

# Education Programs

**fall 2019** through **spring 2020**



**McCLUNG**  
**MUSEUM** *of*  
Natural History  
and Culture



# Learning Experiences



Visits to the museum and the education programs offered are **FREE!**

The education programs offered by the McClung Museum provide content support for K-12 teaching in the arts, social studies, and science curricula of the State of Tennessee. Specific content is noted with each program description to aid teachers in choosing programs for their students.

Students will learn how to “read” objects for information, gather evidence by describing their key attributes and comparing them, draw conclusions from these comparisons, assess visual sources, and listen and speak in a group setting.

## Museum Policies for Teachers and Students

### REQUIREMENTS

#### for Teachers/Chaperones:

- maintain proper student behavior
- remain with students at all times
- provide one adult for every 15 students

#### for Students:

- follow directions
- listen when appropriate
- stay with the group
- no food, drinks, or gum in exhibits

**Risk Assessment:** Teachers who need to write a risk assessment can find this information on the museum’s website at: <http://tiny.utk.edu/schooltours>.

#### Planning your trip:

**Dining.** There are no dining facilities in the museum.

**Parking** is under the control of **University Parking and Transit Services**.

- Buses may drop off and pick up students at the museum, but may not park on Circle Park Drive.
- Mini-buses or vans may park behind the museum **with advance reservations**.
- Individuals in cars accompanying school groups may receive a two-hour free parking permit to park on Circle Park Drive. If a longer time is desired, individuals may purchase a permit for \$5 at the Parking Information Booth on Circle Park Drive.

For more information, or for assistance with parking, contact **Parking and Transit Services at 865-974-3605**.

Groups without a reservation may be turned away. Submit your reservation request at <http://tiny.utk.edu/schooltours>.

**Minimum group size is 10 students.**

**Maximum group size is 80 students.**

Concurrent programs will be offered for groups with more than 30 students; call to discuss options with the education staff.

For more information on tour reservations, contact Leslie Chang Jantz ([lcjantz@utk.edu](mailto:lcjantz@utk.edu)) or Callie Bennett ([croller2@utk.edu](mailto:croller2@utk.edu)) or **865-974-3662**.

**The Museum Store** features an assortment of books and educational toys for children, as well as a variety of decorative items, books, and jewelry for adults. We buy from Museum Store Association vendors, which guarantees high quality and educational value as well as items that have not been produced under slavery conditions or that may have adverse effects to endangered species. Sales from the store support our free education programs. Prices begin at \$1.

**If you want to permit your students to visit the store, please allow extra time.**





# Science in Motion

The Photographic Studies of Eadweard Muybridge, Berenice Abbott and Harold Edgerton

SEPTEMBER 20, 2019–JANUARY 5, 2020

Photography was born out of a passionate engagement between art and science.

