

CHAPTER III

AN ARCHAEOLOGICAL PROJECT FIELD WORK

PURPOSE

Chapter III takes the student on an archaeological project. It begins with field work, moves to the laboratory where the artifacts and other data are analyzed, and ends with the reconstruction of the site and of the culture whose remains it contained. Although fictitious, this project is not very different from many that have taken place in Georgia. It attempts to show the student that along with the excitement of archaeological research, there is much hard and meticulous work.

This chapter also attempts to answer some of the questions most frequently asked of archaeologists: "How do you decide where to dig? How did you know there was a site in that location? Why do you keep the excavation so neat? How much work is required in the laboratory? How can archaeologists reconstruct a past way of life from nothing but artifacts? Why shouldn't I dig if I find a site?"



To Dig or Not to Dig

Courtesy, The LAMAR Institute, Inc.

Educators

Time 10 minutes

Objectives-FOR ADULTS

To help teachers understand the ethics and problems of digging archaeological sites

Topics/Content

History, Preservation, Archaeology, Character Education

QCCs Addressed

Learning Styles Used

Materials

This handout.

Procedures

When you take your students to dig an archaeological site you are:

- Mixing up the site layers forever
- Taking the artifacts from a known location and making them worthless
- Obliterating important clues in the soil
- Destroying our history and that of future generations
- Permanently destroying the site

When you take your students to dig an archaeological site you are teaching them that:

- It is o.k. to dig without the supervision of a real archaeologist, since their teacher does it
- Archaeology is not a science requiring years of academic and field training, but can be done by anyone who may have read a book or seen (or been on) a dig
- Archaeology is only digging in the dirt, and not research, scientific method, laboratory analysis, data entry, interpretation, reporting, curation, exhibits, and books
- Preservation of sites is not important
- The past only belongs to those who can find it and dig it up first

Evaluation

Discussion:

Real archaeological digs require trained personnel, monumental planning, logistics, funding and ethics. Even mock digs can be a major ordeal for a teacher, while sending out mixed messages or patently false information to the students. What are some more appropriate options that can teach students REAL science, math, English, reading, and reasoning skills, along with logic, ethics, and preservation ideals, while giving them the enjoyment of using archaeological concepts?

Follow-up Activities:

- Today there are hundreds of classroom activities for educators to use without destroying a real site, or potentially destroying a site that may be in the area of a mock dig in the ground.
- This manual contains information about many ethical teachers' guides, books, web pages, and videos detailing these resources.



Ethics and Them; Ethics and Me Lesson Plan

Courtesy, *The LAMAR Institute, Inc.*

Grades 6-12

Time 25 minutes

Objectives

The students will be able to differentiate between actions of professional archaeologists and looters, discuss various preservation ethics, and offer rationale for their positions.

Topics/Content

History, Preservation, Archaeology, Character Education

QCCs Addressed

Learning Styles Used

Materials

Large space in a room or outside.

Procedures

Set Up: Begin by playing the following archaeology game, using the questions below. Point to one side of the room or yard and tell the students that is the "True" side. Point to the other side and say that is the "False" side. Tell them you will ask a question and if they think the answer is True, go to the True side and if the answer is false, go to the other side. (Tell them the answer after each question.)

Questions:

1. Archaeologists sell artifacts to support research. (False-It is unethical for them to sell artifacts.)
2. Most archaeologists majored in Anthropology in college. (True)

3. Whenever a site is going to be destroyed in Georgia, archaeologists must be called in first. (False-Lots of sites are destroyed everyday, legally.)
4. Archaeologists get to dig wherever they want. (False-Archaeologists have to obey the law.)
 5. Archaeologists have to pay a university or museum to take their artifacts. (True-It costs money for an institution to take care of artifact collections forever.)
6. Archaeologists are allowed to keep half of their finds. (False-They can't keep any artifacts.)
7. To be a good archaeologist, one must write reports about each dig. (True)
 8. Some archaeologists do lots of work and never dig a site. (True. They may study artifacts in the lab, analyze soil samples for pollen or do historical research.)
9. Archaeologists should share their discoveries with the public. (True)
10. If an artifact is in a river, it is always out of place and not important to history or to archaeologists. (False)

Evaluation

Class Discussion:

Archaeologists have great jobs. The work is often fascinating, and can be a mix of manual labor and brain power. It can include traveling to interesting places and learning about historic and prehistoric people. It can also be tedious, include extreme temperatures and climates, involve sparse living conditions, and very hard labor. The reward of being an archaeologist is tempered by the responsibilities of stewardship that come with the job. Archaeologists undertake years of college and field training to be competent to excavate sites. They must continue to read and attend conferences to stay current on research. Good, professional archaeologists adhere to many ethics. These are outlined by a professional archaeology organization known as The Society for American Archaeology. Ethical archaeologists dig sites responsibly. This means they have conducted adequate research, abided by the law, developed a research design, used scientific methods to excavate, analyze and conserve the artifacts, produced a scientific report including data, surrendered the artifacts for curation (permanent, safe storage), and tried to make the results known to the public. Just as archaeologists have an ethical responsibility to take proper care of archaeological sites, so does everyone else! While non-archaeologists are not trained to competently dig sites without archaeological supervision, everyone has a responsibility to protect our past. Why is it important to protect the past? (Brainstorm)

Follow-up Activities:

How can we protect the past that belongs to all of us? (Brainstorm) Some ideas might be to:

- Join local and statewide preservation organizations.
- Interview your local county commissioners, city council members, and policy makers to find out if your community has ordinances protecting archaeological sites or requiring that surveys be conducted prior to construction that may harm important sites. If not, encourage them to design such an ordinance, with input from archaeologists, the preservation community, and the general public.
- Take a walking tour of your school neighborhood or other community in your area. Are there any archaeological sites such as historic house sites, buildings, or cemeteries in the area? Document these with photographs, notes, research at libraries/historical societies/the internet, and oral interviews of people who may know something about the sites.
- Read the local and regional newspaper, looking for articles about archaeological sites in your area. Try to determine the attitude and political climate regarding preservation of sites in your community from these articles.
- Don't dig sites without the direction of a professional archaeologist.
- Share your knowledge. Help educate others about the destructive nature of digging sites without the direction of a professional archaeologist. Such destruction includes digging for bottles, digging sites while using a metal detector, and digging for Indian relics.
- Keep informed about new laws impacting archaeological sites.
- Invite a professional archaeologist to visit your class to learn more about site preservation.
- Become aware of how archaeology is portrayed in the media. Make a list of movies and books that have an archaeological theme, such as Indiana Jones, Laura Croft, etc. Which parts are realistic, and which are not? What ethical comments can you make about each?

CONCEPTS AND INTERPRETATIONS

Every aspect of our fictitious archaeological project is simplified for classroom presentation. For example, Archaeologists seldom undertake an excavation unless the project stands to answer some questions of current importance. This means that each project begins with the development of a detailed "research design" (a

statement of problems to be explored and techniques and methods to be employed). In describing our project in Chapter III, we do not go into pre-fieldwork planning. The teacher should explain to the students, however, that much preparation precedes work in the field, and that this preparation is based on a sound knowledge of current archaeological method and theory.

Another aspect of archaeological research well worth emphasizing is that the resource is irreplaceable and non-replenishable. Many other scientists can return to their original source of data to make additional observations or to correct an omission. An historian, for example, can reexamine the same documents to check some passage that he overlooked the first time around, or a botanist can revisit a plant community years later to review his original findings. The archaeologist, however, is compelled to destroy his original subject as it is studied. Once a layer of soil has been removed and artifacts have been lifted from their context, there is no second chance.

The destructive nature of archaeological research, therefore, requires that the work be carefully controlled and that very accurate records be kept. These records--notes, drawings, maps, and photographs--form a permanent record of the appearance of the site at the time of the excavation.

Many archaeological projects are conducted by one or more archeologists, assisted by college students. Usually, the students have received many hours of classroom training before they participate in fieldwork. Field projects in which professors are teaching students at the same time they are conducting research are called "field schools." Several university-sponsored field schools are conducted each year in Georgia. Most field schools take place in the summer, when weather conditions are the most conducive to outdoor work.

After the completion of fieldwork, the archaeologist and his students spend many hours in the laboratory, darkroom and drafting room. Artifacts must be cleaned, preserved, and cataloged; photographs must be developed and cataloged; and the final, inked copies of maps and drawings must be made. Most archaeologists would agree that for every hour spent in the field, at least four hours are required in the laboratory.

Following laboratory work, many more hours are spent analyzing and interpreting the data that has been compiled. Analyses are based on the questions asked prior to the fieldwork and on other questions that have arisen as the field and laboratory work progressed. Modern archaeologists use many different kinds of statistical tests and computers in their analyses. This means that young students who are interested in becoming archaeologists must take their mathematics courses seriously.

Not only is it important for archaeologists to know basic statistics and quantitative methods, but they also should have a general knowledge of geology, botany, zoology, and ecology. This knowledge is necessary because humans live in complex relationships with the physical world. Soil conditions, climate, hydrology, the availability of natural resources, and many other environmental variables affect the distribution and organization of human populations. Thus, archaeologists must know when to call upon specialists in other areas of science, and what questions to ask these specialists.

