

From Artifact to Art

By Beverly Owens from Cleveland Early College High School
for the 2021-2022 World View Global Fellows Program

Overview of Lesson: 3D printing is the perfect connection between science and art. Seeing artifacts in a museum is one thing, but holding an artifact in your hand is quite another. In this lesson, students will examine scans of archaeological artifacts, and will learn how to translate 3D scans into printable files. After 3D printing a replica of the artifact, students will be able to examine the artifact in person, as well as painting and adding structural detail. As an alternative, students may examine the digital artifact scans, and can use clay in order to replicate the artifact.

About the Project: American Indians lived in the area we now call North Carolina for at least 15,000 years. Archaeologists study the remnants of their communities to learn who these people were and how they lived and prospered for thousands of years. The lesson presented below was developed as part of the 2021-2022 UNC World View Fellows Program, [Exploring Indigenous Cultures: Ancient North Carolinians, Past and Present](#). It is one in a series of lessons that the Fellows created for K-12 schools and community colleges to help students learn about the ancient peoples that lived here and those who represent today's vibrant American Indian populations. Lessons connect past to present day by exploring multiple resources within the [Ancient North Carolinians: A Virtual Museum of North Carolina Archaeology website](#) to examine how communities changed over time and what influenced these changes. Understanding past indigenous lifeways—their complexity, resiliency, and vitality—allows for a greater appreciation of the contributions American Indians made to the past and continue to make to the present and future of North Carolina.

Suggested Grade Levels: Middle School or High School

Subjects: Science, Social Studies and Art

State and National Standards alignment:

Art (High School)

B.V.3, I.V.3, P.V.3 - Create art using a variety of tools, media, and processes, safely and appropriately.

B.CX.1, I.CX.1, P.CX.1 - Understand the global, historical, societal, and cultural contexts of the visual arts.

B.CX.2, I.CX.2, P.CX.2 - Understand the interdisciplinary connections and life applications of the visual arts.

Social Studies

Grade 4 - 4.B.1.1 Explain how traditions, social structure, and artistic expression have contributed to the unique identity of North Carolina.

Grade 8 - 8.B.1.2 Explain how cultural values, practices and the interactions of various indigenous, religious, and racial groups have influenced the development of North Carolina and the nation.

Lesson Objectives:

As artifacts are discovered and analyzed by archaeologists and field experts, many times the artifacts are cataloged and housed at museums or universities. Sometimes, the artifacts may end up on display in museum exhibits. How can we make these artifacts more accessible, so that students in North Carolina, and potentially around the world, can learn about artifacts from indigenous archaeological sites?

During this lesson, students will be able to:

- Analyze ancient artifacts
- Use a 3-dimensional media to reproduce an indigenous artifact

Differentiation strategies to meet diverse learner needs:

Students could work in small groups to complete these activities, or may work individually.

Images can be printed or displayed digitally, using a projector and computer.

This activity can easily be modified for students in elementary or middle school.

ENGAGEMENT

- Obtain an artifact, such as an unprovenanced pottery sherd. If an actual artifact isn't accessible, use a replica, or photos of an artifact.
 - Pass the artifact (or images) around to each student. Encourage students to record their observations in a ["Notice and Wonder"](#) format.
 - Ask students: What do you think this is? What can we learn from this? Where do you think this came from? What kind of environment might it have originated in?
 - Allow students to share their thoughts with the whole class. Alternatively, students can record their responses in a journal.
 - Ask students to brainstorm some ways that they might go about trying to learn more about the artifact.

EXPLORATION

- Students will watch the video ["Centuries Old Meets High Tech."](#)
- As students watch, ask them to consider the two prompts:
 - What are the benefits of using 3D modeling to study artifacts?
 - What are some ways that producing 3D models is more engaging to the global community?
- Additionally, students may record their ideas using [this interactive slide](#).

EXPLANATION

- Students will visit the [Ancient North Carolinians](#) website.
- Under "Quick Links," students will click on the 3D Gallery, and will browse the 3D models that are available. (Click on Galleries, and then 3D Gallery).
- Use the [3D Printing Archaeological Artifacts](#) video to provide further instruction on how to complete this activity.

ELABORATION

- Through this activity, students will be able to explore a variety of archaeological artifacts, perhaps ones that were even discovered in their county.
- Students will learn several new terms: archaeology, artifact, 3D scanning, and 3D printing.
- Students will be able to make a meaningful connection to this activity. Students may begin wondering about the applications of 3D printing. As a field trip, students could visit a local natural history museum, and could use free apps or open source software to scan an archaeological or museum artifact themselves.

EVALUATION

- This is a skill-based activity. As students go through the process of analyzing the artifacts available on the [Ancient North Carolinians: A Virtual Museum of North Carolina Archaeology website](#), they will complete simple steps (illustrated in the video) to finish the activity.
- Once students have rendered their file for printing, they may print it through an accessible 3D printer. Additionally, if a 3D printer is not available, students can use playdough or air dry clay to create a replica of their selected archaeological artifact.

Materials:

Computer, air dry clay or salt dough, assorted acrylic paints, paint brushes, 3D printer and filament (optional)

This lesson plan was created by Beverly Owens of Cleveland Early College High School as part of the 2021-2022 UNC World View Global Fellows Program. For more information about the program, please visit <http://worldview.unc.edu/>.