

Final Report

Interactive Archaeology of the Colorado Plateau and Grand Canyon: Archaeological and Indigenous Perspectives



Submitted by:

George Gumerman IV
Principal Investigator
Associate Professor
Northern Arizona University
928-523-3498
george.gumerman@nau.edu

Summary

The primary goal of the Interactive Archaeology of the Colorado Plateau and Grand Canyon project is to develop an educational, interactive, multimedia CD-ROM and web site that focus on the archaeology of the Grand Canyon and Colorado Plateau. The program provides public outreach on the effects of Glen Canyon Dam's operations, maintenance, and water flow on past and present cultures. Fourth through sixth grade learners will use the hands on, problem-based CD-ROM and accompanying web site to explore archaeology as a science, while conducting virtual archaeological research and learning Hopi, Zuni, and Hualapai views of their ancestral sites. Their mission is to create a virtual museum exhibit by exploring who lived in the Grand Canyon and how they existed. The student-centered, interactive, multimedia lessons allow students to interpret and quantify data from real sites and develop an understanding of the culture history of the Colorado Plateau and Grand Canyon. Digital video taped interviews with archaeologists and Native Americans provide multicultural voices that create an environment that is receptive to the needs of a diverse student population that learn in different ways. The project exposes students to different knowledge systems while also developing their respect for cultural diversity, values, and a sense of stewardship for archaeological resources. Learners become competent at understanding the prehistory of the Colorado Plateau and Grand Canyon. In the process, they develop important, lifelong science, mathematics, and technology skills necessary for students of the new millennium.

For thousands of years Native Americans have lived in and traversed across the Colorado Plateau and Grand Canyon. Today, many Native American nations hold the Grand Canyon as a sacred place for various religious and historical reasons. These Native American groups and abundant archaeological sites provide a stimulating arena for teaching scientific principles and cultivating an appreciation of diverse cultural perspectives. The Partnership for Public Archaeology (PPA), with the assistance of our Native American partners, utilized the Grand Canyon's magnificent archaeological and cultural resources as the basis for the development of a technology-based teaching tool for enhancing 4th through 6th grade math, science, and technology education. We are developing the first in a series of CD-ROM teaching tools and an associated web site that will meet the Arizona Academic and National Science Education Standards by teaching quantitative and qualitative analysis of archaeological data and ethnographic interviews, while enlarging student's understanding of cultural diversity. The CD-ROM utilizes information from the Grand Canyon Monitoring and Research Center to meet our educational goals. Video interviews with Hopi, Zuni, and Hualapai emphasize the importance of the Grand Canyon to their cultural heritage.

Lesson Development

Through the interactive lessons students explore who lived in the Grand Canyon and how they existed (see Table 1). The CD-ROM and web site are data rich and the lessons require the students to interact with and manipulate both the quantitative archaeological data and the qualitative data presented in the digital video footage of archaeologists and Native Americans. The objective of the ceramic lesson, for instance, is for students to learn what cultures inhabited the Grand Canyon by analyzing the ceramics that were created, used, and traded. Learners use data from Bright Angel, Indian Canyon, and Elden Pueblo to create and summarize frequency distributions and display them using appropriate graphical methods. Videotaped interviews with Kelley Hays-Gilpin and Chris Downum discuss pottery analysis and typology, and an interview with Hopi potter, Karen Charley, documents pottery production. By listening to the interviews and performing the interactive activities in the ceramic lesson, students gain an understanding of the cultures and the time periods that the sites were inhabited.

What We Want Students to Know (Enduring Understandings)	Students Will Be Able to (Evidence and Assessment)	Key Learning Activities (How we get them there)
Lesson: What do archaeologists do? Scientific Inquiry		
Steps in archaeological inquiry	Identify steps involved in scientific and archaeological inquiry	Illustrate example of inquiry process using Indian Canyon
Preservation	Understand effects of dam on cultural resources	Interactive map of Indian Canyon

Lesson: What is archaeology? Understanding the Goals of Archaeology		
Reconstruct culture history (when, who & where) [context, chronology]	Build understanding of culture history from artifact identification at Elden Pueblo	Where was the artifact found? How old is the artifact
Reconstruct past lifeways (what did they eat? How did they construct houses? What kinds of tools?)	Move from artifact to room at Elden Pueblo	What kind of room? What kind of tools? How did they make a living? What did they eat?
Explain culture process (why do cultures change?)	Move from room to site	History of Elden Pueblo Where did the people go?
Reconstruct culture meaning (symbolism, rock art, identity)	Move from site to symbolism	What can symbolism tell us about the identity of people?
Apply archaeological knowledge (why do archaeology)	What can we learn from studying archaeology at Elden Pueblo?	What is the importance of archaeology to Native Americans?
Lesson: What is culture?		
Build understanding of concept of culture as a system of beliefs, values, language, behaviors shared by people. The way people live, the tools they make, what they eat and how they do things.	Examine materials items that help archaeologists define culture: housing styles, clothing, food, tools, and symbols	Develop the idea of culture by comparing Navajo and Hopi (hair style, clothing, house, language). Identify Sinagua and Anasazi culture (compare and contrast) using a drag and drop activity
Lesson: Geography of the Colorado Plateau		
Landforms	Location	Interactive map with rollovers with photos, information, and video
Environments	Basic information	
Lesson: Native Peoples of the Grand Canyon and Colorado Plateau		
Hopi culture	Culture (language, housing, food, tools, weaving, arts, beliefs)	Interactive map with rollovers with photos, information, and video
Zuni culture		
Navajo culture	Location	
Hualapai culture		
Havasupai culture		
Paiute culture		
Lesson: Archaeology of the Grand Canyon and Colorado Plateau		
Timeline	Culture history	Interactive map with rollovers with photos, video, and information
Prehistoric culture map	Location and culture history	
3 data sites and other important sites	Basic site information	
Lesson: What is a museum?		
Purpose, mission, and goal of a museum	Identify a purpose, mission, and goal of a museum	Introduce students to a museum
Qualities of a good museum exhibit	Practice creating a good museum exhibit	Model a good museum exhibit (pictures, writing/text, data) Drag and drop exhibit

