Heritage Under Waters:
The Archaeology of Georgia’s Reservoirs
Teacher Handout
For more than 10,000 years, Georgia’s inhabitants have utilized natural waterways for food, transportation, trade, permanent settlement locations, industry, and other resources. These activities have imprinted the surrounding landscape and are visible today in the form of archaeological and historical sites. In the 20th century, dozens of dams were constructed over many of Georgia’s waterways to control flooding, generate power, and increase the water supply for consumption and irrigation. These dams then formed reservoirs, which flooded many of the sites around them. Due to the rich history surrounding natural waterways, archaeology within and around reservoirs has significantly added to our knowledge of almost all parts of Georgia’s past, as can be seen in the following overview of the state’s cultural history.

**The Paleoindian Period**
*(ca. 10,000–8,000 B.C.)*

The first known inhabitants of Georgia were the Paleoindians. In the In the Great Eastern Forest, which stretches from the Plains to the Atlantic and the Great Lakes to the Gulf of Mexico, Paleoindian people probably hunted some large animals, but concentrated more on small game and edible wild plants. Paleoindians lived in small bands composed of several related families called microbands. These people did not rely on agriculture and frequently moved their camps to access available resources, such as plants, nuts, wild game, and rocks to make tools. Paleoindian groups were small and their lifestyle was nomadic; only a few of their sites have been found in Georgia. Similarly, archaeological evidence of Paleoindian activities around reservoirs is rare, but may be found in places like Lake Nottely where natural rock outcrops could have provided raw material to make stone tools.

**The Archaic Period**
*(ca. 8,000–1,000 B.C.)*

After about 8,000 B.C., the environment—climate, flora, and fauna—of Georgia was much like it is today. The few large herd animals such as mastodon were extinct by this time. Archaeologists call this period the Archaic period. During the early part of the Archaic period, descendants of Paleoindians came to rely increasingly on a broader range of natural resources. Gradually, their use of these resources, especially plant and animal foods, was scheduled according to seasonal availability. During some seasons, several neighboring bands would join together to form large social and economic units, which archaeologists call macrobands.

Archaic period peoples learned many ways to manipulate their environments in order to increase the yields of various food items. There is evidence, for example, that they made considerable use of areas they cleared in the forests. These open areas provided tender, edible plants for both humans and the animals they hunted. One invention during the Archaic period was the grooved stone axe, a tool that was ideally suited for chopping trees to make clearings.

Archaic period people also developed the use of the spear thrower, or atlatl, circa 5,000 B.C., pottery by about 3,000 B.C., and soapstone vessels around 2,000 B.C. The oldest pottery is located along the
Savannah River, near Augusta. These innovations heralded a variety of changes in hunting and food preparation practices.

Most of the stone projectile points found in the fields of Georgia are from the Archaic period. Sometimes these artifacts are incorrectly called arrowheads. Actually, the Archaic points were used to tip spears, not arrows. The bow and arrow was not used until the succeeding Woodland period. Archaeologists have determined a long sequence of changes in the style of Archaic projectile points. Some examples are located in the teaching exercise attached to this lesson plan.

Many Archaic period sites have been found near or within Georgia’s reservoirs. At Wallace Reservoir/Lake Oconee, many pre-ceramic Archaic sites were found well-preserved deep within the river floodplain. Deeply buried sites are important to the archaeological record because they are usually undisturbed and may contain features like postholes, created when wood posts were buried to form the walls for structures, and trash deposits that could add to our knowledge about housing and eating habits during the Archaic period. Another important Archaic period site is the Lake Springs Shell Midden at Clarks Hill Lake where fiber-tempered pottery, stone tools, hearths, and posthole features were found. Archaeologists believe the Lake Springs site was occupied for a very long time.

The Woodland Period
(ca. 1,000 B.C.–A.D. 800)

Archaeologists call the time between 1,000 B.C. to A.D. 800 the Woodland period. During this period, horticulture (probably begun in some fashion in late Archaic times) was more common and widespread than had been previously been thought. Although indigenous people did not initially concentrate on planting and tending crops, they did selectively harvest numerous local plants throughout time, some of which were ultimately domesticated. One such local plant is called Chenopodium, similar to quinoa. At first, small gardens provided only seasonal sustenance, but eventually there was increasing emphasis on products from intentionally cultivated fields. Some settlements became larger, more permanent, and were positioned close to the most fertile soils in the floodplains of stream valleys.

