

# Old Pueblo Archaeology Center

PO Box 40577, Tucson AZ 85717-0577

Located at the TUSD Ajo Service Center, 2201 W. 44th Street, north of John F. Kennedy Park and west of La Cholla Blvd.  
A 501(c)(3) Nonprofit Corporation 520-798-1201 Voice, 520-798-1966 Fax

Dear Educator;

Thank you for enrolling your students in one of our most exciting programs. We hope that your students will enjoy and appreciate the experience. The Old Pueblo Educational Neighborhood (OPEN) simulated excavation program has been developed to give students a unique and hands-on opportunity to experience the science of archaeology. Students participate in an excavation at a full-scale model of an archaeological site that archaeologists have constructed to resemble a southern Arizona Hohokam Indian village ruin. The site contains authentic prehistoric artifacts as well as replicas that, when put together, tell a story about one of the ancient cultures of Arizona.

Archaeology can be very exciting. However, there are many misconceptions surrounding archaeology as a profession and many of the concepts of archaeology seem abstract to students without the proper background and guidance. Students often think of archaeology as “treasure hunting” whereas, in fact, it is a very scientific profession. The simulated excavation program specifically emphasizes the scientific inquiry process. However, because archaeology is an interdisciplinary field, we integrate math, social studies, language arts, reading, research, technology, and science into the program with the utilization of supporting lessons. Therefore, we have assembled a multidisciplinary unit for you to use in your classroom before attending our program. This unit includes many fun and hands-on lessons that will help your students learn what archaeology is really all about and prepare them for the adventure that they are about to embark upon.

By preparing students prior to the field trip by using the lessons provided in the packet you will ensure that your students get the most out of the program and the experience. The better prepared your students are, the more enjoyable, manageable, and educational the program will be for you and them. Furthermore, you will find archaeology an excellent medium for meeting many of the Arizona Department of Education curriculum standards as well as for improving the critical thinking skills of your students.

This thematic unit is best utilized when the lessons are done in order. We also highly recommend that the students keep an archaeology field journal throughout the unit, just like real archaeologists, to write down and keep track of all the information from the unit and the program.

Please review the packet and contact us with any concerns and questions. Furthermore, if you have come across any exceptional archaeology related lesson plans that you think would compliment the program, we would love you to share them with us at [info@oldpueblo.org](mailto:info@oldpueblo.org). Thank you and we look forward to working with you!

Sincerely,

Allen Dart, RPA  
Executive Director

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# OPEN3

SIMULATED EXCAVATION FIELD TRIP

## **Old Pueblo Educational Neighborhood Site 3 Teacher Preparation Packet**



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## TABLE OF CONTENTS

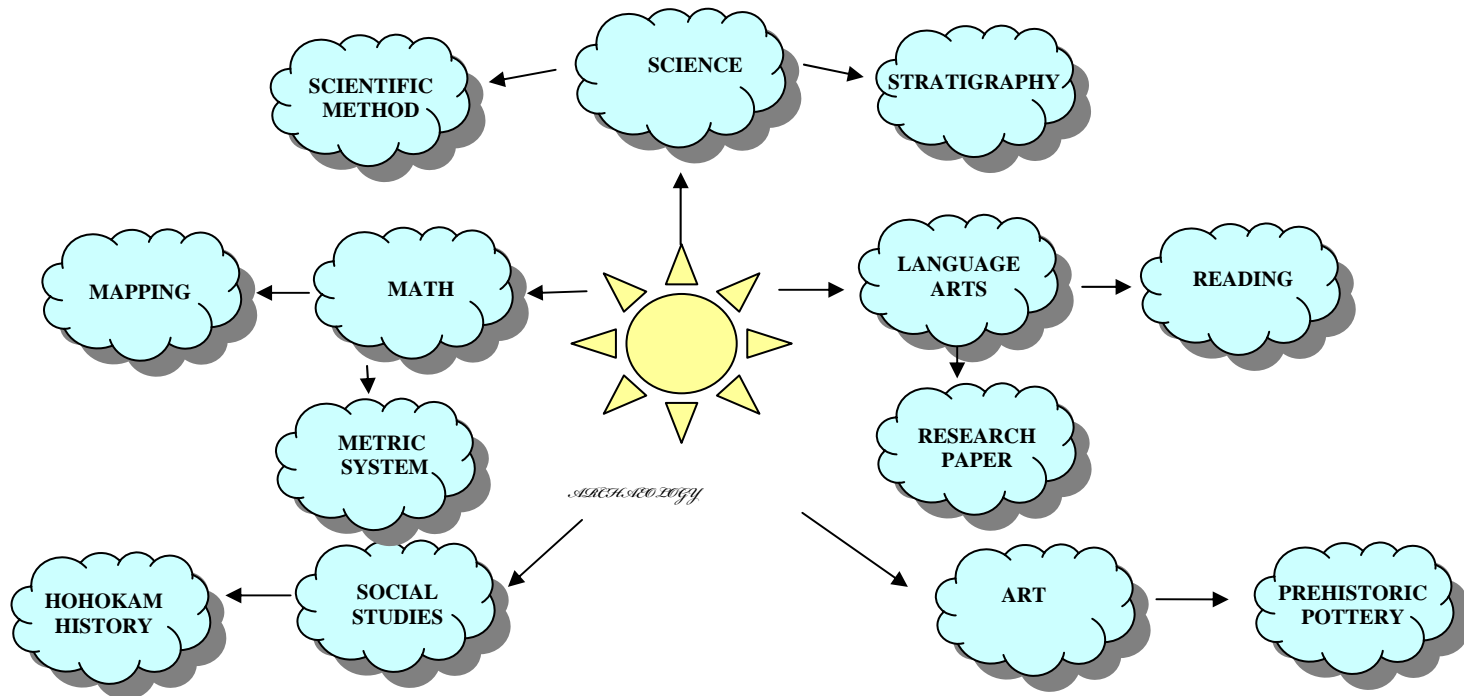
Archaeology Unit Outline .....	5
Objectives of OPEN3.....	7
Archaeology Unit Plan .....	9
Websites for Educators .....	11
Suggested Reading .....	13
Unit Vocabulary .....	14
Introduction to the Archaeology Lesson Plan .....	15
A Story about Archaeologists at Work .....	19
Example of a Simulated Excavation Map .....	21
Worksheet .....	23
Answer Key .....	24
Context Lesson Plan .....	25
Context Activity Sheet .....	27
The Context Game .....	28
Shoebox Archaeology .....	29
Lesson I, Research Design .....	29
Lesson II, Acquiring the Data: Mapping .....	33
Lesson III, Acquiring the Data: Stratigraphy & Cross Dating .....	37
Lesson IV, Acquiring the Data: Excavation, Analysis, & Interpretation .....	39
Preparing for the Simulated Excavation: The People of Arizona .....	43
The People of Arizona Worksheet .....	45
Teacher Answer Key .....	49
Research Paper: Publication and Curation .....	51
Research Paper Example .....	53
Research Report Rubric .....	54
The People of Arizona* .....	55

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\* Whittlesey, Stephanie (1994), "The People of Arizona," from *Intrigue of the Past: Discovering Archaeology in Arizona*, by Larry Agenbroad, Joseph A. Ezzo, Lee Fratt, Kathleen Henderson, Jim McDonald, J. Jefferson Reid, Stephanie Whittlesey, and Lisa Young, pp. 1-1 - 1-22. Heritage Education Program, Bureau of Land Management, U.S. Department of the Interior, Dolores, Colorado.

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## ARCHAEOLOGY UNIT OUTLINE



### ARCHAEOLOGY

- I. ART
  - A. PREHISTORIC POTTERY (Simulated Excavation)
- II. SCIENCE
  - A. SCIENTIFIC METHOD
  - B. STRATIGRAPHY
- III. LANGUAGE ARTS
  - A. READING
  - B. RESEARCH PAPER
- IV. MATH
  - A. MAPPING
  - B. METRIC SYSTEM
  - C. DATA ANALYSIS (Simulated Excavation)
- V. SOCIAL STUDIES
  - A. HOHOKAM HISTORY

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# OBJECTIVES of OPEN3:

In their study of archaeology, students will participate in a simulated excavation of a prehistoric Hohokam site to:

- Make inferences and interpretations using archaeological data.
- Apply archaeological concepts from archaeology unit.
- Recreate a prehistoric art form.
- Identify archaeological features and artifacts.
- Apply basic spatial and temporal concepts: context, association and stratigraphy.
- Determine the locations of artifacts and features within grid units and make inferences.
- Apply good teamwork skills.
- Explain the importance of site preservation and ethics.
- Make accurate measurements using the metric system to create a map.
- Test research question and hypothesis.
- Reconstruct ancient lifeways.
- Explain cultural change.
- Present archaeological findings

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## ARCHAEOLOGY UNIT PLAN

Subject	Social Studies	Language Arts	Science	Math
Topic	History of the Hohokam	Research paper and vocabulary	Stratigraphy and the Scientific Method	Graphing, mapping & the metric system
Objective	<p>In their study of archaeology, students will participate in an activity and a simulated excavation to:</p> <ol style="list-style-type: none"> <li>1. Apply archaeological concepts critical in understanding the role of archaeology in history</li> </ol> <p>In their study of the Hohokam, students will use a reading packet, activity sheets and an internet activity to:</p> <ol style="list-style-type: none"> <li>1. Analyze the experience of the Hohokam through time</li> <li>2. Recognize the relationships between the Hohokam and other prehistoric peoples</li> <li>3. Interpret the patterns, themes, ideas, beliefs, and turning points in the Hohokam culture and the cultures of other prehistoric people</li> </ol>	<p>In their study of archaeology, students will:</p> <ol style="list-style-type: none"> <li>1. Read a story about archaeology and teamwork together or individually</li> <li>2. Recall vocabulary from story</li> <li>3. Recognize the relationships between archaeologists</li> <li>4. Compile facts about the Hohokam based on the reading</li> </ol> <p>In their study of Archaeology, the Scientific Method and the Hohokam, the students will use their experience at the simulated excavation site to:</p> <ol style="list-style-type: none"> <li>1. Compose a short paper identifying and explaining the results of their research and their conclusions based on research.</li> </ol>	<p>In their study of Archaeology and stratigraphy, students will use an activity and activity sheet to:</p> <ol style="list-style-type: none"> <li>1. Interpret archaeological strata using the law of superposition</li> <li>2. Apply cross-dating to determine the age of other artifacts</li> <li>3. Identify and recognize artifacts</li> <li>4. Differentiate different strata</li> </ol> <p>In their study of the Scientific Method, the students will use their experience and the simulated site to:</p> <ol style="list-style-type: none"> <li>1. Develop research questions based on knowledge of the Hohokam</li> <li>2. Formulate hypothesis or inferences based on research questions</li> <li>3. Interpret recovered data from simulated excavation to support hypothesis</li> </ol>	<p>In their study of the Cartesian coordinate system and graphing, students will participate in a simulated excavation, complete a graphing activity and activity sheets to:</p> <ol style="list-style-type: none"> <li>1. Label x and y coordinates</li> <li>2. Establish a grid system</li> <li>3. Graph data</li> <li>4. Compare data and make inferences to interpret artifact relationships</li> </ol> <p>In their study of the archaeology, the students will demonstrate accurate measurement by: Mapping archaeological discoveries</p>
Skills	Analysis, knowledge, application, comprehension & evaluation	Synthesis, comprehension, knowledge, application & evaluation	Knowledge, comprehension, application, analysis & evaluation	Knowledge, comprehension, application, analysis & synthesis
Strategy	Interpret, explain, recall, know, write, recognize, distinguish, identify	Develop, interpretation, ex- planning, identifying, writing, composing, formulating, compile, recall, knowing, inferring, concluding	Differentiate, writing, demonstrate, interpret, inference, identifying, develop, formulate, apply	Identification, measure, deducing, inferring, knowing, formulating, interpretation, analysis, comparison
Assessment	Activity sheet & excavation	Research Paper, field notebooks & excavation	Activity sheets, activity, & excavation	Activity sheet, activity, & excavation

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## WEBSITES FOR EDUCATORS

### ARCHAEOLOGY

#### **Archaeology & You**

<http://www.saa.org/publications/ArchAndYou/index.html>

This on-line booklet provides basic information on the science of archaeology and how to learn more about and take part in it.

#### **Virtual Archaeology**

<http://www.educ.sfu.ca/archaeology/>

Designed by Jacquelyn Dale and G. M. Bowen, this site's interactive format allows students to participate in activities that allow them to ask the same questions that an archaeologist would ask.

#### **Archaeological Institute of America**

<http://www.archaeological.org/webinfo.php?page=10276>

The AIA aids K–12 educators in bringing material culture and methodological approaches of archaeology into their classrooms as a springboard for teaching scientific methods, critical thinking and writing, and analytical skills across the curriculum.

#### **Indiana Jones Meets Reality**

<http://www.mc.maricopa.edu/dept/d10/asb/anthro2003/archy/exploration/>

This site is an excellent resource for any teacher who is unfamiliar with the concepts of archaeology. It explains things well and allows kids to actually get involved, perform their own excavation, and then draw conclusions about the culture they unearth.

#### **Archaeology and Public Education**

[www.saa.org/PubEdu/a&pe/index.html](http://www.saa.org/PubEdu/a&pe/index.html)

This is the on-line quarterly newsletter of the Society for American Archaeology's Public Education Committee. It features news, events, and information about workshops and meetings, field and lab opportunities, and web sites of interest to educators.

#### **Teaching Archaeology: A Sampler for Grades 3 to 12**

[www.saa.org/pubedu/sampler/credits.html](http://www.saa.org/pubedu/sampler/credits.html)

*Teaching Archaeology* is a 24-page booklet by the Society for American Archaeology's Public Education Committee that can be downloaded and printed. It provides lesson plans on Scientific Methods in Archaeology; What Archaeologists Have Learned; The Multidisciplinary Science of Archaeology; Stewardship of Cultural Resources; and a section on Archaeological Terms. Click on the "Table of Contents" button to view the text if you do not want to print the entire document.

#### **Southwestern Archaeology**

[www.swanet.org/](http://www.swanet.org/)

Southwestern Archaeology is one of the best internet resources for information on the archaeology of the American Southwest with its diverse mix of people, cultures, and cultural sites and artifacts.

#### **Arizona Archaeological Council's Archaeology for Educators Committee**

<http://jan.ucc.nau.edu/~jclark/aacedcom.html>

The Archaeology for Educators Committee (AEC) is a voluntary group of archaeologists and educators committed to the preservation and stewardship of cultural resources through enhanced public awareness, education, and participation. Committee members work to promote greater respect and protection for Arizona's cultural resources, particularly among our youth. The AEC provides curricular material outreach, training workshops, and networking assistance for educators.

#### **ArchNet — WWW Virtual Library — Archaeology**

<http://archnet.asu.edu/archnet/>

ArchNet offers links to a vast array of archaeological resources available online, categorized by geographic region and subject. The Archaeological Research Institute at Arizona State University hosts this multiple language Web site.

#### **Archeology**

[www.mtsu.edu/~then/Archeology/](http://www.mtsu.edu/~then/Archeology/)

"Archeology" is an excellent resource for educators who want to know more about incorporating archaeology into their classrooms.

#### **Crow Canyon Archaeological Center**

[crowcanyon.org/kids.html](http://crowcanyon.org/kids.html)

Offered by an archaeology education organization in Colorado, this site offers a "Kids" button that includes interactive *Ask an archaeologist a question* and *Take a Trip Through Time!* In which kids can try to solve archaeology mysteries.

## WEBSITES FOR EDUCATORS *continued*

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### **Collapse — Why Do Civilizations Fall?**

<http://www.learner.org/exhibits/collapse/>

This Web site, from the Annenberg/CPB Project, presents theories and methods used by archaeologists to study the decline of societies. A journal allows users to record clues and reaches conclusions regarding the collapse of individual civilizations.

### **NATIVE CULTURES**

**Arizona State Museum.....**[www.statemuseum.arizona.edu/](http://www.statemuseum.arizona.edu/)

The Arizona State Museum is the oldest and largest anthropology museum in the Southwest. Click on “Public Programs” to find information on its collections, galleries, research library, archive and photo collections, an online calendar, and highlights of upcoming events; exhibits; tours (including school tours); museum education; and related links.

### **CU Denver**

<http://carbon.cudenver.edu/stc-link/hohokam/Hohokam.htm>

This site is an excellent interactive introduction to Hohokam culture. Students explore this ancient culture of the Southwest by selecting a part of the Hohokam village to discover information on Hohokam farming, irrigation, housing, religion, crafts, and recreation. This project was made available by Dr. Michael Tang for a science, technology, and culture course for the fall semester of 1998.

### **Beloit College**

<http://www.beloit.edu/~museum/logan/southwest/index.htm>

This site is an excellent introduction to the cultural history of the Southwest. Students explore ancient cultures by selecting a specific culture to discover information on lifestyles, irrigation, housing, religion, crafts, and recreation. This site was created by Dr. Christopher Henige from the University of Wisconsin-Stevens Point.

### **Native American Home Pages**

<http://www.nativeculture.com/lisamitten/indians.html>

Award-winning database of Native American Web resources covering individual nations, organizations, colleges, arts, languages, native businesses, and more. Maintained by Lisa A. Mitten, bibliographer at the University of Pittsburgh

### **Index of Native American Resources on the Internet: [www.American Indians](http://www.AmericanIndians.com)**

<http://www.hanksville.org/Naresources/>

An extensive list of links to Web sites that provide scholarly and commercial resources on North American native peoples.

### **Native Americans and the Environment**

<http://cnie.org/NAE/>

Site contains hundreds of bibliographic entries and links to many Internet resources relating to North American native peoples. Resources are classified by tribal groups. Includes a clickable region map to help readers find information.

### **Native American Indian Art, Culture, Education, History, Science**

<http://www.kstrom.net/isk/>

More than 300 pages of historical maps, indigenous-language resources, lists of Indian authors and books, articles on Native American products, arts information, and astronomy pages.

### **Desert Peoples of the American Southwest**

[http://www.desertusa.com/indl/du\\_peo\\_past.html](http://www.desertusa.com/indl/du_peo_past.html)

An excellent resource devoted to the peoples, cultures, and historical personalities of the Southwest, with historical information, current data, and related links. Maintained by Desert USA, an online southwestern magazine.

