ROCK ART FOUR: CREATIVE EXPRESSION

Objective:
In their study of rock art, students will use ancient rock art as inspiration for their own artistic expression.

Materials:
Rock art reference books, clay, paper maché materials or other three dimensional media.

Background:
Observing the shapes, designs and textures of rock art transports us back in time. We wonder—who were the creators, what was their world like, why did they create images on rock, what are their meanings?

Joe Pachak, a Utah artist, seeks to come in contact with the creative spirit of the rock art artists through his own art work. He uses original rock art designs as inspiration for three-dimensional sculptures, giving the ancient designs new life through movement and action. As he works with the rock art figures he feels that he makes a connection with the creative spirit of a person from the past, getting closer to that person’s ideas.

Students can experiment with this same creative technique using clay or paper maché.

Setting the Stage:
1. Have the students explore a variety of rock art images in reference books and imagine how they might transform these two-dimensional figures into three-dimensional shapes.
2. Share background information.

Procedure:
1. Have the students choose a rock art figure to create in three-dimensions.
2. Working with media such as clay or paper maché, the students will transform their rock art figure into a sculpture. Encourage them to add movement and action to their figure.

Closure:
Provide an opportunity for students to share their work, such as at an archaeology or culture fair, or in a display at a mall, in a city library, or at their school.

Evaluation:
1. Students brainstorm other ideas for transforming rock art symbols into art work.
2. Experiment with one or more of these ideas.

Extension:
Invite an artist who uses motifs from prehistoric art to talk to the class about the inspiration he or she finds in the ancient images.
ARTIFACT ETHICS


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<td>STRATEGIES:</td>
<td>Discussion, values clarification, decision making, problem solving, communication, debate, drawing, composing, writing</td>
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<td>CLASS SIZE:</td>
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Objectives:
In their study of archaeological issues students will use ethical dilemmas to:
1. Examine their own values and beliefs about archaeological site protection.
2. Evaluate possible actions they might take regarding site and artifact protection.

Materials:
Dilemma cards.

Background:
Our nation's archaeological sites are being destroyed at an alarming rate. As a result, scientific information is destroyed, the places where people lived long ago are aesthetically compromised, and Native Americans lose an important part of their heritage. This lesson encourages students to examine personal beliefs and feelings concerning the protection of archaeological sites and artifacts, to decide what action they would take in difficult situations, and to suggest solutions to the widespread problem of archaeological resource destruction. There are no "right" or "wrong" answers except where laws apply. The lesson should be taught after the students have established a foundation in archaeological concepts and methods.

Federal and state antiquities preservation laws state that it is illegal to collect, deface, injure, or excavate sites and artifacts older than 100 years on public land (see the ARPA law, Lesson 20: "Rock Art Three: Protecting Our Past"). Public land includes lands administered by any state or federal agency, such as the Bureau of Land Management, National Park Service, Forest Service, Bureau of Reclamation, and the Fish and Wildlife Service. States may have additional laws to protect antiquities. Archaeologists conducting approved field work are granted permits by federal and state agencies.

People enjoying recreation out-of-doors frequently discover an archaeological site or artifact. By law, the artifact is to be left in place, and the site left undisturbed. Discoveries of rare or remarkable artifacts and sites should be reported to the land managing agency, or, in the case of private lands, to a local agency archaeologist or the State Historic Preservation Office.

Some people collecting artifacts and excavating sites are engaged in an illegal market, are armed with weapons, and are to be considered dangerous. Students should never approach someone they see collecting artifacts or excavating sites. The best thing to do is to record information about the people—their physical description, what they were seen doing, the license number of their vehicle—and immediately report them to law enforcement authorities. The Archaeological Resources Protection Act allows for rewards for those providing information that leads to the arrest and conviction of people disturbing sites.
Setting the Stage:
1. Ask the students: Have you ever been in a situation when you were not sure of the right way to behave or respond? For example, your best friend has his hair cut in a style you think is very unattractive. What do you tell your friend when he asks if you like the way it looks? Or, your best friend shows you a video game she has stolen from another friend’s house. What do you say to your friend? Do you report the incident to someone? If so, whom?
2. Explain that the following activity will require decision making about difficult situations. As they share solutions to the following dilemmas, students should be prepared to give reasons for their decisions.

Procedure:
1. Copy the dilemma pages and glue each dilemma on an index card. Other dilemmas could be written that are more specific to problems in your area. (Students could also create Dilemma Cards, with each student responsible for one dilemma.) You may want to laminate your cards.
2. Take one of the Dilemma Cards and read it aloud to the entire class. Without group discussion, ask the class to write a paragraph or two about how they feel about the dilemma, and what they would do about it. Have them keep their papers for their own values clarification (often values change once there is group discussion and others’ perspectives are introduced).

Another approach to this activity is to have the students turn in their papers (without names) and write several of their dilemma solutions on the blackboard until you have listed many strategies and viewpoints.

3. Have the students discuss the pros and cons of each solution and perhaps come to a class consensus. This activity can help students clarify their values, while demonstrating that there are many perspectives on any issue. Ask the students to reconsider what they had originally written. Have their values changed after listening to other viewpoints?
4. Divide the class into groups of 4 to 5 students and give each group one of the Dilemma Cards. Have the students discuss the dilemma as a group and decide how they would solve the problem. If students create a solution they think is better than the ones listed, allow them to share this solution. Allow about 15 minutes for their discussion. Choose a spokesperson for each group to report to the class the group’s decision and their reasons for taking the actions or positions they did. Were they able to all agree on what they would do?
5. Ask the students if they had enough information upon which to base their decisions. Ask them if their opinion changed once they heard different points of view.

Closure:
Ask the students to share their overall position concerning the protection of archaeological resources. Or, ask them to create a symbol, story, poem, drawing or song that summarizes their opinion.

Evaluation:
Evaluate student participation in the dilemma discussions and the closure activities.

Extensions:
Extension 1. Divide the students into groups as above, but this time give each group the same dilemma. Discuss the ways the different groups addressed the same issue.

Extension 2. Use the Dilemma Cards for a debate.

Extension 3. Have students develop a dilemma solution into a plan that addresses who, what, where, when, how, and why.

Links:
Section Three, Lesson 20: “Rock Art Three: Protecting Our Past”
Section Three, Lesson 26: “Archaeology—A Conservation Issue”
Section Three, Lesson 28: “Take Action—Save the Past”

Reference:
Dilemma 1
You are on a camping trip in a national park with some of your friends and your family. Your parents stop the car in the parking lot to visit a famous rock art site. You and your friends are walking up to the rock art when you pass a man and a woman carrying a bag. As you continue walking, you can see the large rock outcrop covered with rock art. You look closer, and see that there is fresh red spray paint covering several of the rock art figures. The paint is still dripping down the wall as you arrive. What do you do?
• Run back to the man and woman and tell them it is against the law to damage rock art.
• Do nothing, mind your own business.
• Get their license plate number, description of the car and the people, and report them immediately to the national park ranger.
• Use some of the wet paint to write on the rock art too. After all, the settlers and Indians wrote their names and symbols on rocks.
• Call the police back home.
• Have your parents make a citizen’s arrest of the man and the woman.
• Other.