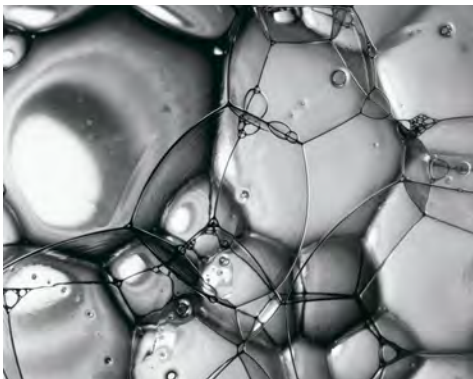
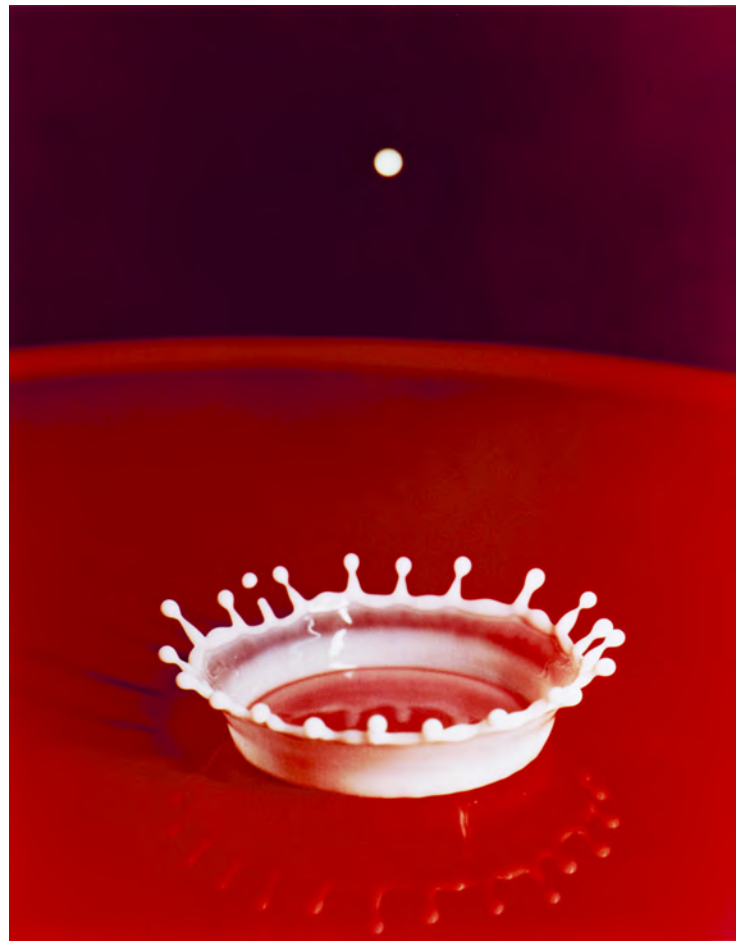
The medium's pioneers were inventors, scientists, and mathematicians whose experiments dramatically affected the art form and forged a reciprocal relationship between art and science that continues to this day.

This exhibition offers a rich view of the scientific studies done by three groundbreaking photographers—Eadweard Muybridge, Harold Edgerton, and Berenice Abbott. They began their photographic careers in different manners: Muybridge as an experimenter in early photographic processes, Edgerton as a scientist, and Abbott as an artist. In the photos displayed here, Muybridge and Edgerton captured movement, while Abbott illustrated scientific principles with her images.

However, these neat distinctions are oversimplified. Each photographer went on to push the limits of the medium artistically, and by inventing devices to study and represent light and motion that allowed the public to see what was previously unseen. Their work elegantly reveals scientific phenomena and individual artistic practices, and underlines photography's role as a new way of seeing the world.

**Time required: 45 minutes**

**Available September 20, 2019–January 5, 2020**



**CURRICULUM STANDARDS NEXT PAGE**

top right: Harold Edgerton, *Milk Drop Coronet*, 1957; above left: Berenice Abbott, *Soap Bubbles* (detail), 1946; middle: Eadweard Muybridge, *Daisy Canter*, *Saddled*, plate no. 616 (detail), 1887 right: Harold Edgerton, *Bullet Through an Apple* (detail), 1964

# CURRICULUM STANDARDS FOR *SCIENCE IN MOTION*

## SOCIAL STUDIES

**W.14:** Explain how scientific and technological innovations (e.g., the steam engine, new textile technology, steel processing, medical advances, electricity, and new methods of transportation) led to massive social, economic, cultural, and demographic changes.

**W.79:** Describe the cultural, economic, geographic, and political effects of significant technological, ideological, medical, and scientific developments and breakthroughs of the era.

## SCIENCE

**K.ETS1: 1** Ask and answer questions about the scientific world and gather information using the senses.

**1.PS4:** Use a model to describe how light is required to make objects visible. Summarize how illumination could be from an external light source or by an object giving off its own light.

**2.PS2: 1** Analyze the push or the pull that occurs when objects collide or are connected.

**2.PS2: 3** Recognize the effect of multiple pushes and pulls on an object's movement or non-movement.

**3.PS2: 1** Explain the cause and effect relationship of magnets.

**3.PS2: 3** Evaluate how magnets cause changes in the motion and position of objects, even when the objects are not touching the magnet.

