interaction between different people in a particular place allows us to see history in our food. Think about barbecue, it is an American culinary tradition that varies by region: sauce or no sauce; which kind of sauce - vinegar, mustard, or tomato based; chopped or not chopped; whole animal or just ribs or shoulders. Some researchers attribute its origins to enslaved Africans with inspiration and contributions from Native Americans. Some assign its origins to Native Americans and Europeans. The origin of the word is said to derive from both Carib and Spanish (*barbacoa* – to roast over hot coals on a wooden framework) or from western European sources (*barbe-a-queue* in French – "head to tail"). And still others attribute the innovation of barbecue to the Germans and Czechs. The word barbecue also has roots in West Africa among the Hausa, who used the term, *babbake*, to describe a complex of words referring to grilling, toasting, building a large fire, singeing hair or feathers, and cooking food over a long period of time over an extravagant fire. With this example, it is easy to see how colonial encounters and the African slave trade shaped the foods eaten in the southeastern United States.

As enslaved African Americans became the pit masters on southern plantations, barbecue became a rich amalgamation of African, Native American, and European foodways. The origin of plant food traditions is no less complicated. For instance, enslaved Africans introduced the cowpea, commonly referred to as a field pea or black-eyed pea, to the American colonies during the Transatlantic Slave Trade, when many African foods came into the Americas. Archeological evidence points to its cultivation in enslaved communities in the mid-18th century. Creek Muskogee Indians also adopted cowpeas, which were grown in their towns in the 18th and 19th centuries.

On Southern plantations, the enslaved barbecued the meat and prepared the meals for the main house. They also gardened, hunted, and prepared their own meals. The enslaved brought plants, like cowpeas, and their traditional recipes to create a novel foodways system that illustrates their ability to pool knowledge and resources, develop strategies for assuring some level of autonomy in their lives, and construct their cultural identity. These food traditions shaped the diets of people in the southeastern United States today.

Similarly, the America's also contributed to Afro-Eurasia in terms of new plant species and cuisine and transformed life in places as far apart as Ireland, South Africa, and China. In previous lessons, students learned about Native American domestication of corn, squash, and beans. In South and Central America, native peoples domesticated corn, potato, cassava, various beans and squashes, sweet potato, papaya, pineapple, tomato, avocado, guava, peanuts, chili peppers, and cacao, the raw form of cocoa. Within 20 years of Columbus's last voyage, people established corn in North Africa. It spread to Egypt, where it became

a staple in the Nile Delta, and from there to the Ottoman Empire, especially the Balkans. By 1800, corn was the major grain in large parts of what is now Romania and Serbia, and was also important in Hungary, Ukraine, Italy, and southern France. It was often used as animal feed, but people ate it too, usually in a porridge or bread. Corn appeared in China in the 16th century and eventually supplied about one-tenth of the grain supply there. Corn probably played its greatest role, however, in southern Africa. There corn arrived in the 16th century in the context of the slave trade. The southern African environmental conditions suited corn handsomely.

Despite corn's success, the potato, which originates in South America, probably had a stronger impact in improving the food supply and in promoting population growth in Eurasia. The potato thrived in Ireland, where it promoted a rapid population increase until a potato blight ravaged the crop in 1845, bringing widespread famine to the area. After 1750, Scandinavia, Germany, Poland, and Russia also gradually accepted the potato, which helped drive a general population explosion in Europe. This population explosion may have laid the foundation for world-shaking developments such as the Industrial Revolution and modern European imperialism.

While corn and potatoes had the greatest world historical importance of the American crops, lesser crops made their marks as well. In West Africa, peanuts and cassava provided new foodstuffs. Cassava, a tropical shrub native to Brazil, has starchy roots that grow in almost any soil. In the leached soils of West and Central Africa, cassava became an indispensable crop. Today, some 200 million Africans rely on it as

New and Old World Plants Table

"New World"

North America	Sunflowers	Corn (Mexico)	Avocados
Central America	Peppers	Beans	Chocolate
South America	Potatoes	Tomatoes	Peanuts

"Old World"

Europe	Beets	Cabbage	
Asia	Rice Apples	Sugarcane Carrots	Bananas Peas
Africa	Watermelon	Coffee	Cow Peas (black-eyed peas)
Middle East	Wheat	Onion	

their main source of nutrition. Cacao and rubber, two South American crops, became important export items in West Africa in the 20th century. The sweet potato, which was introduced into China in the 1560s, became China's third most important crop after rice and wheat. It proved a useful supplement to diets throughout the monsoon lands of Asia. Indeed, almost everywhere in the world, one or another American food crops caught on, complementing existing crops or, more rarely, replacing them. By the late 20th century, about one-third of the world's food supply came from plants first cultivated in the Americas. The modern rise of population would have been slower without them.

Colonization and the Columbian Exchange re-shaped the world. It increased people's economic dependency on a few commodities like sugar, rice, and cotton. It also created unequal terms of trade that favored the European colonizers resulting in social hierarchies and inequality that were institutionalized through slavery.

Much of the foods people in the United States eat on a regular basis are the direct result of long complex historical processes. For example, what we think of as "Italian cuisine" is in fact very American at its core, because it relies on plants, such as tomatoes and bell peppers, that were introduced to Europeans about 500 years ago. Few of the ingredients from a typical "Italian style" dinner originate in Italy, or Europe. These foods are the result of hundreds, and even thousands, of years of exchange, trade, and movement of people. Food is not only nutrition; it is culture and history.