During the Woodland period, people developed larger and complex social groups. More formalized religious and ceremonial activities also developed hand in hand with the more complex social and economic institutions of the Woodland period. One of the best examples of a large Woodland period settlement is Kolomoki, near Blakely in Early County. Over a period of several hundred years, people who lived in the region would periodically gather at Kolomoki to reconnect with other communities, carry out ritual activities, trade knowledge and information about specific practices and far away places, and work together to construct large earthen monuments that still stand today.

The use of pottery continued to spread from group to group during the Woodland period. Archaeologists study the form, composition, and decoration of pottery in exhaustive detail. Because pottery is very difficult to destroy, it is one of the best sources of information about the people that once lived in Georgia. Some pottery styles became “markers” of both time and specialized practices in much the same way that projectile point styles also marked changes. For example, the bow and arrow was first used during the Woodland period. Small arrow points composed of stone, bone, and wood are evidence of this change.

Important Woodland sites at Georgia reservoirs include the Woodstock Fort at Lake Allatoona and the Mandeville site at Walter F. George Lake. The Woodstock Fort is one of the best examples of a Late Woodland period fortification in the southeastern United States. Mandeville is a multicomponent site, meaning it was occupied at different points in time by different groups of people. One of the largest components at the Mandeville site is a Middle Woodland village and mound complex.

The Mississippian Period
(ca. A.D. 800–1540)

Archaeologists call the last period of time in Georgia before the arrival of Europeans the Mississippian period. During this period, populations grew larger and became densely concentrated in the valleys of the larger rivers. Some people relied heavily on agriculture as the principal source of food, though earlier
methods of obtaining food or subsistence practices were not abandoned. Some Mississippian societies reached a highly complex level of development, forming what anthropologists call chiefdoms.

Archaeologists believe that the Etowah Mounds site near Cartersville was the center of one such society that stretched a distance of 80 kilometers (about 50 miles) from above Chatsworth to below Rome. The Ocmulgee site near Macon may have been another one. Within these societies, there may have been multiple tiers of leadership, with many smaller villages and hamlets associated to the main ceremonial and political center.

Mississippian societies added highly decorative objects and images to their costumes and rituals, and they dressed in spectacular costumes representing the gods, ancestors, and other important people that were important to them and their worldviews. In some cases, the living quarters of important people and public temples were constructed on the tops of large clay platforms. After many episodes of rebuilding and additions, these platform mounds reached grand proportions. Accessible examples of Mississippian platform mounds may be seen today at the sites of Etowah and Ocmulgee in Georgia, Moundville in Alabama, Fort Jackson in Florida, Town Creek in North Carolina, and Cahokia in Illinois—all of which are open to the public.

The area surrounding and within Lake Allatoona was home to large Mississippian settlements that served as the focal point for peoples who lived in the region, and people permanently settled at different places and at different times. The timeline of occupation in the Lake Allatoona region and elsewhere is identified in the archaeological record by differing pottery styles and other independent dating techniques. The Mississippian sites at Lake Allatoona include dwellings, mounds, middens, and cemeteries, many of which were not fully studied or preserved before they were flooded by the reservoir.

The Walter F. George Lake was another such location containing a rich occupational history associated with the Mississippian period. Numerous hamlets, villages, and large towns—some with impressive monumental architecture-clustered around the floodplains of the Chattahoochee River. Significant sites such as Roods Landing, Gary’s Fish Pond, Cool Branch, Cemochechobee, and others were partially affected or completely destroyed with only limited archaeological studies.

**Historic Period**
**(A.D. 1540–present)**

The first European explorers to reach the southeastern part of North America encountered numerous thriving indigenous communities. Descriptions written by these explorers mark the beginning of the Historic period. Archaeologists distinguish the Historic period from that which came beforehand because of access to written documents. Because early written descriptions in Georgia come from the DeSoto expedition of A.D. 1540, the Historic period is dated A.D. 1540 to the present. Historic period accounts can be problematic because they are written from the viewpoint of Europeans trying to understand and describe unfamiliar indigenous communities, societies, and practices, often without the benefit of understanding the native language. If earlier indigenous writing systems are discovered and deciphered, they will provide archaeologists with textual descriptions through the lens of those who lived within those societies, not only from the outside of it.