**3.ETS2: 1** Identify and demonstrate how technology can be used for different purposes.

**4.PS3: 2** Observe and explain the relationship between potential energy and kinetic energy.

**4.PS3: 3** Describe how stored energy can be converted into another form for practical use.

**5.PS2: 5** Explain how forces can create patterns within a system (moving in one direction, shifting back and forth, or moving in cycles), and describe the conditions that affect how fast or slowly these patterns occur.

**5.ETS2: 2** Describe how human beings have made tools and machines (X-ray cameras, microscopes, satellites, computers) to observe and do things that they could not otherwise sense or do at all, or as quickly or efficiently.

**8.PS2: 1** Design and conduct investigations depicting the relationship between magnetism and electricity in electromagnets, generators, and electrical motors, emphasizing the factors that increase or diminish the electric current and the magnetic field strength.

**PWC.PS2: 3** Explain how Newton's first law applies to objects at rest and objects moving at a constant velocity.

**PHYS.PS2:5** Gather evidence to defend the claim of Newton's first law of motion by explaining the effect that balanced forces have upon objects that are stationary or are moving at constant velocity.

**PHYS.PS2:8** Use examples of forces between pairs of objects involving gravitation, electrostatic, friction, and normal forces to explain Newton's third law.

**PHYS.PS4:1** Know wave parameters (i.e., velocity, period, amplitude, frequency, angular frequency).



above: Berenice Abbott, *Multiple Exposure of a Swinging Ball*, 1958

right: Berenice Abbott, *Collision of Two Balls*, 1958

## ART

**K.VA.R1.A** Describe what an image represents.

**K.VA.R2.A** Interpret art by identifying subject matter and describing relevant details while using appropriate art vocabulary.

**K.VA.Cn2.A** Identify a purpose of an artwork.

**1.VA.R1.A** Compare images that represent the same subject.

**1.VA.R2.A** Interpret art by categorizing subject matter and describing relevant details while using appropriate art vocabulary.

**2.VA.R2.A** Interpret art by identifying the suggested mood and describing relevant subject matter while using appropriate art vocabulary.

**3.VA.P3.A** Identify and explain how and where different cultures record and illustrate stories and history of life through art.

**3.VA.R2.A** Interpret art by analyzing how use of media, mood, and subject matter shape meaning while using appropriate art vocabulary.

**4.VA.R1.A** Determine the main idea of an image, and explain how it is supported by key details.

**4.VA.R2.A** Interpret art by analyzing how context, relevant subject matter, and use of media shape meaning while using appropriate art vocabulary.

**4.VA.Cn2.A** Through observation, infer information about time, place, and culture in which a work of art was created.

**5.VA.R1.A** Explain how images can convey cultural associations.

**5.VA.Cn2.A** Identify how art is used to inform or change beliefs, values, or behaviors of an individual or society.

**6.VA.R1.A** Analyze how images and cultural associations influence ideas, emotions, and actions.

**6.VA.Cn2.A** Analyze how art reflects changing times, traditions, resources, and cultural uses.

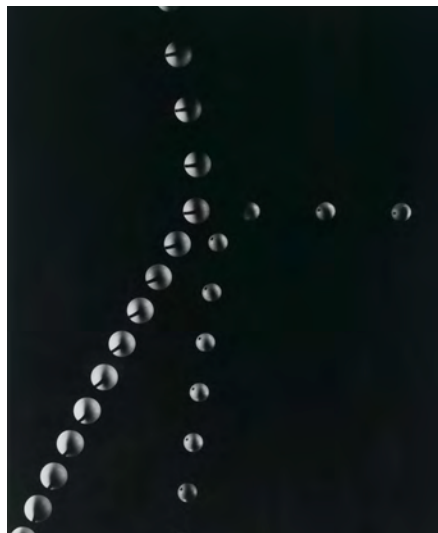
**7.VA.R1.A** Analyze multiple ways that images influence specific audiences.

**7.VA.Cn2.A** Analyze how responses to art are influenced by understanding the time and place in which it was created, the available resources, and cultural uses.