Getting Ready to Teach

1. Print copies of the "The Columbian Exchange" worksheet (p. 114), the "Origin of Plants" table (p. 118), and the world map (p. 92) for each group.
2. Locate transparencies or PowerPoint of the world map from Lesson Five (p. 92).
3. Print a copy of the "Old World and New World Plants - Cards" (p. 116). Cut out cards of cards, so that each group receives 5-10 cards.
4. Designate parts of the room as different regions of the world: North America, South and Central America, Europe, Africa, Asia, and the Middle East.
5. Prepare a copy of "A School Lunch Menu" to project.
6. Post the Critical Thinking Questions and the Key Terms.

Key Terms

Columbian Exchange: An exchange of people, plants, animals, and diseases between the Americas, Europe, and Africa that dramatically altered lifeways globally.
Plantation economy: An economy based on agricultural mass production in which a few commodity crops are grown on large farms called plantations by enslaved labor.
Trade: The exchange of a good or service for goods, service, or currency.
Trans Atlantic Slave Trade: The business or process of procuring, transporting, and selling millions of Africans to the American continent, creating an economic system in which the principles of property law were applied to humans shaping the world economy in the 18th century.

Engagement

1. Ask the students: Have you tried a food from another country? If this does not gain any responses, ask more generally if they have been introduced to a new food or candy bar. Discuss whether the students adopted this new food into their diet and why. People are likely to adopt new foods out of necessity or because they are similar to familiar foods.

Exploration

1. Project the map of the world from Lesson Five and review the nomenclature for "Old" and "New" World. Project the modern world map and make sure students understand that Columbus really discovered another "Old" world, since people have been living in the Americas for thousands of years. When historians use the dichotomy of "New" and "Old" worlds, they put them in quotation marks to show that they are using the way of thinking from 1492, the age of exploration.
2. Draw a table on the board with one side marked as "Old World" and the other "New World.
3. Engage the students by asking them what fruits or vegetables are indigenous to the "New World" or the Americas (North, Central, and South). If/when they get stumped have them reflect on the cuisines of the "New World" regions that they learned in Lesson Five. Gradually fill in the "New World" list with the help of student suggestions and the "New and Old World Plants Table" (p. 111).
4. Review the Background information, explain the concepts: **Columbian Exchange, colonialism, trade,** and **Transatlantic Slave Trade,** and help students add the terms to the Key Terms log.
5. Using the projected map of the world, explain that spaces in the classroom represent different regions of the world.
6. Distribute 5 to 10 "Old and New World Plant Cards" to each group of three or four students. Have students take time to determine where each plant originated using the "Origin of Plants Table."
7. Have students move around the world and place the plants in the part of the world in which they originated.
8. When all of the cards have been placed, pass out the "The Columbian Exchange" activity sheet.
9. Ask the students to fill in the "Old" and "New" World chart and review the plants that are indigenous to each region.

Explanation

1. Now that everyone can visualize the state of the world in 1492, have students think back to the Columbian voyage and imagine a "world" of Europeans who had never tasted tomatoes, potatoes, or beans and Native Americans who had never seen wheat or tasted bread and pasta. Stress the tremendous nature of the historical influence of this **Columbian Exchange** – economically, socially, and environmentally.
2. Identify six important plants: potatoes, sugar, corn, tomatoes, collard greens, and coffee. Using the summaries in "The Brief History of Plants Table," have students consider the historical scope of each crop one by one and have a student walk from the continent of origin to the

other continents that have a historical connection to that food since the voyage of Columbus. To encourage thought as to where the plant went, ask students about what the cuisine is like in different countries.

Elaboration

1. Ask students: How did the Columbian Exchange shaped your foodways?
2. Project the "A School Lunch Menu" and have the students map the origins of the plants in the school lunch on the "The Columbian Exchange" activity sheet.
3. Have students select one of the plants from the menu and have them move to the region of the world in which it originated. Continue as long as there are different plants from "A School Lunch Menu." Discuss the students observations, inferences, and conclusions about their school lunch encouraging them to think about what plants can reveal about culture and history.
4. Ask students: How are your foodways similar or different from gatherers, gardeners, and agriculturalists? How are the ways students get food similar or different? After students have participated in the re-enactment of the global consequences of the Columbian Exchange and examined their school lunch, lead a discussion of the larger implications of the movement of plants around the world. Ask the questions:
   - Can these plants (coffee, for example) grow in the places where they have ended up as a result of trade? (Coffee requires a sub-tropical climate to grow.)
   - If not, how do these countries get it?
   - Before the Columbian Exchange, how did people get food? Where did it come from? How does production of this crop affect local communities? (People are growing food for export rather than for their own consumption and many people have no idea where their food comes from).
   - What are the environmental impacts of trading food globally? (Ships, trucks and fuel, processing, distribution, refrigeration.)

Evaluation

1. If there is time, in groups, students should come up with a creative way (a skit, a song, a poem, or a dance, for example) to teach their classmates about the Columbian Exchange, the movement of a particular plant, and how it has impacted current foodways.
2. Pass out the "Hoppin John Recipe" for students to take home and make with their parents.

Optional Assessment

1. **Writing Prompt:** Why are plant foods important? What can archeologists learn about people in the past by looking at artifacts and seeds? How are your foodways similar or different from foragers, gardeners, and agriculturalists? How is your diet a result of thousands of years of history? Make sure to use the words from your Key Terms log.