Lesson: Architecture		
Structure types on Colorado Plateau	Identify structure types (masonry, pithouse, wickiup, rock shelters, etc.)	Images and information about different architecture types
What can be learned from studying architecture	Cultural characteristics Size, shape, type	What can architecture indicate about culture? Identify architecture type based on evidence
Data from 3 sites	Identify architecture at each of the three sites	Architecture information (evidence) from Bright Angel, Indian Canyon, and Elden Pueblo
Application (quantifying architecture and provide interpretation)	Determine architecture type and interpret culture characteristics (use) based on size and shape of architecture	Give sample data and ask students to determine architecture type, measure rooms, and provide interpretations.
Lesson: Food		
Kinds of food found archaeologically on the Colorado Plateau	Identify food types based on evidence	Images and information about different kinds of food
What can be learned from studying food	Examine how people acquired food based on the tools and food remains	Examples of food and tools that go with food acquisition and preparation
Data from 3 sites	Identify food at each of the three sites	Food remains from Bright Angel, Indian Canyon, and Elden Pueblo
Application (How food is studied)	Determine how people acquired food and what that might have meant in terms of culture (who prepared food, was food used for ceremonies, etc.)	Give sample data and ask students to determine how people acquired food. Identify prehistoric ethnic foods
Lesson: Ceramics		
Kinds of ceramics found on the Colorado Plateau	Identify different kinds of ceramics found on the Colorado Plateau	Images and information about different kinds of ceramics (plain, painted, corrugated – ware and type)
What can be learned from studying ceramics	Examine ceramics Identify how ceramics can provide culture characteristics (trade, etc.)	Examples of ceramics Uses of ceramics (utilitarian, ceremonial). Types (plainware, decorated, corrugated, etc.)
Data from 3 sites	Identify ceramics at each of the three sites	Ceramic information from Bright Angel, Indian Canyon, and Elden Pueblo
Application (Classification of ceramics)	Classify ceramics	Sample data – frequencies, use of ceramics, amount of trade

Final Presentation	
Create a museum exhibit that demonstrates learning through conducting a guided archaeological inquiry	<p>ITEMS FOR RUBRIC</p> <p>Question for inquiry – steps of inquiry</p> <p>Identify culture</p> <p>Focus on at least one goal of archaeology</p> <p>Focus on one or more of the three Grand Canyon sites</p> <p>Use data from at least one area (architecture, ceramics, or food)</p> <p>Create a museum exhibit that has a theme and represents qualities of a quality exhibit</p> <p>Identify location and environment on the Colorado Plateau</p>

Table 1. Lessons, Outcomes, Assessment, and Learning Activities.

After completing the lessons, students are posed with the challenge to create a virtual museum exhibit (Final Presentation). Guided by the CD-ROM, students define the focus of the exhibit and their associated research problems. To fulfill their mission, students collect data by virtually traveling to various places on the Colorado Plateau (such as Elden Pueblo, the Colorado River, and the Navajo, Hopi, Zuni, Hualapai, and Havasupai reservations). Besides the CD-ROM, students collect data from our web site. The Partnership for Public Archaeology web site (idig.nau.edu) provides a variety of services including an overview of the partnership and our spiral curriculum (Figure 1). Other pages discuss our projects and programs (i.e., The Interactive Archaeology of the Grand Canyon and Colorado Plateau). Resources for teachers are also provided. Importantly, the web site has a searchable database with hundreds of video clips, audio clips, still images, and archaeological data that can be downloaded (Figure 2). Students can search the database for various subjects, such as corn, and all the images, video, and audio related to the subject will appear. Archeological data from Bright Angel, Indian Canyon, and Elden Pueblo are also searchable. Students can then download the data to create their virtual exhibit that is based on a minimum set of criteria that includes text, video, and graphical displays of the quantifiable data.