### **NMAA: Teachers' Guides**

<http://nmaa-ryder.si.edu/education/guides/pueblo/main.html>

A guide to Pueblo Indian art for middle-school students, provided by the National Museum of American Art. Includes a map of pueblos; data on history, language, religion, dances; paintings; artists' biographies; a bibliography; a glossary; and more.

## SUGGESTED READING

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Asch, Connie

1983 *Tohono O'odham (Papago) Indian Coloring Book*. Treasure Chest Publications, Tucson.

Cork, Barbara, and Straun Reid

1984 *The Young Scientist Book of Archaeology: Discovering the Past with Science and Technology*. Usborne Publishing, Ltd., London; EDC Publishing, Tulsa, Oklahoma.

For Grades 3-8, *The Young Scientist Book of Archaeology* is promoted as a colorful and profusely illustrated book that introduces students to many aspects of archaeological work. Focusing on the way modern science and technology aid archaeologists in their pursuit of the past, it covers such topics as how clues are preserved and destroyed; what happens on an archaeological dig; how objects are dated; how archaeologists test their theories; and what has been discovered from the recovered remains of animals, plants, humans, pottery, and buildings.

Duke, Kate

1997 *Archaeologists Dig for Clues*. Let's-read-and-find-out science Series, Stage 2. Harper Collins, New York.

Goodman, Susan E.,

1998 *Stones, Bones, and Petroglyphs: Digging into Southwest Archaeology* Atheneum Books for Young Readers, New York.

Goodman, Susan E.,

2000 *Ultimate Field Trip 2: Stones, Bones, and Petroglyphs. Digging into Southwest Archaeology*. Aladdin Paperbacks, New York.

Gronemann, Barbara

1994 *Hohokam Arts & Crafts*. Southwest Learning Sources, Scottsdale.

Moreillon, Judi

1997 *Sing Down the Rain*. Kiva Publishing, Santa Fe.

(Poetry and watercolor illustrations that give a good feel for the desert environment of the Tohono O'odham and how they adapt to it.)

Noble, David Grant

1991 *The Hohokam, Ancient People of the Desert*. School of American Research Press, Santa Fe,

Noble, David Grant

1998 *101 Questions about Ancient Indians of the Southwest*. Southwest Parks and Monuments Association, Tucson.

Times Books

1988 *Past Worlds: The Times Atlas of Archaeology*. Hammond, Maplewood, New Jersey.

Woods, Geraldine

1999 *Science of the Early Americas*. Science of the Past series. Franklin Watts, New York.

Discusses the scientific accomplishments in such fields as medicine, mathematics, engineering, and astronomy of various groups of American Indians. Includes bibliographical references and index.

## UNIT VOCABULARY

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The following is a list of archaeological terms used within the unit and the program that you may want your students to be familiar with. (The underlined words are the words from Lesson 1 “Introduction to Archaeology”)

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1. **Archaeologist**: a person who studies past human cultures
  2. **Archaeological site**: a place where human activity took place that is being investigated by archaeologists
  3. **Artifact**: an object made or used by humans that is moveable
  4. **Cache**: a place where objects are stored
  5. **Charcoal**: burned wood, can be used for dating a site
  6. **Chipped Stone**: an artifact made by striking pieces of rock off another rock; associated with tools and tool use
  7. **Context**: how artifacts and features relate to each other
  8. **Coordinate system**: a method of excavating an archaeological site where a grid is placed over the site.
  9. **Cross-dating**: the principle that a artifact dated at one archaeological site will be of the same approximate age when found elsewhere
  10. **Culture**: the set of learned beliefs, values, and behaviors shared by members of a group of people
  11. **Datum**: a point from which measurements are made
  12. **Ecofact**: plants and animals that have been used by people without being changed (i.e. a deer bone from someone's dinner)
  13. **Elevation**: depth
  14. **Excavate** (excavated): To dig
  15. **Excavation**: An archaeological dig
  16. **Feature**: an object made or used by people that cannot be easily moved (i.e. a house)
  17. **Fill Dirt**: dirt which fills in a feature after it has been abandoned
  18. **Flake**: a piece of rock that has been broken off a larger rock by striking rocks together (see #5) in tool making
  19. **Flintknapping**: the activity of making tools
  20. **Ground Stone**: an artifact made by grinding a stone into a shape
  21. **Hypothesis**: an educated guess to a proposed question that can be tested
  22. **Hearth**: a feature used for heat, light, and cooking
  23. **In Situ**: when an artifact is found in the original place it was left.
  24. **Midden**: an area where trash was thrown away
  25. **Prehistory**: a period of time before there were written records Projectile Point: a type of chipped stone used as the tip of an arrow, spear, or dart
  26. **Observation**: the careful examination of something
  27. **Projectile point**: an arrow head
  28. **Ramada**: An outdoor area with a roof (a porch)
  29. **Reconstructible Vessel**: a pot that was found broken, but most or all of the pieces were found and could be glued back together
  30. **Research design**: the first step before excavation where goals and the hypothesis are made
  31. **Sherd**: a piece of broken pottery
  32. **Specialist**: a person who focuses in just one area, like a doctor who *specializes* in feet.
  33. **Strata**: many layers of earth
  34. **Stratigraphy**: the arrangement of layers of earth representing different geologic events.
  35. **Stratum**: one layer of earth
  36. **Survey**: the first step of archaeology when an area is searched for human activity
  37. **Unit**: used as a method for excavation, where the whole site is broken into a grid. One square of the grid is a unit.
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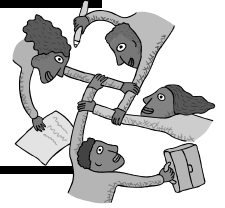
## INTRODUCTION TO ARCHAEOLOGY LESSON PLAN

**Subject:** science

**Skills:** knowledge, comprehension, application, analysis, and evaluation

**Strategies:** observation, discussion, reading, writing, recalling, rephrasing, selecting, explaining, relating, choosing, identifying, distinguishing, solving and deciding

**Duration:** 30 minutes



### OBJECTIVES:

In their study of archaeology, students will use a short story and activity sheet to:

- Make inferences using archaeological data.
- Determine relationships between archaeologists.
- Recall vocabulary.
- Summarize and paraphrase sections of the story.
- Determine the location of artifacts and features within grid units and make inferences.

### VOCABULARY:

- *See separate vocabulary list*

### MATERIALS

- Story, archaeological vocabulary, excavation map, and activity sheet

### BACKGROUND:

#### What is Archaeology?

Archaeology began over 150 years ago as a gentleman's quest for lost civilizations and artifacts. Over the years, it has developed into a highly sophisticated, multidisciplinary way of studying past human behaviors. Presently, it is the scientific study of the human past based on the material and structures that have been left behind by people. Archaeology combines history and science to reconstruct and explain past cultures and events. Information collected from archaeological excavations and surveys often provides important information about early economics, agriculture, and political systems that can still be applied today.

Archaeology often conjures an image of an adventurer in a worn fedora hunting hidden treasures and lost cities. Archaeologists are most certainly always depicted in this image; however, actual archaeologists are trained scientists and professionals. Although just about anyone can participate in an archaeological study, not everyone is an archaeologist. Being an archaeologist requires formal training at a college or university and making all of their research results available to the public. Real archaeologists excavate carefully and do not keep what they find. They place them in museums along with their notes, photographs and other documents so that everyone has access to the artifacts and information. Without these crucial steps a person is not doing archaeology, they are simply pot hunting, and this is against the law. Without collecting and sharing important information about the artifacts that they collect, pothunters are actually stealing history.

Because archaeology is the study of past people and human behavior, archaeologists do not study dinosaurs. Dinosaur extinction occurred before the earliest human ancestors so humans and dinosaurs did not coexist. Hunting for dinosaurs is the job of paleontologists, scientists that specialize in extinct forms of life.

#### The Goals of Archaeology

All archaeological research has three very important goals:

##### 1. Constructing Culture History

Culture History is the record of the human past described in a context of time and space. Simplified, it answers the question "What happened where and when?" It relies on careful excavation and details and classification of all finds.

## INTRODUCTION TO ARCHAEOLOGY *continued*

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### 2. Reconstructing Ancient Lifeways

The reconstruction of ancient life ways is reconstructing how people made their living. It covers many different activities like hunting, agriculture, social organization, religion, and economics.

### 3. Explaining Cultural Change

Searching for facts and explanations is an important part of archaeology. The third goal of archaeologists is to study and explain culture change and how it occurs. An example of this would be: After thousands of years of successful living in the Sonoran desert, why did the Hohokam culture collapse in A.D. 1450? Explaining cultural change can be one of the most challenging of all research.

### **The Process of Archaeological Research**

Archaeological research is a systematic, multi-step process involving designing, excavation, analysis, interpretation and publication and curation. The actual time spent digging is very small compared to the time spent in the lab or in front of computer writing about it. A project with 2 weeks of excavation could take 2.5 months for data analysis and write up!

#### *1. Research design*

This is the most important part of archaeology. It is the formal blueprint developed for any archaeological investigation and it lays out the goals and objectives of the inquiry and the steps to be taken to meet them. It involves investigation and research about the area to be investigated. It is here that you formulate initial questions and develop your hypotheses to meet the objectives of your research. You must remember that archaeology is a very destructive science and excavation requires the destruction of a site. Unlike physics or chemistry, you cannot replicate your experiment repeatedly. Therefore, every excavation must be carefully planned and flexible.

#### *2. Acquiring the Data*

This is when you finally get to go into the field for excavation or survey. This may take several days, weeks, months, or even years. Duration is dependent on the scope of your investigation. Regardless of the duration, this is the process of observing and recording information. Record keeping and data collection must be meticulous for the next step: analysis.

#### *3. Analysis*

The most fundamental part of archaeology is analysis. This is the classification and description of everything recovered from the field. Sometimes analysis is not done immediately after data acquisition and that is why meticulous and extensive recording is necessary. Most often, the person doing the analysis is not the person that collected the data.

#### *4. Interpretation*

Now the researcher pulls together all of the data and tests the hypothesis proposed in the research design. The interpretation is the conclusions that are drawn from all of the collected data.

#### *5. Publication and Curation*

The process ends by publishing the results of the project in the form of a formal report. This is an essential component because it guarantees that the information is accessible to everyone. The artifacts and the report are the only things left after excavation and they both become part of the sites permanent record for future researchers.

## INTRODUCTION TO ARCHAEOLOGY *continued*

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### **Context**

Context refers to where artifacts or material culture is found and the relationship they have with each other. Archaeology is the study of ancient human behavior, not their artifacts. An important part of archaeology is reconstructing these activities based on where the artifacts are found and the relationship between them, not the artifacts themselves. This is an essential part of archaeology and the reason archaeologists write about what they find and map their location. Context can help in determining what artifacts or features are used for, the date of the site, how many people lived there, and the types of activities that have occurred. Using this information to determine the use of the site is called interpretation. Things found together were probably used together and of the same age. If you find a tire next to a car, you could correctly guess that it was used together and close to the same age. However, if you find a wheel alone, would you know what it was used for or how old it is? Each artifact is a piece of a larger puzzle and without all the pieces, the picture is unclear and questionable.

Therefore, when you come across an artifact and put it in your pocket, you may be taking a piece of the puzzle that was essential in determining the use of another artifact, or worse, a whole site! Archaeology studies human cultures by analyzing material remains such as artifacts and sites. It requires a broad understanding of many things: soils, plant and animal life, geology, surveying, math, chemistry, computers, statistics, and the social sciences to name a few. Archaeology integrates many fields and gives archaeologists the opportunity to specialize in a wide range of topics. Some choose to work with museum collections, while others decide to specialize in analysis, such as pollen analysis, identifying animal bone and plant fragments, or identifying and analyzing chip stone or pottery. Other archaeologists specialize in a geographical like Peru or the Southwestern United States. Underwater archaeology is another specialty. Fieldwork is an important component of most archaeologists' work.

It is important in archaeology that people maintain a good relationship with one another. Many times, projects can last for years and each specialist plays an integral role and has a direct contribution to the project. Good communication between specialists is imperative because all the information must eventually be put together to answer research questions and contribute to the archaeological record.

### **SETTING THE STAGE:**

- Pass out the excavation map. Have the students make inferences about the archaeological discoveries on the map. Ask them if they would like to know everything about this excavation.

### **PROCEDURE:**

1. Distribute the vocabulary and the story to the students.
2. Have students read the story aloud and review the vocabulary as you read.
3. Have the students refer to the map as they read and see where many of the things in the story were found. Distribute the activity sheet to the students. Ask them to write in the answers based on the reading.
4. Ask the students how long it took from start to finish completing the project. Ask them how many people helped dig and analyze. Did they expect it to take so long? Did they know so many people worked on one dig?

What did they learn about archaeology from this story? Was it different then what they had thought when they only had seen the map?

### **CLOSURE:**

Summarize how important teamwork and data recording is for archaeologists. Ask the students if they have any interpretation of their own based on the map and the story. Let them share their ideas.

### **EVALUATION:**

Have students turn in the activity sheets. Simulated excavation: Did the students work well together?

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## A STORY ABOUT ARCHAEOLOGISTS AT WORK

Adapted from an activity by Eric J. Kaldahl, Ph.D.

Read the following story and refer to the vocabulary for the underlined words.

When you are finished, use the story to complete the worksheet.

Dr. María Ramírez is an **archaeologist**. A company who is interested in building a new shopping mall in Tucson, Arizona has recently contacted her. Before the mall can be built, they must make sure that they are not destroying an **archaeological site**.



In May, María directs a crew of three people to go out and do a **survey** of the area where the mall is to be built. The crew stands in a straight line and walks the whole area looking at the ground for **artifacts** or clues that people once lived there. María's crew finds ancient pottery, arrowheads, and charcoal on the ground where prehistoric people once lived. She carefully writes down everything she has **observed**. The survey takes the group 3 days to complete. When Dr. Ramírez returns to her office, she uses her careful notes to write a report to give to the company.

Dr. Ramírez tells the company that they cannot build the mall until the site has been **tested**. Testing an archaeological site is when the archaeologists dig in a few places to see if they can see **features** under the ground. The company tells Dr. Ramírez to go ahead and test the site as soon as possible so they can build their mall. She gets to work planning where to dig and hires a bulldozer to help speed up the test. In July, she directs a crew of three different people to test the site.



As soon as the group starts digging they find features, 65 in total! There are many **pithouses** and a few roasting pits used for cooking. They find a lot of artifacts, a **ramada**, and lots of little pits used for storage. The archaeologists must write about everything that they find, draw it, take pictures of it, and take samples. It takes Dr. Ramírez and her crew 2 weeks to finish!

Dr. Ramírez writes another report telling the company that they cannot build a mall until all data is recovered, in other words, the whole site is studied and **excavated**. This does not make the company happy, but they tell Dr. Ramírez to go ahead and finish the site. Now Dr. Ramírez has to do a **research design**. This is very important. It is when she plans and lays out the goals of the excavation. She asks questions about what she will find, develops a **hypothesis** to answer her question, and sets expectations to test. Dr. Ramírez wants to know what the Hohokam farmed. Her hypothesis is that she thinks that they farmed corn and beans. Her expectations are that if the Hohokam farmed corn and beans, she would find them during her excavation. This evidence would support her hypothesis.

María must get approval from the state before she can dig and this can take a very long time, and it does. After much waiting, Dr. Ramírez does not start to dig until September! María directs a crew of 10 people to dig the site. The site is a place where some Hohokam families lived 1,000 years ago. They excavate all of the features and take careful notes about what they find. They map where they find everything and take photographs so that later Dr. Ramírez can put together all of the clues. It takes them one month to finish.

When the site is complete, it was time to study all of the artifacts. They are sent to the laboratory where **specialists** study each item. The study of the artifacts would take nearly 8 months to complete.



Jeff works in the laboratory where he only studies pottery. One afternoon while he was examining sherds, he realized that all of the pieces could be put together like a puzzle to form a complete pot! Archaeologists call broken pots that can be put back together **reconstructible vessels**. The red pot did not have any designs on it and was very large, nearly two feet tall! He asked María about the **context** of the pot, or where the pot had come from, so that he could figure out how it was used.

## INTRODUCTION TO ARCHAEOLOGY: A STORY ABOUT ARCHAEOLOGISTS AT WORK (*continued*)

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María and Jeff looked up the paper work from the site. The **sherds** from the vessel came from three different **units** that were right next to each other. This meant that the sherds had all come from the same area of the site.

By studying the maps of the site, María and Jeff realized that the pot had been discovered in the back corner of a **pithouse**. The Hohokam stored drinking water in their homes in big jars like the one Jeff put together. These big water jars are usually found near the walls at the back of the house so people would not tip them over. The Hohokam also stored corn, clay and other things in pots, but this pot had a very narrow opening. The narrow opening would make it hard to get your hand inside the pot to get the clay or corn out. Jeff decided that this pot was used to store water.

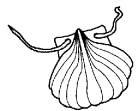


Al also works in the lab where he only studies **chipped stone**. Before people used metal tools like scissors and pocketknives, they cut things up with very sharp stones. The artifacts Al was studying included a **projectile point**, and **flakes**. He asked Dr. Ramírez what the context of the artifacts was. They looked at the paperwork together and found that all of the chipped stone came from an outdoor feature called a ramada. The ramada was right outside of a pithouse. Dr. Ramírez and Al decided that the people sat under their ramada where it was shady and cool and made tools.



Jennifer only studies **ground stone** in the lab. Some of the most common ground stone tools are manos and metates that were used for grinding corn into flour. Jennifer was studying some broken **manos** and **metates** and looked at the paperwork to see what their **context** was. The artifacts were discovered in the fill dirt of feature 1, a pithouse. They looked at the **elevation** of the artifacts too. According to the elevation, the artifacts were found two feet above the pithouse floor.

Jennifer said that all of the artifacts broke because they had been used for so many years. When the artifacts were not useful anymore, the people threw them away. Pithouses do not last very long and a family probably only lived in a house for 10-15 years before the wood rotted or it was eaten by termites. Many times the houses burned down. Once the houses fall down the Hohokam would use it for a **midden** and toss their trash into it.

