

# LESSON 3

## It's a Matter of Time

### OBJECTIVES

- Recognize and understand how human culture has changed and adapted to the environment in Petrified Forest National Park over the last 10,000 years;
- Understand food, houses, stone tools, and other goods used during different time periods; and
- Develop process skills for recognizing and understanding human activities in the past.

### MAIN IDEA

To learn how people survived and how culture changed during different time periods.

### ESSENTIAL SKILLS

- writing
- cooperating
- decision making
- comparing
- analyzing
- classifying
- generalizing

### MATHEMATICAL SKILLS

- organizing data

### MATERIALS

- student journals

### PAGES TO PHOTOCOPY





- *Archeological Time Periods* pages 23-24
- *Culture Items* page 27
- *Culture Characteristics* worksheet page 28

The following table aligns this lesson with the Arizona Science Standards (5-24-04). Most curriculum connections shown are implicit within the lesson. Others are achieved through teacher interaction with the class, including discussion of the background information provided. Teachers are encouraged to expand on the lesson to increase its potential as an educational tool and a fun learning experience.

<b>CURRICULUM CONNECTIONS: ARCHEOLOGY LESSON 3 IT'S A MATTER OF TIME</b>					
Arizona Science Standards (5-24-04)					
	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Strand 1: Inquiry Process	C2-PO5 C3-PO1 C4-PO1	C2-PO5* C3-PO1 C4-PO1*	C2-PO5 C3-PO1 C3-PO3 C4-PO5	C1-PO3 C2-PO5* C3-PO1* C3-PO3 C3-PO4 C3-PO5 C3-PO6 C4-PO5*	C2-PO5* C3-PO1* C3-PO5 C4-PO5*
Strand 2: History & Nature of Science	C1-PO2*	C2-PO1 C2-PO3	C1-PO4 C2-PO1 C2-PO2 C2-PO3	C1-PO4 C2-PO1* C2-PO2* C2-PO3*	C1-PO4 C2-PO1* C2-PO2*
Strand 3: Science in Personal & Social Perspectives	C1-PO1 C1-PO2 C2-PO1 C2-PO2	C1-PO1 C1-PO2 C1-PO3	C1-PO2	C1-PO1 C1-PO3	
Strand 4: Life Science	C3-PO2 C3-PO3 C3-PO4		C3-PO2	C3-PO3 C3-PO4 C3-PO5	C4-PO1
* repetition of a performance objective from an earlier grade level					

## INTRODUCTION

Culture is defined by a shared knowledge of human behavior, customs, values, ways of doing things and technology. The study of culture is known as anthropology, which has four subdisciplines:

-  **physical anthropology** - the biological study of humans
-  **linguistics** - the study of language
-  **cultural anthropology** - the study of modern human cultures
-  **archeology** - the study of past human cultures

Archeologists have traditionally defined past cultures on the basis of artifacts and other evidence of life as well as environmental adaptations. Archeologists study how and why cultures change over time.

## LESSON FRAMEWORK

### 1. Terminology

A list of defined terms for teachers.

### 2. Archeological Time

Background information for teachers about archeology and archeological time periods occurring in the Southwest.

### 3. Activity: *Reading Assignment*

A student activity that familiarizes students with the different archeological time periods occurring in the Southwest.

### 4. Activity: *Cultural Match-Up*

An in-class student activity in which students match identifying artifacts and features to their correct archeological time periods.

## TERMINOLOGY

**ancestral Puebloan people** - a term given to people living in the Four Corners region of the Southwest from approximately 1,200-600 years ago (A.D. 800-A.D. 1400); formerly called "Anasazi," often translated as "ancient enemies," the name has changed out of respect for the modern descendants of these ancient people

**anthropology** - a science that holistically studies human cultures, behavior, and technology, both existing and extinct

**Archaic Period** - an archeological time period assigned to nomadic hunting and gathering people. In the Southwest this time period dates from 8,000-2,500 years ago (6000 B.C.-500 B.C); marks the development of agriculture in the Southwest

**atlatl** - a tool used in spear throwing that lengthened the extension of the human arm to throw a spear harder, faster, and with better accuracy

**Basketmaker Period** - an archeological time period assigned to prehistoric cultures of the Southwest dating from 2,500-1,200 years ago (500 B.C.-A.D. 800), named for the basketry found; people lived in pithouses and other forms of more permanent housing, primarily making their living from agriculture, hunting, and gathering

**ceramic styles** - recognizable patterns on prehistoric pottery or ceramics that can be assigned to archeological time periods of popular use

**culture** - a socially shared knowledge of beliefs, customs, technology, and behavior of a group of people.

**Folsom point** - a long, fluted projectile point distinctive of the Paleo-Indian time period

**kiva** - an underground ceremonial chamber used by ancestral Puebloan people for meetings, rituals, weaving, making tools and clothing, storytelling, and instruction of children; still used today by modern Puebloan people