Dilemma 2
You are on a scouting trip to a national forest to visit an old historic ghost town. Your scout leader takes you into an old building where there are a lot of relics laying around including bits and pieces of pottery. Your teacher has informed you that historic places are protected by the law and that you should take nothing but photographs and leave nothing but footprints. As you are leaving, you notice that your scout leader is picking up several pieces of pottery and some of the other artifacts. Several of the scouts are doing the same thing. When you tell the leader what your teacher said about not taking artifacts, the leader answers by saying, “Taking little things like broken pottery doesn’t count.” What do you do?
• Act as though you saw nothing, let them take the pottery pieces home.
• Pick up just one piece of pottery as a souvenir.
• Do nothing, knowing that you were obeying the law by not taking anything.
• Find another scout troop.
• Ask your parents to report the scout leader to the Forest Service.
• Ask a professional archaeologist to come and talk to your scout troop.
• Other.
Dilemma 3
You are a judge in a case where a man has been charged with digging up and selling ancient artifacts through an illegal market. He has been unemployed and is using the money to buy food for his family. What do you do?
- Put him in prison for nine months.
- Fine him $5,000.
- Release him with a warning.
- Inform him that there are social services to help him support his family, so that he does not have to destroy the irreplaceable past. Also fine him.
- Sentence him to 100 hours of community service, requiring him to give talks to schools about the importance of protecting archaeological sites.
- Other.

Dilemma 4
You are an archaeologist excavating sites in an area that is going to be the site of a hazardous waste incinerator. Your excavation team has just started uncovering what appears to be a large American Indian burial site. You know that local Indian tribes would be upset to learn that the graves of their ancestors are being disturbed. They may want to halt or attempt to delay construction of the incinerator. What do you and your team do?
- Decide to break the law and continue to dig the site. Then wait until the site is excavated to tell the Indian tribes about the burials.
- Stop excavating immediately and report the site to the local tribes.
- Continue excavating but ignore the burials and don’t record them.
- Stop the excavation and recommend that the site somehow be preserved.
- Resign so you won’t have to get involved.
- Other.
Dilemma 5
You are an amateur archaeologist aware that the reservoir from construction of a large dam will eventually cover an entire canyon containing many ancient Indian sites. One of your friends asks you if you want to go to the canyon and retrieve just a few artifacts because, after all, if you don’t, the artifacts will just be buried under water. What do you do?
- Go and get just one or two artifacts in the canyon. Maybe the law does not apply to areas that are going to be destroyed anyway.
- Don’t go with your friend, and if your friend goes, anonymously report him/her to the law.
- Refuse to go and tell your friend that it is against the law.
- Let him or her go and get a few things for you.
- Organize a local group of amateur archaeologists to work with professional archaeologists so that more information can be recovered before the reservoir is flooded.
- Other.

Dilemma 6
You are a county sheriff and live in a small town. You suspect several people are digging sites on Federal land and are illegally selling artifacts. These people claim that they found the artifacts on their own property, and that it is legal to sell them. What do you do?
- Try to follow these people and catch them in the act.
- Call in federal agents from another town to investigate these people, because many of them are your neighbors.
- Don’t do anything unless you catch them in the act because it is your hunch against their word.
- Try and get them involved in amateur archaeology organizations and classes so they will understand the importance of preserving sites on private and public lands.
- Other.
Dilemma 7
You are hiking in a remote section of a Bureau of Land Management (BLM) wilderness area and discover a large prehistoric pot that is wedged in between two rocks. What do you do?
- Try to remove the pot and take it back to the BLM office.
- Leave the pot where you found it, photograph it, carefully record on a map where you found it and report your information to the BLM.
- Leave the pot there and don’t tell anyone about it or its location.
- Remove the pot, hide it in your car and take it home.
- Other.

Dilemma 8
You are visiting a state park which is a historic site with several rock buildings partially intact. There is a large sign by the ruins saying: “These walls are very fragile! Do not take anything, and do not walk on, or go into the ruins.” You are eating your lunch when a family arrives and ignores the sign. Kids are walking on top of the ruins and are picking up glass fragments and old nails and putting them in their pockets. What do you do?
- Ask the family politely if they have read the sign.
- Ignore them; it is really none of your business.
- Tell them they are breaking the law.
- Say nothing and try to hike out first, to find a ranger and report them.
- Other.
THE ROAD SHOWDOWN

SUBJECTS: Science, social studies, language arts
SKILLS: Analysis, synthesis, evaluation
STRATEGIES: Debate, role play, values clarification, decision making, writing, visualization, communication, problem solving
DURATION: One to two 45-minute periods
CLASS SIZE: Any; groups of 3 to 4

Objectives:
In their study of archaeological issues students will use a role play to:
1. Debate the viewpoint of four different interest groups regarding an archaeological site and a road construction project.
2. Formulate their own decision about the proper course of action.

Vocabulary:
cultural resources: a definite location of past human activity, occupation, or use identifiable through field inventory (survey), historical documentation, or oral evidence; includes prehistoric and historic sites.

land manager: an employee of a federal land managing agency (such as the Bureau of Land Management or U.S. Forest Service) with authority to decide how land under the jurisdiction of the agency and the resources on it will be used. Effects on cultural resources are among the factors weighed in a decision.

Materials:
Copies of "The Road Showdown" master for each student.

Background:
Many people care about the past, and for many different reasons. Sites and artifacts can provide meaning on several levels. Using the example of Stonehenge in England, we can list some values people hold toward the past. Archaeologists value Stonehenge for its scientific potential. Many people appreciate its aesthetic value. Druids, even today, believe Stonehenge has spiritual or religious significance. In recent years, the English punk movement has held a large gathering there every year, to make social and political statements. The concessionaires and businesses around Stonehenge also value it for its commercial and economic value. To some people, Stonehenge has an intrinsic value, and to many Britons, it embodies heritage values (Chippindale, 1988; Project WILD, 1983, pp. 257-258).

We can examine these meanings by placing them in one of two categories, consumptive and non-consumptive. Consumptive uses are those that "use up" or deplete the past. Non-consumptive uses are those which do not deplete sites, artifacts, or the knowledge base.

To some people, places and things of the past are tangible reminders of their heritage and history. If a person experiences this by observing and being near certain sites or objects they are acting in a non-consumptive way. The thing or place will be there for them to experience again, and for others to experience. On the other hand, if a person takes an arrowhead, pottery sherd or old bottle, or writes his or her name on the wall of an historic cabin or rock art panel, they are consuming the past, and removing parts of it from others' experience. Other consumptive actions include collecting artifacts to sell or trade, and destruction by development projects, such as plowing and construction of buildings.

In a gray area between non-consumptive and consumptive use is site excavation done by a qualified archaeologist. The use of the site is consumptive, in that physically the site is no longer intact. It is non-consumptive in the sense that information derived from the site is obtained by scientific excavation and becomes public knowledge.

Archaeology is a rapidly changing field. New scientific techniques are developed every year that
allow us to learn more from sites and artifacts. Archaeologists have adopted the ethic of conservation, and laws concerning cultural resources also recognize that we need to conserve—to wisely use—sites. There will not be any more of them, and an archaeologist has to have a good reason to “consume” a site by excavation.

Archaeologists and land managers who make decisions about projects on public lands spend considerable time and energy analyzing how sites and artifacts are to be conserved. The issues surrounding use of the past are complex and often strike at the core of personal values. Responsible citizenship means being knowledgeable about these issues and taking informed and thoughtful actions.

Setting the Stage:

People often have conflicting ideas about what is the best use of a resource; and some uses preclude others. Brainstorm some examples. Possibilities include wildlife (hunters versus wildlife watchers), rivers (dams and energy versus river running and fish habitat), and fields (farming or housing development). These same kinds of conflicts affect archaeological and historic sites and artifacts as well.