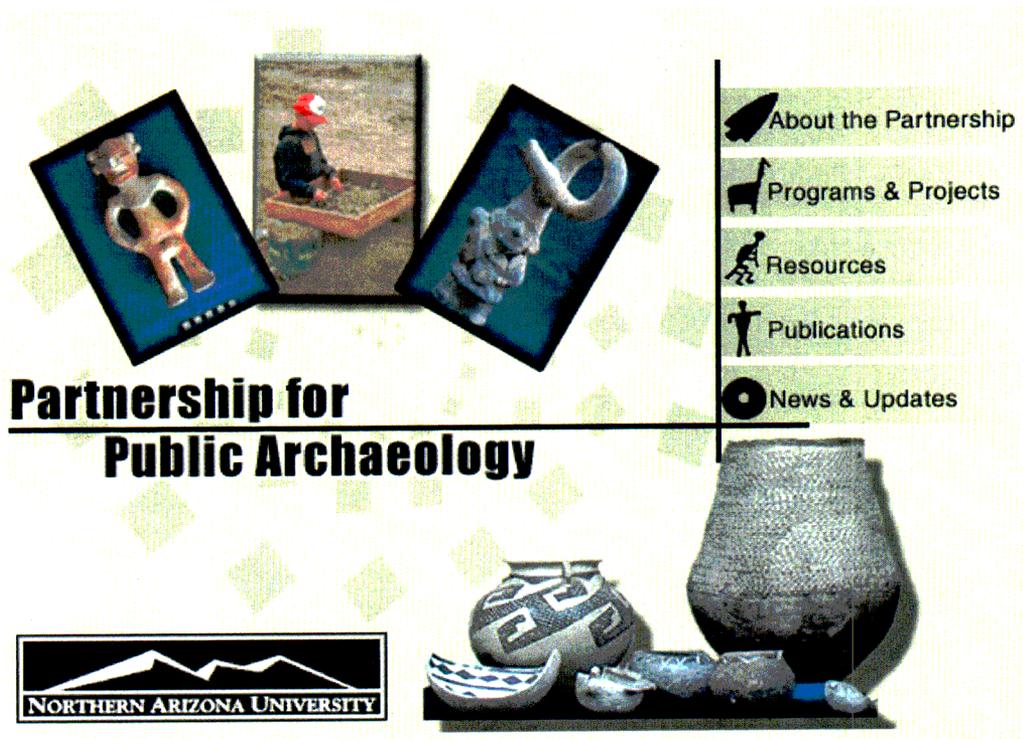


Figure 1. Partnership for Public Archaeology Home Web Page.



Figure 2. Virtual Database Web Page.

Project Partners and Key Personnel

Our extensive project partnerships provided us with the capability and resources to develop pedagogically sound strategies for increasing student learning in a learner-centered environment. Our primary partners include the Museum of Northern Arizona, the Hopi Tribe, the Navajo Nation, the Society for American Archaeology, the Bureau of Land Management, the National Park Service, and the US Forest Service. At NAU, the project is a result of the collaboration between NAU's Department of Anthropology, the Science and Mathematics Learning Center, and the Institute for Future Work Force Development. We are also working with Electronic Media students from the School of Communications who are performing videotaping, editing, and computer programming. Besides GCMRC, funding was provided by US West, Oracle, Arizona Board of Regents, and NAU's Merriam Powell Center for Environmental Research, the Provost's Office, the Department of Anthropology, and the School of Social and Behavioral Science.

Key staff on the project include the following:

George Gumerman IV, Associate Professor, Anthropology (928-523-9662; george.gumerman@nau.edu), is the Principal Investigator for the project. Gumerman has a distinguished record of archaeological research and applying this research to broader societal concerns, including improving student's math, science, and technology skills. As a professor, Gumerman has been instrumental in innovative curriculum development within the department and the broader community.

Linda Neff, Applications Systems Analyst Sr., Institute for Future Work Force Development (IFWFD) (928-523-1761; linda.neff@nau.edu) is our project manager, providing assistance on instructional, website, and CD-ROM design and technical support, as well as aid in the adaptation and programming of embedded assessment and project evaluation. She has served as a team lead in all phases of instructional technology use, from conceptualizing to the actual designing of appropriate distance learning applications and the development of interactive, multimedia curriculum delivered at both the university and K-12 level environments.

Joelle Clark, Science Education Coordinator, Science and Mathematics Learning Center (928-523-8797; joelle.clark@nau.edu), is our curriculum specialist providing expertise in lesson development, assessment, and project evaluation. Ms. Clark has designed and taught professional development and science curricula programs, such as GEMS (Great Explorations in Math and Science) and is the franchise coordinator for GLOBE (Global Learning and Observations to Benefit the Environment). Ms. Clark's most recent projects include Science in Our Parks - a National Park Service curriculum program, GLOBE - Native American Network - collaborating with Native American educators to implement GLOBE, the Elden Pueblo Archaeological Project - an archaeology education program, and Connecting Our Land and Cultures - a conference for informal science educators sponsored by the National Park Service. She has extensive experience in developing and implementing archaeology curricular supplements and in facilitating science, mathematics, and technology education projects.

Geraldine Hongevi-McCabe, Multimedia Specialist, Inst. for Future Work Force Development, (928-523-2210; glm3@dana.ucc.nau.edu) is our Project Coordinator and Multimedia Specialist. Ms. Hongevi-McCabe was born, raised, and is a member of the Navajo Tribe. She has her B.A. in Visual Communications and hopes to pursue graduate studies, combining her visual communications background with her Navajo upbringing and language skills. Geraldine is fluent in Macromedia Flash 5.0, Director 8.5, Adobe Photoshop 6.01, and has experience with Media 100 and Adobe Premier 5.5, AfterEffects 5.5, and Quicktime.