**mano** - a groundstone object held in the hands that is used to grind corn or other seeds into meal.

**metate** - the groundstone upon which plant material and corn is ground

**Paleo-Indian Period** - an archeological time period assigned to prehistoric cultures from 11,500-8,000 years ago (9500 BC-6000 BC) when people were hunting big game (mammoths, horses, camels, etc.) and gathering wild plants

**pithouse** - a structure with a foundation built into the ground with walls and roof reinforced by small tree trunks, branches, and mud; entry was either through a hole in the roof or through a long, narrow entry ramp

**pueblo** - masonry structure or group of structures, from the Spanish term meaning town or village; refers to a specific culture or site when capitalized

**quarry** - in an archeological context, a place where stone was obtained for the purpose of manufacturing stone tools; tools were often started at the quarry so that they would be easier to carry to another site for completion

## ARCHEOLOGICAL TIME

The archeology of Petrified Forest National Park tells us much about human adaptation in a difficult and sometimes harsh environment. People have been coming to the area for thousands of years to hunt, gather wild foods and medicines, obtain resources like petrified wood to make tools, grow domesticated crops, and for ceremonial reasons. Many archeological sites are located on the grasslands and mesas of the lower Puerco River where loam, sand, and clay soils could have supported plants, wildlife, and domesticated crops. These resources were vital to the existence of the people.

The region along the lower Puerco River is considered by archeologists to be a contact area for the ancestral Pueblo people and the Mogollon cultures. This interaction among people is based on pottery designs, ceramic styles and petroglyphs that have been found in and around the park. Archeological time periods represented at the park include:

- 🕒 **Paleo-Indian** (9500 B.C.-6000 B.C.)
- 🕒 **Archaic** (6000 B.C.-500 B.C.)
- 🕒 **Basketmaker** (500 B.C.-A.D. 800)
- 🕒 **Pueblo** (A.D. 800-A.D. 1400)
- 🕒 **Modern American Indian** (A.D. 1400-present)



# READING ASSIGNMENT

## TEACHER INSTRUCTIONS

### OBJECTIVE

To familiarize students with archeological time periods found in the Southwest.

### Main Idea

By reading through the information provided, students will have a better understanding of how cultural changes over time defined the characteristics of archeological time periods found in the Southwest.

### MATERIALS

- copies of *Archeological Time Periods* - one per person

### PROCEDURE

1. Divide students into their cooperative groups and provide each student with an information sheet.
2. Each member in a group will become the “expert” on one of the archeological time periods. They should read the information carefully, identifying what artifacts and features represent that time period. They can underline the identifying information on their handout, or they can write it down in their journal.
3. Each person will then share what they know about their time period with the rest of the group.
4. Discuss the material with the entire class in the context of cultural change. Each archeological time period is defined by a change in technology and behavior, as evidenced by artifacts and features found. These changes represent a change in *culture* (way of life) over time. Here are some questions to keep the discussion going:
  - How would you define culture?
  - What identifies your culture today?
  - How many different cultures are there in this classroom? in this school? in this town?
  - Name two ways in which you are similar in culture to your parents and/or grandparents.
  - Name two ways in which you are different in culture from your parents and/or grandparents.
  - Is your culture changing?

# ARCHEOLOGICAL TIME PERIODS

## PALEO-INDIAN

The Paleo-Indian time period dates from 11,500-8,000 years ago (9500 B.C.-6000 B.C.) and marks a time of great migrations. Paleo-Indians traveled in groups gathering wild food and hunting big game animals such as mammoth, giant sloth, and large bison. Hunting was done with spears tipped with long, fluted projectile points which archeologists call Folsom points. Little evidence of Paleo-Indian life exists because of their migratory lifestyle.

Archeological sites include kill sites and camps in natural rock shelters or tents made of hides or brush. At this time, no kill or camp sites have been documented at Petrified Forest National Park. However, several Folsom points have been found in the park, including at least one made of petrified wood dating to over 10,000 years ago (before 8000 B.C.).



## ARCHAIC

The Archaic time period dates from 8,000-2,500 years ago (6000 B.C.-500 B.C.) and marks a change in how people used the land. The Archaic people used a wide variety of native plant resources and began to hunt smaller animals. Instead of following big game during migrations, the people moved by the seasons, when plants like ricegrass, prickly pear, and pinyon pine were available and ripe. Smaller spears and points were made to hunt smaller game such as pronghorn, rabbits, and birds. Hunters also began using a spear thrower called an atlatl that helped them throw farther and with better accuracy. People returned to the same areas year after year to gather plant resources. Several Archaic camps have been found at Petrified Forest National Park.