Procedure:

1. Divide the students into four groups: archaeologists, American Indians, business owners, and recreationists.

2. Distribute “The Road Showdown” master to students. Ask them to read the story through the eyes of their assigned role—to adopt the viewpoint of that interest group. They will be presenting an argument for their viewpoint to a land manager who will make the final decision about the project. The manager can be the teacher, a student, or a panel of students. What should the land manager decide to do about the problem?

3. Give students 10 to 15 minutes to discuss in their groups. Each group appoints a spokesperson to present their arguments. They can propose solutions to the problem which they believe could meet the concerns of all parties, as well as their own.

4. Call the “town meeting” to order and establish two ground rules, (a) no interrupting another person, and (b) be brief and to the point with your arguments. You may also want to impose a time limit on presentations.

5. Each group presents their desired outcome to the manager(s), supporting their goal with solid reasons. General discussion and rebuttal follows.

6. Summarize the discussions by asking each group to choose one or two words which describe the value with which their group is most concerned. Examples may include science, heritage, religion, money, progress, fun.

7. Discuss how each of these values and concerns has validity, and that there is no absolute right or wrong answer to the problem. Point out that being a responsible citizen means understanding all of the viewpoints about an issue before making a decision or taking an action. Challenge the students to think of solutions to the problem that could meet everyone’s concerns.

Closure:

Students abandon their assigned role and express in writing what they would personally decide if they were the land manager, and why.

Evaluation:

Evaluate students’ group participation, the clarity and reasoning of their arguments, and their written work.

Links:
Section Two: “Introduction”
Section Three, Lesson 22: “Artifact Ethics”
Section Three, Lesson 26: “Archaeology—A Conservation Issue”

Extension:

The scenario and interest groups could be altered to fit a local situation. Students could write about the viewpoint of each of the interest groups.

References:

Western Regional Environmental Education Council, 1983, Project WILD Elementary Activity Guide. Project WILD, Boulder, CO.
THE ROAD SHOWDOWN

The state highway department is building a road connecting your town to a new reservoir. In compliance with Federal and State laws, a portion of the project funding has been budgeted for identification and excavation of archaeological sites. Archaeologists are excavating a site that will then be destroyed, because it is directly in the path of the new highway. They have used up all the money that the highway department budgeted for the excavation, but the site is much larger and more complex than they could tell when they first started. They say that the site is of tremendous scientific value and could help answer many questions about the state’s past. They need $50,000 to finish the excavations.

Last week, the archaeologists uncovered some human burials. Following the law, they stopped excavating immediately and notified the nearby Indian tribe. Tribal leaders visited the site and told the archaeologists that the site included a cemetery of their ancestors, and that it had significant religious and heritage values to the tribe. Their wishes are that the site be covered up and left in peace… no further excavation, no road over the site.

The local business owners are concerned that the road will be delayed or not built at all. This affects their income significantly. If motorists aren’t traveling through the town on their way to the reservoir, they won’t be buying gasoline, food, or lodging.

Recreationists are also concerned. Water-skiers and fishing and boating enthusiasts all have been waiting for years for the chance to use the new reservoir. Some have even bought expensive new boats and fishing tackle. They will have to travel 60 extra miles on a dirt road, to get to the reservoir if the new highway isn’t built.
GRAVE ROBBERS

Subjects: Science, social studies, language arts
Skills: Analysis, synthesis, evaluation
Strategies: Reading, interview, writing, discussion, analogy, values clarification, communication
Duration: 60 to 90 minutes
Class size: Any; groups of 3 to 4

Objectives:
In their study of archaeological resource protection students will use a newspaper article to:
1. Examine an analogy that demonstrates the similarities between robbing of modern graves and of ancient graves.
2. Create a newspaper article that expresses concern about robbing ancient graves.

Materials:
Copy of newspaper article master for each student.

Background:
The desire to own and/or sell ancient Indian artifacts has been popular for many years. In search of artifacts, people dig, backhoe and bulldoze their way through sites occupied hundreds of years ago by ancient people. Since ancient people often buried their dead with artifacts, artifact hunters dig their way into grave sites in search of jewelry, pots and other objects. The skeletons are removed haphazardly from their resting place and are often found scattered around the site.

Physical anthropologists study human remains and help archaeologists understand prehistoric nutrition, diseases, and genetic relationships. Irreplaceable scientific information about past human populations is lost forever when ancient grave sites are looted and vandalized. Equally important, vandalism and destruction of human remains offends the living descendants of ancient people.

Grave robbing has never been considered a proper act, yet it happens in both modern cemeteries and ancient sites. Vandalism and theft in modern cemeteries and of ancient grave sites shows a lack of respect for the dead and offends the living relatives of the deceased. All cultures have beliefs about the proper treatment of the dead, and feel very shocked and upset when the graves of their ancestors or loved ones are disturbed.

Setting the Stage:
1. Discuss the purpose of Memorial Day and the tradition of grave decorating. Explore various reasons for this ritual.
2. Share the Background information with students.

Procedure:
1. Have the students read the newspaper article.
2. Ask the students to design a verbal, written or visual analogy between grave robbing from modern graves and grave robbing from ancient graves.

Closure and Evaluation:
1. Ask the students to imagine that they are newspaper reporters interviewing an archaeologist or an American Indian about the robbing of American Indian ancestral graves by people in search of artifacts to collect and sell.
2. The students write an article describing what happened, including thoughts and feelings about the incident expressed by the interviewee.

Links:
Section Three, Lesson 22: "Artifact Ethics"
Section Three, Lesson 25: "A Journey Back In Time: A Guided Imagery"
Section Three, Lesson 26: "Archaeology—A Conservation Issue"
"Ghoulish’ Grave Robbers Hurt Families Of Deceased When Stealing Plot Gifts

by Stephen Hunt, Salt Lake Tribune Staff Writer

West Valley City—
For 2 years, flowers, stuffed animals and other decorations have been stolen from the grave of Helga Neathery’s daughter. But on Monday Mrs. Neathery and her husband, Allen, caught a grave robber in the act at Valley View Memorial Park, 4400 West 4100 South. It was a woman in her 50s with a plastic garbage sack packed full of stolen booty. Before the woman fled, driving her car over several grave plots to escape, Mrs. Neathery grabbed at the sack and glimpsed items bearing her daughter’s name. She also got the car license number. West Valley City police are investigating the theft. “It’s a sad thing, a sick situation,” Mrs. Neathery said. “We lost our daughter 2 years ago, and (thefts) happened right from the beginning.

“At first it put me in a deep depression. Now I still get upset, but I realize there are people like that,” she said. “They’re ghouls, they’re grave robbers,” said Phillip Winder, president of Valley View Memorial Park. “And they have no empathy for the victims.”

Mr. Winder said grave robbing is a nationwide problem, but many cemeteries cannot afford security guards to curb it. It can also be grave robbers from legitimate visitors. “We have to tread lightly,” he said. “If someone is pulling off their own flowers, we don’t want to accuse them of being thieves.”

Peter Richards, president of Wasatch Lawn Memorial Park, 3401 South Highland Drive, said he has tried everything from 24-hour security guards to hiding alarms in flower arrangements to catch grave robbers.

“We know it’s a problem, we’re trying to solve it and we want the public to know we’re doing our best,” Mr. Richards said. He said only three or four thieves have actually ever been apprehended, but all were turned over to police for prosecution. People take home potted plants believing they will die anyway; high school boys grab flower bouquets for girlfriends; and one person was taking flowers to re-sell, he said.