**8.VA.P3.A** Analyze why and how an exhibition or collection may influence ideas, beliefs, and experiences.

**HS1.VA.P3.A** Analyze and describe the impact that an exhibition or collection has on personal awareness of social, cultural, or political beliefs and understandings

**HS1.VA.Cn2.A** Describe how knowledge of culture, traditions, and history may influence personal responses to art.







# Visions of the End

JANUARY 31-MAY 10, 2020

On the Island of Patmos around the year 100 CE, a man named John committed to writing a dream vision that he had experienced—an apocalypse, or “revelation,” to use the more familiar English term. Its enigmatic imagery, which demands decoding yet resists interpretation, has inspired and disturbed audiences across cultures and centuries.

Despite its complex and nearly impenetrable allegories, John’s Apocalypse has spoken forcefully to believers, giving shape to ideas about storytelling, history, and justice—punishments and rewards meted out to individual souls and nations. It also has inspired great art, as painters, sculptors and illustrators have tried to give life and meaning to John’s original vision. Join us as we explore the art and history of the Middle Ages through this exciting lens!

**Time required: 45 minutes**

**Available September 20, 2019–January 5, 2020**



top right: St. John on Patmos writing down his visions of the Apocalypse, ca.1400, workshop of the Virgil master; above left: *The Four Horsemen* (detail), 1498, Albrecht Durer; right: *Historiated initial R* depicting Christ sitting in judgement (detail), 1525, Master of Morgan

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Questions? Contact Leslie Chang Jantz ([lcjantz@utk.edu](mailto:lcjantz@utk.edu)) or Callie Bennett ([croller2@utk.edu](mailto:croller2@utk.edu)) at 865-974-3662.



# CURRICULUM STANDARDS FOR *VISIONS OF THE END*

## SOCIAL STUDIES

**6.58:** Explain the polytheistic religion of ancient Rome, with respect to beliefs about the human-like qualities of the deities and their importance in everyday life.

**6.59:** Describe the origins and central features of Christianity: Key Person(s) Jesus, Paul, Sacred Texts: The Bible Basic Beliefs: monotheism, sin and forgiveness, eternal life, Jesus as the Messiah

**7.29:** Explain how Charlemagne shaped and defined medieval Europe, including: his impact on feudalism, the creation of the Holy Roman Empire, and the establishment of Christianity as the religion of the Empire.

**AH.08:** Describe the origins and central features of Judaism and its distinctions from other early religious traditions: Key Person(s): Abraham, Moses; Sacred Texts: The Tanakh (Hebrew Bible); Basic Beliefs: monotheism, Ten Commandments, emphasis on individual worth and personal responsibility.

**AH.33:** Identify the significant developments and contributions of Rome to the following: Religious Institutions.

**AH.44:** Explain how the diffusion of Christianity throughout Europe influenced its development after the decline of the Roman Empire.

**AH.54:** Describe social, political, and religious developments in the later medieval period (e.g., Magna Carta, decline of feudalism, and church-state conflicts).

## ART

**K.VA.P3.A** Explain the function of an art museum, and distinguish how an art museum is different from other buildings and presentation spaces.

**K.VA.R1.A** Describe what an image represents.

**K.VA.R2.A** Interpret art by identifying subject matter and describing relevant details while using appropriate art vocabulary.

**K.VA.Cn2.A** Identify a purpose of an artwork.

**1.VA.R1.A** Compare images that represent the same subject.

**1.VA.R1.B** Select and describe works of art that illustrate daily life experiences.

**1.VA.R2.A** Interpret art by categorizing subject matter and describing relevant details while using appropriate art vocabulary.

**2.VA.Cn2.A** Compare and contrast purposes of artwork from various cultures, times, and places.

**3.VA.P3.A** Identify and explain how and where different cultures record and illustrate stories and history of life through art.

**3.VA.R2.A** Interpret art by analyzing how use of media, mood, and subject matter shape meaning while using appropriate art vocabulary.

**3.VA.Cn2.A** Recognize that responses to art can change depending on knowledge of the time and place in which it was made.