Most people are familiar with the historic Indian tribes of Georgia, such as the Cherokee, the Muscogee (Creek), and the Yuchi. Sometimes, a direct relationship has been discovered between these groups and specific Pre-contact period indigenous societies. The early Spanish explorers described societies and communities that they encountered in their travels across the Southeast. One group, which DeSoto’s chroniclers called the Guaxule, may have been related to the early Cherokees. Another, which they called the Cooza, may have been one of the ancestral groups of the Upper Creeks. There are many problems in tracing individual groups back to specific archaeological cultures. Disruptions during the early years of contact caused some indigenous groups to quickly relocate from place to place, sometimes many times over. Some were destroyed by conflict or disease before any European descriptions were ever written. The structure of some indigenous societies also changed.

![Postholes and other features associated with a Mississippian house site at Lake Allatoona](image-url)
greatly during European exploration and colonization. Villages and towns that previously were relatively independent developed new allegiances to better resist European encroachment, either with other indigenous societies or with competing European powers in the New World, either the English, the French, or the Spanish.

During the Historic period, the ancestors of Native Americans, African Americans, and Euro-Americans converged, resulting in rapid change and cultural reorientation. Ancestral African Americans were uprooted from their native continent, brought forcibly to the New World, and sold on slave markets. Ancestral Native Americans were subjected to diseases (introduced from Europe and Africa) that they did not understand and for which they had no natural immunities or cures. Ruthless practices of deerskin traders, militiamen, and land speculators further reduced Native American populations and forced major changes in their social and economic institutions.

Georgia’s historical archaeologists study a wide range of cultural groups. Some archaeologists are interested in the process of change in the Native American cultures, while others focus on African American culture, excavating sites that provide knowledge about African Americans’ material culture and the roles they have played in Georgia’s history. From slave life to sites related to free black individuals to rural and urban sites, historical archaeologists pursue studies that help interpret past culture. Historical archaeologists also pursue ethnic studies that illuminate the culture of European immigrant groups like the German Salzburgers or the Moravians, their way of life in America, and the adaptation of their agrarian European culture to New World environments.

A recent and in-depth description of the history of Georgia from its founding in 1733 to the modern era can be found in our 2018 lesson plan titled “A Capital Idea! The History of Georgia’s Seats of Power.” It can be found on our website at: http://thesga.org/wp-content/uploads/2018/05/Compiled-Ed-Packet-2018-2.pdf. Though they were understudied during earlier phases of reservoir archaeology, historic sites and submerged towns can also be found within Georgia’s reservoirs. For example, shoreline surveys at Lake Chatuge revealed many historic Indian, or Qualla, sites, as well as a large number of Mississippian sites along the floodplain of the Hiwassee River. At Wallace Reservoir/Lake Oconee, the Curtwright Factory and its associated grist mills represent one of only a handful of late 19th century sites in the area. The Curtwright factory is believed to have employed as many as 400 people during a period of local industrial decline. A late-20th century re-survey of the area around Lake Allatoona revealed at least 30 historic Cherokee sites, adding important information to our knowledge of Cherokee settlement in the area.

**In Conclusion**

Natural waterways have been a vital part of human survival throughout Georgia’s history and the archaeological remains of various cultures are associated with the state’s reservoirs. Although numerous archaeological sites have been recorded along and within Georgia’s reservoirs, many others remain undocumented. The construction of hydroelectric dams and reservoirs has prompted the study of many important sites but they have also caused the destruction or endangerment of others. Archaeological studies from reservoirs have provided valuable information about Georgia’s past, but there is still much research to be done.
Beginning in the early 1900s until the 1980s, Georgia Power Company, the Tennessee Valley Authority, and the U.S. Army Corps of Engineers constructed numerous dams on major waterways in Georgia. These dams were primarily constructed to control floods, generate hydroelectric power, promote and stabilize navigable waters, and to increase the available water supply for drinking and irrigation. The resulting reservoirs also became important recreation destinations for boaters, fishers, and vacationers. In total, there are 30 major reservoirs that measure at least 500 acres, and countless smaller ones.

Nineteen of the thirty major reservoirs had some level of archaeological survey and evaluation, either in advance of impoundment or when the reservoirs were drained for periodic maintenance. Many storied institutions took part in these surveys at the state and federal level, and these projects trained several generations of archaeologists and ignited public interest in the history of Georgia. These major projects served to document the data left behind by past human settlement on the landscape, providing the basis by which archaeologists could identify and interpret the varied ways humans articulated with the landscape and each other as they formed households, communities, and larger societies through time and space. Below are some highlights from selected reservoir projects across Georgia.