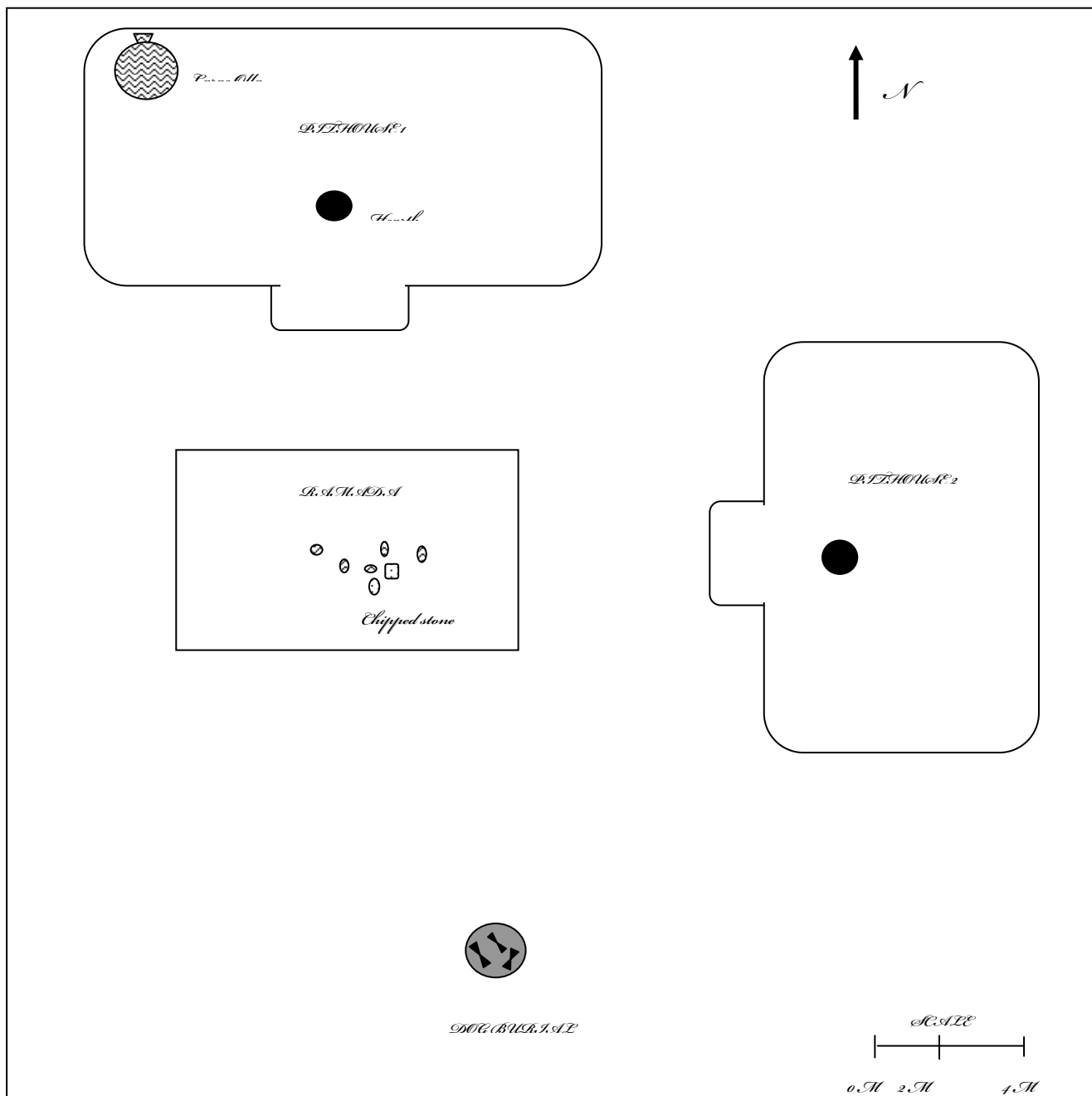


Erik only studies **ecofacts** in the lab. One of the things found at the site was a skeleton of a dog. To study the bones properly, Erik looked at the paperwork to see what its context was. When the archaeologists found the skeleton, they carefully removed all of the dirt around it, leaving it **in situ**. They found that the dog was buried in a pit with seashell jewelry. This must have been an important dog! Seashell was very valuable to the Hohokam because it came from so far away. They would with trade their pots or corn for seashell, which they made beautiful jewelry out of.

Diana is the person in the lab who only studies ancient plants, like corn, wood, seeds, and fruit. She found that there was a lot of corn, beans, squash, and cotton at the site. Most of the corn she studied was ground into flour, but some of the corn was still whole! When she looked at the context of the whole corn, she found that it was in a large pit. It was probably stored there for future use.

With the help of all the lab experts and her crew that took careful notes, Dr. Ramírez writes a final report that takes her five months! The report includes her **interpretations** of the discoveries at the site and explains whether or not she has met her goals. Once the report is completed everything goes to the museum where it is **curated**. At the museum all of María's work is accessible for future researchers and the public.

## EXAMPLE OF A SIMULATED EXCAVATION MAP



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## INTRODUCTION TO ARCHAEOLOGY WORKSHEET

*Write or circle the correct answer*

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1. What month did Dr. Ramírez begin working at the site? \_\_\_\_\_
  2. What is the first step of archaeology? \_\_\_\_\_
  3. What is the second step of archaeology? \_\_\_\_\_
  4. What is a feature? \_\_\_\_\_
  5. Before she can dig, Dr. Ramírez must do a \_\_\_\_\_ design.
  6. How many reports did Dr. Ramírez have to do? \_\_\_\_\_
  7. What was María's question? \_\_\_\_\_
  8. What was her hypothesis? \_\_\_\_\_
  9. Can Dr. Ramírez support her hypothesis?            YES                            NO  
Which lab expert helps her do this? \_\_\_\_\_
  10. What was Jeff's proof that the pot was used for water? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
  11. When a Hohokam family stopped using a house, what happened to it? \_\_\_\_\_  
\_\_\_\_\_
  12. How many people helped Dr. Ramírez (don't forget to count the crew)? \_\_\_\_\_
  13. How long from start to finish did it take Dr. Ramírez to finish the project? \_\_\_\_\_
  14. Why is teamwork important to archaeologists? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- What is context and how was it important to everyone? \_\_\_\_\_  
\_\_\_\_\_

ANSWER KEY FOR TEACHERS  
A Story about Archaeologists at Work  
*Write or circle the correct answer*

---

1. May
2. Survey
3. Test
4. Something made or used by people that cannot easily be moved.
5. Research
6. Three
7. What did the Hohokam farm?
8. Corn and Beans
9. Yes, Diana found squash, beans, and corn.
10. Where the archaeologists found it, its size, and its shape.
11. It was used as a midden.
12. 21
13. 1 year and 7 months
14. Because so many different people contribute to one project, everyone must work well together.

Context is where you find an artifact and a feature and how they relate to each other. It is important because it often helps you to figure out the use of an area or an artifact.

## CONTEXT LESSON PLAN

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**Subjects:** science, social studies, language arts.

**Skills:** knowledge, comprehension, application, synthesis, evaluation.

**Strategies:** game, discussion, problem solving, writing, formulating

**Duration:** 60 minutes.

**Class Size:** any; groups of 5 to 6.

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### OBJECTIVE:

In their study of archaeology, students will.

- use a game and a discussion to demonstrate the importance of artifacts in context for learning about past people.
- formulate research questions and hypotheses to be tested at simulated site.

### MATERIALS:

Index cards, blank sheet of paper, "[Context](#)" activity sheet for each student or team and research question worksheets for each student.

### VOCABULARY:

- **Artifact:** any object made, modified, or used by humans that can easily be moved.
- **Feature:** any object made, modified, or used by humans that cannot easily be moved.
- **Context:** the relationship artifacts have to one another and the situation in which they are found.

### BACKGROUND:

The things people own can tell something about them. The objects each person has chosen to have can indicate the person's age, gender, and interests. For example, a baseball bat and a football helmet in someone's bedroom suggests that the owner likes sports. Posters of pets and a collection of stuffed animals could mean that the person is an animal lover. The objects (artifacts) can only tell a complete story if they are found together, where their owners left them (in *context*).

Archaeologists rely on the objects that people made (artifacts and features) and where they left them (context) to learn the story of past people. Think of a 10,000-year-old stone spear point; its finely chipped surface is beautifully made. This spear point has a very different meaning if it is found incomplete at a stone quarry in Tucson than if it is found broken near animal remains. Its meaning changes further if the point is found in a riverbed washed, far away from where it was once used, or if it is found in someone's living room. In these last two situations, the spear point has lost its original context and all connection with the people who made and used it. It has become only a thing, no longer a messenger from the past.

In short, the artifact and its context provide more information to the archaeologist than could the artifact alone. When context is lost, information is lost. So, in actuality, archaeologists do not as much study the artifacts or the features, but the relationships that they have with one another (context). Therefore, archaeologists preserve the context of artifacts they recover from sites by recording the location of everything they find.

### SETTING THE STAGE:

1. Ask the students: If I had never met you and walked into your bedroom, what would I know about you from the things you have there? Would I know if you were a boy or a girl? Would I know what your interests are? Would I know if you share your room?
2. Think of something in your bedroom that is very special to you. How does that object tell something about you, along with everything else in your room? Everything together tells about you because it is in context. You have selected certain things to have, and these things tell about you when they are all found together.
3. Now imagine that your special object has been taken from you and is found in the City Park. How does this change what could be known about you? When it is removed from your room, the object alone tells nothing, and your room is now missing an important piece of information about you. Context has been disturbed, and information about you is now lost.

### PROCEDURE (40 minutes):

Discuss with students the importance of context to archaeology

Tell the students they are going to play a game requiring that they think like archaeologists.

## CONTEXT *continued*

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1. Divide the class into groups of 5 to 6 students, and assign each group a different number.
2. Give each student an index card and a pencil and have the students put their group number on the back of the cards.
3. As a group, they are to choose a room or type of building, such as a hospital operating room, a kitchen, or a hardware store. They decide what objects (artifacts) in the room make it distinctive; then each student writes one clue on his or her card, for a total of 5 to 6 clues per group.
4. When everyone is finished, the stack of cards from each group is passed to the next group who will try to figure out the room and write it on a sheet of paper until every group has seen every stack and tried to infer the function of each place. **Be sure the other groups do not hear the correct answers.**
5. Each time, before the cards are passed, have a student remove one card and place it off to the side so it does not get mixed up with the other sets of cards.
6. The instructor reviews each group's stack, asking: How many groups correctly guessed the rooms' functions? Who had the most difficult time figuring out the room? Why? Is one object taken out of context (like a card removed at random) able to give as accurate a picture as are all of the objects in their place of origin? This demonstrates that removing artifacts from a site removes them from their context and makes it very difficult to get a complete understanding of past people.

### CLOSURE (20 minutes):

1. Artifacts in context are the basis for all understanding about the people who were living in Arizona before Europeans arrived; archaeology is a science of context. When archaeologists dig, they work slowly to record artifacts in their original context. Artifacts are not removed from their context until they are mapped and all data is collected.
2. **Instruct students that in the next archaeology activity they will get to apply context. This activity will require them to bring items from home so that they can construct their own archaeological unit. Have each student bring in:**
  - A. A shoebox or a clear box the size of a shoe box (not much bigger and no smaller)
  - B. Some (5 at the most, they need to fit in layers within the shoebox) small artifacts relating to his or her grandparents, such as photos, coins, shells, perfume bottles, craft projects, etc. This should be anything that reminds the student of the grandparent or was owned by the grandparent (if they have no personal items they can use pictures from magazines that represent their grandparents).
  - C. Some small artifacts relating to his or her parents.
  - D. Some small personal possessions or photos of the student.
  - E. To build anticipation, instruct the students to keep the items they bring in a secret from the other students. Have them bring their artifacts in a non-see-through container or bag.

### EVALUATION:

Have the students complete the ["Context"](#) activity sheet.

### SOURCES:

Smith, Shelley J., Jeanne M. Moe, Kelly A. Letts, and Danielle M. Paterson. 1993. *Intrigue of the Past: A Teacher's Activity Guide for Fourth through Seventh Grades*. Washington, D.C.: Bureau of Land Management, U.S. Department of the Interior. [This lesson is adapted from "Context" on pp. 19-21, courtesy of the Bureau of Land Management.]

## CONTEXT ACTIVITY SHEET

---

NAME \_\_\_\_\_

1. List ten things in your bedroom that would tell about you. Imagine the things on your list to be clues for an archaeologist.

2. Imagine an archaeologist finds your ten items. What might he/she know about you?

3. All of the things in your bedroom are in context. What could be learned about you if the things in your bedroom were scattered all over town?

4. Why is it important to leave artifacts in place at archaeological sites?

## THE CONTEXT GAME

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The things people own can tell something about them. The objects each person has chosen to have can indicate the person's age, gender, and interests. For example, a baseball bat and a football helmet in someone's bedroom suggests that the owner likes sports. Posters of pets and a collection of stuffed animals could mean that the person is an animal lover. The objects (artifacts) can only tell a complete story if they are found together, where their owners left them. Gathering information based on where an artifact is found is called **context**.

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Archaeologists rely on the objects that people made and where they left them to learn the story of past people. This exercise was created to illustrate context.

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- Write your assigned number on the front of all 5 cards.
  - As a group quickly choose a specific place like a hospital, a hardware store, a candy store, a movie theater, etc. and write the place you have chosen on the space provided below next to your assigned number.
  - On each index card, write one item that you would find in the place you have chosen. For example: if you group chose a hospital your items may include a bed, a syringe, cotton balls, etc.
  - When prompted pass your cards to the next group.
  - When you receive the cards from another group, guess the place based on the items from the cards and write your answer on the line below next to the corresponding number.
  - Take one card from the stack and set it aside. Pass the cards to the next group when prompted.
  - You will know when all groups have seen all of the cards when you receive one of your own cards.
- 

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

## SHOEBOX ARCHAEOLOGY

### LESSON I *THE RESEARCH DESIGN*

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**Subject:** science, math, language arts, and social studies

**Skills:** Knowledge, comprehension, application, analysis, and evaluation

**Strategies:** Observation, discussion, explaining, identifying, writing, recalling, knowing, inferring, concluding, utilizing, constructing, creating, interviewing, solving, showing, relating, discovering, listing, participating, predicting, presenting, measuring, reconstructing and examining

**Duration:** 1 hour

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#### **OBJECTIVES:**

In their study of archaeology, students will participate in a simulated excavation of a prehistoric Hohokam site to:

- Make inferences and interpretations using archaeological data.
- Apply archaeological concepts
- Identify archaeological features and artifacts.
- Apply basic spatial and temporal concepts: context, association, and stratigraphy.
- Make accurate measurements using the metric system to create a map.
- Reconstructing previous lifeways.
- Explaining cultural change.
- Present archaeological findings.
- develop an ability to assemble clues and decipher various indicators concerning one person's life and family background.

#### **MATERIALS:**

- a shoebox (alternative: a clear plastic box would allow students to see the layers from the side)
- personal items - objects that reflect students' families, culture, and history, such as coins, shells, small bottles, small dishes, ornaments, and toys. There should be "artifacts" from three generations: things that belonged to or remind them of their grandparents, their parents, and the students' own possessions. Don't choose anything too fragile, and place paper items in plastic baggies.
- soil (sand, gravel, woodchips, potting soil, dirt, etc.) -varying materials represent the different strata that archaeologists encounter

#### **VOCABULARY:**

- **Artifact:** any object made, modified, or used by humans that can easily be moved.
- **Feature:** any object made, modified, or used by humans that cannot easily be moved.
- **Context:** the relationship artifacts have to one another and the situation in which they are found.
- **Unit:** used as a method for excavation, where the whole site is broken into a grid. One square of the grid is a unit.
- 

#### **BACKGROUND:**

This lesson has two parts. The first focuses on the construction of the archaeological **unit** and the second part focuses on the development of a research design. Problem solving is increasingly important in our society, and teaching the use of clues to predict and unravel a puzzle is one way we help children understand this concept. Because archaeology is one area of the sciences that interests everyone, this interest can be capitalized on and used to teach children the value of our past and the past of other peoples of the world. In this activity, student will create an *archaeological excavation* in the confines of your classroom. However, before they do so, the first step in the archaeological process in research design. Because the students will excavate their boxes as if it were an actual archaeological **unit**, this step is extremely necessary.

If you recall from the first lesson, a research design is the most important part of archaeology. It is the formal blueprint developed for any archaeological investigation and it lays out the goals and objectives of the inquiry and the steps to be taken to meet them. It involves investigation and research about the area to be investigated.

## ***THE RESEARCH DESIGN continued***

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It is here that you formulate initial questions and develop your hypotheses to meet the objectives of your research. You must remember that archaeology is a very destructive science and excavation requires the destruction of a site. Unlike physics or chemistry, you cannot replicate your experiment again and again. Therefore, every excavation must be carefully planned and flexible. It will be followed by lessons that teach the skills needed to do the next part of the shoebox lesson.

### **SETTING THE STAGE:**

Review the materials up to this point, specifically the steps in the archaeological process:

#### *1. Research design*

This is the most important part of archaeology. It is the formal blueprint developed for any archaeological investigation and it lays out the goals and objectives of the inquiry and the steps to be taken to meet them. It involves investigation and research about the area to be investigated. It is here that you formulate initial questions and develop your hypotheses to meet the objectives of your research. You must remember that archaeology is a very destructive science and excavation requires the destruction of a site. Unlike physics or chemistry, you cannot replicate your experiment again and again. Therefore, every excavation must be carefully planned and flexible.

#### *Acquiring the Data*

This is when you finally get to go into the field for excavation or survey. This may take several days, weeks, months, or even years. Duration is dependent on the scope of your investigation. Regardless of the duration, this is the process of observing and recording information. Record keeping and data collection must be meticulous for the next step: analysis.

#### *Analysis*

The most fundamental part of archaeology is analysis. This is the classification and description of everything recovered from the field. Sometimes analysis is not done immediately after data acquisition and that is why meticulous and extensive recording is necessary. Most often, the person doing the analysis is not the person that collected the data.