**4.VA.P1.A** Analyze how traditional and emerging technologies have impacted the preservation and presentation of artwork.

**4.VA.R1.A** Determine the main idea of an image, and explain how it is supported by key details.

**4.VA.R2.A** Interpret art by analyzing how context, relevant subject matter, and use of media shape meaning while using appropriate art vocabulary.

**4.VA.Cn2.A** Through observation, infer information about time, place, and culture in which a work of art was created.

**5.VA.R1.A** Explain how images can convey cultural associations.

**5.VA.R1.B** Compare one's own interpretation of a work of art with the interpretation of others.

**5.VA.Cn2.A** Identify how art is used to inform or change beliefs, values, or behaviors of an individual or society.

**6.VA.R1.A** Analyze how images and cultural associations influence ideas, emotions, and actions.

**6.VA.R1.B** Identify and interpret works of art that reveal a variety of world cultures and values.

**6.VA.R2.A** Interpret art to identify ideas and mood conveyed by determining relevant context and analyzing use of media and subject matter while using appropriate art vocabulary.

**6.VA.Cn2.A** Analyze how art reflects changing times, traditions, resources, and cultural uses.

**7.VA.R1.A** Analyze multiple ways that images influence specific audiences.

**7.VA.Cn2.A** Analyze how responses to art are influenced by understanding the time and place in which it was created, the available resources, and cultural uses.

**8.VA.P3.A** Analyze why and how an exhibition or collection may influence ideas, beliefs, and experiences.

**8.VA.Cn2.A** Distinguish different ways art is used to represent, establish, reinforce, and reflect group identity.

**HS1.VA.P3.A** Analyze and describe the impact that an exhibition or collection has on personal awareness of social, cultural, or political beliefs and understandings.

**HS1.VA.R1.A** Analyze how one's understanding of the world is affected by experiencing images.

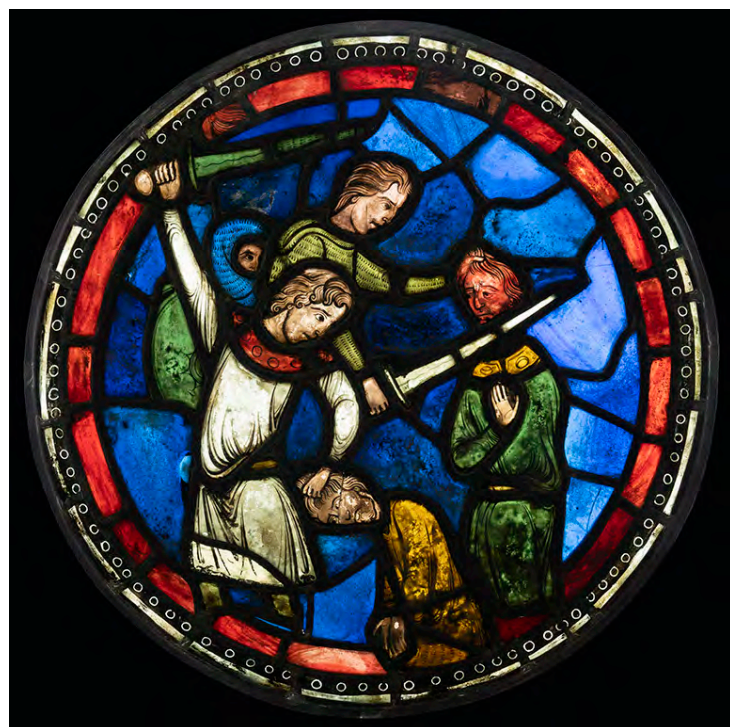
**HS1.VA.R1.B** Hypothesize ways in which art influences perception and understanding of human experiences.

**HS2.VA.R1.A** Evaluate the effectiveness of an image or images to influence ideas, feelings, and behaviors of specific audiences.

**HS2.VA.Cn2.A** Compare and connect functions of art in a variety of societal, cultural, and historical contexts to contemporary and local contexts.

**HS3.VA.R1.A** Evaluate the connections within a collection of art or artists from a particular time and place, and determine the potential influence on specific audiences.