Lake Allatoona

In 1946 and 1947, Joseph R. Caldwell of the Smithsonian Institution examined the portion of the Etowah Valley that was scheduled to be flooded by the construction of the Allatoona Dam. With the help of local informants and noted University of Georgia archaeologists A.R. Kelly, William H. Sears, and Robert Wauchope, Caldwell and company recovered artifacts and other archaeological data that laid the foundations for modern approaches to north Georgia antiquity.

Like many early archaeological collections, the material recovered was stored in the Smithsonian, untouched for decades. In the 1990s, Dan and Rita Elliott reexamined the collection. Some sites had incomplete information. Excavation data, maps, photographs, and artifacts were unable to be relocated. Their re-evaluation expanded the interpretations of 20 sites that had been excavated with test units in conjunction with surface survey. One of these sites was the Lake Springs Shell Midden located at the confluence of Lake Springs Creek and the Savannah River. The surface artifacts included Late Archaic chipped stone tools and fiber tempered ceramics. The site was further tested with a 10x10-foot and a 5x5-foot
pit. There were several pit features, post hole patterns, and possible hearths. The artifacts recovered ranged from the Middle Archaic through the Mississippian period, indicating that this was a favorable location for people throughout history.

Walter F. George Lake

In 1963, the Chattahoochee River south of Columbus, Georgia, began to rise after the Walter F. George Lock and Dam was completed, eventually covering some 46,000 acres. Archaeological surveys and salvage excavations took place in the impoundment area, carried out by the University of Alabama, the University of Georgia, and the Smithsonian Institute. Results of this work highlighted the importance of this section of the Chattahoochee River for humans living there over the past 13,000 years, including Precontact indigenous groups, the Lower Towns of the Muscogee (Creek) Confederacy, and Euro-American settlers.

Over 200 known sites were inundated by Walter F. George Lake. Archaeologists discovered a variety of sites, including lithic manufacturing and subsistence processing locales, small farmsteads and hamlets, and large towns and villages - some directly associated with plazas and earthen mounds. Most received only a cursory surface survey, but several were excavated prior to their destruction. One of the best-known examples is Mandeville, a mound complex and associated village primarily dating to the Middle Woodland period (AD 1-600) (Keller et al. 1962). Another was Cool Branch, a Mississippian period (AD 1100-1550) mound and village with a bastioned palisade (Blitz and Lorenz 2006; Huscher 1971). Historic maps show several Muscogee (Creek) (AD 1550s-1830s) towns in the area (Ethridge 2003; Foster 2007; Swanton 1922). After the forced removal of indigenous people, Euro-American settlers built both small farms and large plantations in what would become the footprint of Walter F. George Lake.

Lakes Chatuge and Nottely

The Chatuge and Nottely reservoirs in Northeast Georgia are located on the Hiwassee and Nottely rivers, respectively, and are separated by only about twenty miles. This region, known as the southern Blue Ridge, has been traversed and occupied by people for more than 10,000 years, and contains several large well-known archaeological sites, such as Peachtree and Nacoochee Mounds. Although no archaeological inventory was conducted at either Chatuge or Nottely prior to their construction in the early 1940s, there have been several shoreline surveys in the decades since, which have provided important information about both precontact and historic land use in the culturally rich Blue Ridge region.

These shoreline surveys resulted in the discovery of more than 150 sites at each reservoir, with components spanning the Archaic, Woodland, Mississippian, Qualla, and Historic periods. Many were damaged by reservoir erosion, but they still represent a robust archaeological dataset. For example, Chatuge has considerably more Mississippian, Qualla, and historic
sites, perhaps because the larger Hiwassee stream valley was preferred for denser, more sedentary populations. Nettely, however, has denser lithic bearing sites dating to the earlier Archaic and Woodland periods, likely due to the presence of nearby rock outcrops that provided high quality material for stone tools.

Lake Oconee/Wallace Reservoir

In 1976, archaeologists surveyed 53 square kilometers of contiguous, cleared land in the predominantly wooded region of northeastern Georgia. Survey of this impoundment basin of Wallace Reservoir (now Lake Oconee) in the Georgia Piedmont illustrates one of the only full-coverage surface examinations of a region with historically low surface visibility. The Wallace Archaeological Project consisted of the standard three-fold approach of survey, testing, and intensive excavation (Fish and Hally 1983). The survey and testing (DePratter 1976, 1983) consisted of locating and evaluating the range of site types present with a research emphasis toward intensively occupied sites that would contain intact subsurface features.