A School Lunch Menu	
Food Item	Ingredients
Spaghetti	Tomatoes, Garlic, Oregano, Pasta (wheat), Hamburger meat
Side garden salad	Lettuce, Tomato, Cucumbers
Broccoli and cauliflower	Broccoli, Cauliflower
Fruit salad	Apple, Pineapple, Grapes, Peaches, Blueberries
Orange juice	Orange, Sugar

Old and New World Plants - Cards

Corn	Apple	Avocado
Broccoli	Blueberries	Cacoa/cocoa
Cilantro/coriander	Oats	Okra
Onion	Sweet potato	Collards
Orange	Eggplant	Mango
Peach	Zucchini	Basil
Peanuts	Cashew	Almond
Wheat	Barley	Coconut
Coffee	Tea	Carrot

Pecan	Grapes	Butter bean (Lima or Runner bean)
Beet	Melon	Watermelon
Rice	Brussel sprouts	Lettuce
Banana	Tomato	Black-eyed pea
Cranberry	Chili pepper	Asparagus
Pineapple	Pistachio	Potato
Oregano	Cinnamon	Garlic
Basil	Celery	Strawberry
Vanilla	Sweet pea	Mustard

The Brief History of Plants Table

Potato	In the Andes Mountains of South America indigenous people, including the ancient Incas, survived on potatoes for the past 7,000 years. When the Spanish explorers arrived in South America in 1531, the sailors recognized the potato's nutritional value and adopted it as a food source for long voyages. By 1600, farmers in Spain were planting crops of potatoes and by 1800 the potato was one of the most important foods in Europe due to its combination of essential vitamins, minerals and fiber, and its easy adaptation to different climates. The potato was so productive and easy to grow in rocky soil that the people of Ireland developed an exclusive dependence on potatoes as a primary food source. The lack of alternative foods led to the Irish potato famine when a potato blight began in 1845. This precipitated a mass emigration to the United States. Today, Americans consume more potatoes than any other vegetable, mostly in the form of French fries.
Sugar	Sugar cane, though native to Polynesia, was first refined into sugar in India about 8,000 years ago. It made its way west arriving in Europe in the 12th century. It was a very exotic expensive spice, used for medicines and after dinner sweets. In 1400, it was still a costly commodity due to small production, and Europeans were beginning to learn to grow sugar cane outside of the tropics. The Spanish planted sugar cane in the Canary Islands, where Columbus acquired it from his second trip to the Americas in 1493. Sugar cultivation is very labor-intensive and the Spaniards enslaved the native inhabitants of Hispaniola (the Dominican Republic and Haiti today) to grow and process sugar for growing markets in Europe. In 1516, the first shipment of sugar arrived in Europe fueling a demand for this sweetener for tea, coffee, and chocolate. Meanwhile the enslaved indigenous labor force in the Caribbean was dying off due to the introduction of "Old World" diseases, so sugar producers turned to Africa to supply labor. These producers cleared large swaths of land with slash-and-burn techniques, to great ecological detriment, to build plantations which depended on slavery to produce an adequate supply of sugar to satisfy the demand of the European upper classes.
Coffee	Coffee, a shrub with red berries, can only grow in tropical climates. It originated on the mountainsides of Ethiopia under rainforest canopy, although it is often more commonly associated with Central America and the South Pacific isles. The demand for coffee began as a medicinal drink (prescribed at various times as an enema, nerve calmer, and life-extender) for the elite, but soon became a working-man's pick-me-up. In the 1870s, the industrialization of roasting technology and railroads facilitated the global spread of coffee consumption. Coffee is the second most widely exported legal commodity (second only to petroleum) and Americans consume more coffee than any other nation. Over 20 million people in the world produce coffee, over fifty percent of them small, family farmers who mostly live in poverty, subject to the whim of constantly fluctuating commodity markets.

Tomato	The Aztecs deserve the credit for introducing the world to the tomato, not the Italians as many people assume. The Spanish first encountered this fruit during their conquest of Mexico in 1519. The Aztecs ground tomatoes with chilies to make salsa to accompany a wide array of dishes. Though the Spanish in Mexico enjoyed tomatoes, many Europeans considered them poisonous upon arrival because they belong to the same family as the deadly nightshade. It wasn't until the early 1800s that the poisonous myth was debunked and the tomato was adopted in Europe, particularly Italy, for its versatility in sauces and soups. Today, the tomato is one of the most popular fruits or vegetables across the globe, and the U.S. is the largest commercial producer of tomatoes in the world. Americans consume 12 million tons of tomatoes annually, both fresh and, most often, in processed foods like ketchup.
Collard greens	Collard greens (*Brassica oleracea acephala*) are often thought to have African origins, but these greens originate in Asia. They eventually spread through Europe, and the Greeks and Romans grew kale and collards in domestic gardens over 2,000 years ago. The leafy greens may have made it to Africa through Roman and Greek trade networks. But historic documents show that collards were brought to Central Africa during the Trans Atlantic Slave Trade. Central Africa had a climate that supported a continuous variety of edible greens from both cultivated and wild plants and these greens were an important part of people's diets. As early slave forts sprung up on the eastern coast of Africa via Portuguese traders, these traders established gardens to supply their dietary needs. Kale and colewort (collard) were frequently mentioned in letters and records of slave forts and their gardens. The seeds and plants left the fort gardens and made their way into what is now Ghana, Angola, Senegal and Nigeria, and to the Americas. As enslaved laborers prepared greens with seasonings and a bit of meat, the consumption of collards, and with them—turnip, kale, rape, mustard, and other greens, became a healthy blend of tastes—Asian, Portuguese, Central African, and Southern.
Corn	Corn is native to Mexico. It was first cultivated 7,000 years ago and rapidly spread throughout the Americas to become a staple of the Mayan, Aztec, and Incan civilizations as well as the Mississippi Period Indians of the southeastern United States. People relied heavily on corn for a primary source of energy and prepared it by boiling the ears or grinding the kernels into meal, which helped preserve it through the winter. When the Spaniards arrived in the Americas, they saw corn for the first time. Columbus introduced corn to Europe where it spread widely and then on to Turkey, Africa, and Asia. Many Europeans did not develop a taste for corn, but they used it to feed livestock, which increased the availability of protein sources throughout the continent. Corn continues to play a vital role in the Americas and in the midwestern United States forty percent of the world's corn is grown. Most of the corn is not eaten, but fed to livestock and used to make a variety of products, including paint and gasoline additives. Plus, cornstarch processed into syrup (high-fructose corn syrup) has surpassed sugar as a sweetener and can be found in soda and almost every processed food.