**HS3.VA.R1.B** Analyze how responses to art develop over time based on knowledge, life experiences, and perceptions of the world.



The Martyrdom of Two Saints, c. 1210-15, Ile de France or Burgundy, France.



# Archaeology and the Native Peoples of Tennessee



The culture and way of life of Native Peoples in Tennessee, as discovered through archaeology, is the subject of the exhibit. All programs involve inquiry, discussion, and hands-on objects, and content in culture, economics, history (especially Cherokee history), and geography are interwoven. Primary sources, including original artifacts and hands-on activities, provide opportunities for observing, comparing, and enhancing understanding and knowledge retention.

The exhibit also includes significant examples of prehistoric Native Peoples art, and middle and high school students in particular can use these objects as subjects for the identification and comparison of specific media, subjects, symbols, and cultural context.

**Time required: 45 minutes**



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# CURRICULUM STANDARDS FOR NATIVE PEOPLES

## SOCIAL STUDIES

**K.09:** Explain what a map and globe represent.

**K.17:** Use correct words and phrases related to chronology and time

**1.23:** Use correct words and phrases related to chronology and time, including: past, present, and future.

**1.25:** Compare ways people lived in the past to how they live today, including: forms of communication, modes of transportation, and types of clothing.

**2.18:** Analyze how the location of regions affects the way people live, including their: food, clothing, shelter, transportation, and recreation.

**2.29:** Examine the significant contributions made by people of the U.S., including: Sequoyah

**2.31:** Analyze and interpret events placed chronologically on a timeline.

**3.18:** Analyze how people interact with their environment to satisfy basic needs and wants, including: housing, industry, transportation, and communication.

**3.22:** Examine how American Indian cultures changed as a result of contact with European cultures, including: decreased population, spread of disease (smallpox), increased conflict, loss of territory, and increase in trade.

**3.29:** Explain the cooperation that existed between colonists and American Indians during the 1600s and 1700s, including: fur trade, military alliances, treaties, and cultural exchanges.

**4.18:** Analyze the impact of Andrew Jackson's presidency, including: the Indian Removal Act, Trail of Tears, and preservation of the union.

**5.26:** Explain how the name "Tennessee" originated from the Yuchi word Tana-tsee, referring to where the rivers come together.

**5.27:** Identify the cultures of the major indigenous settlements in Tennessee, including: the Paleo (Coats-Hines Site), Archaic, Woodland (Old Stone Fort, Pinson Mounds), and Mississippian (Chucalissa Indian Village).

**5.28:** Identify the pre-colonial American Indian tribes residing in Tennessee (e.g., Cherokee, Chickasaw, Creek, and Shawnee), and analyze their various customs and traditions.

**5.38:** Analyze the impact of Andrew Jackson's presidency on the American Indian population of Tennessee, including: the Indian Removal Act, Trail of Tears, Treaty of Echota, and John Ross.

**6.02:** Describe the characteristics of the nomadic hunter-gatherer societies, including their use of: basic hunting weapons, fire, shelter, tools.

**6.04:** Identify and explain the importance of the following key characteristics of civilizations: culture, government, religion, social structure, stable food supply, technology, and writing.

**TN.01:** Describe changes in life in the Tennessee region from the late ice age through the Archaic period.

**TN.02:** Compare and contrast features of life in the Tennessee region during the Woodland and Mississippian periods.

**TN.03:** Analyze the customs and traditions of American Indians located in the Tennessee region prior to European contact, including: Cherokee, Chickasaw, Creek, Iroquois, and Shawnee.

**TN.11:** Analyze the conflicts between early Tennessee settlers and American Indians.

## SCIENCE

**K.ESS3:1** Use a model to represent the relationship between the basic needs (shelter, food, water) of different plants and animals (including humans) and the places they live.

**2.LS2:2** Predict what happens to animals when the environment changes (temperature, cutting down trees, wildfires, pollution, salinity, drought, land preservation).

**2.ETS1:1** Define a simple problem that can be solved through the development of a new or improved object or tool by asking questions, making observations, and gather accurate information about a situation people want to change.