#### *Interpretation*

Now the researcher pulls together all of the data and tests the hypothesis proposed in the research design. The interpretation is the conclusions that are drawn from all of the collected data.

#### *Publication and Curation*

The process ends by publishing the results of the project in the form of a formal report. This is an essential component because it guarantees that the information is accessible to everyone. The artifacts and the report are the only things left after excavation and they both become part of the sites permanent record for future researchers.

Tell the students that they are going to construct their own archaeological **unit** and develop a research design. Have them work individually and tell them that the items that they will be putting into their **unit** should remain a secret from the rest of the class.

### **PROCEDURE (30 minutes):**

Part I. Each student is to assemble a shoebox in which the oldest materials are located at the bottom (those of their grandparents and the more recent artifacts closer to the surface (the artifacts belonging to the student. Fill the shoebox in the following order:

1. A thin layer of substrate
2. Some artifacts relating to the student's grandparents
3. A thin layer of a different type of substrate
4. Some artifacts relating to the student's parents



## ***THE RESEARCH DESIGN continued***

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5. Top with another thin layer substrate
6. Have the students bring the boxes up to you one by one and assign each “unit” (shoebox) a number. Record this information so that you will be the only one in the classroom who knows the identity of each shoebox owner (Do not label with names). Distribute the boxes, making sure no student receives the one he or she assembled.

## **Part II**

### **Research design**

Now that the students have received their unit, they cannot excavate until they have a plan. Archaeologists excavate with questions in mind in advance of their fieldwork. They do not just “poke around” a site, destroying parts of it as they go, just for curiosity. They always have a specific purpose in mind: finding specific information that they need to answer specific questions. Many times, archaeologists excavate just enough to answer the question and they leave the rest of the site undisturbed so that it will be there for future generations. Because Archaeology is a science, archaeologists pose questions using the same format as scientists: the scientific method.

The scientific method is the process by which scientists, collectively and over time, work to construct an accurate (that is, reliable, unbiased and consistent) representation of the world. Recognizing that personal and cultural beliefs influence both our perceptions and our interpretations of the world, they use a set of specific procedures and criteria to minimize influences when developing a theory.

### **The Scientific Method has 4 steps:**

#### **1. Observation and description of an event or occurrence.**

Example: Is the person that this unit represents a male or a female?

#### **2. Formulation of a hypothesis or prediction to explain the event or occurrence.**

Example: The person that this unit represents is a male.

#### **3. Use of the hypothesis to set specific expectations that should be met to support the hypothesis**

Example: If this unit represents a male, then the items I discover in the first level will be masculine

#### **4. Testing the expectation and predictions by properly performed experiments.**

After excavation of the first level, the student will or will not be able to support their hypothesis. For example all of the items may be somewhat androgynous and the student would have to do further excavations to test this. If this is the case, than the result would be inconclusive. However, if all of the items in the first level relates to a male, the student can support his or her hypothesis and if they are female oriented, they cannot support their hypothesis. Interestingly, although the items may lead the student to conclude that the unit represents a male, in fact, it may not. It is possible that a female may share the same interests as a male. In order for the student to be 100% sure, he or she would need to repeat the same experiment over and over. Because this is not an option for archaeologists and every archaeological site is different, theories and ideas about early people consistently change.

Briefly describe the Scientific Method to the students and write the steps on the board for them. Use the given examples above for your example. Ask the students if they think that classical music would help in test taking.

## THE RESEARCH DESIGN *continued*

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### **PROCEDURE: (30 minutes)**

- Have the students develop a hypothesis, a prediction, and expectations to test about the person who assembled their unit.
- For example: The person who assembled my unit is a female.
- Have students write them down and turn them in. You will return them after the excavation so that they can see whether or not they have the evidence to support their hypothesis.

### **CLOSURE (20 minutes):**

Review the vocabulary with the students so that the students understand artifact, feature, and unit. Have the students turn in the boxes for safekeeping until excavation.

### **EVALUATION**

The construction of the shoebox and their research design?

### **SOURCES:**

American Museum of Natural History (2005) Shoebox archaeology. *Petra: Lost City of Stone Educator's Guide*.

Retrieved on May 3, 2005 from

<http://www.amnh.org/education/resources/rfl/web/petraguide/activities/shoebox.html>

## SHOEBOX ARCHAEOLOGY

### LESSON II

### *ACQUIRING THE DATA: MAPPING*

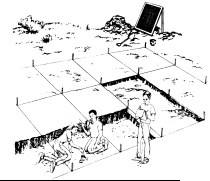
**Subject:** science, mathematics, and language arts

**Skills:** knowledge, comprehension, application, analysis, and evaluation

**Strategies:** observation, discussion, applying, constructing, organizing, relating, solving, demonstrating, and building

**Related Standards:**

**Duration:** 1 hour



#### OBJECTIVES:

In their study of mapping and archaeology, students will use an activity sheet to:

- Complete a puzzle based on the Cartesian coordinate system.
- Recognize the importance of recording archaeological information

#### VOCABULARY:

- **Datum:** something to use as a basis for measuring.
- **Site datum:** an arbitrarily established point from which the entire site is measured and recorded.
- **Cartesian** coordinate system: two- or three- dimensional graph based on the x and y-axis.
- **Grid unit:** a specific spatial are in the coordinate system, designated by the coordinate in one corner (usually the southwest corner).
- **Context:** how artifacts and features relate to each other based on where they were found.

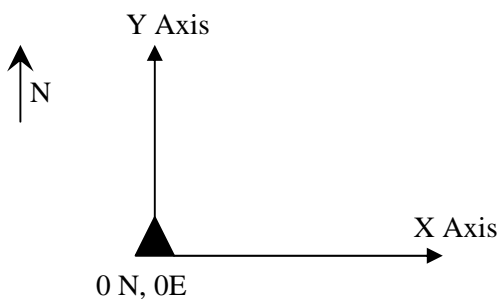
#### MATERIALS:

Transparency of the “Drawing With Coordinates” worksheet, individual copies of the worksheet for all students, scissors, glue, or a pencil.

#### BACKGROUND:

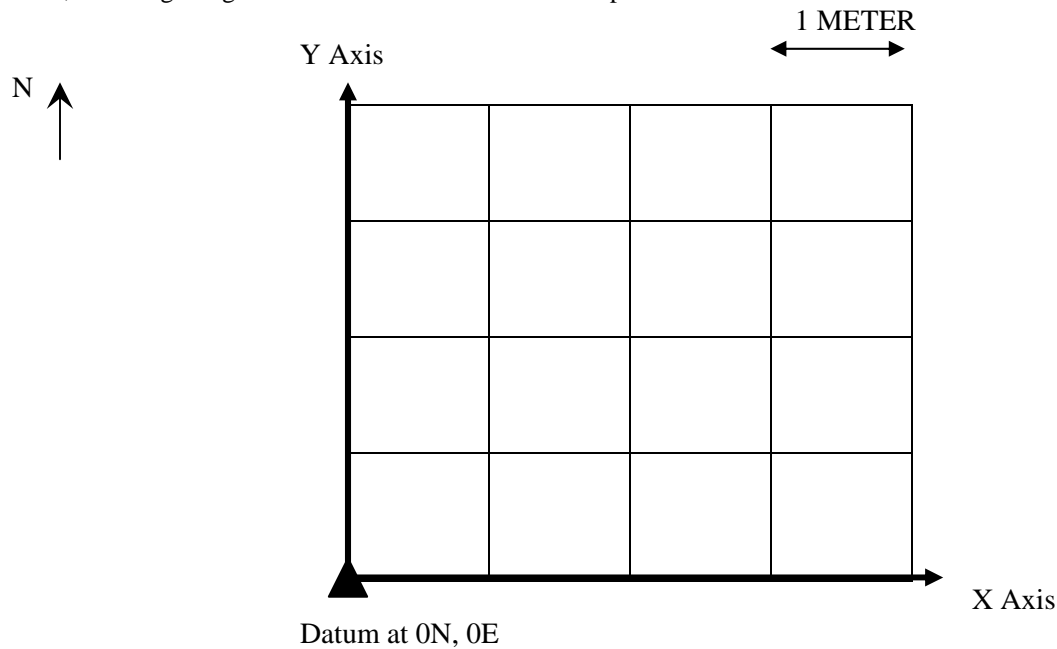
Before students can excavate, it is important to understand how archaeologist maintain and organize spatial and temporal data. Once a site has been dug and all of the artifacts collected, it is gone forever, and can never be replaced with another just like it. Because the archaeological process is destructive, archaeologists must record them on paper to preserve the context of all the artifacts and structures. Archaeologists of the future can study a site that was excavated in the past if good notes and maps were made.

One way archaeologists preserve context on paper is through the use of the rectangular grid, or Cartesian coordinate system. The coordinate system is much like longitude and latitude. The first step in the excavation process is establishing a grid. A site datum is set at an arbitrarily chosen location, typically the southwest corner of the site, and designated a specific coordinate: 0 NORTH, 0 EAST or 0N, 0E. The x and y-axes are established from this datum:

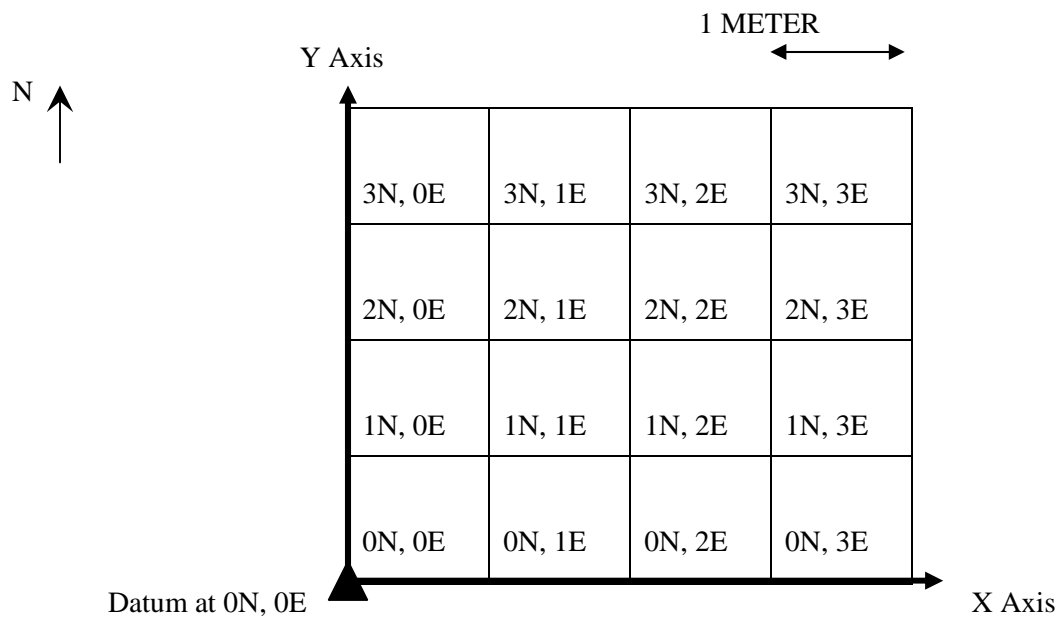


## *ACQUIRING THE DATA: MAPPING continued*

Next, a rectangular grid based on 1-meter increments is placed over the entire site:



Each square on the ground is called a “**unit**” and it is marked with a coordinate in its southwest corner so that each unit has its own unique coordinate. Each coordinate indicates the distance in meters north or east from the site datum. For instance, as you go 1 meter north from the datum, the North number goes up to 1, as you go east, the east number goes up. However you have not gone one meter east, the easting remains the same:



## *ACQUIRING THE DATA: MAPPING continued*

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Once the grid is established, all artifacts and structures are measured and recorded using the system. Before excavation actually begins all artifacts visible on the surface are collected and their locations on the grid are recorded to preserve the spatial relationship. As excavation proceeds, materials found under the surface are similarly recorded and collected to preserve the temporal relationship. When the archaeologist returns to the laboratory, the maps and the data recorded in the field can be used to make inferences about past events and the lifeways of the site's inhabitants. The exact location of each artifact (the provenience) is transported back to the laboratory is known so the object can be tied to its place in the site.

### **SETTING THE STAGE:**

Explain to the students how the coordinate system works and how archaeologists use it to keep track of collected information. Have the students imagine they are a team of archaeologists who have found an archaeological site. Artifacts, including projectile points, pottery sherds, and stone flakes are scattered on the surface of the ground. They want to make a map of the site after they have excavated. How could they record the location of all the artifacts and structures accurately? Have the students brainstorm ideas.

### **PROCEDURE:**

1. Put a transparency of the activity on the overhead and review northings and eastings. Explain how archaeologists establish a grid over the site to assist with accurate recording of data. Share background information about the importance of gridding a site for current and future study.
2. Give students the worksheet "Drawing With Coordinates"
3. Show students how to complete a couple of the squares.
4. Have the students either cut the worksheet in half and cut out the squares to glue in the correct coordinate, or have students draw the squares in the correct location.
5. Once the picture is complete ask students how this system would help someone who did not participate in an excavation figure out where artifacts and features were found and their relationships with each other.
6. Ask students:
  - a. What would happen if the pieces of the artifact from coordinates 3N 1E, 3N 2E, & 3N 3E were missing?
  - b. What if the pieces of the artifact from coordinates 2N 2E, 1N 2E, & 2N 1E were missing?
  - c. Why is it important to keep track of all collected information and the location in which they were found?

### **CLOSURE:**

Summarize how the coordinate system helps organize a site and recreate it later.

### **EVALUATION:**

Have students turn in the worksheets. During the simulated excavation, were the students able to figure out their own units?

### **SOURCES:**

Smith, Shelley J., Jeanne M. Moe, Kelly A. Letts, and Danielle M. Paterson. 1993. *Intrigue of the Past: A Teacher's Activity Guide for Fourth through Seventh Grades*. Washington, D.C.: Bureau of Land Management, U.S. Department of the Interior. [This lesson is adapted from "Gridding a site" on pp. 44-48, courtesy of the Bureau of Land Management.]

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# SHOEBOX ARCHAEOLOGY

## LESSON III

### *ACQUIRING THE DATA: STRATIGRAPHY & CROSS DATING*

**Subject:** science

**Skills:** knowledge, comprehension, application, analysis, and evaluation

**Strategies:** observation, discussion, interpretation, writing, relating, organizing  
classifying,

**Duration:** 30 minutes



#### **OBJECTIVES:**

In their study of stratigraphy and archaeology, students will use an activity sheet to:

- Interpret archaeological strata using the law of superposition.
- Apply cross dating to determine the age of other artifacts.

#### **VOCABULARY:**

- Cross-dating: the principle that an artifact dated at one archaeological site will be of the same approximate age when found elsewhere
- Strata: many layers of earth
- Stratum: the singular of strata or one layer
- Stratigraphy: the arrangement of layers of earth representing different geologic events

#### **MATERIALS:**

Five magazines that vary in age and “Site Near Tucson” activity found as a separate file

#### **BACKGROUND:**

Natural materials such as rocks, soil, and traces of plants and animals settle on the earth’s surface and over time they can accumulate in layers. Each layer, or **stratum**, may be identified by its physical characteristics: color, texture, and structure. Similarly, materials of human origin are also deposited onto the earth’s surface. In archaeological sites, natural and human made materials occur together in layers. These layers are called **strata** and they form a record of past events that archaeologists analyze and interpret.

**Strata** in an archaeological site can provide archaeologists with information on time and space. All of the artifacts or structures in a specific **stratum** will probably be of approximately the same age. The artifacts found above it are younger and those found below it are older.

Cross dating can sometimes establish a date for artifacts and sites. Artifacts such as pottery and an arrowhead were made in distinctive styles through time. A good analogy of this can be seen in cars. A car made in the 1920’s would never be mistaken for a car made in the year 2003. If a pot was found inside a pithouse that was dated to be 900 years old, we can assume that the arrowhead is also approximately 900 years old. When that same style of arrowhead is found in another site, we can assume that the other site is also 900 years old. Sometimes cross dating is the only way archaeologists have to determine the age of sites.

Most **stratums**, or single layers of earth, represent a specific time period that people lived in. Sites with **stratigraphy** are very important and can often show how a culture has changed over time. They have the potential to give clues about the relationship a group of people had to those that came before them.

When an archaeological site is vandalized or artifacts are removed, knowledge about the past is lost forever. Damage to **stratigraphy** by unauthorized digging destroys the information that could be obtained under controlled scientific excavation. The removal of artifacts that can be cross-dated or give information about the age of sites often destroys all possibilities of determining the age of the site. If you ever see anyone digging in an archaeological site or taking artifacts, report them to law enforcement authorities.

#### **SETTING THE STAGE:**

Stack five books on a table. Tell the students that the books were placed in their positions one at a time over a period of thousands of years. Ask them which book was placed in position first. Which one was last? This illustrates the

## ***ACQUIRING THE DATA: STRATIGRAPHY & CROSS DATING*** ***continued***

---

Law of Superposition.

### **PROCEDURE:**

1. Using the "Site Near Tucson" activity sheet as a guide, draw a layer near the bottom of the blackboard. Show how artifacts are deposited as people live on top of the layer. Then a new layer of sediments is deposited on top of that, by natural processes or by another group of people leaving different types of artifacts. This happens several times until the stratigraphy is built up to present day levels.
2. Distribute the "Site Near Tucson" activity sheets to the students. Have the students answer the questions using the information on the stratigraphy drawing.
3. The artifacts on the "Site Near Tucson" activity sheet have been dated based on the age of the stratum in which they are found. If you found similar artifacts elsewhere, would you know approximately how old they are? Yes. This concept is known as cross dating. An artifact type that has been dated in one place can be dated when found elsewhere.
4. Give the "Cross-dating" activity sheet to the students. Ask the students to determine the approximate age of the artifacts based on the information from the "Site Near Tucson activity sheet.
5. Ask the students if they would be able to study the stratigraphy of a site if the strata had already been mixed up by illegal digging. If someone took an arrowhead, what kind of information would he or she have removed from the site?

4-1

### **CLOSURE:**

Summarize how archaeologists use stratigraphy and cross dating to study archaeological sites.