The Columbian Exchange

New World		Old World	
North America		Europe	
Central America		Africa	
South America		Asia	

1. Complete the table with the plants from each region.

Name _____ **Date** _____

Look at the "Our School Lunch Diary" and list ten plants from one of the days' lunch.

Plant	Place of Origin

2. Place a star or x on the world map indicating the place of origin for each plant.

3. List four observations that can be made from this data.

4. List three inferences that can be made from your observations.

5. What does the data say about the origin of your school lunch?

Origin of Plants

Plant	Place of Origin	Plant	Place of Origin
Almond	Asia (Southwest Asia)	Chili pepper	North America (Mexico)
Apple	Asia (Central Asia)	Cilantro/coriander	Europe, Asia, Africa (Mediterranean)
Apricots	Asia (Central Asia)	Cinnamon	Asia (Indian Subcontinent)
Artichoke	Europe/Africa (Western Mediterranean, North Africa)	Clove	Asia (Southeast Asia)
Asparagus	Asia (Eastern Mediterranean)	Coconut	Asia (Southeast Asia)
Avocado	North America (Mexico)	Coffee	Africa (Eastern Africa)
Banana	Asia and Australia (Southeast Asia and Papua New Guinea)	Collards	Europe and Asia (Eastern Mediterranean)
Barley	Asia (Middle East and Central Asia)	Corn	North America (Mexico)
Basil	Asia (Indian subcontinent)	Cranberry	North America (Northeast United States and Canada)
Beet	Europe	Cucumber	Asia (South Asia)
Black-eyed pea	Africa (West Africa)	Currant	Europe and Asia (Eastern Europe, Northern Asia)
Black pepper	Asia (Indian subcontinent)	Date	Asia (Middle East)
Blackberry	North America	Eggplant	Asia (Southeast Asia)
Blueberry	North America and Europe	Fig	Asia (Southwest Asia)
Brazil nut	South America	Garlic	Asia (Southwest Asia)
Broccoli	Europe (Northern Mediterranean)	Ginger	Asia (Southeast Asia)
Brussels sprouts	Europe	Grapes	Europe and North America
Buckwheat	Asia (East Asia)	Kale	Europe and Asia (Eastern Mediterranean)
Butter bean (Lima or Runner bean)	South America/North America	Kiwi	Asia (South Asia)
Cabbage	Europe	Lemon	Asia (Indian Subcontinent)
Cacoa/cocoa	South America	Lettuce	Africa and Asia (Eastern Mediterranean, North Africa)
Carrot	Europe and Asia (Mediterranean and Central Asia)	Lime	Asia (Southeast Asia)
Cashew	South America	Mango	Asia (Indian subcontinent)
Cauliflower	Europe	Maple sugar	North American (NE United States and eastern Canada
Celery	Asia, Europe, and Africa (Mediterranean)	Millet	Asia (East Asia)
Cherry	Asia (Eastern Mediterranean)	Mustard	Asia (Eastern Mediterranean and Indian subcontinent)
Chickpea/garbanzo bean	Asia (Middle East and Eastern Mediterranean)	Nutmeg	Asia (Southeast Asia)

Plant	Place of Origin		Plant	Place of Origin
Oats	Europe		Rosemary	Europe/Asia (North Mediterranean)
Okra	Africa and Asia		Sesame	Asia (Indian Subcontinent)
Olive	Asia (Eastern Mediterranean)		Sorghum	Africa (North Africa)
Onion	Asia (Central Asia)		Soybean	Asia (East Asia)
Orange	Asia (South Asia)		Spinach	Asia (South Asia)
Oregano	Asia		Squash	North and South America
Papaya	North America (Mexico)		Strawberry	North America
Parsley	Europe and Asia (North and East Mediterranean)		Sugar cane	Asia (South and Southeast Asia)
Passion fruit	South America		Sunflower	North and South America
Peach	Asia (Central Asia)		Sweet pea	Europe (Western Mediterranean)
Peanut	South America		Sweet potato	South America
Pear	Europe (Western Europe)		Tea	Asia (East Asia)
Pecan	North America (Southern United States)		Thyme	Asia/Africa/Europe (Mediterranean)
Pineapple	South America		Tomato	South America
Pistachio	Asia (Eastern Mediterranean)		Turnip	Europe and Asia
Pomegranate	Asia (Eastern Mediterranean)		Vanilla	North America (Mexico)
Potato	South America		Walnut	North America and Asia
Quinoa	South America		Watermelon	Africa (North Africa)
Radish	Europe		Wheat	Asia (Eastern Mediterranean)
Raspberry	North America/Asia/Europe		Yam	Asia and Africa
Rhubarb	Asia (Central and East Asia)		Zucchini	North and South America
Rice	Asia (East Asia or Indian Subcontinent)			

Hoppin John Recipe

Ingredients:

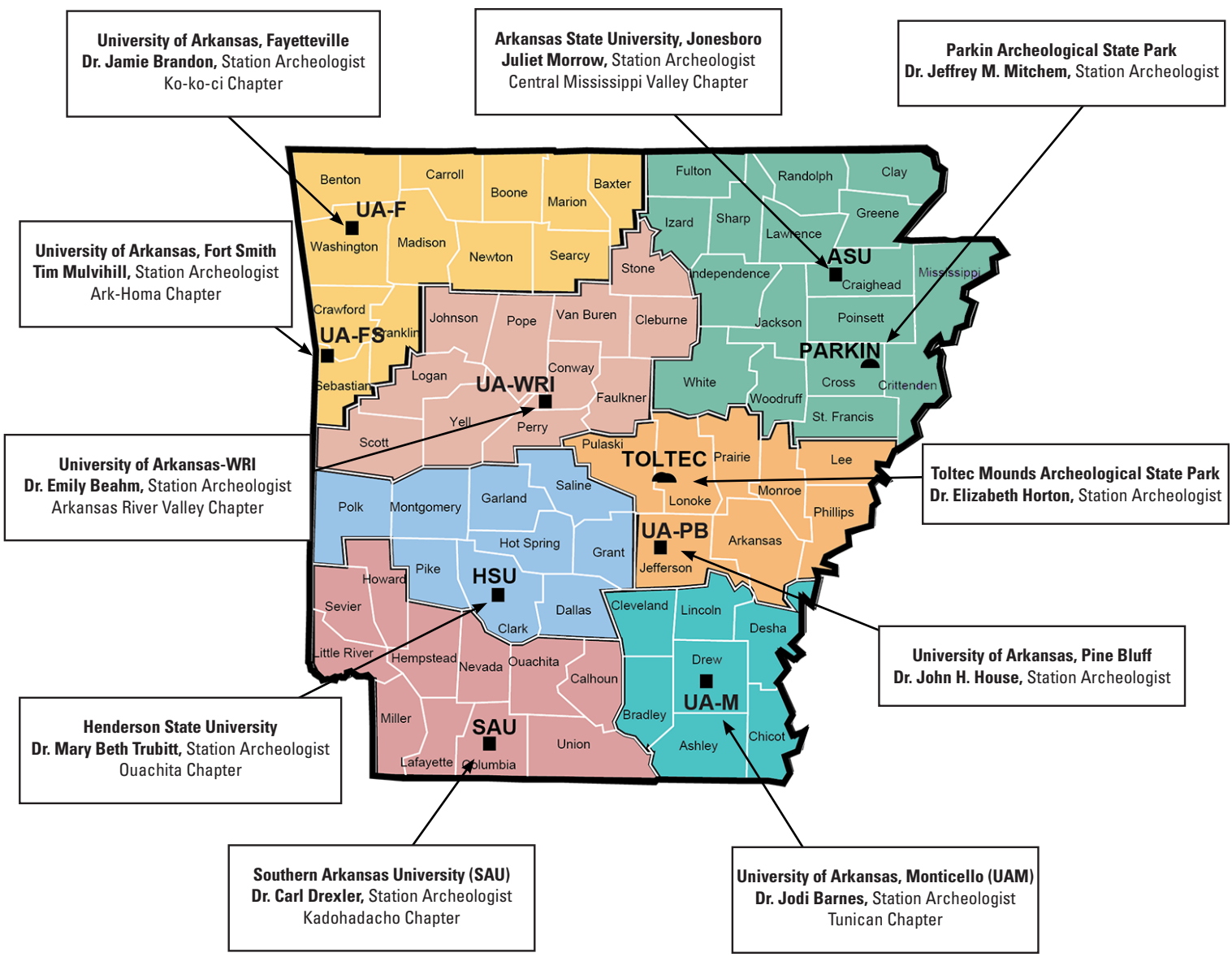
2 cups field peas	1 slice bacon
1-2 cloves garlic, minced	1 small onion, diced
1/4 cup celery, diced	1/4 cup carrot, diced
3 cups chicken or vegetable stock	1 bay leaf
1/4 teaspoon dried thyme	1/4 teaspoon dried basil
1/4 teaspoon pepper	pinch of red pepper
1 teaspoon salt, or to taste	2 cups rice
1/4 cups diced tomato	1 small bunch of chives, chopped

Instructions:

Soak peas overnight in hot tap water. Use three times as much water as dried peas. Cook bacon in heavy saucepan. Add garlic, onion, celery, and carrots and sauté until tender. Add drained peas, chicken or vegetable stock, herbs, and spices (except salt). Simmer until peas are tender. Gently bring everything to a boil, add salt and rice and cover. Reduce heat to low after it returns to a boil—do not open lid. Remove from heat after 17 minutes and let sit for another 10 minutes, covered. Mix in diced tomatoes and chives, and it's ready to serve.

Learn More About Archeology

Arkansas Archeological Survey Research Stations & Chapters of the Arkansas Archeological Society



Websites of interest

Arkansas Archeological Society - arkarch.org
Arkansas Archeological Survey - http://archeology.uark.edu
Arkansas Novaculite - http://archeology.uark.edu/novaculite/index.html
Indians of Arkansas - http://archeology.uark.edu/indiansofarkansas/index.html
Rock Art in Arkansas - http://archeology.uark.edu/rockart/index.html
Bluff Shelters of the Arkansas Ozarks - http://archeology.uark.edu/ozarkbluffshelters/
Dig, the Archeology magazine for kids - digonsite.com

Visit museums of history and archaeology in Arkansas

Northwest Arkansas
· Altus Heritage House Museum, Altus
· Baxter Heritage Museum, Gassville
· Bella Vista Historical Museum, Bella Vista
· Boone County Heritage Museum, Harrison,
· Carroll County Heritage Museum, Berryville
· Fort Smith Museum of History, Fort Smith
· Fort Smith National Historic Site, Fort Smith
· Gravette Historical Museum, Gravette
· Pea Ridge National Military Park, Garfield
· Prairie Grove State Park, Prairie Grove

Northeast Arkansas
· Central Delta Depot Museum, Brinkley
· Davidsonville Historic State Park, Pocahontas
· Delta Cultural Center, Helena
· Hampson Archeological Museum State Park, Wilson
· Parkin Archeological State Park, Parkin
· Powhatan Historic State Park, Powhatan