Accomplishments

The Interactive Archaeology of the Colorado Plateau and Grand Canyon project is an incredible success. We completed media resource acquisition, updated the storyboard, designed the interface and are incorporating digital video, animation, and graphics into the final project. The videotaped interviews of archaeologists and Native Americans are complete. Approximately 25 hours of videotaped interviews were conducted with 22 individuals (eight archaeologists, eight Hopi, four Hualapai, and two Zuni). These digital videos are currently being edited, digitized, and made into video collages (short clips that include the interview and other images that are digitally melded together). The Department of Anthropology's Interactive Archaeology Laboratory (Bld. 49, Rm. 5) and our partnership with the Institute for Future Work Force Development (IFWFD) and their multimedia specialist and graphic design internship program, provided the equipment, software, and expertise necessary to produce the project. Hardware and Software used to develop the CD-ROM and associated web site include a JVC GR-DV500U Video camera, a Sony FD90 Sony Mavica, Dreamweaver Ultradev 4.0, Macromedia Director 8.5, Macromedia Flash 5.0, Adobe Premier 6.0, Adobe AfterEffects 5.5, Adobe Photoshop 6.01, Quicktime 5.0, and a Media 100 Digital Video Production Bundle (including the video compression suite).

The storyboard (outlining the overall CD-ROM and website) is complete. In terms of programming, the interface with menu bars and the 3d animation of the virtual museum were developed and constructed. All the lesson plans were developed, some of which are being edited as they are integrated into the CD-ROM. The lessons include, 1) what is archaeology, 2) geography and Native Peoples of the Colorado Plateau, 3) what is a museum, 4) ceramics on the Colorado Plateau, 5) food and culture, and 6) the final presentation room (Table 1). Our virtual database on our web site (idig.nau.edu) is constructed. Learners can access images, videotaped interviews, audio files, and archaeological data for their final virtual museum exhibit. The web site will go online by May 30, 2003.

Although the project is a tremendous success, there were many delays. Our interviews are now complete; yet, scheduling videotaped interviews with some of our Native American partners was incredibly difficult. We had numerous cancellations and postponements. Indeed, for the GCMRC river trip one Hopi, two Havasupai, and two Hualapai consultants cancelled at the last minute. Overtime, however, we were able to capture hours of excellent interviews that were made into hundreds of digitized video clips. The programming has also been a difficult task and has caused numerous delays. We garnered

additional funds to hire more programmers and graduate assistants to help in program development and video editing. Nevertheless, the CD-ROM is progressing remarkably well and will be assessed, evaluated, and completed by our October 30th deadline.

Evaluation and Assessment Plan

By adopting the module, teachers will pursue a systematic approach to classroom instruction and management through embedded assessment and evaluation in an effort to measurably improve student achievement. In response to student's learning needs, continual assessment is built into the lessons providing prompt feedback. Assessment measures are diverse reflecting the students' multiple styles of learning. Embedded assessment into each lesson focuses on higher-order thinking skills such as problem solving, self-directed thinking, and general synthesis. Importantly, the project is competency based. Using embedded, interactive rubrics, the learner decides if they have met the content objective of each lesson before they continue with their research. A variety of scoring rubrics assess performance tasks, including an electronic journal, the museum display, and the scientific and mathematical lessons. The primary performance task—the creation of a virtual museum exhibit—embodies a variety of skills directly applicable to real tasks performed in every day life. Another assessment tool is the electronic journal that can be rated on, for example, dialogue, note taking, synthesis of data, and use of examples.

Learning outcomes will be evaluated by collecting data showing that the embedded assessments are reliable and yield consistent results. Do we have inter-rater agreement on scoring and is there evidence that students are performing better on related topics or tasks? Is there internal consistency and correlation on how students perform on similar skills presented in a variety of ways? By combining multiple measurements of student performance, we avoid the generalization of skills that often result from a formal collection of technical quality data.

Project evaluation is critical to the long-term success of the CD-ROM and web site. The purpose of the project evaluation is to find out the extent to which the CD-ROM and web site meet their intended outcomes. Both quantitative and qualitative measurements will be used in the project's formative and summative evaluation. Our formative evaluation plan consists of alpha tests with educators on the content, design, format, lessons, and usability of a draft the module. We will also conduct focus group interviews with students testing their content understanding, use, design, and format of the CD-ROM and web site. Performance assessment with students will test their application of the knowledge and technology skills gained by using the module. Our formative evaluation also will include external evaluations by archaeologists, technology experts, and educators with expertise in science, mathematics, and technology. Our summative evaluation will include all aspects of the formative evaluation with the substitution of beta testers with educators on the final draft of the CD-ROM. Beta testing will involve a more extensive group of educators and students.

Specifically, the Grand Canyon CD-ROM project will be evaluated in three contexts:

Context One: Content Accuracy and Overall Quality of The CD

- The adequacy of both content and coverage.

Context Two: Robustness and Usability of the Technology

- The quality of interface design, presentation, degree of interactivity, and range of facilities.

Context Three: Educational Effectiveness

- Correlation to the State and National Education Standards
- The developmental appropriateness of the CD.
- The cultural appropriateness of the CD.
- The quality of support materials.

Both quantitative and qualitative measurements are used in the project's evaluation.