### **EVALUATION:**

Have students turn in the activity sheets. Simulated excavation, did the students apply the law during their excavation?

### **SOURCE:**

Smith, Shelley J., Jeanne M. Moe, Kelly A. Letts, and Danielle M. Paterson

1993 *Intrigue of the Past: A Teacher's Activity Guide for Fourth through Seventh Grades*. Bureau of Land Management, U.S. Department of the Interior, Washington, D.C.

[This lesson is adapted from "Stratigraphy and Cross-dating," pp. 49-52, courtesy of Bureau of Land Management.]

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## SHOEBOX ARCHAEOLOGY

### LESSON IV

#### *ACQUIRING THE DATA: EXCAVATION, ANALYSIS, & INTERPRETATION*

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**Subject:** science, math, language arts, and social studies

**Skills:** Knowledge, comprehension, application, analysis, and evaluation

**Strategies:** Observation, discussion, explaining, identifying, writing, recalling, knowing, inferring, concluding, utilizing, constructing, creating, solving, showing, relating, discovering, participating, predicting, presenting, measuring, reconstructing, and examining

**Duration:** 2 hours

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#### **OBJECTIVES:**

In their study of archaeology, students will excavate a constructed unit to:

- Make inferences and interpretations using archaeological data.
- Apply archaeological concepts from archaeology unit.
- Apply basic spatial and temporal concepts: context, association, and stratigraphy.
- Determine the location of artifacts make inferences based on this information
- Make accurate measurements using the metric system to create a map.
- Test research question and hypothesis.
- Reconstructing previous lifeways.
- Explaining cultural change.
- Present archaeological findings.

#### **BACKGROUND:**

Acquiring the data in an organized fashion is extremely important for the analysis, interpretation, and publication of archaeological data. Without careful excavation, archaeological data can be lost forever. During excavation, make sure that the students excavate slow and careful so they don't break important artifact and so that they can observe the relationship between and among the artifacts.

#### **MATERIALS:**

- The constructed unit
- spoon and paintbrush (archaeologist's tools)
- Shoebox archaeology field notebooks (this is a separate file)
- 2 Rulers per student (students can share rulers)

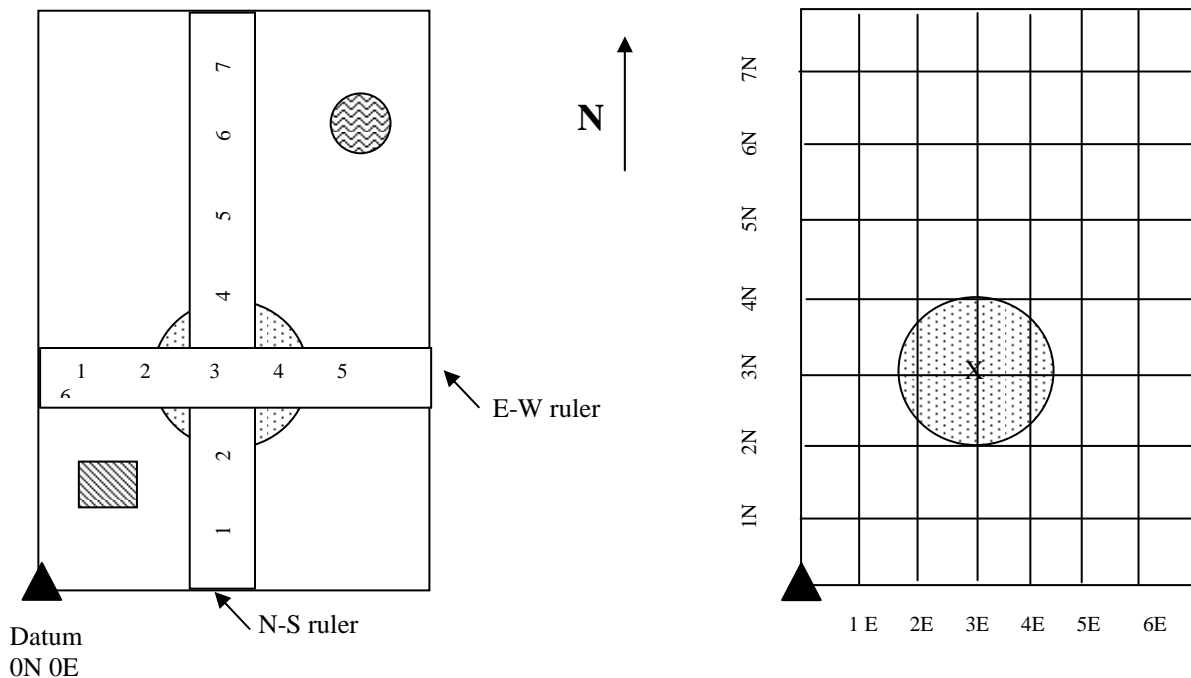
#### **PROCEDURE:**

1. Ask students to "excavate" the units by "level" or strata. Have students dig "*in situ*" or have them leave the artifacts exactly where they find them until each level is completed.
2. Once the level is completed, students should complete level form 1 from the notebook and map the contents of the level before moving the objects and starting on the next level.
3. On the level form, students should note what they uncover in that level and make inferences about the personality and family history of the person whose box it is based on the items in that level.
4. Have students repeat this until all three levels are complete.

## ACQUIRING THE DATA, ANALYSIS, & INTERPRETATION continued

### TO MAP THE BOXES

1. Have students designate one corner of the box the datum.
2. Line up a ruler that runs north to south and line a ruler that runs east and west.
3. Make sure that the 0 from the N-S ruler is on the datum and the 0 from the E-W ruler is on the datum.
4. Have students slide the rulers so that there is an X over the center of the object and draw it on the graph on the level form. Map all objects this same way. For example, this object would be 3cm north and 3cm east of the unit datum:



*ACQUIRING THE DATA, ANALYSIS, & INTERPRETATION continued*

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CLOSURE:

- At the end, the teacher collects the boxes and the students finish their notebook and make inferences about who put the box together based on the evidence from their paperwork and maps not the artifacts themselves.
- Have students present their boxes to the rest of the class and share what they learned about the person that assembled the box.
- Where the students able to support their initial hypothesis?

EVALUATION:

Notebooks and presentations

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## PREPARING FOR THE SIMULATED EXCAVATION: THE PEOPLE OF ARIZONA

*Adapted from Intrigue of the Past: Discovering Archaeology in Arizona*

**Subject:** Science, social studies, language art

**Skills:** Knowledge, comprehension, application, analysis, and evaluation

**Strategies:** Discussion, reading, choosing, relating, recalling, comparing, explaining, rephrasing, spelling, identifying, contrasting, and deciding

**Standards:**

**Duration:** 60 minutes



### OBJECTIVES:

In their study of the Hohokam, students will use reading material and activity sheet to:

- Identify facts.
- Determine relationships between cultures.
- Identify cultural changes over time
- Summarize and paraphrase sections of the story
- Compare and contrast differences in cultures

### VOCABULARY:

- **Paleoindians:** Early Native Americans whose lifestyle was primarily composed of hunting and gathering. The Clovis Indians were Paleoindians.
- **Archaic:** Early Native Americans that came after the Paleoindians. Agriculture was introduced during the Archaic period.

### MATERIALS

- “The People of Arizona” reading packet and activity sheets

### BACKGROUND:

In archaeology, it is imperative that the archaeologist has a basic background of the culture they are studying to better interpret the material remains before they begin to work.

Sites and artifacts can be messengers from the past. If we know how to read their messages, material remains can tell us about the people who made and used them and then left them behind. Although the owners of the artifacts and the inhabitants of the sites may have lived hundreds or even thousands of years ago, they undoubtedly had many of the same needs and concerns, hopes and fears, joys and sorrows that we have today.

An important goal of archaeology is the construction of cultural history. When studying other cultures, there is a tendency to emphasize the differences among people, and to look at other cultures as less than. Cultures with less sophisticated forms of technology are frequently portrayed as simple-minded and naïve. However, on the contrary, such people often have unequal understanding, knowledge and adaptability to the environments in which they live. It is important not to accentuate “them” and “us.” When scientifically studying other cultures it is necessary to suspend judgment. One culture is neither better nor worse than another, just different.

This lesson is important in preparing the students to excavate at the simulated site at Old Pueblo Archaeology Center. By reading about and researching the people they will be studying, they will be able to make better inferences about their life and activities.

### SETTING THE STAGE:

- Ask students what they thought life was like in the Southwest over 1000 years ago. What were people’s priorities? What did they do for fun? Was their life easier or more difficult? Write their assumptions on the board

### PROCEDURE:

1. Distribute the reading to the students.
2. Have students read the story out loud or silently.
3. Distribute the activity sheet to the students. Ask them to write in the answers based on the reading.

## **PREPARING FOR THE SIMULATED EXCAVATION THE PEOPLE OF ARIZONA**

*Adapted from Intrigue of the Past: Discovering Archaeology in Arizona*  
*Continued*

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### **CLOSURE:**

- Review the answers to the activity sheets.
- Ask the students if their assumptions were correct.
- For the 5-hour program, the instructor will have the students come up with questions that they can answer about the Hohokam during the visit. If you are scheduled for a 2-hour program, have students develop:
  - A question about the Hohokam
    - For example: How did the Hohokam make tools? How did they build their houses? How did they make pots? Did they play games? What did the Hohokam eat?
  - A hypothesis based on this question
  - Set expectations to test

### **EVALUATION:**

- Have students turn in activity sheet.
-

## THE PEOPLE OF ARIZONA WORKSHEET

Adapted from a worksheet by Andrea Aamodt from Homer Davis Elementary

As you read The People of Arizona, write in the answers in the correct space or circle the correct answer.

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_

### THE PALEO PEOPLE

1. The Paleoindians were originally from \_\_\_\_\_.
2. The Clovis people had well made spear – points called \_\_\_\_\_.
3. When big-game animals were gone, Clovis hunters switched to small animals like \_\_\_\_\_ and \_\_\_\_\_.



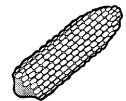
### THE ARCHAIC PEOPLE

1. Houses were made of \_\_\_\_\_ and \_\_\_\_\_.
2. A technique called \_\_\_\_\_ was used to make stone tools.
3. People could help each other by \_\_\_\_\_ goods.
4. Toward the end of the Archaic period, the idea of \_\_\_\_\_ and \_\_\_\_\_ crops changed people's lives forever.
5. Archaic people grew \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_.
6. Some people near rivers learned to \_\_\_\_\_ their fields to water crops
7. Instead of storing seeds in baskets, they began to make \_\_\_\_\_.



### THE HOHOKAM PEOPLE

1. The Hohokam lived in the \_\_\_\_\_ near today's cities of \_\_\_\_\_ and \_\_\_\_\_.
2. Hohokam had/didn't have written language.
3. The \_\_\_\_\_ are Native Americans who live in the desert today.
4. The Hohokam ate a lot of food gathered from the desert, like \_\_\_\_\_ and \_\_\_\_\_.
5. The Hohokam pottery was painted with \_\_\_\_\_ colored designs on tan backgrounds.



## THE PEOPLE OF ARIZONA (CONTINUED)

As you read The People of Arizona, write in the answers in the correct space or circle the correct answer.

### THE MOGOLLON PEOPLE



1. The Mogollon lived in the \_\_\_\_\_.
2. The Hohokam and the Mogollon people lived in houses dug into the ground called \_\_\_\_\_.
3. Religious and community buildings are called \_\_\_\_\_.
4. The Mogollon farmed and hunted animals like \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_.
5. The people in all parts of Arizona remained in contact with neighbors in \_\_\_\_\_ and traded for prized goods such as \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_ feathers.

### THE ANASAZI



1. The Anasazi lived \_\_\_\_\_ of the Arizona Mountains.
2. The Anasazi lived more like the \_\_\_\_\_ than the Hohokam.
3. Both the Anasazi and the Mogollon are called the \_\_\_\_\_ people.
4. The Anasazi later lived in buildings in caves or rock shelters called \_\_\_\_\_ dwellings.
5. Although farmers, the Anasazi did not \_\_\_\_\_ their fields, they depended on \_\_\_\_\_ to water their crops.
6. Anasazi pots were painted with \_\_\_\_\_ lines on \_\_\_\_\_ backgrounds.

### THE PATAYAN PEOPLE



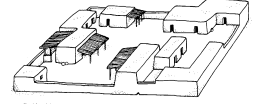
1. Some Patayan People lived near the lower \_\_\_\_\_ River west of Phoenix.
2. Patayan pottery made mostly undecorated pottery of a \_\_\_\_\_ color.



## THE PEOPLE OF ARIZONA (CONTINUED)

As you read *The People of Arizona*, write in the answers in the correct space or circle the correct answer.

### VILLAGE LIFE



1. When there is no rain for a long time, it is called a \_\_\_\_\_.
2. \_\_\_\_\_ also causes disasters for ancient people forcing them to \_\_\_\_\_ or change their lifeways.



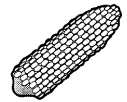
### COMPARE AND CONTRAST

Compare the Anasazi, the Mogollon, and the Hohokam. List 3 similarities:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

List 3 differences:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



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## THE PEOPLE OF ARIZONA

### Teacher Answer Key

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#### THE PALEO PEOPLE

3. Siberia
4. Clovis
4. Deer and Rabbit



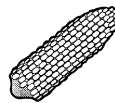
#### THE ARCHAIC PEOPLE

1. Branches and mud
2. Flintknapping
3. Trading
4. Planting and harvesting
5. Corn, beans and squash
6. Irrigate
7. Pottery



#### THE HOHOKAM PEOPLE

1. Desert, Phoenix and Tucson
2. Didn't
3. Pima
4. Mesquite beans and cactus fruit
5. Red



#### THE MOGOLLON PEOPLE

1. Mountains
2. Pithouses
3. Kivas
4. Deer, Bear and Elk
5. Mexico, shell, copper bells and parrot



#### THE ANASAZI

1. North
2. Mogollon people
3. Pueblo
4. Cliff
5. Irrigate, rain
6. Black, White

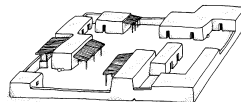


#### THE PATAYAN PEOPLE

1. Gila
2. Buff or tan

#### VILLAGE LIFE

1. Drought
2. Floods, move



## THE PEOPLE OF ARIZONA

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### *Teacher Answer Key (continued)*

#### ***COMPARE AND CONTRAST***

Compare the Anasazi, the Mogollon, and the Hohokam. List 3 similarities:

1. Farmers
2. Traded
3. Pottery



List 3 differences:

1. Kivas
  2. Irrigation
  3. Burial of the dead
-

## RESEARCH PAPER *PUBLICATION AND CURATION*

**ATTENTION: UPON COMPLETION AND SUBMITTAL OF THIS LESSON, CLASSROOMS WILL RECEIVE A 15% DISCOUNT FOR FUTURE CLASSES!!**

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**Subjects:** science, social studies, and language arts

**Skills:** synthesis, comprehension, knowledge, application, & evaluation

**Strategies:** develop, interpretation, explaining, identifying, writing, composing, formulating, compiling, recall, knowing, inferring, and concluding

---

### **OBJECTIVES:**

In their study of the Hohokam, the scientific method and archaeology, students will use their experience at the simulated excavation site to:

- Use scientific findings to propose and evaluate solutions to problems
- Compose a short paper identifying and explaining the results of their research and their conclusions based on research

### **MATERIALS:**

Questions and hypotheses posed before field trip, paperwork from Old Pueblo Archaeology Center excavation, map of Old Pueblo site, pen/pencil, and paper.

### **VOCABULARY:**

- **archaeology:** a scientific method for studying human cultures by analyzing material evidence
- **artifact:** any object that is made or used by humans and that is moveable.
- **context:** the relationship artifacts have to each other and the situation in which they are found.
- **culture:** the set of learned beliefs, values and behaviors generally shared by members of a group of people
- **cultural feature:** any object made or used by humans that is not moveable
- **hypothesis:** a proposed explanation that accounts for a set of facts and that can be tested by further investigation
- **observation:** recognizing or noting a fact or occurrence

### **BACKGROUND:**

Archaeology is a destructive activity. Once someone excavates a site, it cannot be excavated a second time. The difference between archaeological destruction and destruction due to vandalism, bulldozing, flooding, or other disasters is this: archaeologist's record information about what they saw, felt, and observed while they were excavating, and try to make their records and observations accessible to other researchers. Archaeologists preserve information about artifacts, cultural features, and their context in order to learn about the lives of past people.

In today's archaeology, there are only two good reasons to excavate an archaeological site. One is that the site is about to be destroyed by a bulldozer, erosion, development, or other forces. In such cases, archaeologists go in to save and interpret the information from the site, even though the site itself will be destroyed.

A second good reason for excavating a site is to find answers to specific research questions about a people and their culture that cannot be answered in any other way. When using this as the reason to excavate, archaeologists are obligated to have those questions in mind **BEFORE** starting any excavation.

To preserve the information discovered during excavation for future generation, archaeologists carefully record every detail observed during the excavation process. We use different kinds of recording devices, such as forms to describe our excavation, personal journals about what happened during the field day, maps, and sketches of the things we found, photographs, and even video tapes to record observations for the future. Students who have participated in OPEN3 will have had drawn some maps, filled out their observations on field recording forms, and perhaps even written a journal entry about what they did that day.

Having done all that recording, it is an archaeologist's ethical obligation to make sure that all the materials associated with an excavation are accessible to other researchers and students. So, all of the records, the artifacts, the photographs, and everything else will be placed in a museum or other public repository for the future.

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## RESEARCH PAPER *continued*

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It is also our ethical obligation to make sure that others can find out that an excavation took place, to publish our observations about the site and its materials, and to publish our inferences about the site. This last activity is done in research reports. In this capstone activity to OPEN3, the students who excavated at the OPEN3 site will try their hands at creating a research question about the site, and to write a research report that addresses their research question. Students will use the observation and inferences they made while working at OPEN3 to write their reports.

### SETTING THE STAGE:

Open with a discussion about the field trip, recall facts and experiences and scaffold with prior knowledge of the Hohokam. Did the field trip meet their expectations? Were they able to support their hypothesis? Review the student's paperwork from the site.