At the onset of survey and excavation across the Wallace Basin, it became apparent that surface visibility across the basin was ideal for pedestrian survey. Archaeologists seized this opportunity to implement large-scale settlement pattern analysis (known as the Wallace Mitigation Survey) (Fish and Hally 1983). The program was composed of three components: (1) 100% survey of all cleared lands in the basin; (2) a large-scale backhoe testing program of selected alluviated and floodplain areas; and (3) surface survey of exposed grounds in the uplands (Fish and Gresham 1990; Fish and Hally 1983; Gresham 1987). This intensive survey program resulted in the discovery of just over 3,000 archaeological sites and isolated finds, of which 27 received intensive excavation. The Wallace Mitigation Survey remains one of the few extensive, full-coverage surveys in the Southeast and provides valuable data for longitudinal and large-scale settlement studies.
Works Cited and Additional Reading:

Anderson, David G.

Blitz, John H., and Karl G. Lorenz

Caldwell, Joseph R.

DePratter, Chester
1976  The 1974-1975 Archaeological Survey in the Wallace Reservoir, Greene, Hancock, Morgan, and Putnam Counties, Georgia. Manuscript on file, Department of Anthropology, University of Georgia, Athens.

Elliott, Daniel T.

Elliott, Rita F.

Ethridge, Robbie

Fish, Paul R., and Thomas Gresham

Fish, Paul R., and David J. Hally

Foster, H. Thomas
2007  Archaeology of the Lower Muskogee Creek Indians, 1715-1836. The University of Alabama Press, Tuscaloosa.

Gresham, Thomas H.

Huscher, Harold
Keller, James H., Arthur R. Kelly, and Edward V. McMichael  

Miller, Carl  

O’Steen, Lisa  
1983  Early Archaic Settlement Patterns in the Wallace Reservoir: An Inner Piedmont Perspective.  
M.A. Thesis, University of Georgia, Athens.

Sears, William H.  
1958  The Wilbanks Site (9Ck5), Georgia. Smithsonian Institution Bureau of American Ethnology Bul- 
letin 169:259-287.

Shapiro, Gary  
Archaeology: Mississippian Chiefdoms in the Deep South, edited by J. Mark Williams and Gary 

Smith, Marvin T., and Stephen A. Kowalewski  

Swanton, John R.  
1922  Early History of the Creek Indians and Their Neighbors. Bureau of American Ethnology Bulle- 

Wauchope, Robert  
1966  Archaeological Survey of Northern Georgia with a Test of Some Cultural Hypotheses. Society 

1974  A Preliminary Report on Archaeological Reconnaissance in Greene, Morgan, and Putnam 
Counties, Georgia. Manuscript on file, Department of Anthropology, University of Georgia, Athens.
Questions for Discussion

1) Why do you think that so many archaeological sites have been found at Georgia’s reservoirs?

2) What is a river floodplain? How are they formed? Why do you think deeply buried archaeological sites are often found in river floodplains?

3) What kinds of information might artifacts give us about daily life for early Georgians?

4) How do you think archaeologists can tell which artifacts are older and which are younger at multicomponent sites like Mandeville?

5) What are some of the negative effects a reservoir might have on an archaeological site? What are some of the positive effects?

6) Why do you think historic archaeology is important if we have written records from the Historic period? Think about the context of these historic written records. Who wrote them? Why were they written? Who benefitted most from their writings?
1) Reservoir construction required a lot of archaeological survey and testing before anything was built, so more sites were discovered in these areas. These reservoirs are constructed over major waterways. Reliable sources of water were probably attractive to people throughout history in Georgia. It makes sense that lots of sites will be located in areas with reliable water.

2) A floodplain is an area of land adjacent to a stream or river that often floods when a river or stream experiences high discharge, or the volume of water that flows through a river or stream at any given time. So low discharge means a low volume of water (maybe only a trickle), while high discharge means a huge volume of water (fast moving, deep water). When a river experiences high discharge, water comes up and over the river bank and floods the surrounding land. River floodplains are formed from the gravels, silts, and sands that are deposited by flood waters when a river “breaks its banks,” or floods over the sides of its bank. The soils and silts that are left behind after a flooding event are often called alluvium.

Deeply buried archaeological sites are often found in river floodplains because they were probably covered by hundreds and hundreds of years of flooding alluvium, preserving them in place. These deeply buried sites are much older than archaeological sites found closer to the surface, because they have experienced more years of flooding and alluvium buildup.