## BASKETMAKER

The Basketmaker time period dates from 2,500-1,200 years ago (500 B.C.-A.D. 800) and marks a time of rapid population growth in the Southwest due to the introduction of farming. Farming requires planting, care, harvest, and storage of products. People lived in more permanent structures, such as pithouses, built close to farm land. Pithouses were homes built into shallow or deep pits in the ground, roofed with poles tied together, and covered with thick brush and mud. They contained the tools and features necessary to plant, care for, harvest, cook, and store domesticated corn, beans, squash, and wild plant foods. The term Basketmaker comes from the finely woven baskets found at archeological sites. Their baskets were used for cooking and storing harvested and farmed plant products. Early forms of pottery were also developed during this time period.



### PUEBLO

The Pueblo time period dates from 1,200-600 years ago (A.D. 800-A.D. 1400) and marks the continued growth and development of a culture based on farming. Pottery also became much more complex. People began to construct pueblos as year-round dwelling structures. These above ground, stone-walled rooms were arranged like villages, with storage rooms for storing food, an open activity area in the middle called the plaza, underground rooms called kivas, and outer-lying field houses for shelter and tool storage. Most pueblo dwellings at Petrified Forest National Park face the south or southeast and are found on hilltops and ridgelines.



During Pueblo times there was more contact with other people living throughout the Southwest. This was in the form of trade for information, pottery, food, and raw materials such as petrified wood, shell, and turquoise. Archeologists study trade patterns and objects to better understand prehistoric social interactions and economic systems.

A popular pueblo within the park is Agate House in the Rainbow Forest. This structure was partially reconstructed in the 1930's by the Civilian Conservation Corps under the guidance of an archeologist and is listed on the National Register of Historic Places for its significance in understanding prehistory in the area. The walls in the eight room pueblo are unique - they are made of petrified wood.

Another structure in the park is Puerco Pueblo, listed on the National Register of Historic Places for its significance in understanding prehistory in the area. The Pueblo may have 100 rooms. It was one story tall, but sometimes two to three rooms deep, with at least three kivas. The entire Pueblo was not built at the same time. Evidence shows a time of rapid population growth, perhaps through immigration, resulting in the final size of the village. The rooms surround a large plaza. Up to 200 people could have lived in this village. Near the Pueblo are trash deposits, petroglyph panels, and a petrified wood quarry.

### MODERN AMERICAN INDIAN

The Modern American Indian tradition includes possible descendents of the ancestral Puebloan people, including the Hopi, Zuni, and Rio Grande people. These modern people have stories and traditions that include their emergence into this world and clan migrations. The tribes consider prehistoric dwellings in the Southwest to be the remains of their ancient migrations. The sites of the ancestral Puebloan people still have meaning for modern Pueblo people. These places are sacred and on traditional land and should be respected and preserved.



The Navajo, or Diné, are different from the Pueblo people. During prehistoric time they lived as hunter-gatherers. However, they learned new technologies, such as weaving and farming, from their neighbors. The Navajo have sacred and traditional land and stories about their people and the journeys they made. Some stories include the region around Petrified Forest National Park. Current archeological evidence indicates that the earliest Navajo site in the park was used as a seasonal winter home during the 1700s.



# CULTURAL MATCH-UP

## TEACHER INSTRUCTIONS

### OBJECTIVE

To encourage student understanding of the cultural characteristics that define archeological time periods found in the Southwest.

### MAIN IDEA

By completing a matching activity, students better understand the cultural characteristics that define the archeological time periods found in the Southwest.

### MATERIALS

- copies of *Culture Items* - one per person
- copies of *Culture Characteristics* - one per person

### PROCEDURE

1. Divide students into their cooperative groups and provide each student with both worksheets.
  2. Using the information they learned during the reading assignment, students will fill in the *Culture Characteristics* table from the lists given on the *Culture Items* page.
    - All items should be used and all boxes should have something in them.
    - Several items will often be included in a box.
    - More than one item may apply to more than one box.
  3. An example of appropriate answers are given on the next page. These are not conclusive, but merely suggested! Some items on the list are not mentioned in the reading material. Tell students to make their best *educated* guess (hypothesis)!
  4. Conduct a class discussion of the completed tables in the context of cultural change. Here are some questions to get you started.
    - What artifacts are different between Archaic time and Paleo-Indian time?
    - What difference in lifestyle (behavior) separates Basketmaker time from Archaic time?
    - What technology was most advanced in Pueblo time?
    - During which time period did farming become an important part of the ancient people's lifestyle?
    - During which time period did trade become an important part of the ancient people's lifestyle?
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# CULTURE CHARACTERISTICS - ANSWERS