### PROCEDURE:

- Have the students choose ONE of the three questions, the hypothesis, and the expectations to test that the class came up with in class before the fieldtrip or during the prefieldwork orientation to focus on.
- Put students back into their excavation groups
- Make copies of all of the maps from the site or let the students circulate maps to get an idea of the context of the site.
- Create a report using all of the information in the format of the attached example.
- Grade paper with personal language arts rubric or use attached rubric.

### CLOSURE:

Upon completion of the reports, we recommend that they are published in a public forum, such as the schools or classrooms web site, or they are presented as part of a public report on the research team's findings. Old Pueblo Archaeology Center would be delighted to read your reports and offer an additional 15% discount for the following year for those classes that turn them in after their program. Furthermore, we will choose the best report of the school year and publish it in our bulletin. We would be happy to establish a link between our web page and your classroom's so that an archive of reports from many schools and classrooms can be created on-line. Just send us an e-mail with your class' report(s)!

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## RESEARCH PAPER EXAMPLE

**Question:** Did the Hohokam have pets?

**Hypothesis:** Yes, the Hohokam had pets, they had dogs.

**Expectations to test:** If the Hohokam had pet dogs, than we will find the remains of a dog near a house and treated with special care.

### Results

On September 12, 2005, Thomas Peterson, Kelly Walters, Jose Martinez, & Christina O'Neil excavated at a Hohokam ruin to find out if the Hohokam had dogs as pets. We believe that the Hohokam did have dogs as pets and should find the remains of a dog near a house or treated with special care.

The feature we excavated was a 1-meter by 1-meter pit located 2-meters south of a pithouse (pithouse 1) and 2 meters east of another pithouse (pithouse 2). Our opening elevation was 12-centimeters and we excavated slow and careful so we would not break anything or move anything until we could map it and preserve its context.

About 21-centimeters down, we found a small black and white pot with designs on it. The pot was covered with a very large yellow and white shell and when we removed the shell, we discovered that the pot had a small bracelet and a shell necklace inside of it. Shortly after that, Thomas discovered what looked like arm, leg, and backbones of a small mammal. Soon, Kelly discovered the skull. We knew it was the skull of a dog because it had large canine teeth to eat meat and a large sagittal crest that the strong jaw muscles attached to. The dog also had shell, chipped stone, and pottery buried with it and Jose discovered a small figurine head right next to the skull. This was important because the groups excavating the house to the north of us found the body to the figurine. We believe that the people that lived in that pithouse owned the dog and buried it when it died with things that were important to them. Shell was especially important because it comes from California or Mexico and was traded in.

Based on all of this evidence, we supported our hypothesis that the Hohokam had pets because we met our expectations and found a dog near Hohokam pithouses that were treated with special care.

## RESEARCH REPORT RUBRIC

	BEGINNING 2	DEVELOPING 3	ACCOMPLISHED 4	EXEMPLARY 5	SCORE
<b>TOPIC</b>	Totally unrelated	Remotely related	Somewhat relevant	Directly relevant	
<b>ORGANIZATION</b>	Not organized, events make no sense	Some organization, events jump around, start and end are unclear	Organized, events are somewhat jumpy	Good organization, events are logically ordered, sharp sense of beginning and end	
<b>QUALITY OF INFORMATION</b>	Unable to find specific details or support	Many details are somewhat non-supporting	Some details are non-supporting to the subject	Supporting details specific to subject	
<b>GRAMMAR &amp; SPELLING</b>	Very frequent grammar and/or spelling errors	More than two errors	Only one or two errors	All grammar and spelling are correct	
<b>INTEREST LEVEL</b>	Needs descriptive words	Vocabulary is constant, details lack "color"	Vocabulary is varied, supporting details need work	Vocabulary varied, supporting details vivid	
<b>NEATNESS</b>	Illegible writing	Legible writing, some ill-formed letters	Legible writing, well-formed characters, clean and neat with a cover	Word processed, clean and neat, report cover, illustrations	
<b>TEAMWORK</b>	Students did not work well together, work done by only 1 student	Work done fairly well together by one or two of the students	Report written by almost all students in group and students worked well together	Report written by all students and students worked very well together	
<b>SCORE</b>					



# THE PEOPLE OF ARIZONA

Stephanie Whittlesey

## THE FIRST AMERICANS: BIG-GAME HUNTERS

We often hear about the “discovery” of the **New World** by Christopher Columbus in A.D. 1492. But North America was “discovered” thousands of years before Columbus was born, and has been the home for people ever since. We call these first Americans “**Native Americans**” or “Indians.” In their language, they probably called themselves by words meaning “the people.” We’ll call them “**native people**.” This is their story.

The first discovery of America took place at least 12,000 years ago, when much of the world was covered with ice and snow. Because so much water was locked up as ice in the form of glaciers, the sea level became lower. Lower sea levels created more dry land and connected what is today Alaska with what is today part of Siberia. This land is what we call the Bering Land Bridge. Animals and people could walk over the land from one continent to the other. Over this land bridge came the first of the people to live in North America—the resourceful hunting people that archaeologists call **PALEO-INDIANS**.

## THE PALEO-INDIANS

Who were these Paleo-Indians, the true first Americans? By comparing their teeth and bones with modern and ancient Asian and Native American peoples, and by studying the languages of Native Americans, we learned that the Paleo-Indian people were originally from Siberia. The Paleo-Indian people were related to the Asian peoples who lived in Siberia 12,000 years ago. That is why if you look at the Native Americans who live in Arizona today, you will see they look similar in some ways to Asian people like the Chinese and Japanese.



**Clovis Point.** The spear points the Clovis people used were very well-made.

### *Some of The First Americans:*

#### **THE PALEO-INDIANS**

(PAY-lee-oh IN-dee-uhn)

*early people. (paleo=ancient, long ago).*

It is hard to say when the first Paleo-Indians arrived in America from Asia. Some may have come as early as 20,000 or even 40,000 years ago. Most moved into North America about 12,000 years ago. The first people to live in America’s Southwest came about 11,500 years ago. Their ways of life stayed the same until about 6,000 B.C. *Clovis* people are Paleo-Indian people. Some of the first people in Arizona were the Clovis people who were big game hunters.

Why did men, women, and children cross over the land bridge from one continent to the other? It must have been scary, walking into a strange and unfamiliar land, not knowing what they would encounter. We may never know why the people traveled across the Bering Land Bridge into what is now North America. Did they come because the animals the people hunted for food became scarce? Maybe there were too many people living in one place? Did the weather become so harsh that many animals and plants died? Perhaps the first people in America were simply following the game animals or were searching for special herbs or other plants.

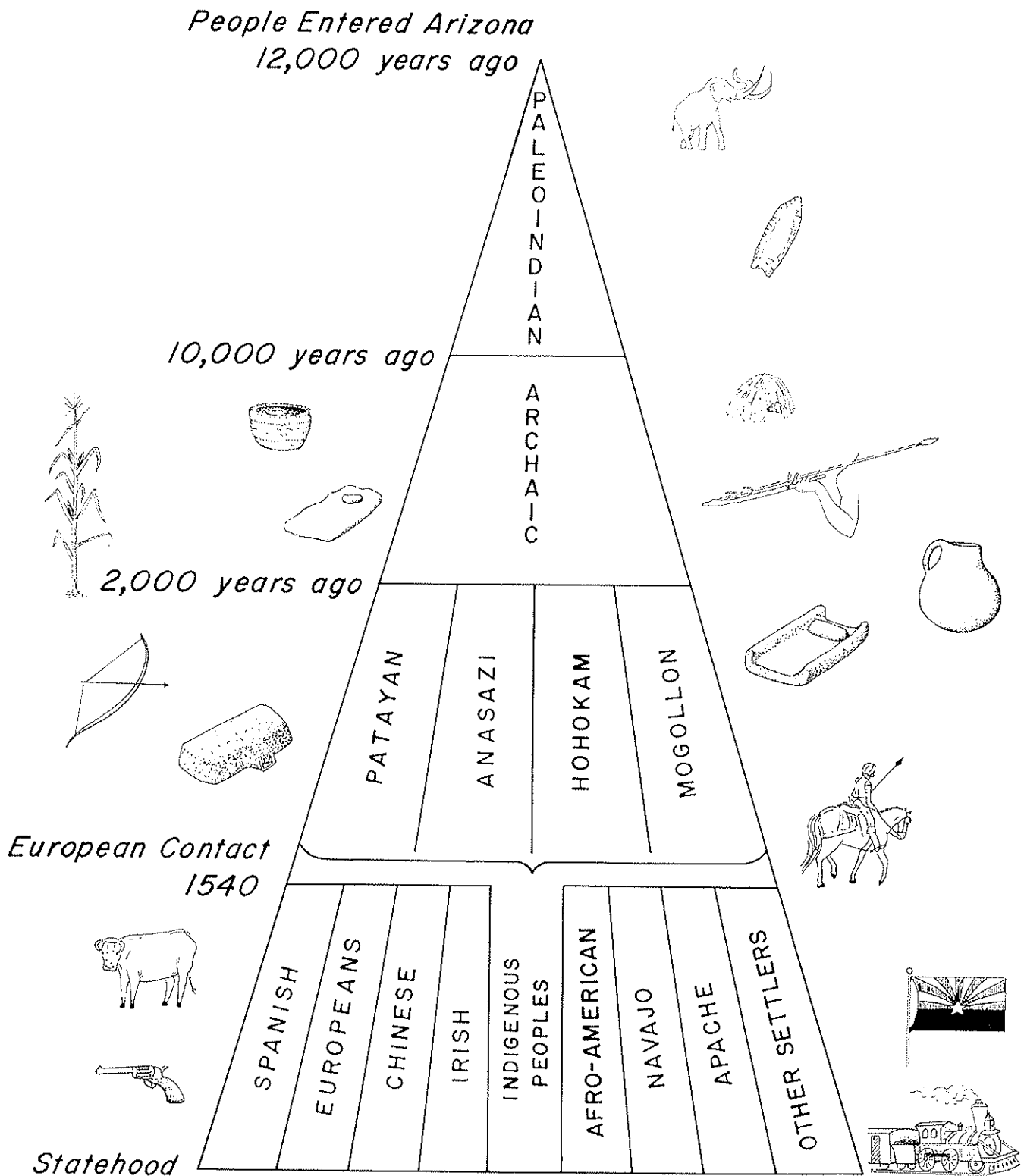
For whatever reason, they came. The people kept moving once they crossed the land bridge, following the game southward—until some of them even reached the tip of South America. Most of the Native Americans who live in North and South America today had ancestors who first crossed the Bering Land Bridge.

## THE CLOVIS PEOPLE

Some of the Paleo-Indians lived in what is now the Southwest. They are called “Clovis people.” Clovis people lived all over North America. The spear-points they used were very well-made. Archaeologists call those points Clovis points.

The Clovis people probably led a hard life, with many perils. There were enormous beasts—the large mammoths, camels, saber-toothed cats, bison, tapirs and other animals that no longer live in Arizona but did when the last great Ice Age ended. Hunting was very dangerous. Because the Clovis people used only stone-tipped spears, it took many skillful hunters to bring down one animal. We think they stalked female and young mammoths, which were easier to kill than the big bulls. They tricked the beasts by attacking them when they were drinking from a stream and got stuck in the mud. Imagine trying to kill a large elephant with a spear!

We don’t know much about the day-to-day life of these people, because most of our information comes



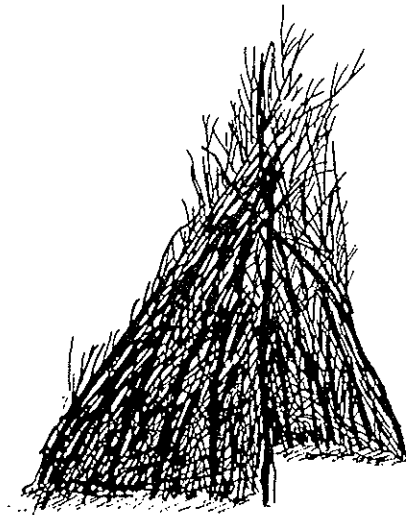
(Susan A. Martin, illus.)

## THE PEOPLING OF ARIZONA CULTURAL TIMELINE

### ***A Place From The Past:*** **SITE**

*A location, place. "Sites" are places where people did things and left things behind.*

There are many archaeological sites in Arizona where prehistoric people once lived. Some famous places include Canyon de Chelly, Casa Grande Ruins, Montezuma Castle, Besh-bagowah Ruins, and many others.



**Brush Shelter**

from SITES where the hunters killed and butchered game. Because they were hunters, the people couldn't stay in one place very long. They had to follow the game wherever it went. Their homes are seldom found by archaeologists. The people probably lived in skin tents or brush shelters. These homes were probably cozy, banked with snow in the winter and heated with campfires. While the men were out hunting, the women and children collected plants that were good to eat or useful as medicines. A big part of a woman's life was keeping her family supplied with the clothing and footwear she made from the skins of animals.

This way of life or "lifeway" came to an end around 10,000 years ago. The weather began to change, becoming warmer and drier. The big animals that the early hunters lived on disappeared. They were replaced by animals more like those we see today.

Why did this happen? Some scientists think the weather was the cause. Mammoths and bison, like elephants and buffalo, need a lot of grass and green things to eat. There is grass in Arizona today, but when the big-game hunters lived here long ago, there must have been much more to support the mammoths. When the weather became drier, less rain fell, and the rich plant life disappeared. The mammoths and other big animals had less to eat, and they died.

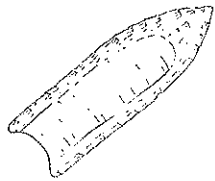
Some archaeologists think that the Clovis hunters were a bit too skillful and clever. They may have killed too many animals—especially the females and their young—causing the big animals to eventually die out. Probably both things happened, and it was the combination that destroyed the big animals.

Think about this: You are a Clovis hunter. You no longer have mammoths and big-game animals to hunt. What would you do to find food?

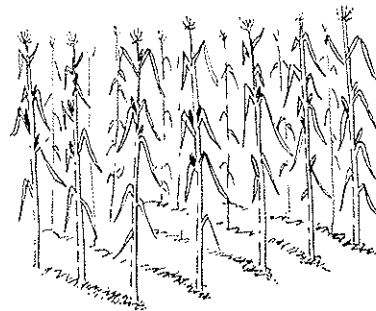
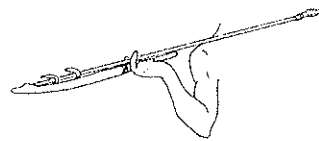
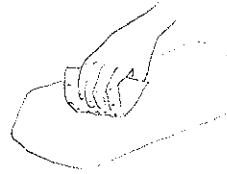
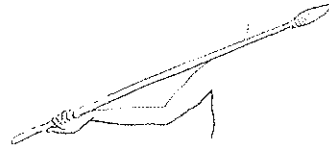
Their solution makes sense. The people continued to hunt, but switched to stalking the smaller animals that were still around like deer and rabbit. Gradually, over time, they made an astonishing change in their lifeway. They began to collect and eat more wild plant foods. Because of the changes in the weather, there

## PALEO-INDIAN

Archaeologists Find . . .



People Made and Used . . .



## ARCHAIC

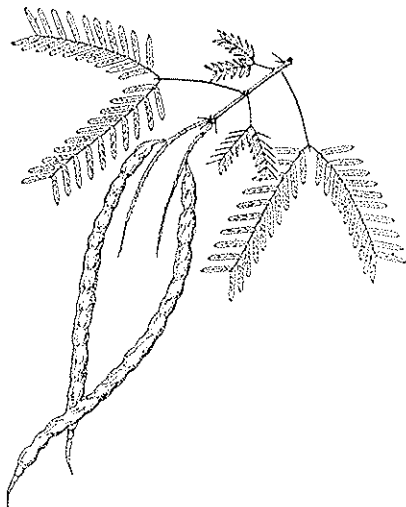
(Susan A. Martin, illus.)

### ***It's Old, It's ...*** **ARCHAIC!**

(ar-KAY-ick)

*ancient, old, or surviving from an earlier people. Archaic can also mean relating to an earlier time.*

Those who lived in the Southwest after the Paleo-Indians are called the Archaic or Desert Archaic people. They were in the Southwest from about 6,000 B.C. until about 2,000 years ago, after the time of the big game hunters. However, the Archaic people got most of their food from hunting animals and gathering wild plants. The Archaic people learned about corn from people in Mexico.



**Mesquite**

were probably more plant foods to eat. This change in how people found food was dramatic, and the old way of life for the people was gone forever.

## **HUNTERS AND GATHERERS**

The new way of life began gradually around 10,000 years ago, as the large Ice Age animals were dying out. Archaeologists call this time the **ARCHAIC**—another word for “old” or “ancient.”

We don't usually think of the desert as a place full of good things to eat, but it is. There are plants all around that can be eaten. Some of them are really tasty. Cactus fruits, seed pods of trees like the mesquite and palo verde, and even tiny seeds of grasses are good foods. Away from the lower southern deserts, in the higher and wetter parts of Arizona, people gathered acorns, piñon nuts, walnuts, and berries.

Think about the tools the Clovis hunters used. Can you use a stone-tipped spear or a stone knife to grind up seeds into flour? If you tried, you would quickly learn that such tools won't work very well for grinding. The people began to make tools from coarse rocks such as sandstone to make flour. They used a small hand stone—or *mano* (named for the Spanish word for “hand”)—on top of a big milling or grinding stone called a *metate* (named from the Aztec word *metatl*). Grass seeds and other plant foods were ground into flour and then fried like tortillas or pancakes, or cooked in water like oatmeal. Deeper bottom stones shaped like bowls, which are called mortars, and longer, round top stones called pestles were used to crack nuts and grind up mesquite pods.

## **THE ARCHAIC PEOPLE**

Other things besides tools were different because of this change in lifeways. One very important difference was that women probably contributed a greater share to the daily diet. The Clovis hunters were probably men, and the Archaic men continued to hunt animals. But

women also played important roles as providers of food. Throughout history in most of the world, plant foods have been collected and prepared by women. Archaic women played a vital role in keeping their families fed.