3) What people were eating (animal bones), what they hunted with (stone projectile points), how they prepared food (pots, metates), how they built their homes (daub), what they considered garbage (middens), what they used for jewelry/decoration (beads, ear spools, celts), which people were considered important (how much stuff they were buried with).

4) According to stratigraphy, objects that are buried deeper are generally older than artifacts that are closer to the surface. That means the older an artifact is, the more dirt has been deposited on top of it over time.

5) Negative: The reservoir will submerge archaeological sites. They will all be underwater within the flood zone of the reservoir. That means most archaeologists can’t work on them anymore.
   Negative: The water may have an adverse effect on the preservation of these sites. Erosion could destroy some of these sites.
   Positive: Some sites are more protected underwater. They are safer from being looted if people can’t see these sites from the ground surface.
   Positive: Archaeological surveys conducted during the construction of these reservoirs meant that many of these sites were discovered for the first time ever. Most of these reservoir sites would have never been found if construction of these dams had never happened.

6) Historic archaeology captures the voices of those who often didn’t have a voice in historic documents—enslaved peoples, minority populations, women, children, indigenous populations, and any other people and activities that were not considered important by the ruling class. Sometimes people lie! Historic archaeology is a way to check the accuracy of many historic written records.
Artifacts and Culture Change Lesson Plan
Jera R. Davis, Ph.D., RPA
New South Associates, Inc.

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<th>Grades 6-8</th>
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**Objectives**
The students will learn to sort artifacts by age and then use them to track culture change over thousands of years.

**Topics/Content**
Observation, Logic, History, Prehistory, Archaeology

**QCCs Addressed**
Grade 8: Historical Understandings 1, ELAGSE8W1, ELAGSE8W2

**Materials**
Handout (one per student), scissors (one pair per student or small group)

**Procedures**
Distribute copies of handout (see below) to each student or small group.

Explain that archaeologists can use artifacts to learn about human history. Archaeologists record information and classify artifacts – objects made and used by people – in order to learn about life in the past. Every artifact tells a little story about how people used to live, and when they are compared to one another and sorted through time they can even tell big stories. But before that can happen, archaeologists must sort artifacts in time. One way that they do this is by “seriating” them according to their shapes, sizes, and other physical attributes.

Review the opening text with the classroom as a whole. Walk the students through the “mobile phone seriation” exercise.

Once the students are familiar with how to conduct a seriation, instruct them to complete the “projectile point seriation” exercise on their own. Students will use scissors to cut out each projectile point silhouette before arranging them in chronological order.

Once students have seriated their points, ask them, “If you hadn’t known that the largest was embedded in a mammoth rib, how could you known which end of the sequence was oldest?” (answer: It would have been impossible without more information).

Discuss: “Why did projectile points change over time?”
Seriation, also called artifact sequencing, is a relative dating method invented by the archaeologist Sir William Flinders Petrie in the late nineteenth century. Petrie had discovered several cemeteries along the Nile River in Egypt. They seemed to be from the same period, but he did not know which cemetery was oldest and which was the youngest. If he was going to learn anything about ancient Egyptian history he needed a way to put them in order.

Petrie knew that styles of pottery, like styles of clothing, seemed to come in and out of fashion over time—in his case, he noted that some pottery vessels from the graves had handles while others just had stylized ridge-like grips. He assumed that the change in handle styles was an evolutionary one, and that the pots could therefore be used to determine the age of the cemeteries. At a time when drawings of “Egyptian pots” were considered enough information for thinking people, Petrie’s concern for where a pot came from, its age, and its relationship to the objects buried with it was a revolutionary idea in archaeology. He was one of the first scientific archaeologists.

Seriation works because everything that humans make changes over time—they always have and they always will. For example, consider how mobile phones have changed since the 1980s. The earliest mobile phones were large, boxy devices that were too big to fit inside your pocket, so people kept them in their cars. Their large size limited their usefulness, so by the 1990s people were trying to find ways to make mobile phones more compact. The earliest hand-sized mobile phones were called “clamshell phones,” because they flipped open like clams. Despite their smaller size, they were also the first phones to feature display screens. Phones continued to shrink in size and increase in processing power as mobile networks provided internet access at all times. By 2010, mobile phones had developed into far more than just phones; they had become high-powered pocket-sized computers. Nowadays people use their phones for just about everything and, as a result, they demand larger screens, high definition cameras, and even greater processing power. Mobile phone manufacturers attempt to meet these demands.
Future archaeologists may use mobile phones to learn about modern people in the same way that Petrie used pots to learn about ancient Egyptians. Like Petrie, they will first have to sort them from oldest to youngest. Pretend you are an archaeologist living in the distant future. You have found six different types of mobile phones while excavating late twentieth and early twenty-first century junkyards. An example of each is shown in the figure on the following page. Study them. Arrange them from oldest to youngest.