Southeast Arkansas
· Arkansas Post National Memorial, Gillett
· Arkansas Post State Park, Gillett
· Drew County Historical Museum, Monticello
· Japanese Internment Museum, McGehee
· Lakeport Plantation, Lake Village

Southwest Arkansas
· Arkansas Museum of Natural Resources, Smackover
· Dallas County Museum, Fordyce
· Historic Washington State Park, Washington
· Hot Springs National Park, Hot Springs

Central Arkansas
· Gran County Museum, Sheridan
· Historic Arkansas Museum., Little Rock
· Jacksonport State Park, Washington
· Petit Jean State Park, Morrilton
· Toltec Mounds Archeological State Park, Scott

Bibliography

Achieving Scientific Literacy through Archeology

Arkansas Department of Education (2014). Grades 5-6 Social Studies Curriculum Framework. Arkansas Department of Education, Little Rock, AR.

Bybee, R.. W. (1997). *Achieving Scientific Literacy: From Purposes to Practice*. Heinemann, Westport, CT

Bransford, J. D. A. L. Brown, and R. Cocking, Eds. (1999). *How People Learn: Brain, Mind, Experience, and School*. National Academy Press, Washington, DC.

Erickson 2001:160

Malloy, Maureen, and Patrice L. Jeppson (2009). Public Outreach Efforts at SAA: Collaborating for Effective Community Engagement. *The Archaeological Record* 9(4):30-32.

Moe, J. M. (2011). Conceptual Understanding of Science through Archeological Inquiry. Unpublished Ph.D. Dissertation, Montana State University, Bozeman.

---. (2000). Archaeology and Values: Respect and Responsibility for Our Heritage. In The Archaeology Education Handbook: Sharing the Past with Kids, edited by K. Smardz and S. J. Smith, pp. 249-266. Altamira Press, Walnut Creek, CA.

Moe, J. M., K. Fink, C. Coleman, and K. Krejs (2002). Archaeology, Ethics, and Character: Using Our Cultural Heritage to Teach Citizenship. *The Social Studies* 93(3):109-112.

Smardz, K. and S. Smith, Eds. (2000). *The Archaeology Education Handbook: Sharing the Past with Kids*. AltaMira Press, Walnut Creek, CA.

Wiggins, G. and J. McTighe (1998). *Understanding by Design*. The Association of Supervision and Curriculum Development, Alexandria, VA.

Lesson One: Archeology Is about People

Letts, C. A. and J. M. Moe (2012) *Project Archeology: Investigating Shelter*. Project Archaeology, Montana State University, Bozeman.

Agenten, C. L., C. A. Letts, and J. M. Moe (2015). *Project Archaeology: Investigating Nutrition*. Project Archaeology, Montana State University, Bozeman.

Lesson Two: Foraging Foodways

Anderson, Jay A. (1971). The Study of Contemporary Foodways in American Folklife Research. *Keystone Folklore Quarterly* 16:255-156.

Early, Ann (2013). History of Prehistoric Arkansas Cuisine. *Arkansauce* (3):6-8.

Fritz, Gayle J. (1986). Prehistoric Ozark Agriculture: The University of Arkansas Rockshelter Collections. Unpublished Ph.D. Dissertation, Department of Anthropology, University of North Carolina Chapel Hill.

Hilliard, Jerry E. (1980). Prehistoric Ozark Settlement-Subsistence and Nut Resource Utilization. Unpublished Masters Thesis. University of Arkansas Department of Anthropology, Fayetteville.

Lockhart, Jami L. and George Sabo III (2001). Archeogeophysics at Rockhouse Cave (3CN20). Rock Art in Arkansas website; manuscript on file, Arkansas Archeological Survey.

Parmalee, Paul W., R. Bruce McMillan, and Frances B. King (1976). Changing Subsistence Patterns at Rodgers Shelter In *Prehistoric Man and His Environments: A Case Study in the Ozark Highland*, pp. 141-161. Academic Press, New York.

Sabo, George III (1987). Gimme Shelter: Test Excavations at Rockhouse Cave (3CN20) in Petit Jean State Park. *Field Notes: Newsletter of the Arkansas Archeological Society* 214:8-12.

----. (2008). Indians of Arkansas. Arkansas Archeological Survey, Fayetteville. Electronic resource, http://archeology.uark.edu/indiansofarkansas/index.html

Schambach, Frank and Leslie Newell (1990). *Crossroads of the Past: 12,000 Years of Indian Life in Arkansas*. Popular Series No. 2. Arkansas Archeological Survey, Fayetteville.

Smith, Bruce D. (2006). Eastern North America as an Independent Center of Plant Domestication. *Proceedings of the National Academy of Science* 103(33):12223-12228.

University of North Carolina Research Laboratories of Archaeology (2016). Archaeobotany: Intrigue of the Past. LEARN North Carolina. Electronic resource, www.learnnc.org/lp/editions/intrigue/1009.

World History for Us All (2016). Be the first to practice domestication: An archaeology-based simulation. Big Era Three: Landscape Unit 3.1. World History for Us All, National Center for History in the Schools, Los Angeles. Electronic resource, http://worldhistoryforusall.sdsu.edu/units/three/landscape/Era03_landscape1.php

Lesson Three: First Gardens

Early, Ann (2013). History of Prehistoric Arkansas Cuisine. *Arkansauce* (3):6-8.

Fritz, Gayle (1994) In Color and in Time: Prehistoric Ozark Agriculture. In *Agricultural Origins and Development in the Mid continent*, edited by William Green, pp. 105-126. University of Iowa, Office of the State Archaeologist, Iowa City.

Gremillion, Kristin (2011). *Ancestral Appetites*. Cambridge University Press.