Qualitative measurements consist of an open-ended questionnaire and/or interview questions for teachers and students who have used the CD. Sample questions include:

- What aspects do you most like about this CD?
- What aspects do you least like about this CD?
- Would you recommend this CD to other colleagues or students? Why?
- Do you think this disk offers any advantage over other media you might otherwise use? Why?

Quantitative measurements will be conducted at two levels: a presence/absence that ranks the overall quality of the CD and a lesson evaluation rubric addressing each of the contextual areas.

The presence/absence table will be conducted by external reviewers, who will rank the overall quality of the CD and will address the following questions:

- Does the form of technology use multiple technology applications or approaches (tutorial, exploratory, application, and communication)?
- Is the technology user-friendly? Is it easy to follow, navigate, and/or visually attractive?
- Are the materials educationally appropriate in terms of the following: pedagogical strategies, developmental appropriateness, and content correlation to standards?
- Does the technology engage students in active learning?
- Does the form of technology have real-world applications or simulations that involve archaeological research and protection?
- Does the technology allow students to explore and/or manipulate the information?
- Does the content information provide exposure, information, or manipulation with multiple disciplines, perspectives and ways of knowing?
- Is the information accurate and does it provide sufficient archaeological information?

Questions About Learning	Tutorial		Exploratory		Application		Communication		Rank
	Yes	No	Yes	No	Yes	No	Yes	No	
User-Friendly	Yes	No	Yes	No	Yes	No	Yes	No	
Educationally Appropriate	Yes	No	Yes	No	Yes	No	Yes	No	
Engage Students in Active Learning	Yes	No	Yes	No	Yes	No	Yes	No	
Authentic Learning Experiences	Yes	No	Yes	No	Yes	No	Yes	No	
Student Exploration and /or Manipulation of Data	Yes	No	Yes	No	Yes	No	Yes	No	
Multidisciplinary	Yes	No	Yes	No	Yes	No	Yes	No	
Provide Accurate and Sufficient Information	Yes	No	Yes	No	Yes	No	Yes	No	
Rank									

Yes = 1; No = 0 The final ranking across the rows will provide information about student learning. The final ranking down the columns will provide information on the multiple uses of the technology. A comparison of the two rankings will be an indicator of the overall CD quality.

Tutorial technology teaches students directly by advancing the student as correct responses to questions or problems are achieved. It is used for repetitive skill development and is not considered as effective as other technological uses. *Exploratory* use of technology allows students to gather and manipulate resource information in a one-way learning environment. Within this type of technology, students utilize multiple sources to gather information about a particular topic. *Application* involves the use of technology as a tool to assist in word processing, data analysis, graphing, or other such operations. With this type of technology students can manipulate information or data in ways that help them better understand the problem. *Communication* allows students to send and receive messages and information through networks, satellite, and cable. This

form of technology allows the students to disseminate what they have learned or to ask questions to further clarify what they are learning.

Completing the lesson evaluation rubric will be required of each teacher evaluating the CD with students. The rubric is designed to provide information about each of the contextual areas evaluated for the project. The scale for the rubric is numeric: 1=Not Evident, 2=Somewhat Evident, 3=Clearly Evident

(1) CD Content Accuracy and Overall Quality

	1	2	3
Spelling is correct throughout the CD			
Grammar throughout the CD is appropriate and correct			
CD uses clear and easy to follow directions and instructions			
Information on the CD is accurate			

(2) Robustness and Usability of the Technology

	1	2	3
CD content loads within an acceptable time period			
CD navigation is understandable, consistent and age appropriate			
All text is legible – no smaller than 9pt/px			
Graphics and text are appropriate and clear			
Graphics are clear			
All CD links are identifiable and in tact			
User is able to quit and begin again saving work from previous sessions			
Voice appropriate for audience			
Sound is clear and succinct			

(3) Educational Effectiveness

	1	2	3
Lesson standards are clear			
Specific lesson objectives are evident			
Lesson objectives are clearly related to stated standards			
Lesson contains instructions to the learner that clearly state objectives			
Lesson includes information on prerequisite knowledge or skills			
Lesson key points are supported with appropriate media			
CD engages learners through the use of new materials, or reinforces concepts previously taught			
Demonstrates desired skills or process for learners to master			
Lesson uses various activities to engage different types of learners			
Lesson tasks are related to stated objectives			
Feedback is consistently provided to learners during instructional tasks			
Learners are provided with formative assessments as they are engaged in learning tasks			
Learners are provided with a summative assessment to determine learning outcomes			
Assessment is authentic and interwoven within lesson			

Presents content with a respect for cultural knowledge, beliefs, values and practices.			
Incorporates elements of contemporary pueblo along with historical and traditional aspects of pueblo culture			
CD incorporates community knowledge base into curriculum			
Provides good support for learners with limited English proficiency by including sound, read aloud text, color images, or other devices			

Results and Outcomes

The project will result in integrating archaeology into 4th - 6th grade curriculum by providing teachers with a supplemental tool that will create a learner-centered environment. This tool has the potential to improve student competency in their understanding of the prehistoric past while also addressing important skills in math, science, and technology. Students will actively participate in understanding the culture history of the Grand Canyon and Colorado Plateau. Who lived in the Grand Canyon and Colorado Plateau? Where and when did they exist? The lifeways of the inhabitants of the Grand Canyon and Colorado Plateau will also be explored. What did they eat? What types of houses/villages did they build? How did they interact with each other and with other groups?