<table>
<thead>
<tr>
<th>Oldest</th>
<th>&lt;</th>
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<th>&gt;</th>
<th>Youngest</th>
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Justify your sequence (or “seriation”) by naming three attributes that changed over time.

1. 
2. 
3. 

Once you have them sorted, take a look at how the types are distributed between the junkyards.

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<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>Total %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Junkyard #1</td>
<td></td>
<td>40</td>
<td>40</td>
<td>15</td>
<td>5</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>Junkyard #2</td>
<td></td>
<td>80</td>
<td>10</td>
<td>10</td>
<td></td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>Junkyard #3</td>
<td></td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>30</td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td>Junkyard #4</td>
<td></td>
<td>75</td>
<td>15</td>
<td>10</td>
<td></td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

*Which junkyard is oldest?*

*Which is youngest?*

*How do you know?*
Now that you have seriated familiar objects, let’s apply the principles of seriation to something much less familiar: stone projectile points (“arrowheads”) like those that archaeologists have found at Pre-Columbian sites throughout Georgia. For the sake of this exercise, imagine that archaeologists found the largest point (bottom left) embedded in a mammoth’s rib and the smallest (center right) embedded in a deer femur. Mammoths haven’t lived in Georgia for nearly 10,000 years, so it safe to assume that the large point is the oldest.
Use your scissors to cut out the silhouettes below. Arrange them from oldest to youngest.
As you have demonstrated in your seriation, you don’t have to be an archaeologist to track culture change over time. Changes in projectile points reflect changes in human behavior.

To begin with, it is worth noting that though people often call these artifacts “arrowheads,” the fact is that most were made long before American Indians invented bows and arrows. For thousands of years, the ancient people of Georgia and the broader Southeast used other weapons in war and on the hunt. Paleoindians, also known as “Clovis” people, used stout spears tipped with large, well-made spearheads. They attached these points to short sticks that they then socketed into the hollow tips of their spears (Figure 1). This way they could thrust, withdraw, socket a new point, and thrust again when hunting megafauna such as mammoths, giant sloths, and other huge, dangerous animals without worrying about their weapons getting stuck.

Hafted points through time: socketed Clovis spear (left), atlatl dart tip (center), arrow top (right).
Within a few thousand years of the Paleoindian colonization of North America, the megafauna were extinct. Without large game animals, Native hunters began focusing their efforts – and their technologies – on smaller prey: deer, turkeys, rabbits, ducks, etc. Thick, heavy spears like those used to on megafauna were not well suited to hunting these quicker, more elusive animals, so hunters developed a new weapon that archaeologists call the “atlatl” or spear-thrower. An atlatl (pronounced attle-attle) is essentially a short handle with a hook at one end (Figure 2). Atlatls were used to hurl long, flexible “darts” or javelins with tremendous force. They also allowed hunters to silently stalk their prey then ambush them at close range.

The atlatl-and-dart was the dominant weapon on the continent for nearly 8,000 years. Clearly, it was very good at what it was designed to do. Contrary to popular belief, American Indians only began using the bow-and-arrow somewhat recently. Though it had been in use among Arctic hunter-gatherers since 3000 B.C., people in the southeastern United States didn’t start using bows-and-arrows until approximately A.D. 700. The bow-and-arrow was superior to the atlatl-and-dart in several important ways. Bows are much more accurate, can send projectiles flying much greater distances, are easier to use in wooded areas, and can be reloaded faster. Once Southeastern American Indians learned of the bow-and-arrow through their long-distance contacts, it spread rapidly from group to group.