Horton, Elizabeth (2015). Plum Bayou Garden. *Field Notes: The Newsletter of the Arkansas Archeological Society* 386(Sept/Oct):13-14.

Johannssen, Sissel (1993). Farmers of the Late Woodland. In *Foraging and Farming in the Eastern Woodlands*, edited by Margaret Scarry, pp 57-77, University Press of Florida, Gainesville, FL.

Rolingson, Martha (2012). *Toltec Mounds: Archeology of the Mound Plaza Complex*. Research Series No. 65. Arkansas Archeological Survey, Fayetteville.

Smith, Bruce D. (2006). Eastern North America as an Independent Center of Plant Domestication. *Proceedings of the National Academy of Science* 103(33):12223-12228.

---- (2006a). Seed Size Increase as a Marker of Domestication in Squash (*Cucurbita pepo*). In *Documenting Domestication: New Genetic and Archaeological Paradigms*, edited by M. A. Zeder, D. G. Bradley, E. Emshwiller, and B. D. Smith, pp. 25-31. University of California Press, Berkeley.

Lesson Four: Changing Gardens and Evolving Fields

Barnes, Mark R. (1997). National Historic Landmark Boundary Study of Parkin National Park Service, Washington, DC.

Delaney, C. L. (2004). *Investigating Culture*. Blackwell, Oxford.

Doty, R., R. Green, T. Grove, P. J. Johnson, C. Keen, K. R. Kimery, C. Kotcho, N. McCoy, P. Molholm, H. Morrison, H. Paisley-Jones, S. T. Perich, J. Wei, W. H. Yeingst (ND). *Engaging Students with Primary Sources*. Kenneth E. Behring Center, Smithsonian Institute, National Museum of American History, Washington, DC.

Lynott, Mark J., Thomas W. Boutton, James E. Price, and Dwight E. Nelson (1986). Stable Carbon Isotopic Evidence for Maize Agriculture in Southeast Missouri and Northeast Arkansas. *American Antiquity* 51(1):51–65.

Mitchem, Jeffrey M. (1994). The Palisade and Protohistoric Structures at Parkin: 1994 Season. Paper presented at the 51st Annual Meeting of the Southeastern Archaeological Conference, Lexington, KY.

----. (1995). Village Life in Parkin in the 1500s. Paper presented at the 52nd Annual Meeting of the Southeastern Archaeological Conference, Knoxville, TN.

---- (1996a). Investigations of the Possible Remains of De Soto's Cross at Parkin. *The Arkansas Archeologist* 35: 87-95.

---- (1996b). The 1996 Field Season at Parkin Archeological State Park. Paper presented at the 53rd Annual Meeting of the Southeastern Archaeological Conference, Birmingham, AL.

----. (1997). A Quiet, Normal Field Season:1997 Excavations at Parkin. Paper presented at the 54th Annual Meeting of the Southeastern Archaeological Conference, Baton Rouge, LA.

Morse, Phillis A. (1990). The Parkin Site. In *Towns and Temples Along the Mississippi*, edited by David H. Dye and Anne E. Cox, pp. 118-134. The University of Alabama Press, Tuscaloosa.

Payne, Claudine (2014). Mississippian Period. The Encyclopedia of Arkansas History and Culture. Electronic resource, http://www.encyclopediaofarkansas.net/encyclopedia/entry-detail.aspx?entryID=544

Sabo, George III (2008). Indians of Arkansas. Arkansas Archeological Survey, Fayetteville. Electronic resource, http://archeology.uark.edu/indiansofarkansas/index.html

Scarry, Margaret C. and Elizabeth J. Reitz (2005). Changes in Foodways at the Parkin Site, Arkansas. *Southeastern Archaeology* 24(2):107-120.

Lesson Five: Stability and Change in Early Colonization

Alexander, Rani T. (1998). Afterword: Toward an Archaeological Theory of Culture Contact. In *Studies in Culture Contact: Interaction, Culture Change, and Archaeology*, edited by James G. Cusick, pp. 476-495. Center for Archaeological Investigations, Occasional Paper No. 25. Southern Illinois University, Carbondale.

Clayton, Lawrence A., Vernon James Knight, Jr., and Edward C. Moore, Editors (1993). *The De Soto Chronicles: The Expedition of Hernando de Soto to North American in 1539-1543*. University of Alabama Press, Tuscaloosa.

Doty, R., R. Green, T. Grove, P. J. Johnson, C. Keen, K. R. Kimery, C. Kotcho, N. McCoy, P. Molholm, H. Morrison, H. Paisley-Jones, S. T. Perich, J. Wei, W. H. Yeingst (ND). *Engaging Students with Primary Sources*. Kenneth E. Behring Center, Smithsonian Institute, National Museum of American History, Washington, DC

Ethridge, Robbie (2003). *Creek Country: The Creek Indians and Their World*. University of North Carolina Press, Chapel Hill.

Ferguson, Leland (1992). *Uncommon Ground: Archaeology and Early African America, 1650-1800*. Smithsonian Institution Press, Washington, D. C.

Foster, Howard Thomas (2007). *Archaeology of the Lower Muskogee Creek Indians, 1715-1836*. University of Alabama Press, Tuscaloosa.

Foster, William C., Editor (1998). *The La Salle Expedition to Texas: The Journal of Henri Joutel, 1684-1687*. Texas State Historical Association, Austin.

Franklin, Maria (2004). *An Archaeological Study of the Rich Neck Slave Quarter and Enslaved Domestic Life*. Colonial Williamsburg Research Publications. The Dietz Press, Richmond.

Hawke, Sharryl Davis and James E. Davis (1992). *Seeds of Change: The Story of Cultural Exchange after 1492*. Addison-Wesley Publishing Company, Menlo Park.