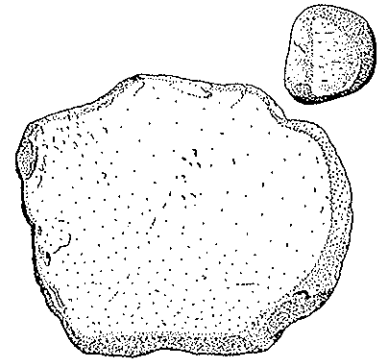
Another result of this change was that the people began to do things that would help the wild plants grow and bring better harvests. This idea of caring for or cultivating plants was the first step toward the practice of farming.

The Archaic people moved their homes frequently, just like their ancestors who hunted big game. Because they had to go wherever the wild plant foods were ready to harvest, they couldn't live in one place very long. Cactus fruit in the desert valleys would be ready in the late spring, and in the fall the people might move to the mountain slopes to collect piñon nuts and hunt deer.

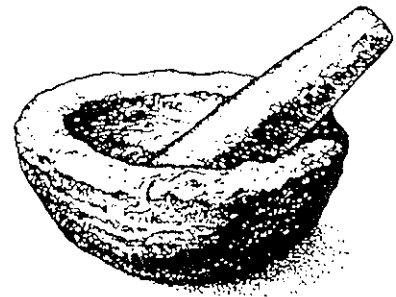
The houses of the people at this time were simple homes built of branches and mud. These types of houses could easily be left behind and new ones built in another place. Sometimes rock overhangs and caves were used as shelters. The people probably returned to the same place several times. Perhaps they lived in a particular spot during the summer where water was available and life was pleasant, then moved to another spot in the winter.

Their tools had to be portable, too. Except for the heavy metates (which were probably left behind when the people moved), everything had to be easy to carry and hard to break. Baskets, items made of the stringy fibers of plants such as yucca, and things made of leather and wood were their containers, clothing, shoes, and tools. Babies were carried in cradleboards, with soft material such as bark for diapers.

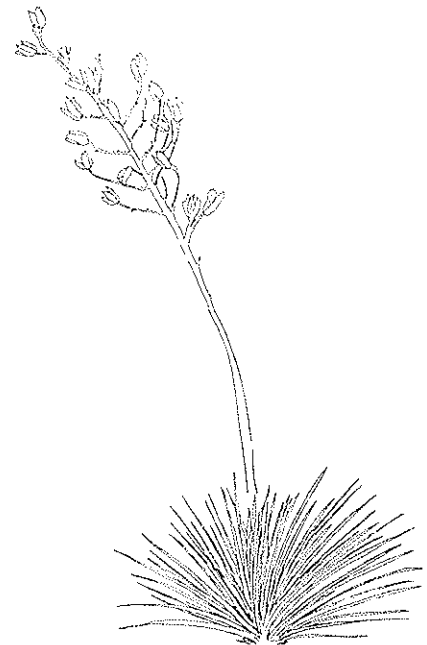
For most tasks, the people used tools made of stone. When someone needed a knife or a saw, it was made by hand from stone in a technique archaeologists call **flint knapping**. To make the tool, a flint knapper had to strike one stone against another, breaking off pieces from one of the stones to create a sharp edge. There were no metal tools such as hammers, because the people had not learned how to mine metal ores and



*Mano and Metate*



**Mortar and Pestle**



**Yucca**

make tools from it. Even their jewelry was made of stone, bone, or shells from the ocean.

Because the people traveled around so much, they had a wide range of resources to choose from and had friends and family in many places. In that way, people could help each other out by trading goods, by cooperating in the hard work, and by sharing food when times were tough.

Toward the end of the Archaic period, something happened that changed the lives of the people and their descendants forever. The idea of planting and harvesting crops came to the people, probably from their relatives and friends who lived in the region we now call Mexico. From their neighbors to the south, the Archaic people learned to plant and tend corn, beans, and squash. Their fields were located along rivers where there was water, or at the base of hills where rainwater flowed down after storms. At first, the people probably treated growing crops like just another wild crop. The people continued to move a lot. They only stayed in one place long enough to grow and harvest a crop, then moved on for the rest of the year.

But then they began to adapt their lifeway to growing crops. You need two things to be a good farmer. First, you have to stay at home to keep the crows, mice, squirrels and other birds and animals from eating your crops before you can. Second, you have to have a secure place to store your crops and seeds for the winter. By storing them, the crops will feed you in the winter months and the seeds will be there to plant in the spring.

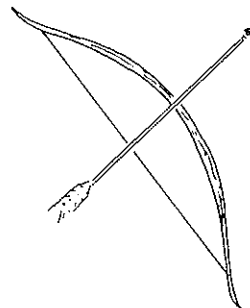
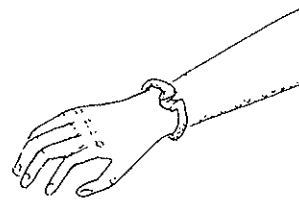
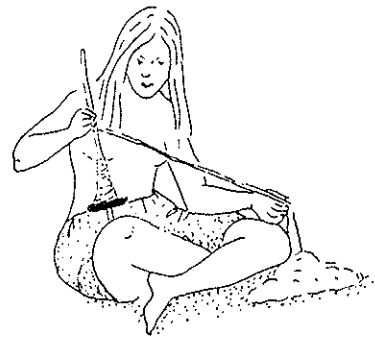
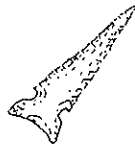
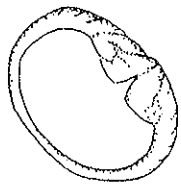
To solve the first problem of keeping wildlife from eating the crops, the people learned that they had to give up their wandering lifestyle and become stay-at-home farmers. The first corn the people grew was small, with tiny kernels on cobs only a few inches long. Through time the people selected larger seeds to plant, and the corn and its kernels became larger. The people also learned to plant cotton and use its fibers to weave clothing and blankets. They grew a form of half-wild tobacco. They probably smoked the tobacco for special



## VILLAGE DWELLERS

Archaeologists Find . . .

People Made and Used . . .

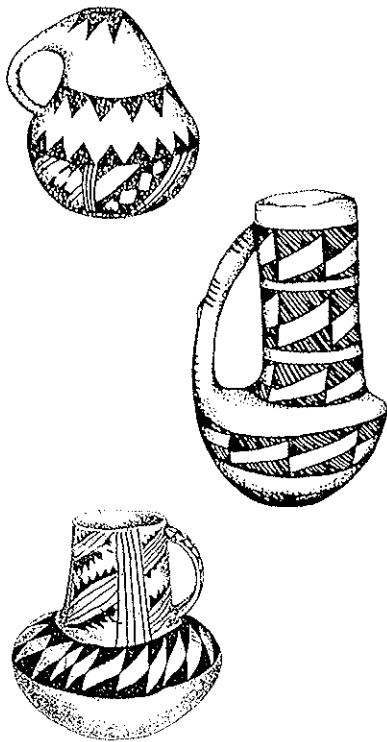


(Susan A. Martin, illus.)

occasions, not just anytime as some people smoke tobacco today.

To make their crops grow more reliably, some of the people who lived near rivers learned to **irrigate** their fields. They built canals to bring water to the fields. **Irrigation** solved the big problem of having to depend on rainfall to water growing crops. You know that today the weather forecasters on television are wrong sometimes—yet they have satellite pictures and other modern inventions to help them. Imagine how difficult it was for the Archaic people to predict when it would rain!

To solve the second problem of storing crops and seeds, they turned to another invention from their neighbors to the south—**pottery**. Instead of baskets to store their seeds, they began to make ceramic pots for storage. There was a catch in this—pots, unlike baskets, are heavy and they break. Once they began to use pottery for their daily tasks, the people traveled around even less than they did when they just had crops to tend to. Gradually, they built larger villages that they lived in for much of the year.



Ancient pottery

As the Archaic period came to an end, the people learned how to make and use pottery. This was an important step for the people, because their lifeways were changed in many ways. The invention of pottery is important to archaeologists also, because they can often identify different groups of the people by the colors, shapes, and designs of the pottery made by each group. By around 2,000 years ago, most of the farming people in what is now Arizona had begun to make pottery.

## VILLAGE FARMERS

With the beginning of farming, the people had some control over their food supply. Only in stories and songs did the people remember how their grandparents and great-grandparents moved from place-to-place to live. When more children were born, the population grew.

### ***The Hohokam people***

Gradually, larger villages were built and different groups of people began to emerge. The people who lived in the desert parts of Arizona near today's cities of Phoenix and Tucson are called the Hohokam by archaeologists. Hohokam is a Piman term meaning "those who have gone" or "all used up." The Pimas are Native Americans who live in the southern deserts today. We don't know what the Hohokam called themselves, because they had no written language, and their words and tales have not survived through time.

The Hohokam gathered plentiful harvests from their irrigated fields along the rivers. The rivers in the desert had water in them before modern people dammed them up or began pumping groundwater near the rivers to irrigate farmland. They also ate a lot of food gathered from the desert, like mesquite beans and cactus fruit. They built oval structures with side walls of earth where they may have played a sort of ball game. The ball game was probably played for religious reasons instead of just for fun. Perhaps they used these structures for dancing or other community activities. Archaeologists named the structures "ballcourts."

Like many of the people of the prehistoric Southwest, the Hohokam probably did not separate religion from everyday life. A ball game or dance could be sacred and fun at the same time. Later, the people stopped using ballcourts and instead built big, flat-topped mounds of earth, like pyramids with the top cut off. Archaeologists call these "platform mounds." There is no evidence that the Hohokam conducted sacrifices on these mounds, like the Aztecs of Mexico. Archaeologists do think they performed some type of ceremonies on the mounds.

Hohokam pottery was painted with red designs on tan-colored backgrounds. Designs were in geometric patterns or depicted birds, lizards, insects, and sometimes dancing people. When someone died their body was burned and the bones and ashes were buried, often in a pottery jar.

### ***How do I say it?*** **SOME OF THE NATIVE PEOPLE IN ARIZONA**

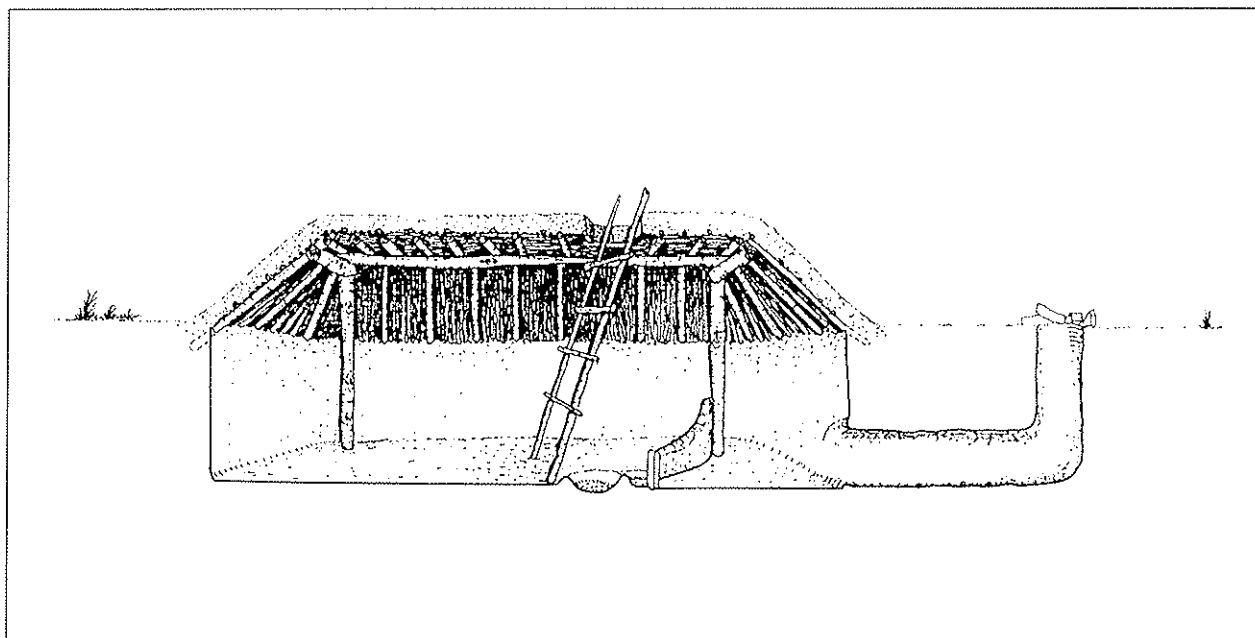
How do you say the names of some of the native peoples that lived in Arizona? Try the following:

Anasazi (an-nah-SAH-zee)  
Apache (uh-PATCH-ee)  
Archaic (ar-KAY-ick)  
Clovis (KLOH-vis)  
Hohokam (ho-ho-KAHM)  
Hopi (HO-pee)  
Mogollon (mug-gee-YOHN)  
Navajo (NAV-uh-ho)  
Patayan (puh-TIE-yuhn)  
Paleo-Indian (PAY-lee-oh IN-dee-uhn)  
Pueblo (PWEB-lo)  
Quechan (ket-CHAN)  
Zuni (ZOO-nee)

Some archaeologists think that the Hohokam migrated into Arizona from the south, from what is today Mexico. We don't know this for sure, but many of their lifeways, their tools, and some of their architecture look much like things used by the people farther south.

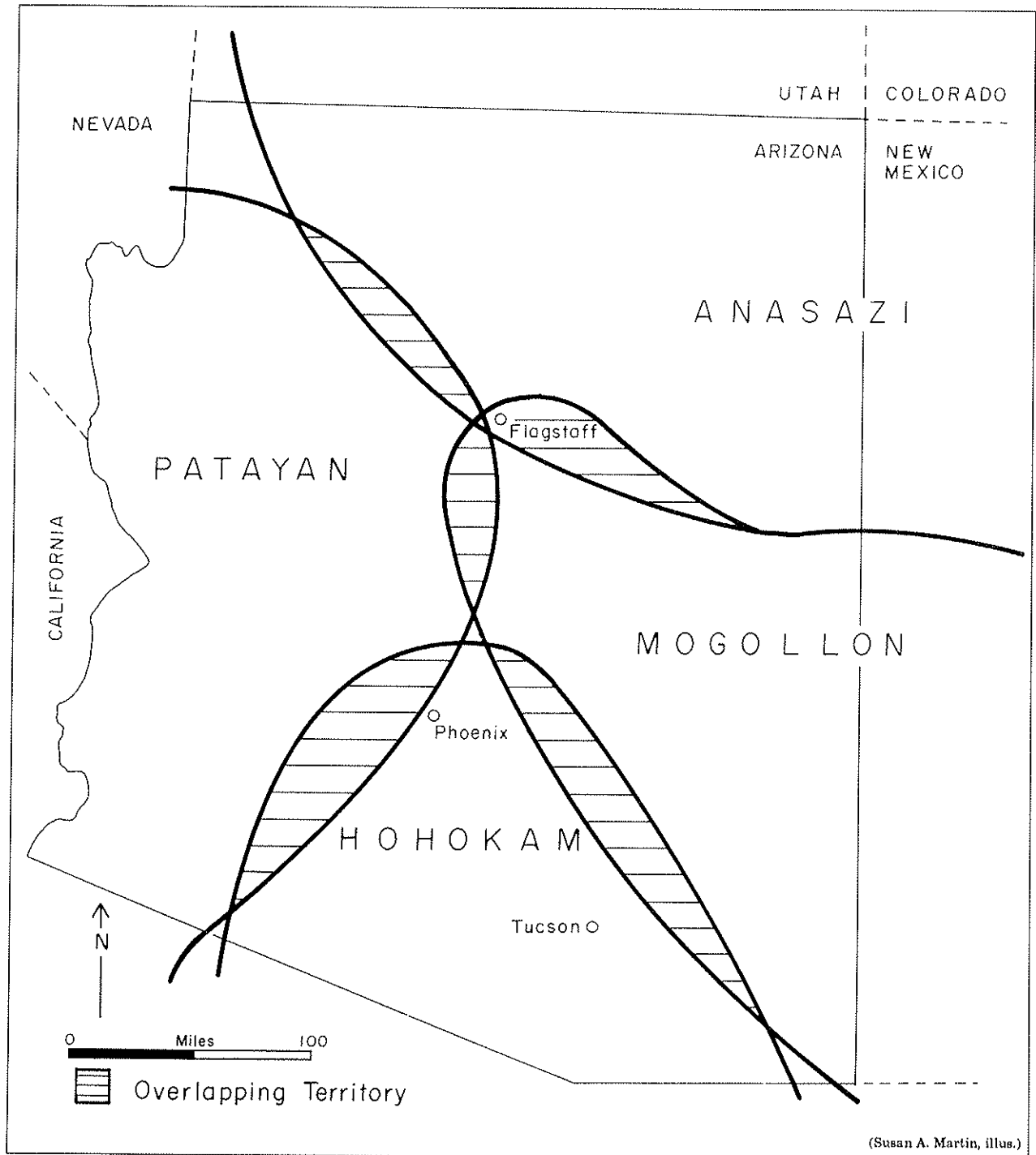
### *The Mogollon people*

Farther to the north and east, in the mountains of Arizona and New Mexico, lived a people that archaeologists call the Mogollon. They are named after the Mogollon Mountains of central western New Mexico, where early Mogollon sites have been found. The Mogollon lived first in brush houses, much like those of the Archaic folk except larger and more sturdily-



**Pit House.** The foundation of a pit house is a pit dug in the ground.

built. Because the foundation of this kind of house is a pit dug in the ground, archaeologists call them **pit houses**. Later, the Mogollon began to build apartment-like houses of stone. Mogollon religious and community buildings are called "kivas." Kiva is a Hopi word for the type of building that the Hopi still use for their ceremonies. The Mogollon built kivas that were rectangular in shape.



## CULTURAL GROUPS OF ARIZONA 1,000 YEARS AGO

enemies that might be looking for trouble. However, think of how worried the mothers must have been—always checking to make sure no babies tumbled off the edge of the cliff! They probably asked the older brothers or sisters to watch over the little ones.