Reflect back on your seriation, and notice how the points decreased in size and changed in shape over time. Those changes reflect 1) the megafauna extinction and the invention of the atlatl, 2) the long-term use of atlatls by American Indian hunters, and 3) the eventual adoption of the bow-and-arrow in late prehistory.
**ANSWER KEY**

**Attributes that changed over time (mobile phones)**

- overall size
- thickness
- receiver size/shape
- number of buttons
- antenna
- screen size

**Oldest junkyard** = Junkyard #2. More older phones were found there than anywhere else.

**Youngest junkyard** = Junkyard #3.

**Attributes that changed over time (projectile points)**

- size
- serration
- base shape
- notch shape
- notch (presence/absence)
- stem length
Archaeology and History Websites of Interest

Archaeological Institute of America: [http://www.archaeological.org/](http://www.archaeological.org/)
The AIA is a non-profit organization that was established in 1879 and chartered by the U.S. Congress in 1906. The AIA is the nation’s “oldest and largest organization devoted to the world of archaeology.” The Education section of the website offers an Introduction to Archaeology, Lesson Plans, and announcements about Archaeology Fairs taking place across the country, and more. In case you need a definition of an archaeological term, the AIA website has a great glossary at [http://www.archaeological.org/education/glossary](http://www.archaeological.org/education/glossary).

Georgia Department of Natural Resources—Historic Preservation Division, Archaeology: [http://georgiashpo.org/archaeology](http://georgiashpo.org/archaeology)
“The Historic Preservation Division (HPD) is Georgia’s state historic preservation office, or SHPO.” The mission of the HPD “is to promote the preservation and use of historic places for a better Georgia.” Visit this website to learn more about Georgia’s historic preservation efforts, archaeological site protection, and stewardship.

National Park Service: [http://www.nps.gov/history/](http://www.nps.gov/history/)
- Archeology in the Parks: [http://www.nps.gov/history/archeology/sites/parks.htm](http://www.nps.gov/history/archeology/sites/parks.htm)
- Archeology Nationwide: [http://www.nps.gov/history/archeology/sites/nationwide.htm](http://www.nps.gov/history/archeology/sites/nationwide.htm)
- Teacher Resources: [http://www.nps.gov/history/archeology/PUBLIC/teach.htm](http://www.nps.gov/history/archeology/PUBLIC/teach.htm)
The NPS “invites you to discover American history in all its diversity, from ancient archeological places to the homes of poets and Presidents to the sobering stories of Civil War soldiers and civilians to the legacy of a courageous woman who refused to give up her seat on a bus. Our history is part of who we were, who we are, and who we will be….We invite you to explore historic preservation and the tools we use to help preserve and protect the places where history happened.”

Society for American Archaeology: [www.saa.org](http://www.saa.org)
The SAA website features a great educational webpage through “Archaeology for the Public.” It includes Teacher Training & Fieldwork Opportunities, Educational Resources for Educators, Archaeological Law & Ethics, Frequently Asked Questions About Archaeology and Archaeologists, Mystery Artifact, and much more!

Teaching with Historic Places: [http://www.nps.gov/nr/twhp/](http://www.nps.gov/nr/twhp/)
This website “uses properties listed in the National Park Service’s National Register of Historic Places to enliven history, social studies, geography, civics, and other subjects. TwHP has created a variety of products and activities that help teachers bring historic places into the classroom.” By visiting the “Preserve America” section of the website, you can view examples of how historic sites have been preserved in Georgia.

This national non-profit organization was established in 1980 and is the only organization of its kind in North America “dedicated to acquiring and preserving the best of our nation’s remaining archaeological sites.”

Learn about Georgia’s heritage. This is a great resource for history and archaeology buffs.

The Society for Georgia Archaeology (SGA): [www.thesga.org](http://www.thesga.org)
Interested in learning more about Georgia archaeology and how you can preserve it? Visit the SGA website to learn more about upcoming events and resources. Several local chapters exist throughout the state, so find information about where a chapter meets near you and attend a meeting to learn about archaeology that is being conducted in your area. You can follow us on Facebook, too!
This is one of a series of educational packets produced annually by the Society for Georgia Archaeology during Spring Archaeology Month activities in May. This series reflects new themes annually and it is distributed free-of-charge, along with an associated poster, to all middle/junior high public schools in the state, regional libraries, state parks and historic sites, and other entities. With the exception of the Events Calendar, the poster and educational packets are timeless. Libraries at schools and regional public libraries are encouraged to catalog these materials so that they may be used in the future by educators and patrons. The 2019 issue represents the 22nd in the series. The text of this packet was created by Rhianna Bennett, Stefan Brannan, Jera Davis, KC Jones, LK Schnitzer, and Lori Thompson. All images are courtesy of the UGA Laboratory of Archaeology. Map of Georgia’s reservoirs created by Stefan Brannan using information from the USGS.