Our built-in assessment and evaluation program provides feedback that will be incorporated into updated versions of the CD-ROM and web site. Keeping the program up-to-date, new data will be available on our web site. In addition, as schools incorporate computers with DVDs we will begin producing DVDs with more digital video footage and data. Our computer programming (Macromedia Director 8.5) also allows us to create the program so that it can be web based. Our web site and archaeology and education journals will provide avenues to disseminate the results. The Interactive Archaeology of the Colorado Plateau and Grand Canyon Project will be sustained because it is an integral component of the missions and strategic plans of the Department of Anthropology and Northern Arizona University. Our partnership with archaeological researchers, educators, and indigenous people will create a learner-centered environment that introduces and continually builds an understanding of the archaeology of the Grand Canyon and Colorado Plateau in particular, and technology, mathematics, science, and multicultural understanding in general.

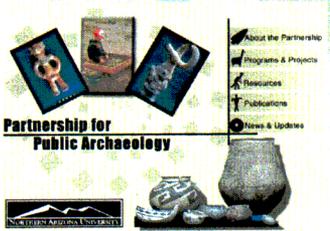
The project accomplishments were disseminated as a conference paper at the 68th Annual Society for American Archaeology Meetings and at the Merriam Powell Center for Environmental Research Colloquium Series (see Appendix A). The CD-ROM and Web site will also be featured at the Respecting Diversity in Distance Higher Education Conference in June 2003. We are also planning on disseminating the results of the project by publishing in *American Antiquity*, *Archaeology*, *Journal of American Indian Education*, and *Social Education*. Articles about the project will also be submitted to the "Hopi Tutuveni", "NAU Today" and the "Arizona Daily Sun"

Our project is ideal in terms of incorporating learner-centered education into the curriculum. We situate the student at the center of education by creating an environment that is receptive to different ways of learning, different abilities, and different cultural backgrounds. Indeed, one of the project's strongest assets is the presentation of a variety of Native American voices. The hands-on, interactive use of the CD-ROM and web site actively engages the student in problem-based learning. Students make choices by addressing their comprehensive research problem and defining their questions and themes for the museum and exhibits. Furthermore, as a result of our program students will be exposed to different knowledge systems, develop a respect for cultural diversity and values, and gain a sense of stewardship for archaeological resources.

APPENDIX A: Society for American Archaeology PowerPoint Presentation

The Interactive Archaeology of the Grand Canyon

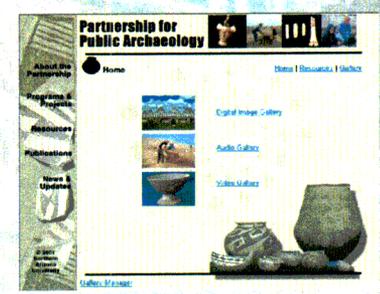
- Develop An Instructional CD-ROM
- Complementary Web Site



Partnership for Public Archaeology

Navigation menu:
 About the Partnership
 Programs & Projects
 Resources
 Publications
 News & Updates

idig.nau.edu



Partnership for Public Archaeology

Home | Resources | Gallery

Navigation menu:
 About the Partnership
 Programs & Projects
 Resources
 Publications
 News & Updates

Digital Image Gallery
 Public Gallery
 Video Gallery

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Public Archaeology

Home | Resources | Gallery

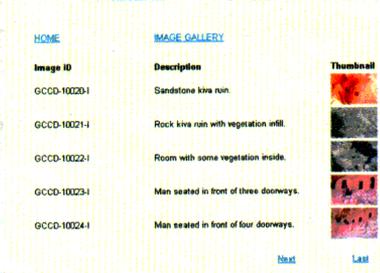
Digital Image Gallery

Digital Image Collections Search

AGRICULTURE

ANIMALS AND NATURE
 ANTHROPOLOGICAL FIELDWORK
 ANTHROPOLOGICAL LABORATORY
 ARCHITECTURE
 ART
 CERAMICS
 DRAMATIC PERFORMANCE
 FAUNAL REMAINS
 HUMAN REMAINS
 LANDSCAPES

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HOME | IMAGE GALLERY

Image ID	Description	Thumbnail
CCCD-10020-1	Sandstone kiva ruin.	
CCCD-10021-1	Rock kiva ruin with vegetation in fill.	
CCCD-10022-1	Room with some vegetation inside.	
CCCD-10023-1	Man seated in front of three doorways.	
CCCD-10024-1	Man seated in front of four doorways.	