The Anasazi were also farmers, but they didn't often build ditches or canals to irrigate their fields. This was because the rivers in the part of Arizona where they lived weren't like those in southern Arizona where broad, shallow streams with wide, low banks made digging canals practical. The rivers in northern Arizona have remained very much the same since the time of the Anasazi. Think of the Colorado River, which flows through the Grand Canyon. It wouldn't be an easy task to get water from it to your fields. The Anasazi depended upon rainfall to water their crops.

The Anasazi kept dogs and turkeys—the only tamed or domestic animals the people had. Turkeys provided down or feathers to make warm, soft blankets and eggs and meat for food. We know the Anasazi raised turkeys in their villages because archaeologists have found turkey eggs and turkey pens.

The pots made by the Anasazi were painted in black lines or with squares, rectangles, or triangle designs on white backgrounds. Their pottery was very different from the Mogollon and Hohokam pottery.

The Anasazi were like the Mogollon in other ways. They buried their dead in much the same ways as the Mogollon. They also built kivas. Instead of being rectangular like the Mogollon's, Anasazi kivas usually were round like the sun and moon. We think the Anasazi religion was founded on ways to bring rain—along with health, prosperity, and long life—because the Anasazi farmer relied greatly on rainfall for water. Even today, the Hopi and other people whose ancestors may have been the Anasazi, hold ceremonial dances to bring rain and good health.

The Mogollon were not just farmers. They hunted far and wide and were skilled hunters. They used the bow and arrow, which was invented about 1,500 years ago, to bring down deer, bear, and elk. They grew corn, but they didn't rely on it as much as their Hohokam neighbors did. We know that hunting was very important to the Mogollon because archaeologists find many Mogollon men buried with quivers of arrows and with the tools they used to make arrowheads.

The first pottery they made was plain brown or plain red in color, without painted designs. Later, they made pots with red designs on a brown background. Later, still, they made pots of several colors, such as black, red, and white. The Mogollon seldom painted their pots with designs of living creatures. Instead, the designs were usually complicated ones of lines and geometric shapes.

They buried their dead in graves under the ground, placing food and water in bowls for their loved ones to consume on their journey after death to the other world, or after life, or something such as this. We don't know much about their religious beliefs because there was no written language to help us to understand. All our clues about their lives come from objects they made, called ARTIFACTS, that have survived through time—such as houses, pots, and tools.

The people in all parts of Arizona remained in close contact with their neighbors in Mexico. They traded with these people for valuable and prized goods, such as shell from the Gulf of California, copper bells, and parrots called Macaws, which were kept for their bright and colorful feathers. Goods from Mexico were traded widely with all the people in Arizona. The Mogollon were especially fond of jewelry made of turquoise. They could mine turquoise with simple tools and turn the gem into earbobs, beads, and such things.

### *The Anasazi people*

Another group of people, the Anasazi, lived north of the Arizona mountains, around the area that is

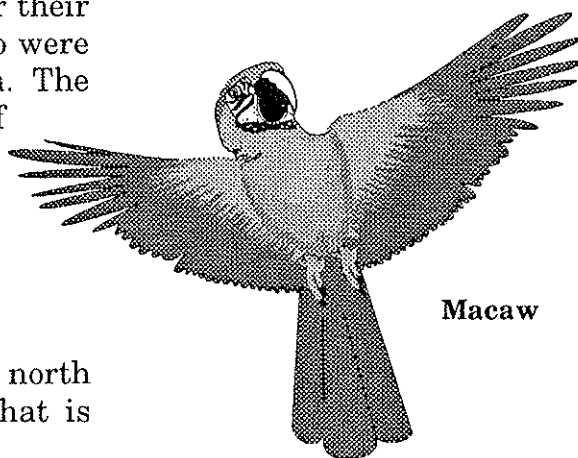
### *Something Made By People:*

#### **ARTIFACT**

(AR-tih-fakt)

*Any object made or used by people or showing human workmanship can be called an artifact. (arte=by skill; factus=to do)*

By studying artifacts, we can learn many things about people that lived long ago.



Macaw

today near the towns of Winslow and Holbrook. They also lived north of the Grand Canyon past the Utah border, in northern New Mexico, and in southwestern Colorado. Anasazi is a Navajo word meaning “enemy ancestors.” The Hopi, who may be descendants of some of the Anasazi, call these people “Hisatsinom.”

The Anasazi seem to have lived in ways that are more similar to the Mogollon than to the Hohokam. This is one reason that archaeologists think that the Hohokam came into Arizona from Mexico. Archaeologists call both the Anasazi and Mogollon “Pueblo people” because they built **pueblos**. Spanish explorers called them Pueblos after the Spanish word that means “village” or “town” because they lived in villages.

Like the Mogollon, the Anasazi lived first in pit houses and later in stone apartment-like houses. Some of the apartment houses were built in caves or south-facing rock shelters where the buildings could soak in the heat from the sun. These are called **cliff dwellings**. The cliff dwellings were warm in winter and sheltered from the rain. They were very safe places to live in because they could be defended easily from



**Cliff Dwelling.** Cliff dwellings were sometimes built in caves or south-facing rock shelters where they could soak in the heat of the sun.



### *The Patayan people*

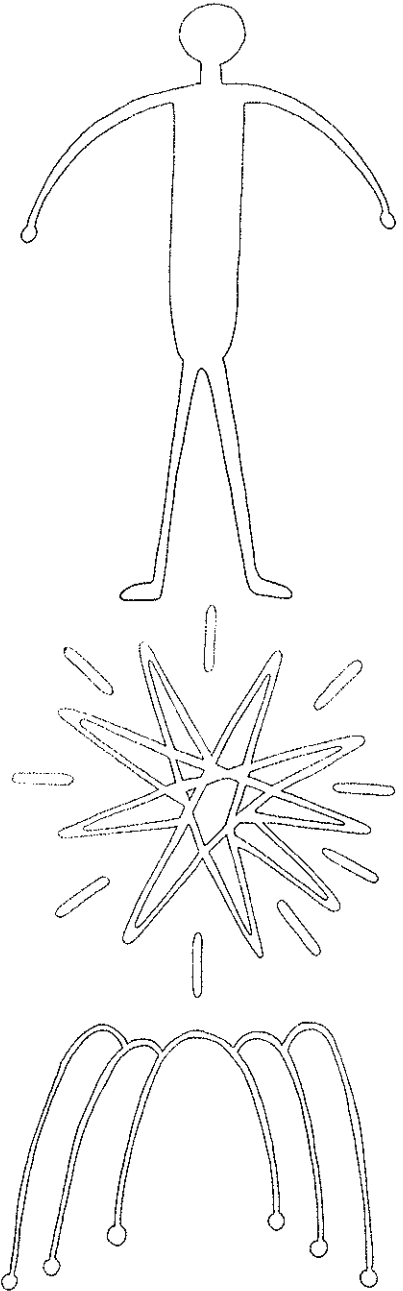
In the far western deserts lived a people we call the Patayan. Many of the Patayan lived in villages near the Colorado River from the western Grand Canyon to the Gulf of Mexico. Some Patayan lived near the lower Gila River west of Phoenix. They made mostly undecorated pottery of a buff or tan color. They planted crops on the floodplains of rivers after the rivers had flooded and left fresh soil. This is called “floodwater farming” and the land that is covered with water when a river floods is the “floodplain.” The Patayan also hunted and gathered foods in the desert and upland areas away from the river. Some of the Patayan people lived in the mountains. They made brown and gray colored pottery.

The Patayan may have made very large figures on the ground called Intaglios (in-TALL-yohs). Intaglios are patterns made by removing the dark surface covering of rocks (called **desert pavement**) in a pattern that exposes the lighter rock and dirt beneath. The patterns were made in different large shapes like a human figure or a spiral. These shapes were very large, often as large as a parking lot or football field. The Quechan, who may be descended from the Patayan, continue to use the intaglios as part of their religious ceremonies to help them remember their sacred stories and traditions.

## DIFFICULTIES OF VILLAGE LIFE

Times weren't always good for the people. Sometimes disaster struck. About 700 years ago, disasters hit the people in northern Arizona. They may have cut too many trees. The soil may have eroded away. There was a long **drought**. No rain fell summer after summer. Without water, the crops were poor and in some summers there was no corn. The Anasazi had to live on wild plant foods and animals. The Anasazi may have had no choice—they probably had to either move or die. Many people were forced to leave their homes and move to the south, hoping to find a greener, wetter land.

The drought affected everyone, not only the Anasazi. This was an unsettled time of much movement



**Desert Intaglios.** (DEZ-ert in-TALL-yohs) Very large figures or patterns on the ground are called *intaglios*. They are made by removing the desert pavement in a pattern that exposes the lighter rock and dirt beneath. Some intaglios were as large as parking lots or football fields.

### **What Is ... PREHISTORY?**

(pre-HISS-tuh-ree)

*The time before there were written records or before the Europeans came and wrote about the people and events in America is called prehistory. Prehistory can also mean the study of prehistoric people or existing in times before written history.*

A prehistorian is an archaeologist who specializes in prehistoric people and their cultures. Students study prehistory to learn about the people who lived in Arizona before the Europeans met them in the 1500s and began written records.

### **Time Before Columbus and the Europeans: PRECONTACT**

(pre-KON-takt)

The time before the first recorded contact, or meeting in America of the Europeans and First Americans. Many native people have oral histories about their lives before the Europeans came to America. Some scientists and historians are using the term "precontact" for "prehistory" and "postcontact" for "history."

and hopelessness among the people. It was a time of conflict, too, because hungry people will do anything to fill their hurting bellies—even if it means stealing someone else's stored food.

In other parts of Arizona, a little later in time, there was another type of disaster. A great flood swept away the houses, canals, and fields of the Hohokam living along the desert rivers. The Hohokam abandoned their villages. We don't know if they moved away permanently or not. It is possible the Hohokam changed their lifeway and archaeologists could no longer recognize them as Hohokam.

The drought, floods, and other problems around 600 or 700 years ago caused many of the people in Arizona to move or to change their lifeways. Some of the people remained at the Hopi villages and desert areas of Arizona. Others stayed at Zuni Pueblo in Western New Mexico and at several villages along the Rio Grande. Still others lived in the Sonora desert in Mexico. Yet many parts of Arizona, especially the mountains, were now completely deserted.

This was a troubled time, and we don't know exactly what happened. Two hundred years later, the people of the Southwest experienced another enormous change. Sometime in the late spring of A.D. 1540, the people living at Zuni in Northwestern New Mexico saw a remarkable sight: men arrived dressed in shiny clothes of an unknown material and riding great beasts with four legs. They were armed with deadly weapons that made much noise and smoke.

These were men of the army of Francisco Vasquez de Coronado the *conquistador* (meaning "conqueror" in Spanish). Coronado's men were riding animals the people of Arizona had never seen before—horses.

Coronado and his army had toiled their way northward from Mexico, losing men and horses on their way through the mountains. They brought many things with them—horses, sheep, cattle, metal, new crops such as wheat, a new and different religion, written language, and diseases that killed many of the native people.

Many of the native people resisted the Spanish coming into their land. In A.D. 1680 the Pueblo people, including the Hopi and Zuni, drove Spanish settlers out of northern Arizona and New Mexico. Then in A.D. 1751, the Piman people in southern Arizona revolted, burning Spanish ranches and churches. Although many native people and Spaniards lost their lives in the attempts to resist Spanish colonization, the attempts were useless. The New World was “discovered” again, and the people would never be the same.

## HISTORY: THE MOST RECENT PAST

When Coronado and other Spaniards arrived in Arizona, this was the end of PREHISTORY or the PRECONTACT period. HISTORY or the POST-CONTACT period begins in Arizona with the arrival of the Spanish and other Europeans from the **Old World** of Europe with their written records. The Spanish began writing about the people who were already here. The presence of written records is the way we define history.

About the time the Spanish arrived, another new people came into Arizona. These were native people who spoke a language related to some Canadian native languages. Their language and lives were much different from the other native people in Arizona. They became known to us as the Apache and Navajo. The Apache and Navajo quickly adapted to their life in Arizona.

After arriving in Arizona, both the Apache and Navajo began hunting and trading meat to the Pueblos for corn. They also learned how to weave blankets from the Pueblos. Later, after the Spanish brought sheep and goats to the area, the Navajo based much of their life on herding these animals. They learned to weave beautiful and useful blankets from the wool.

The Apaches soon learned how useful the horse could be for food and transport. In addition to hunting and farming, they raided and made war on other native people and on the non-native people. The Apache

### **What Is ... HISTORY?**

(HISS-tuh-ree)

*The time after written records or after the Europeans first came and wrote about the people and events in America is called history. History follows the time we call prehistory. History can also be a tale, story, or a written description of events. These written descriptions usually explain why the events happened.*

We are studying the history of people in Arizona, from the time of the Spaniards until today. Some people say history—“his story”—should also be herstory—“her story”—to tell the story of women throughout time.

### **Related Words:**

historic, historical

### **... And After... POSTCONTACT**

(post-KON-takt)

The time after the first recorded contact or meeting in America of Europeans with the native people. Many scientists and historians call this period of time “post-contact” instead of using the term “history.”

considered this a legitimate and valid lifeway, although it made life difficult for the other groups. Much time was spent trying to force the Apache to yield to authority of the non-native people. Many people died in the conflicts.

Many non-native peoples had a part in building the Arizona we live in today. The Spanish were the first Europeans to arrive. Their settling of new lands was combined with bringing the Catholic faith to the native peoples. After the Spanish, the Mexicans controlled Arizona until the United States gained control of northern Arizona in A.D. 1848 at the end of the Mexican War. Later, the United States purchased southern Arizona from the Mexicans in A.D. 1854. This sale was known as the "Gadsden Purchase." The Spanish and Mexicans mined for silver in Arizona. They also established great ranches (*ranchos* in the Spanish language).

Beginning in the 1840s, other non-native groups began to enter Arizona. Anglo-Americans of European descent trapped beaver, prospected for gold and silver, and later began to raise enormous herds of cattle. Anglo-Americans took over many of the large tracts of land originally granted to the Spanish and the Mexicans. Mormon farmers and ranchers moved south from Utah, building many new communities.

This was a time of continued wars with the Apache; of gold, silver, and copper mines; and the establishment of the Arizona Territory. African-Americans came into the Arizona Territory as soldiers, prospectors, and settlers. Asians, especially the Chinese, were brought into the Territory to work in mines and later to provide labor for building the railroads. By the 1880s, Arizona Territory was linked to the rest of the United States by the railroad. On Valentine's Day in A.D. 1912, Arizona became a state.

The rest, as they say, is history—but the people remain. The lifeways of the people of Arizona have been changed by the events of history, but we can still see the threads that tie us to our past. The Hopi still dance for rain and pray in kivas that closely resemble those that were built some 700 years ago. The Navajo make beautiful silver and turquoise jewelry, and many

still herd sheep. The O'Odham still collect cactus fruit before the summer rains begin. Hispanic and Anglo people still raise cattle and mine for copper. Their story will continue as long as the people remain.



## WORD LIST

□ **cliff dwelling** (KLIF dwell-ing)

Houses built into stone cliffs or in wide caves in the cliffs. This made them easy to defend against invaders because people could only reach them by ladders or climbing up the cliffs from below. *There are Anasazi **cliff dwellings** at Canyon de Chelly in Arizona.*

□ **desert pavement** (DEZ-ert PAVE-ment) A black surface covering made of tightly packed pebbles and other rock fragments. The wind has removed all smaller particles. The strong winds in the desert carry dust and sand that sometimes polish the surface of desert pavement, making it shiny and smooth. *Intaglios are made by removing the **desert pavement** to reach the lighter sand underneath.*

□ **drought** (drowt) A long, dry period of time when it doesn't rain. When the land needs rain and doesn't get it, all living things are affected. Many plants die or do not grow. There is little water. Animals die because there is no food.

*Some of the early people of Arizona may have abandoned their cliff dwellings when they suffered a **drought**.*

□ **flint knapping** (FLINT nap-ping)

A method used to make spearpoints, arrowheads, and knives from stone. A stone or antler is struck against another stone, making smaller pieces of stone break off from it. *The **flint knapper** continues to take off chips or flakes of stone until the object is complete.*

□ **irrigate** (EAR-rih-gate) To supply water for the land through streams, channels, pipes, ditches or by sprinkling. *The farmer **irrigated** the dry land so that crops could be grown.*

□ **irrigation** (ear-rih-GAY-shun) The act of supplying land with water. ***Irrigation** made it possible for crops to grow in the desert.*

□ **mano/metate** (mah-no, meh-TAH-tay) In the Southwest, *mano* comes from the Spanish word for “hand” and is a small grinding stone held in the hand. The *mano* is used to grind corn and grain on a larger stone, the *metate*, to make flour. The *metate* is used to hold the grain. *The **mano**, a rounded or flat stone, is pushed against the metate surface to break the grains down against the stone **metate**.*

□ **Native People or Native American** (NAY-tiv PEE-pull) or (NAY-tiv uh-MEHR-ih-kuhn) The people living in North and South America before Columbus came. Today’s Native Americans have ancestors who lived in this country for thousands of years before Columbus came. Also called American Indian and First Americans. *We are learning about the prehistoric and **native peoples** in Arizona.*

□ **New World** (new world) The continents of North America and South America and the western hemisphere. A term first used by Europeans. *Columbus was one of the first Europeans to find the **New World**.*

□ **Old World** (old world) The continents of Europe, Asia, and Africa and the eastern hemisphere. *Many Native Americans in Arizona suffered during the years after they met people from the **Old World**.*

□ **pit house** (pit hows) A home built partly underground by ancient peoples. The pit house often had a main living area and sometimes had a smaller area. *Several groups of people built **pit houses** in their villages to use the ground as walls and insulation for their homes and supplies.*

□ **pottery** (POT-uh-ree) Earthenware or clayware pots, dishes, or vases. These cups, bowls, and other dishes or objects were made from clay and hardened by heat. *Among the ancient peoples of Arizona, many different types and designs of **pottery** were developed.*

□ **pueblo** (PWEB-low) A Spanish word meaning “town,” “city,” or “village.” A village of apartment-type buildings of two or more stories. ***Pueblos** are built of adobe and stone and usually have flat roofs.*