The last phase of an archaeological project is that of reconstruction and interpretation. What have the field observations and laboratory analyses revealed

about the behavior of the human group in question? The archaeologist Looks for patterns and relationships in the data. Are more examples of a certain kind of artifact found on one part of :he site than another, or in one stratum than another? Are certain items found together more often than certain other items? The project at the end of this section can be used to show the student that the distribution of different kinds of artifacts on the floor of a single prehistoric house can reveal where certain activities took place when that house was occupied. In this example, the student will find that it is not the presence or absence of something that is important, but the relative amounts by area.

IMPORTANT TERMS

1. data
2. pollution
3. alluvium
4. grid
5. balk
6. plow zone
7. feature
8. postmold
9. zoologist
10. botanist
11. entomologist
12. in situ
13. smelting
14. nuggets
15. thatch
16. corn crib
17. sweat house
18. flexed position

QUESTIONS FOR DISCUSSION

1. How did the archaeologist and his students find the site in Fulton County?
2. What does the label "9Fu300" mean?
3. Why do archaeologists establish a grid before beginning to excavate a site?
4. Why did the students sift all of the dirt from their excavation?
5. Tell why you think the archaeologist sifted the dirt from Feature No. 1 through fine mesh screen using water. What special things was he looking for?
6. Why was the archaeologist so careful to keep accurate records (photographs and drawings) of the excavations at 9Fu300?
7. Why did the analysis of the remains from the fireplace of House No. 1 require the assistance of a zoologist, botanist, and entomologist?
8. Name and describe three plants that the American Indians of 9Fu300 used for technological purposes (tools and construction), as opposed to economic purposes (food)?
9. Why did the people at 9Fu300 need to surround their village with a log palisade?
10. What can the study of the bones in burials tell us about the food habits and health conditions of a prehistoric human population?
11. Discuss the reasons why the final report is such a necessary part of an archaeological project?



A Chip Off the Ol' Block Lesson Plan Grades 4*-12

Courtesy, The LAMAR Institute

Time 50 minutes

Objectives

Students excavate chocolate chips out of soft cookies in order to understand the delicate nature of archaeological excavation, participate in the scientific method, test their hypotheses, collect data, use math to create graphs, and use the graphs to interpret data and draw conclusions.

Topics/Content

Math (counting, weighing, graphing), Physical Science, Scientific Method, Observation, Data Collection, Interpretation, and Deductive and Inductive Reasoning

QCCs Addressed

Learning Styles Used

*Lower grade teachers can alter this activity to a less complicated version, for example using skills of counting chips rather than graphing the data)

Materials

Soft chocolate or butterscotch chip cookies (1 for each student), paper muffin cups (1 pack), napkins (1 pack), popsicle sticks (1 for each student), graph paper (1 sheet per student), colored pencils, scale (triple beam balance, or kitchen scale), oversized graph grid drawn on board or on a dry erase board

Procedure

Begin a discussion with the class concerning how archaeologists look for clues about how people lived in the past, by digging up the things people left behind. Do archaeologists just start digging anywhere? No. What do they need to know before they dig? Things like: "Why would I want to dig here?"; "What can I learn from digging here?" So, before they begin digging, they must use the Scientific Method. They must know enough about the area and the people who may have lived there to be able to make a research design. They must make a hypothesis about what they think they will find, and a series of research questions that they hope to answer through their excavations. Once they finish excavating, they examine the data they collected by putting it into tables or graphs. They interpret this information, which allows them to answer their research questions and prove or disprove their hypothesis in a report.

Begin:

Now we will do an activity that represents what archaeologists do. (Pass out the napkins, muffin papers, and Popsicle sticks-but not the cookies!) Hold up a cookie and ask the class, "How many chocolate chips do you think are in this cookie?" Write some of the many different answers on the board. Hold up another cookie. Ask, "Do you think there are more, less, or the same number of chips in this one?" Take a vote and write the tallies on the board. "We are going to pretend that each cookie represents a site, or a place where people once were. Each of you will get to excavate part of a site, or a cookie. Just as archaeologists excavate carefully, we will use Popsicle sticks to try to excavate carefully as many chips as we can from the cookie, without breaking the chips. We will put the chips in the muffin paper after we excavate each one.

But what must we do before we begin excavating? We must make a hypothesis." Have each student write on the top of his/her paper one of these three words, "More", "Less", or "Same" representing whether they think their cookie has more chips, less chips, or about the same number of chips as most of the cookies in the class. Pass out the cookies and let the excavations begin. Stop the students after enough time has elapsed for them to

excavate about half of their cookies. Explain that in the same way that archaeologists rarely get to excavate an entire site because it is so costly and takes so long, we don't get to excavate our entire site/cookie.