Key, Joseph Patrick (2014). European Exploration and Settlement, 1541 through 1802. The Encyclopedia of Arkansas History and Culture. Electronic resource, http://www.encyclopediaofarkansas.net/encyclopedia/entry-detail.aspx?entryID=2916

Silliman, Stephen (2005). Culture Contact or Colonialism? Challenges in the Archaeology of Native North America. *American Antiquity* 70(1):55-74

Many People/Many Plates

Berlin, Ira (1998). *Many Thousands Gone: The First Two Centuries of Slavery in North America*. Belknap Press of Harvard University Press, Cambridge.

Franklin, Maria (2004). *An Archaeological Study of the Rich Neck Slave Quarter and Enslaved Domestic Life*. Colonial Williamsburg Research Publications. The Dietz Press, Richmond.

Hawke, Sharryl Davis and James E. Davis (1992). *Seeds of Change: The Story of Cultural Exchange after 1492*. Addison-Wesley Publishing Company, Menlo Park.

McNeill, J.R. (2008). The Columbian Exchange. LEARN North Carolina, School of Education, University of North Carolina, Chapel. Electronic document, http://www.learnnc.org/lp/editions/nchist-twoworlds/1866

Mintz, Sidney (1985). *Sweetness and Power: The Place of Sugar in Modern History*. Viking-Penguin, New York.

Mintz, Sidney and Richard Price (1992). *The Birth of African-American Culture: An Anthropological Perspective*. Beacon Press, Boston.

Mitchell, Peter (2005). *African Connections: Archaeological Perspectives on Africa and the Wider World*. AltaMira Press, Walnut Creek, CA.

Pendergrast, Mark (1999). *Common Grounds*. Basic Books, New York.

Samford, Patricia M. (2007). *Subfloor Pits and the Archaeology of Slavery in Colonial Virginia*. University of Alabama Press, Tuscaloosa.

Schlosser, Eric (2001). *Fast Food Nation*. Houghton Mifflin, New York.

Smith, Andrew F. (1994). *The Tomato in America*. University of South Carolina Press, Columbia.

Twitty, Michael (2015). Barbecue is an American tradition – of enslaved Africans and Native Americans. *The Guardian*, July 4. Electronic resource, https://www.theguardian.com/commentisfree/2015/jul/04/barbecue-american-tradition-enslaved-africans-native-americans?CMP=share_btn_tw

About the authors

Jodi A. Barnes wanted to be a fashion designer when she was in high school. She moved to Dallas, Texas to attend a fashion college after high school. But the world of fashion wasn't for her. When she started pursuing an undergraduate degree a couple of years later, she majored in journalism thinking it would be cool to write for *National Geographic*. And that's where she found anthropology. She volunteered on archeology projects and has not gotten over the thrill of holding something that has been in the ground for hundreds or only a few years.

She has done field and lab work for projects as far away as Belize, Guatemala, Argentina, and Ghana and as nearby as Monticello, Arkansas. She received my B.A. in Anthropology from the University of South Carolina and her Ph.D. from American University in Washington, DC. Currently, Jodi is the Station Archeologist at the University of Arkansas at Monticello Research Station of the Arkansas Archeological Survey. She teaches anthropology and archeology classes, does public outreach, conducts research, publishes her results. It is still hard for her (and her parents) to believe that the girl who wanted to be a fashion designer digs in the dirt for a living. She loves getting her hands dirty, but she thinks the coolest part of archeology is not the dirt or the things, but putting the pieces of the puzzle together.

Emily Beahm is the Station Archeologist at the Winthrop Rockefeller Institute station on beautiful Petit Jean Mountain. She does archeological research, cares for the artifact and record collections that are housed at her station, and does public outreach. Emily grows native gardens at her station to teach people about foodways. She also gives rock art tours to visitors of Petit Jean Mountain, including to Rockhouse Cave.

Emily grew up in Tennessee and did her undergraduate work at Middle Tennessee State University. She earned her Ph.D. from the University of Georgia in 2013. Her dissertation focused on the Mississippian period occupation along the Cumberland River in Tennessee. Before moving to Arkansas, Emily spent seven years studying the Castilian Springs Mound site in north-central Tennessee. Her research interests include Mississippian iconography, coalescent communities, and political organization. She also likes to do research with historical documents, and most of all explore Native American lifeways through experimental archeology.

Elizabeth Horton grew up in southern Missouri and completed her Ph.D. in archeology at Washington University in St. Louis in 2010 with an Arkansas-related dissertation topic—The Ties that Bind; Prehistoric Fabric Production and Fiber Use in the Ozark Plateau. Her M.A. (2003) was also from Washington University and she received her B.A. in Cultural Anthropology in 1996 from Webster University. She is both an archaeologist and a paleoethnobotanist, and her research is in prehistoric plant use, especially for textiles and basketry. Elizabeth is the station archeologist for the Arkansas Archeological Survey's Toltec Mounds Research Station where, in addition to her research, she works with Arkansas State Parks to manage the site and develop interpretative programs. She also maintains the Plum Bayou Garden for park visitors and for her ongoing experimental research into Woodland period agroecology.

George Sabo III. After completing a dissertation on Baffinland Inuit adaptations to the ecological impacts of long-term climate changes, George Sabo left the land of snow, ice, and polar bears to join the Arkansas Archeological Survey and Anthropology Department in 1979. He became Director of the Arkansas Archeological Survey in 2013. His research centers on human/environment relationships, expressive culture (art and ritual) among Southeastern Indians from pre-contact to modern times, American Indian interactions with European explorers and colonists in the Southeast, and the anthropology of history in modern Caddo, Osage and Quapaw communities in Oklahoma.