The thieves apparently believe it is not wrong to steal from the dead,” Mr. Richards said. “But they are really hurting the families of the deceased.”

Kathryn Young, West Valley City, said flowers have been stolen so many times from her grandmother’s grave at Wasatch Lawn Memorial Park that her family has stopped decorating the plot.

Salt Lake Tribune, May 2, 1991
A JOURNEY BACK IN TIME

SUBJECTS: Science, social studies, language arts, art, music
SKILLS: Synthesis, evaluation
STRATEGIES: Discussion, writing, drawing, composing
DURATION: 45 to 60 minutes
CLASS SIZE: Any

Objective:
In their study of archaeological resource conservation students will discover and judge an alternative way to enjoy artifacts without removing them from archaeological sites.

Vocabulary:
flintknapping: the technique of making tools from stone.
pot sherd: a piece of broken pottery.

Background:
Byrd Baylor in her book Everybody Needs A Rock (1974) expresses the wonder in finding a rock and pondering its source. “Always sniff a rock. Rocks have their own smells. Some kids can tell by sniffing whether a rock came from the middle of the earth or from an ocean or from a mountain where wind and sun touched it every day for a million years.” Baylor suggests an atmosphere for this experience. “When you are looking at rocks don’t let mothers or fathers or sisters or brothers or even best friends talk to you. Don’t let dogs bark at you or bees buzz at you. But if they do, DON’T WORRY.” To hold a rock in our hand that may have been created millions of years ago sets our imagination in motion. We can transport ourselves back to the time and surroundings of its creation. We can journey with it through time, imagining what other beings might have touched it or used it. Mystery and intrigue are the forces at work in our mind and many times we want to keep this mysterious object in our possession.

This same mystery is held within the artifacts made by ancient people. Finding an artifact connects us with other humans in a way that books cannot. We can sense the essence of these people and we desire to know them. What made them laugh and cry? How did they spend their day? As our minds travel back in time and connect to the people whose objects (artifacts) we hold in our hand, we desire to keep the object. Or, we recognize the beauty of the object and realize its economic use as a saleable item.

It is a discipline to leave something in its place
when we desire to keep it. This exercise will suggest a way for students to do this.

Be aware that some students may come from homes where religious belief does not allow them to close their eyes during this type of activity. You may suggest that students close their eyes if they wish, but it is not necessary for them to do so.

Setting the Stage:

Share the analogy of finding a rock from the Background. You might want to have students bring their favorite rock to school and share its significance with others.

Procedure:

1. Explain that the students will be taking an imaginary journey. The purpose of this lesson is to suggest an alternative for appreciating found artifacts without taking them home. Encourage students to relax their bodies, either in their chairs or lying on the floor. They may want to close their eyes. You can help create the mood by turning the lights off and softly playing appropriate music.

2. Read "Your Favorite Place."

Closure:

Have students share what they saw, experienced, felt or thought during the reading in a discussion, cooperative team share, drawing, or song. Encourage students to suggest many ways to enjoy an artifact without removing it from a site. Examples: draw a picture of the artifact, write a poem or song, compose a story, take a photograph, bring someone else to the site to see the artifact, describe your find to someone else.

References:

Baylor, Bird, 1974, Everybody Needs A Rock. Atheneum, N.Y.
Your Favorite Place

Imagine you are on a camping trip in your favorite outdoor place. Your camp is surrounded by splendid rock formations of all shapes and sizes, their outlines pressing against the deep blue sky. The wind is blowing in gentle gusting breezes, as you hike along. You stoop to pick up rocks of many shapes, sizes, and colors. You wonder about the rocks' names, how they were formed, how long they have been on the earth. One of these rocks you now hold in your hand. Examining it closely, you notice its edges look broken, just like your mom’s pottery vase you broke last summer. Its surface feels smooth and cool and is covered with a geometric pattern.

Suddenly, you realize you have found something special. You remember learning about pottery made by prehistoric people and about how archaeologists study these people from their artifacts. You are sure you have found an ancient piece of pottery. You want to keep the pottery sherd so much and you slip it into your pocket. Your heart beats with excitement and you want to run back to camp to share your find. Then you stop yourself. You know artifacts are to be left where they are discovered.

Sitting down, you become very aware of your surroundings. Pot sherds are scattered here and there. The wind blows gentle breezes through the trees. Ravens call to each other. The hot sun warms your back as you gaze out over the landscape. You remove the sherd from your pocket as your mind begins to wander back in time to the village of the ancient people. You are there among the people watching them at their daily activities. In the shade of a tree you see someone flintknapping stone tools. A small child watches intently. The rhythmic sounds of meal being ground on a stone can be heard in the distance. In the shade of a storage room, a potter is skillfully creating a clay pot. Small children run about calling to each other.

(Give the students 2 to 3 minutes to do their own dreaming.)

The sound of a raven’s call nearby brings you back to the present. You lay the pot sherd back where you found it, feeling good about your decision. Before you leave you make a sketch of the pot sherd to hang on your bedroom wall.
ARCHAEOLOGY—
A CONSERVATION ISSUE

(Adapted from a lesson created by Ray Swapp, Fairview, Utah)

SUBJECTS: Science, social studies, citizenship
SKILLS: Analysis, synthesis, evaluation
STRATEGIES: Analogy, discussion, decisionmaking, problem solving, communication, role play, debate, values clarification
DURATION: Two 45-minute class periods
CLASS SIZE: Any; groups of 3 to 5

Objectives:
In their study of archaeological resource conservation, students will work in groups, using analogies and dilemmas to:
1. Infer people’s motivations for using resources.
2. Decide and justify the best way to deal with the problems of resource depletion.

Materials:
Copies of dilemmas for each group.

Procedure:
1. Divide the class into three groups. Each group will pick one or two spokespersons and a scribe. Give a copy of NJOMBA to group 1, KERI ANNE to group 2 and MILLIE, JIM AND MCKENZIE to group 3.
2. Each group will read their dilemma, discuss the questions and present their conclusions to the class.
3. At the end of class, give a copy of CHAD AND ALVIN to everyone. Have them take the handouts home and hold a family discussion and/or answer the questions.

Closure:
1. The next day discuss CHAD AND ALVIN; or, create a panel to include Chad and his father, Alvin and his mother, one or more archaeologists and one or more artifact buyers. Using the questions, each of the panelists must prepare and present a persuasive argument for a solution to the scenario problem. The rest of the class will be the citizens of the small town and will question the panelists about their solutions.
2. As a class, discuss the similarities in each of the scenarios.

Evaluation:
Evaluate the homework assignment and the students’ participation in the dilemmas.

Links:
Section Three, Lesson 22: “Artifact Ethics”
Section Three, Lesson 23: “The Road Showdown”
Section Three, Lesson 24: “Grave Robbers”
NJOMBA

Njomba is from Kenya, a country in Africa. He lives with his family in a remote area where the forest is interlaced with areas of open plains. Many elephants live near his home. One day his father came home with many bullets and an AK-47 rifle, a very powerful weapon. His father had found a big bull elephant with huge tusks. It had been shot many times by another hunter, but it still had lived long enough to escape and stagger into the forest before it died near their home. Njomba’s father had found the bull and taken the tusks. Later, he had traded them to the ivory trader who comes through the villages every so often. In exchange for the tusks, the ivory trader had given his father the automatic rifle and bullets. He had also made Njomba’s father promise that he would only sell the tusks to him when he came through the village. The whole family was excited! Now they would be rich; they would be able to buy anything they wanted! Njomba had heard that the government had made a law against killing the elephants because their population was declining, but Njomba thought there were plenty of elephants. The elephants had been there as long as the people and he believed the elephants belonged to the people, not to the government. Njomba loved the elephants, and liked to watch them; there really were plenty of them. He kept thinking of the things they could buy from the sale of the ivory.