Next | Last

Standards-Based Instruction for Upper Elementary Students

- Mathematics
- Science
- Social Studies
- Technology



Develop an Understanding of the Prehistory of the Grand Canyon and Colorado Plateau



Understand Contemporary Native American Cultures on the Colorado Plateau



In Addition

- Develop a respect for cultural heritage, diversity, and values
- Build a Sense of Community, ownership, and Responsibility



Evaluation Plan

- Content Accuracy And Overall Quality
- Robustness and Usability of the Technology
- Educational Effectiveness



Future Directions

- Spinoffs
- Hopi Footprints
- Hopi Mural Project
- Archaeology of Slavery



Thanks to the Team

- Hopi, Hualapai, and Zuni
- Joelle Clark
 - Science and Mathematics Learning Ctr.
- Linda Neff and Geri McCabe
 - Inst for Future Work Force Development
- Sara Plescia and Kari Moorehouse
 - Anthropology

Funding

- NAU
 - SBS, Anthro, Provost, MPCER
- Oracle
- US West
- GCMRC

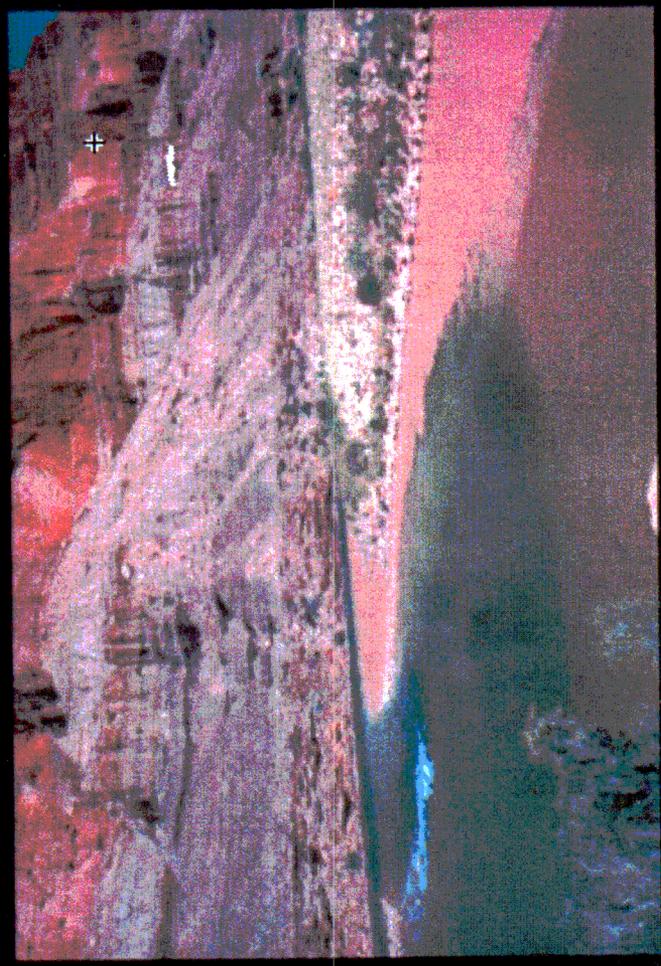


APPENDIX B: Screen shots from the What is Archaeology Lesson Plan

archy - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Search Favorites Media
Address: \\wdfs\TEO\Share Users\Geni\Wolf\archy.html



ARCHAEOLOGY



PRESERVATION

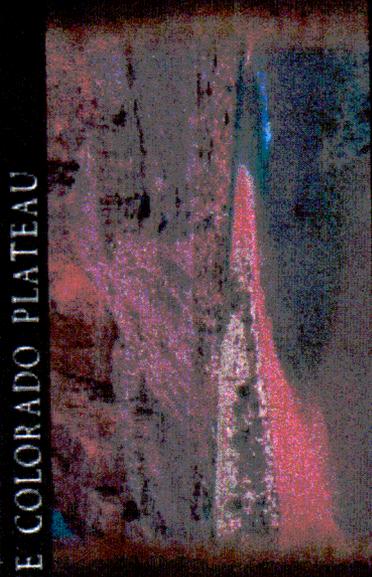
Done Start
Microsoft Internet Explorer Adobe Photoshop Macromedia Flash MX - [a...]
Local intranet 11:36 AM

TRAVEL TO THE COLORADO PLATEAU



A JOURNEY OF A THOUSAND MILES BEGINS WITH A SINGLE STEP.
-CONFUCIUS

MUSEUM MAP



THE COLORADO PLATEAU

WHAT IS...

MISSION

MAP

JOURNAL

COLLECTIONS

HELP

SELECT DESTINATION

ROOM C: WHAT IS THE COLORADO PLATEAU?

- WHERE IS THE COLORADO PLATEAU?
- WHAT NATIVE AMERICAN GROUPS LIVE ON THE COLORADO PLATEAU?
- WHAT PREHISTORIC CULTURES INHABITED THE COLORADO PLATEAU AND HOW DID THEY LIVE?



WHAT DO ARCHAEOLOGISTS DO?

ARCHAEOLOGY ROOM

START OVER

'WELCOME TO THE GRAND CANYON NATIONAL PARK.'

'DID YOU KNOW THAT PEOPLE LIVED IN AND AROUND THE GRAND CANYON FOR THOUSANDS OF YEARS?

HERE IS MICAH FROM THE HOPI TRIBE, TO TELL YOU MORE

<CLICK ON HIS PICTURE

BACK

NEXT



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WHAT DO ARCHAEOLOGISTS DO?

ARCHAEOLOGY ROOM

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STEP 3: HYPOTHESES < START OVER

ARCHAEOLOGISTS KNOW THAT SEVERAL CONTEMPORARY NATIVE AMERICAN GROUPS IN THE SOUTHWEST USE SIMILAR LOOKING ROASTING PITS TO COOK THE HEART OF THE AGAVE PLANT.