**2.ETS2:2** Predict and explain how human life and the natural world would be different without current technologies.

**3.LS4:3** Explain how changes to an environment's biodiversity influence human resources.

**3.ETS2:1** Identify and demonstrate how technology can be used for different purposes.

## ART

**K.VA.R1.A** Describe what an image represents.

**K.VA.R2.A** Interpret art by identifying subject matter and describing relevant details while using appropriate art vocabulary.

**K.VA.Cn2.A** Identify a purpose of an artwork.

**1.VA.R1.A** Compare images that represent the same subject.

**1.VA.R1.B** Select and describe works of art that illustrate daily life experiences.

**1.VA.R2.A** Interpret art by categorizing subject matter and describing relevant details while using appropriate art vocabulary.

**2.VA.Cn2.A** Compare and contrast purposes of artwork from various cultures, times, and places.

**3.VA.P3.A** Identify and explain how and where different cultures record and illustrate stories and history of life through art.

**3.VA.R2.A** Interpret art by analyzing how use of media, mood, and subject matter shape meaning while using appropriate art vocabulary.

**3.VA.Cn2.A** Recognize that responses to art can change depending on knowledge of the time and place in which it was made.

**4.VA.P1.A** Analyze how traditional and emerging technologies have impacted the preservation and presentation of artwork.

**4.VA.R1.A** Determine the main idea of an image, and explain how it is supported by key details.

**4.VA.Cn2.A** Through observation, infer information about time, place, and culture in which a work of art was created.

**5.VA.R1.A** Explain how images can convey cultural associations.

**5.VA.R1.B** Compare one's own interpretation of a work of art with the interpretation of others.

**5.VA.R2.A** Interpret art to identify ideas and mood conveyed by analyzing context, subject matter, and use of media while using appropriate art vocabulary.

**5.VA.Cn2.A** Identify how art is used to inform or change beliefs, values, or behaviors of an individual or society.

**6.VA.R1.A** Analyze how images and cultural associations influence ideas, emotions, and actions.

**6.VA.R1.B** Identify and interpret works of art that reveal a variety of world cultures and values.

**6.VA.Cn2.A** Analyze how art reflects changing times, traditions, resources, and cultural uses.

**7.VA.R1.A** Analyze multiple ways that images influence specific audiences.

**7.VA.Cn2.A** Analyze how responses to art are influenced by understanding the time and place in which it was created, the available resources, and cultural uses.

**8.VA.P3.A** Analyze why and how an exhibition or collection may influence ideas, beliefs, and experiences.

**8.VA.Cn2.A** Distinguish different ways art is used to represent, establish, reinforce, and reflect group identity.

**HS1.VA.P3.A** Analyze and describe the impact that an exhibition or collection has on personal awareness of social, cultural, or political beliefs and understandings.

**HS1.VA.R1.A** Analyze how one's understanding of the world is affected by experiencing images.

**HS1.VA.Cn2.A** Describe how knowledge of culture, traditions, and history may influence personal responses to art.

**HS2.VA.R1.A** Evaluate the effectiveness of an image or images to influence ideas, feelings, and behaviors of specific audiences.

**HS3.VA.R1.A** Evaluate the connections within a collection of art or artists from a particular time and place, and determine the potential influence on specific audiences.





# The Civil War in Knoxville: The Battle of Fort Sanders, November 29, 1863

Original documents, newspapers, photographs, uniforms, weapons, and ordinary objects carried or worn by soldiers and civilians form the primary sources students will examine as evidence in the story of Knoxville's role in the Civil War. Archaeology is also highlighted as a source of information. Directly related to the action at Chickamauga and Chattanooga, the events are placed within the geography and the culture of East Tennessee.

**Time required: 45 minutes**



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# CURRICULUM STANDARDS FOR BATTLE OF FORT SANDERS

## SOCIAL STUDIES

**4.29:** Evaluate the significance of the Battle of Fort Sumter and the impact it had on secession.

**4.30:** Explain the efforts of both the Union and the Confederacy to secure the border states for their causes.

**4.32:** Describe the roles of major leaders during the Civil War, including: Jefferson Davis, Ulysses S. Grant, Robert E. Lee, and President Abraham Lincoln.