Questions:
1. Does Njomba’s family really want to kill the elephants? Describe your thoughts or feelings about their reason for killing elephants.

2. To whom do the elephants really belong?

3. What if nobody would buy the ivory? How could this be accomplished?

4. Would it really matter if there were no wild elephants?

5. List your solutions to this problem. Be creative and imaginative.

6. Be prepared to give a two-minute summary and/or solution to the problem.
KERI ANNE

Keri Anne, age 11, lives in a small logging town in Oregon. Her father is a logger who helps cut the big Douglas fir trees and haul them to the sawmill. Some of the trees are very old and large. Her father said some of them were alive 2000 years ago. When the trees get to the sawmill, they are cut up into lumber which is then sold and shipped all over the country. Her father’s company is starting to clear out a large section of old growth forest. The old growth forest has a certain ecology that has existed for thousands of years. After the company clear-cuts the old growth forest, they will plant the area with new seedling trees to make a new forest. When those trees grow up there will be a new forest there, but the ecology will be different than the old growth forest. Environmentalists have legally stopped the cutting of the old growth forest Keri Anne’s father is working on because of a bird called the Spotted Owl. The Spotted Owl can only live in old growth forest; it can’t live in new growth forest. When all of the old growth forest is cut down the Spotted Owl will die out and become extinct. Now, because there is no work, Keri Anne’s father may lose his job. They may lose their house. Keri Anne has listened at her bedroom door while her mother and father talked about it in very serious tones. If they have to move, she will lose her friends and her school, and she loves them both. She is scared and angry at the same time. The trees have been there for thousands of years. How can the government tell people they can’t cut them down—because of some rare bird!

Questions:

1. Why does the company cut down the old growth forest?

2. What is more important, trees thousands of years old, or jobs for people so they can provide for their families?

3. Does it really matter if the Spotted Owl dies out and becomes extinct? Some birds have already become extinct, and life seems to be going along okay.

4. The lumber is used for construction and to make paper. Are there ways to reduce the demand for lumber? List some.

5. Who really owns the forests? Who should own the forests? Give reasons.


7. Be prepared to give a 2-minute summary and/or solution to the problem.
MILLIE, JIM, MCKENZIE

The year is 2095. The United States has been a province of Canada for about 100 years. It had happened very quickly. It had been hard at first, but things were quite different now. The Canadians are good to the American people; they provide money, food, and even houses on a regular basis. Millie, age 10, and Jim, age 12, live in the United States. They have a Canadian friend named McKenzie who is also 12 years old. One day, McKenzie brought two rings and a necklace to school. The items were very intricate and also quite old. The children were interested in the relics, and asked where he had gotten them. McKenzie said that his father was an engineer and they were digging a big pipeline through the old abandoned graveyard at the edge of town. The trench had gone through several of the graves, and his father had gathered up a few of the old relics. McKenzie’s father said that the right kind of relics were worth money to collectors. McKenzie wanted to gather and sell enough to buy a new computer game. He said that there were a lot of other graves out there that could be dug up. He invited Millie and Jim to go with him on Saturday. They could have a picnic. It would be fun! Suddenly Millie and Jim both had a strange feeling. They remembered that both their great-grandparents and their great-great-grandparents were buried in that old cemetery.

Questions:

1. Why did Millie and Jim suddenly feel funny?

2. To whom do the relics really belong?

3. Does it really matter if the graves are dug up?

4. Is there a difference between McKenzie digging up a grave, and an archaeologist digging up a grave? Give reasons.

5. What if nobody would buy the relics? How could this be accomplished?

6. Should the government make a law against digging up graves? Give reasons.

7. Give your solution to the problem. Be creative and imaginative.

8. Be prepared to give a two-minute summary and/or solution to the problem.
CHAD AND ALVIN

Chad lives in a small rural town. His family doesn’t have much money. Chad only has an old, rusty second-hand bike. He dreams about having a shiny, new mountain bike. On weekends and holidays in the summer Chad’s family digs into the old Indian graves that are near his town. Many of his friends also dig in the graves. If they can find really nice pots, they can sell them to a man who comes through town every so often. His father has told Chad that he has found a grave site that looks really good, and that it has never been dug into. He said that if there were some good pots in the graves, there might be enough money to buy Chad a new mountain bike! Chad was really excited and anxious to dig in the new site. Chad has a good friend named Alvin who is his same age. Alvin is an American Indian. Chad ran to tell Alvin about the possibility of getting a new mountain bike. Chad told him about the new site his father had found. He told him about the possibility of finding some very nice pots and selling them to the buyer when he came through town. When he told him, however, Alvin acted kind of funny. Chad thought he might be jealous of the new mountain bike. Chad also knew that there was a law against digging in the graves, and that there was a ranger who would arrest you if you got caught. This made Chad mad because the pots had been there when his great-great grandfather had settled the area. The pots didn’t belong to anybody then, so how could they belong to the government now? Besides, there were probably dozens of them out there. He knew they would have to be careful, but he kept thinking of the new bike.

Questions:
1. Why does Chad’s family dig into the graves?
2. Does Chad’s family value the past?
3. To whom do the pots really belong?
4. What if nobody would buy the pots? How could this be accomplished?
5. Will it really matter when all of the pots are dug up and sold? Why?
6. Aren’t the pots like a vein of gold? You dig them out and sell them for money.
7. Give your solution to the problem. Be creative and imaginative.
8. Be prepared to give a two-minute summary and/or solution to the problem.
STATE PLACE NAMES

SUBJECT: Social studies
SKILLS: Knowledge, analysis, evaluation, compare/contrast
STRATEGIES: Mapping, discussion
DURATION: 45 to 60 minutes
CLASS SIZE: Any; work groups of 4 to 5

Objectives:
In their study of place names, students will use a state map to:
1. Discover the heritage left by Native Americans and settlers in the names of locations.
2. Differentiate the cultural values expressed in names.

Materials:
One large state map; stars or paper dot markers; and one of the following:
Option 1, your state: one state road map for each work group, laminated if possible; copies of place names in your state (American Indian, and settler or specific immigrant group) masters for each student or group.
Option 2, Utah: one Utah road map for each work group, laminated of possible; copies of “Indian Place Names” and “Settler Place Names” masters for each student or group.

Background:
This lesson contrasts and compares the names Indian people gave to places with the names later settlers chose. The material given here uses Utah place names as an example. You can prepare a similar set of activity sheets for your state. In addition, you may choose to compare and contrast the names different immigrant groups gave to places in your state.

“Language could not exist, history could not be written, and stories could not be told without names. Names are automatically given to things by human beings. This is our only source of communication, for there is no other way to leave a story for posterity than by and with names” (Van Cott, 1990, p. xiii). The spirit of our states’ past people lives on today in the place names of locations. These names are derived from a variety of sources: from Indian words, which usually describe the landscape or qualities of the area, such as “milky water” and “moonlight water”; from commodities settlers produced, such as Coalville, and Carbon County; or from the influence of Spanish, French, and Russian explorers, mountain men, immigrant groups, the military, religious history, and more.

Setting the Stage:
Show students the names and origins of two towns (in Utah: Parowan—Indian name meaning “marshland”; Magna—derived its name from a
nearby mine). What differences, if any, do they notice about the names?