Activity Part II

Have the students count the number of chips and write it on their paper. Discuss the reasoning behind weighing the chips in addition to counting them. (One student may have a very high number and another a very low number of chips, but it may really be the same amount by weight. The high number may represent chips that are extremely broken. That is why archaeologists both weight and count things like animal bones, brick fragments, and other artifacts.

Call students, one at a time, to bring their muffin paper to the front of the class and let them weigh their chips on the scale, or triple beam balance, if available. Record the students name and weight of chips in a table on the chalkboard as the chips are weighed. Ask each student for the number of chips counted, and record this on the table, also. Discuss different questions archaeologists could examine with this data, such as the average number of chips per cookie, the ratio between high numbers of chips and low chip weights, etc. What kind of questions could this data help answer? Have the students each pick a data set from the chalkboard table to graph, as both a bar and a line graph.

Evaluation

1. Ask the students to restate the hypothesis (My cookie has ____ (more/less/same) amount of chips compared to most of the other cookies in the class. Did they prove or disprove the hypothesis?
2. How many students had a high number of chips and a low weight, or a low number of chips and a high weight? What does this mean? (In the former, the chips are small and broken, like pieces of pottery on an archaeological site that has been plowed repeatedly. In the latter, chips are relatively whole, like pieces of pottery on an archaeological site that are found deeply buried in a trash pit.)

Follow-up Activity:

- Use cookies with various colored chips and have the students make hypotheses about the total amounts, percentages, and ratios of the various color chips.



Challenger Artifact Patterning Lesson Plan Grades 6-12

Time 60 minutes

Objectives

The students will be able to see and interpret patterns of human behavior by graphing and interpreting data.

Topics/Content

Graphing, Counting, Logic, Inductive and Deductive Reasoning

QCCs Addressed

Learning Styles Used

Materials

Challenger Artifact Patterning Worksheets (maps and question sheet)

Procedures

Begin with introduction: *You will recall that evidence of several houses was found at 9Fu300. As soon as the archaeologist found the remains of a house, he would measure one-meter squares across the area. The artifacts found in each square were kept in separate bags so that archaeologists would always know where they came from, and could be analyzed in the laboratory. Later in the lab, these artifacts were washed, counted, marked, and plotted on the map shown on the worksheet. This work was done by student lab assistants under the supervision of the archaeologist. They used the following system: "S" stood for "stone," and the number of stone artifacts was written beside the "S." Thus, S-12 means that there were 12 stone artifacts in that square. "B" was for "bone," and the number of bone artifacts found in that square was written beside it (B-3, for example). "V" stood for "plant remains" (vegetable matter). And "P" stood for "pottery sherds."*

- Pass out the three worksheets (the master plan sheet and two sheets showing the smaller plans of the same house.)
- On the two pages of smaller plans, have the students plot only the single item called for. For example, only the stone artifacts will be plotted on the small house plan with that heading. Do this for all four artifact types on all four maps. (One square on each map has been plotted as an example.)
- After all the dots are plotted on the four plan maps, you will see that several patterns have become clear. You can use these patterns to arrive at some conclusions about the living habits of the Indians who occupied that house more than four hundred years ago.

Evaluation

Discussion: The questions on the worksheet will give you some hints as to how to use this evidence—just as a real archaeologist uses his or her evidence. Use these questions for a class discussion.

CHALLENGER (Artifact Patterning on a House Floor)

QUESTIONS

Study all four house plans.

1. Outline with a pencil the area where most of the stone artifacts were found.
2. Do the same for the pottery sherds.
3. Do the same for the bone artifacts.
4. Do the same for the plant remains.

Assume that men made all the arrow points and most of the stone tools.

5. Did the men and boys stay in a particular place most of the time when they were indoors?

Assume that the women and girls did all the food storage, cooking, and preparation.

6. Do the pottery sherds tell you where the cooking was done?
7. Does this indicate which area in the house was the "women's side?"

Look at the plant remains and pottery sherds. There are two areas for them.

8. Could one of these be the storage area (pantry)?
9. Does the number of pottery sherds in the same area confirm this?

There are not many artifacts near three of the house walls.

10. Could these areas be where sleeping pallets were kept most of the time?

11. There is one pattern in all four types of artifacts to suggest that the house floor was swept from time to time. What is this pattern?

Put all the above answers together and try to imagine a scene in that house on a cold winter evening. Write a description of that scene or, using the picture from page 87 of your text, draw your own version of the scene.