ARCHAEOLOGISTS THEREFORE MIGHT HYPOTHEZIZE THAT THE INDIAN CANYON ROASTING PITS WERE USED TO ROAST OR COOK AGAVE

< TO HEAR MORE ABOUT ROASTING PITS, CLICK ON PHOTOS.

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WHAT IS ARCHAEOLOGY?

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GOAL 1: CULTURAL HISTORY

HERE ARCHAEOLOGISTS DESCRIBE THE DEVELOPMENT OF A CULTURE IN A PARTICULAR REGION. THEY ASK WHEN AND WHERE QUESTIONS. WHERE WAS THIS ARTIFACT FOUND? HOW OLD IS IT? TO WHOM DOES THE ARTIFACT BELONG?

DOES WHERE AN OBJECT IS FOUND GIVE YOU ANY CLUES ABOUT THAT OBJECT?

- A. True
- B. False

Check Answer

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GOALS: 1 2 3 4 5

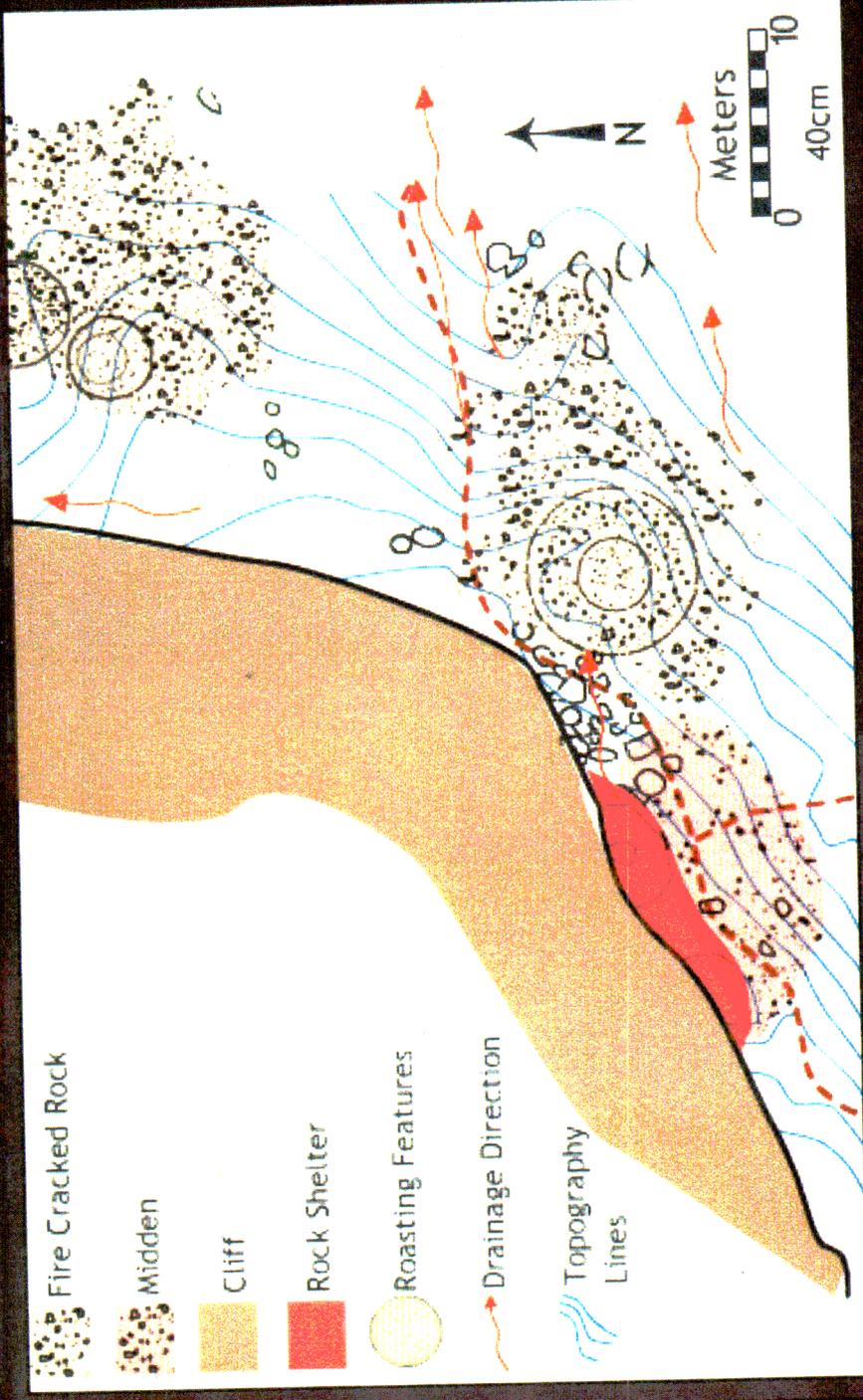
INDIAN CANYON

ROASTING FEATURE

THIS IS A NON-PORTABLE PHYSICAL RESOURCE THAT TYPICALLY REFERS TO FIRE HEARTHES, ARCHITECTURAL ELEMENTS, ARTIFACT CLUSTERS, SOIL STAINS, AND GARBAGE PITS.

CONTAINS:

FIRE CRACKED ROCK
 BURNT CHARCOAL AND
 SEDIMENTS



BACK TO LESSON