Procedure:

1. Give each group of 4 to 5 students a state road map and the lists of state Indian and settler place names. Show students how to find a particular place by looking up the name and coordinates on the map index.

2. Working cooperatively, students are to lightly press a star or dot onto the map next to each listed place name they find. If a listed place name is not on the map index, have students scan for it for bonus points.

3. Display a large state map, and ask each group to share two or three places they have found. As the students call out the names and their meanings, place a star on the map.

Closure:

As discussion points, or in quiz form, review the following:

Contrast and compare place names derived from the Indian culture and those derived from the settler culture. For what kinds of things were each named? What can we learn about past cultures from place names?

References:

Harrington, F.C., Florence Kerr, and Darrell J. Greenwell, 1940, Origins of Utah Place Names. 3rd ed. Utah Writers Project, Utah State Department of Public Instruction, Salt Lake City, UT.

Van Cott, John W., 1990, Utah Place Names. The University of Utah Press, Salt Lake City, UT.
UTAH INDIAN PLACE NAMES


2. Uintah -  (Weber) name derived from "Uinta-ats," a large subgroup of the Ute people.

3. *Wasatch Mts. -  (Salt Lake) a Ute word meaning "mountain pass."

4. Ibapah -  (Tooele) taken from the Goshute Indian word Ai-bim-pa which means "White Clay Water" or "Milky Water."

5. Goshute -  (Tooele) a Utah tribe, believed to mean "dust or desert people" in the Ute language.


7. Parowan -  (Iron) from Paiute "paragoons" and "pah-o-an" meaning "marsh people" and "bad or harmful water."

8. Panguitch -  (Garfield) a Paiute word meaning "waters plentiful with fish."

9. Ouray -  (Uintah) a Ute Indian leader, Peace Chief of the Ute White River Indians.

10. Kanab -  (Kane) a Paiute word meaning "willow."

11. Kanosh -  (Millard) a Pahvant Paiute Indian chief—"Kan" means "willow," "Oush" means "bowl."

12. Peoa -  (Summit) from an Indian name, Pe-oh-a, meaning "to marry."

13. *Mt. Timpanogos -  (Utah) from Timpanagotzis River, from the Indians living along its banks.

14. *Oljeto -  (San Juan) (ole-Jay-toe), derived from a Navajo Indian word meaning "moonlight water."

15. Washakie -  (Box Elder) named for a Shoshone leader who was friendly to the early settlers of northern Utah.

* a place not likely to be listed on road map index

(excerpted from Harrington, et al., 1940, and Van Cott, 1990)

Note: Names in parentheses are the counties in which these places are located.
UTAH SETTLER PLACE NAMES

1. **Provo** - (Utah) named for Etienne Provost, a French-Canadian trapper who visited this region in the 1820s; first called Fort Utah.

2. **Richfield** - (Sevier) named for the richness of the soil; first called Omni for a Book of Mormon character.

3. **Helper** - (Carbon) named by the Denver and Rio Grande Western Railroad because at this point additional locomotives were necessary to help trains westward over Soldier Summit.

4. **Farmington** - (Davis) named as a reminder of the rich soil that encouraged a lifestyle of farming.

5. **Coalville** - (Summit) named after the coal discovery because many of the miners came from Coalville, England.

6. **Brighton** - (Salt Lake) could have been named after a city in England, or for Thomas W. Brighton or William Stuart Brighton, both of whom built homes in the area.

7. **Brigham City** - (Box Elder) named in honor of Brigham Young.

8. **Escalante** - (Garfield) named for Francisco Silvestre Velez de Escalante, a Spanish priest who explored Utah in 1776, although the route he traveled was 150 miles to the west of this town. First called Spud Valley.

9. **Fillmore** - (Millard) named in honor of Millard Fillmore, thirteenth President of the United States.

10. **Cedar City** - (Iron) named because of the abundance of cedar (juniper) trees in the area.

11. **Magna** - (Salt Lake) derived its name from a nearby mine.

12. **Ogden** - (Weber) named after Peter Skene Ogden, a trapper who worked for Hudson's Bay Company in this vicinity in the 1820s.

(excerpted from Harrington, et al., 1940, and Van Cott, 1990)

**Note:** Names in parentheses are the counties in which these places are located.
TAKE ACTION—SAVE THE PAST

SUBJECT: Science, social studies, language arts
SKILLS: Application, analysis, synthesis, evaluation
STRATEGIES: Brainstorming, decision making, planning, communication, small group work, discussion, research, writing, problem solving, values clarification
DURATION: Approximately 2 to 4 weeks, working 2 to 4 hours each week
CLASS SIZE: Any; groups of 3 to 5, preferably 4

Objective:
In their study of archaeological resource conservation, students will use a problem-solving model to identify a problem and solve it creatively.

Materials:
A copy of the “Decision Making Sample” and the “Review of the Problem” masters for each team; a copy of Appendix 3: “Rules for Brainstorming” for each student; and a copy of the “Decision Making” activity sheet for each team.

Background:
The growing concern about destruction of archaeological resources (historic and prehistoric sites and artifacts) lends itself to a creative problem-solving model. Problem solving is a skill students will need for future success. Students use their creative and critical thinking skills to find useful solutions to current and future problems. When possible, students should be supported to carry out their solutions. In recent years, students across the country have been influential and instrumental in finding and implementing solutions to problems by using problem-solving models. Teachers may wish to experiment with the following model. The

References list books for those who want more indepth information on using a problem-solving model.

Problem solving is most frequently done in groups of four students. It can also be done as a whole class under the guidance of the teacher.
The more this process is used, the more competent teachers and students become.

Procedure:

Step 1: Awareness
An awareness is created that a problem exists.

Step 2: Researching the Problem
Researching information about the problem is essential to problem solving. Students who have experienced many lessons from this teaching guide will have sufficient background for solving archaeological problems. These lessons together with reading the “Review of the Problem” may be adequate preparation for completing the process. Additional research may be done if the students think they do not have enough information.

Step 3: Brainstorming Problems
Students will brainstorm a list of specific problems related to the overall problem of archaeological resource destruction. This will help to clarify the problem. Encourage students to list as many problems as possible (10 to 25). Examples: (1) digging up sites destroys valuable research data; (2) archaeologists cannot learn as much if artifacts are taken away or stolen from a site; (3) Indians think graves of their ancestors that are dug up have been desecrated; (4) tourists cannot enjoy and learn from sites if they have been destroyed.

Step 4: Identifying the Underlying Problem
The students now select the one problem from their list that they think is the most important; “... it should be one which, if solved, might solve many of the other problems on the list as well. It may appear individually on the list or it may be a combi-
nation of a number of problems on the list” (Crabbe, 1988, p. 40).

The problem is most easily solved if it is stated as a question beginning with the phrase, HOW MIGHT WE . . .? or IN WHAT WAYS MIGHT WE . . .? and contains one main verb. Example: How might we preserve archaeological sites for enjoyment by the public during the next 100 years? In what ways might we involve community members in the preservation of archaeological resources?

Step 5: Brainstorming Solutions

“Once the underlying problem has been identified and written, the teams should begin their quest for solutions. This is the time for truly creative brainstorming. Students should stretch their minds as they look for actual ways to resolve the issue they have described” (Crabbe, 1988, p. 44). Refer to Appendix 3: “Rules for Brainstorming” before beginning step 5.