	LIFESTYLE	LIVING AREAS	FOOD STUFF	STONE TOOLS	OTHER MATERIALS
<b>PALEO-INDIAN</b>	big game hunters	cave shelters kill sites camp sites quarries	fruits, nuts mammoths bison giant sloth	petrified wood scrapers stone knives spears hammerstones folsom points	fire starting kits bone awls for sewing animal skins antlers, horns, claws
<b>ARCHAIC</b>	hunters & gatherers	cave shelters kill sites camp sites quarries	grass seeds roots, tubers leaves, fruits nuts pronghorn rabbits birds prairie dogs	petrified wood scrapers stone knives spears hammerstones projectile points atlatl manos & metates	fire starting kits bone awls for sewing animal skins antlers, horns, claws bows & arrows
<b>BASKET-MAKER</b>	basketmakers potters farmers builders	pithouses quarries	grass seeds roots, tubers leaves, fruits nuts, corn beans, squash mule deer pronghorn rabbits lizards, snakes birds prairie dogs	petrified wood scrapers stone knives spears hammerstones projectile points atlatl manos & metates	fire starting kits bone awls for sewing animal skins antlers, horns, claws moccasins bows & arrows baskets grass mats pottery, rope woven sandals
<b>PUEBLO</b>	potters farmers basketmakers traders builders	stone-wall pueblos quarries	grass seeds roots, tubers leaves, fruits nuts, corn beans, squash mule deer pronghorn, rabbits lizards, snakes birds, horses wild turkey prairie dogs	petrified wood scrapers stone knives spears hammerstones projectile points atlatl axes hoes manos & metates	fire starting kits bone awls for sewing animal skins antlers, horns, claws moccasins bows & arrows baskets, grass mats pottery, rope shell jewelry turquoise clay figurines woven sandals
<b>MODERN AMERICAN INDIAN</b>	potters farmers basketmakers weavers government workers miners builders ceremonial part. traders	hogans brick & wood houses mobile homes	roots, tubers fruits, nuts corn, beans squash, grocery store foods mule deer, pronghorn rabbits, wild turkey processed meat	electric drills axes hoes manos & metates	store-bought clothes furniture & appliances electricity & plumbing looms for weaving steel & plastic tools machinery animal skins baskets, shell jewelry turquoise, pottery clay figurines

# CULTURE ITEMS

## LIFESTYLE

Big Game Hunters  
 Hunters & Gatherers  
 Weavers  
 Potters  
 Basketmakers  
 Farmers  
 Government Workers  
 Miners  
 Builders  
 Ceremonial Participants  
 Traders

## LIVING AREAS

Cave Shelters  
 Stone-walled Pueblos  
 Kill Sites  
 Hogans  
 Pithouses  
 Camp Sites  
 Mobile Homes  
 Petrified Wood Quarries  
 Brick Houses  
 Wood Houses

## STONE TOOLS

Spears  
 Folsom Points  
 Small Projectile Points  
 Electric Drills  
 Hammerstones  
 Axes  
 Hoes  
 Atlatl  
 Petrified Wood Scrapers  
 Stone Knives  
 Manos & Metates

## FOOD STUFF

### PLANTS

Grass Seeds  
 (Rice Grass, Amaranth)  
 Roots, Tubers  
 (Cattail Reed, Onion)  
 Leaves  
 (Lambsquarters, Goosefoot)  
 Fruits  
 (Berries, Currants, Cactus)  
 Nuts  
 (Pinyon, Walnut, Acorn)  
 Corn  
 Beans  
 Squash  
 Grocery Store Foods

### ANIMALS

Mule Deer  
 Wild Turkey  
 Bison  
 Mammoths  
 Pronghorn  
 Rabbits  
 Lizards  
 Snakes  
 Birds  
 Prairie Dogs  
 Processed Meat  
 (Hamburger, Sausage)  
 Horses  
 Giant Sloth

## OTHER MATERIALS

Fire Starting Kits  
 Baskets  
 Bone Awls for Sewing  
 Steel & Plastic Tools  
 Grass Mats  
 Looms for Weaving  
 Clay Figurines  
 Rope  
 Store-bought Clothes  
 Machinery  
 Animal Skins  
 Pottery  
 Antlers, Horns, & Claws  
 Woven Sandals  
 Moccasins  
 Shell Jewelry  
 Turquoise  
 Bows & Arrows  
 Furniture & Appliances  
 Electricity & Plumbing

# CULTURE CHARACTERISTICS

	LIFESTYLE	LIVING AREAS	FOOD STUFF	STONE TOOLS	OTHER MATERIALS
PALEO-INDIAN					
ARCHAIC					
BASKET-MAKER					
PUEBLO					
MODERN AMERICAN INDIAN					