Step 6: Choosing and Evaluating the Best Solution

Students should read over their list of solutions and pick their 10 best solutions. From this list they will choose their best solution. (See “Decision Making Sample” activity sheet.) This is done by establishing a set of criteria by which to judge each solution. The criteria should be stated as a question, be problem specific, and establish lasting effects. Examples: Which solution will have the longest lasting preservation effect on the archaeological sites in our state? Which solution will be the quickest to implement in our state? Which solution will cost the least to the state taxpayer? Which solution will influence the most people? Which solution will involve the most community members in the preservation of archaeological resources?

Step 7: Describing the Best Solution

In paragraph form the students describe how they will carry out their solution. They should answer the questions: Who? What? Why? Where? When? and How?

Step 8: Carrying Out the Solution

When possible provide students with an opportunity to carry out their solution. Example: If their best solution is to create an educational display for a visitor center in a national park (or other location), allow time for the construction of the display and arrange for permission to show it.

A Sample of the Process

Step 1: Awareness

Students are made aware that a problem exists. This can be facilitated by teaching students about archaeology and reading “A Review of the Problem.”

Step 2: Researching the Topic

Depending on students’ knowledge of archaeology, research may be necessary.

Step 3: Brainstorming Problems

a. Digging sites destroys the chronology of a site.

b. We as a society lose a piece of our heritage if artifacts are taken away or stolen from a site.

c. Theft of grave goods injures the living descendants of ancient people.

d. Other.

Step 4: Identifying the Underlying Problem

In what ways might we lessen the destruction by tourists of archaeological sites?

Step 5: Brainstorming Solutions

a. Create brochures about how and why to protect sites, and put the brochures in a park visitor center.

b. Write a letter to the editor of a newspaper discussing the importance of protection.

c. Talk about the problem of destruction on a radio talk show.

d. Other.

Step 6: Choosing and Evaluating the Best Solution

Using criteria, judge each of your solutions (see “Decision Making Sample” activity sheet) and then decide on your best solution. Use the “Decision-making” activity sheet to help facilitate this process.

Step 7: Describing the Best Solution


Step 8: Carrying Out the Solution

Put your best solution into a plan of action, and do it.

References:

Review of the Problem

Out there, in the vast expanse of public lands, Americans are being plundered, robbed of a history that the land has held for thousands of years. This history has been passed down to us by the people who were here before us. They have left artifacts, drawings, and ruins of their way of life. Archaeologists study these ruins, drawings, and other artifacts left by the early Americans, to discover clues to past cultures.

Some of these areas are far off the beaten path and some have been set aside as deserving of special protection. In the past, only the hearty outdoors enthusiast made the difficult journey to these sites. Today, many roads and highways cross the land, making it easier for many people to visit sites—including vandals, professional scavengers, casual collectors, and tourists.

Many ancient sites have been damaged in some way. Unless we act now to save this piece of our American past, there may not be anything left to save. Large quantities of pottery, human skeletal remains, rock art, historic cabins and trails, as well as other valuable clues to our past have been damaged.

The large numbers of people visiting sites are endangering their existence. Visitors climbing in and out of ruins damage archaeological evidence. Campers building campfires near sites can harm rock art. Wood pulled from the roofs of prehistoric and historic buildings to build campfires can cause them to collapse. Each shovelful of dirt that is taken out of these sites may cause a loss of knowledge about past people. Each time a skeleton is unearthed and its bones scattered, we lose another link in our American heritage. Rock art is changed beyond repair each time uninformed or uncaring people chalk over a pictograph so it can be photographed, add their own carvings to a petroglyph for amusement or chisel a part of the art away from the wall. Each time artifacts are destroyed or removed from a site, the past culture can no longer be accurately dated and studied.

The worst thing about vandalism and destruction of historic and prehistoric sites is the finality of the situation; the loss of history is complete and can never be recovered.

Federal and state agencies are working to prevent this destruction, with the help of concerned citizens. As guardians of our public lands, these agencies (such as the Bureau of Land Management, Forest Service, Fish and Wildlife Service, Bureau of Reclamation, Department of Defense, Bureau of Indian Affairs, National Park Service and state governments) safeguard these special places.

You can help. You can learn about artifacts and their value in the search for knowledge of the past. You can contact archaeological groups or historic societies in your area to find out how you can learn more. You can teach others about the importance of archaeological sites. You can form citizen groups who watch over sites. You can help prevent further destruction of these sites and become involved in legal and meaningful archaeology projects.

There are many other solutions to the problem of archaeological resource destruction. Your creative ideas are needed now!
### Decision Making Sample

**Directions**
Follow the letters (A-D) to complete this step. Some examples are given for you.

#### A. Summarize your best solutions.

<table>
<thead>
<tr>
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<th>1. Create imitations of actual sites that tourists may visit and dig in.</th>
<th>2. Design a TV advertisement teaching people about site preservation.</th>
<th>3. Write letters to the editor of the local newspaper.</th>
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#### B. Write your criteria in each diagonal. Which solution will have the longest lasting preservation effects on our state? Which solution will influence the most people in our state? Which solution will be the quickest to implement in our state?

#### C. Rate each solution according to each criterion on a scale of 1-5 (5 is highest, 1 is lowest). Use each number only once.

#### D. Add the numbers across each solution line. Your highest number is your best solution. In the case of a tie, combine the 2 ideas into a super solution.
## Decision Making

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APPENDIX ONE

CROSS REFERENCE BY SKILLS AND STRATEGIES

SKILLS

Knowledge
Why Is the Past Important?
Culture Everywhere
Observation and Inference
Context
Chronology: The Time of My Life
Classification and Attributes
Gridding a Site
Stratigraphy and Cross-dating
Archaeology and Tree-ring Dating
Pollen Analysis
Measuring Pots
Experimental Archaeology: Making Cordage
Archaeology as a Career
Rock Art One: An Introduction
State Place Names

Comprehension
Culture Everywhere
Observation and Inference
Context
Chronology: The Time of My Life
Classification and Attributes
Gridding a Site
Stratigraphy and Cross-dating
Archaeology and Tree-ring Dating
Pollen Analysis
Measuring Pots
Experimental Archaeology: Making Cordage
Archaeology as a Career
Rock Art One: An Introduction
Artifact Classification
Archaeology and Tree-ring Dating
Pollen Analysis
Measuring Pots
Experimental Archaeology: Making Cordage
Archaeology as a Career
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Artifact Ethics
Take Action—Save the Past

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Observation and Inference
Chronology: The Time of My Life
Scientific Inquiry
Classification and Attributes
It's in the Garbage
Gridding a Site
Stratigraphy and Cross-dating
Artifact Classification
Archaeology and Tree-ring Dating
Pollen Analysis
Measuring Pots
Archaeology and Ethnographic Analogy:
The Anasazi and the Hopi
Experimental Archaeology: Making Cordage
Rock Art One: An Introduction
Rock Art Three: Protecting Our Past
Artifact Ethics
The Road Showdown
Grave Robbers
Archaeology—A Conservation Issue
State Place Names
Take Action—Save the Past

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Observation and Inference
Context
Chronology: The Time of My Life
Scientific Inquiry
Classification and Attributes
It's in the Garbage
Gridding a Site
Stratigraphy and Cross-dating

Synthesis
Context
Scientific Inquiry
It's in the Garbage
Pollen Analysis
Archaeology and Ethnographic Analogy:
The Anasazi and the Hopi
Experimental Archaeology: Making Cordage
Rock Art Two: Creating Your Own
Intrigue of the Past

Rock Art Three: Protecting Our Past
Rock Art Four: Creative Expression
Artifact Ethics
The Road Showdown
Grave Robbers
A Journey Back In Time: A Guided Imagery
Archaeology—A Conservation Issue
Take Action—Save the Past

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Scientific Inquiry
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It's in the Garbage
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   The Anasazi and the Hopi
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Archaeology as a Career
Rock Art One: An Introduction
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Rock Art Four: Creative Expression
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A Journey Back In Time: A Guided Imagery
Archaeology—A Conservation Issue
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STRATEGIES

Analogy
Chronology: The Time of My Life
Measuring Pots
Archaeology and Ethnographic Analysis:
   The Anasazi and the Hopi
Grave Robbers
Archaeology—A Conservation Issue

Brainstorming
Why Is the Past Important?
Culture Everywhere
Gridding a Site
Pollen Analysis
Measuring Pots

Experimental Archaeology: Making Cordage
Archaeology as a Career
Rock Art One: An Introduction
Rock Art Three: Protecting Our Past
Take Action—Save the Past

Categorize
Culture Everywhere

Classification
Classification and Attributes
Scientific Inquiry
It's in the Garbage
Artifact Classification

Communication
Rock Art Three: Protecting Our Past
Artifact Ethics
Grave Robbers
The Road Showdown
Archaeology—A Conservation Issue
Take Action—Save The Past

Compare and Contrast
Culture Everywhere
Classification and Attributes
State Place Names

Composing
Artifact Ethics
A Journey Back In Time: A Guided Imagery

Computation
Archaeology and Tree-ring Dating
Measuring Pots
Experimental Archaeology: Making Cordage

Debate
Artifact Ethics
The Road Showdown
Archaeology—A Conservation Issue

Decision Making
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Rock Art Four: Creative Expression
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archaeology: a method for studying past human cultures and analyzing material evidence (artifacts and sites).

archaeological site: a place where human activity occurred and material remains were left.

artifact: any object made or used by humans.

attribute: characteristics or properties of an object such as size, color, or shape.

behavioral inference: conclusions about human behavior; archaeologists make inferences about the behavior of past people based on objects.

Cartesian coordinate system: two- or three-dimensional graph based on intersecting, incremented lines or planes.

chronology: an arrangement of events in the order in which they occurred.

classification: systematic arrangement in groups or categories according to established criteria.

context: the relationship artifacts have to each other and the situation in which they are found.

coprolites: fossilized feces. (usually human)

cordage: several strands of fiber twisted together; string or rope.

cross-dating: the principle that a diagnostic artifact dated at one archaeological site will be of the same approximate age when found elsewhere.

culture: the set of learned beliefs, values and behaviors generally shared by members of a society. "The way the members of a group of people think and believe and live, the tools they make, and the way they do things" (Braidwood 1967:30).

cultural relativism: studying other cultures without judgments or categories from one's own culture.

cultural resources: a definite location of past human activity, occupation, or use identifiable through field inventory (survey), historical documentation, or oral evidence; includes prehistoric and historic sites.

data: information, especially information organized for analysis.

datum: something to use as a basis for measuring.

deface: spoiling or marring the surface or appearance of something.

dendrochronology: determining the age of a tree by counting its rings; the study of tree-ring dating.

diagnostic artifact: an item that is indicative of a particular time and/or cultural group; a computer would be a diagnostic artifact of the modern age.

dialect: a regional variety of a language.

ethnocentrism: the attitude that one's traditions, customs, language, and values are the only right and proper way and that other cultures are inadequate or wrong.
ethnographic analogy: inferring the use or meaning of an ancient site or artifact based on information from ethnographic sources.

ethnography: description of a culture based on observation of and interaction with living people.

evidence: data which are used to prove a point or which clearly indicate a situation.

excavation: systematic uncovering and recording of archaeological sites.

experimental archaeology: scientific studies designed to discover processes that produced and/or modified artifacts and structures that are found in archaeological sites.

fiber: a slender threadlike strand or string. Bast fibers are the long fibers from a plant stalk.

flake: a thin piece of stone removed from a nodule by striking it with a flaker made of bone, antler, or other stone. Flakes have sharp edges, and could be used as cutting implements. Flakes were also further shaped into tools or were left as waste by-products of flintknapping.

grid unit: a specific spatial area on the Cartesian coordinate system, designated by the co-ordinate in one corner (usually the southwest corner).

hypothesis: a proposed explanation accounting for a set of facts that can be tested by further investigation.

increment borer: an instrument used to remove a core sample from a tree.

inference: a conclusion derived from observations.

kiva: usually an underground structure, for ceremonial use. First built by the Anasazi people, Hopi and Rio Grande Pueblo people continue to build and use kivas today.

land manager: an employee of a federal land managing agency (such as the Bureau of Land Management or U. S. Forest Service) with authority to decide how land under the jurisdiction of the agency and the resources on it will be used. Effects on cultural resources are among the factors weighed in a decision.

midden: an area used for trash disposal.

myth: usually a traditional story of presumably historical events that serves to unfold part of a world view of a people or explain a practice, belief, or natural phenomenon.

observation: recognizing or noting a fact or occurrence.

Paiute: an Indian tribe whose traditional territory included the Great Basin of California, Nevada, Oregon, Utah and Idaho.

palynology: the study of pollen grains.

petroglyph: a design chiseled or chipped out of a rock surface.

pictograph: a design painted on a rock surface.

Pleistocene: the Ice Age; the epoch of geologic time from 1.6 million years ago to 10,000 years ago, characterized in North America by periods of glacial advance and retreat.

pollen: a powdery substance produced by flowering plants. Pollen is the male genetic material, which pollinates (fertilizes) the female part of the flower to produce fertile seeds.

pot sherd: a piece of broken pottery

replication: the act or process of reproducing artifacts, structures, and use patterns.

rock art: a general term for the pecking, incising, or painting of designs onto rock surfaces.

rock art panel: a group of pictograph and/or petroglyph figures.
sherd: a piece of broken pottery.
sinew: animal tendon prepared to use as cord or thread.
site datum: an arbitrarily established point from which the entire site is measured and recorded.
spatial: concerned with space.
strata: layers of earth.
stratigraphy: the layering of deposits in archaeological sites. Cultural remains and natural sediments become buried over time; the layer on the bottom is the oldest, the layer on the top is youngest.
stratum: one layer of earth.
survey: a systematic examination of the surface of the land for the purpose of locating and recording archaeological sites.
symbol: a thing which represents something else.
technology: the technique or means for making or doing something, often associated with tool making.
temporal: concerned with time.
timeline: a visual representation of events in chronological order.
vandalism: willfully or maliciously defacing or destroying public or private property.
vessel: a hollow or concave utensil for holding something.
APPENDIX THREE

RULES FOR BRAINSTORMING

1. CRITICISM IS RULED OUT
   Judgement of positive and negative ideas must be withheld. No one should criticize anyone else’s ideas.

2. FREEWHEELING IS WELCOME—THE WILDER THE BETTER
   It is easier to tame down than to think up ideas. Don’t be afraid to say anything that comes into your mind—the farther out the idea the better. This complete freedom stimulates more and better ideas.

3. QUANTITY IS WANTED
   The greater the number of ideas, the more likelihood of winners. Come up with as many ideas as you can.

4. TRY PIGGYBACKING IDEAS—COMBINATION AND IMPROVEMENT
   In addition to contributing ideas of your own, suggest how ideas of others can be turned into better ideas, or how two or more ideas can be joined into still a better one.

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