**4.34:** Examine the significance and outcomes of key battles and events of the Civil War, including: The Battle of Fort Sanders.

**5.41:** Examine the issue of slavery in the three grand divisions and the impact their differences had on Tennessee's secession from the Union.

**5.42:** Describe the significance of the following Civil War events and battles on Tennessee: The Battle of Fort Sanders.

**8.62:** Describe the outbreak of the Civil War and the resulting sectional differences, including: economic, geographic, and technological advances, military strategies, roles of President Abraham Lincoln and Jefferson Davis, significance of Fort Sumter, geographical divisions within states.

**TN.28:** Explain the causes of the Civil War and how geographic and political divisions impacted Tennessee's secession.

**TN.29:** Describe Tennessee's role in the Civil War, including Battle of Fort Sanders.

**TN. 31:** Describe how the Civil War impacted various populations in Tennessee (e.g., African Americans, American Indians, and women).

## SCIENCE

**4.ETS2:** Explain how engineers have improved existing technologies to increase their benefits, to decrease known risks, and to meet societal demands.

**5.ETS2:3** Identify how scientific discoveries lead to new and improved technologies.

## ART

**4.VA.R1.A** Determine the main idea of an image, and explain how it is supported by key details.

**5.VA.R1.A** Explain how images can convey cultural associations.

**5.VA.R1.B** Compare one's own interpretation of a work of art with the interpretation of others.

**5.VA.R2.A** Interpret art to identify ideas and mood conveyed by analyzing context, subject matter, and use of media while using appropriate art vocabulary.

**6.VA.R1.A** Analyze how images and cultural associations influence ideas, emotions, and actions.

**6.VA.R1.B** Identify and interpret works of art that reveal a variety of world cultures and values.

**6.VA.Cn2.A** Analyze how art reflects changing times, traditions, resources, and cultural uses.

**7.VA.R1.A** Analyze multiple ways that images influence specific audiences.

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**8.VA.P3.A** Analyze why and how an exhibition or collection may influence ideas, beliefs, and experiences.

**8.VA.Cn2.A** Distinguish different ways art is used to represent, establish, reinforce, and reflect group identity.

**HS1.VA.P3.A** Analyze and describe the impact that an exhibition or collection has on personal awareness of social, cultural, or political beliefs and understandings.

**HS1.VA.Cn2.A** Describe how knowledge of culture, traditions, and history may influence personal responses to art.

**HS2.VA.R1.A** Evaluate the effectiveness of an image or images to influence ideas, feelings, and behaviors of specific audiences.

**HS2.VA.Cn2.A** Compare and connect functions of art in a variety of societal, cultural, and historical contexts to contemporary and local contexts.

**HS3.VA.R1.A** Evaluate the connections within a collection of art or artists from a particular time and place, and determine the potential influence on specific audiences.

**HS3.VA.R1.B** Analyze how responses to art develop over time based on knowledge, life experiences, and perceptions of the world.







# Geology & Fossil History of Tennessee

Students can examine more than 190 actual fossils of plants and animals, including bones of the only dinosaur ever found in Tennessee; authentic dinosaur eggs; life-size dioramas of Tennessee habitats and organisms of the past, with associated fossils; and minerals and rocks of Tennessee. Organisms and their adaptations to environments, survival, and extinction in ecosystems; plate tectonics; and types of rocks are among the topics that can be explored with a staff member or docent. Hands-on activities are included.

**Time required: 45 minutes**



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# CURRICULUM STANDARDS FOR GEOLOGY & FOSSIL HISTORY

## SCIENCE

**K.LS1:3** Explain how humans use their five senses in making scientific findings

**K.ETS2:1** Use appropriate tools to make observations and answer testable scientific questions

**1.LS2:2** Obtain and communicate information to classify plants by where they grow and the plant's physical characteristics

**2.LS2:2** "Changes in the environment"

**2.ESS1:1** Recognize that some of the Earth's natural processes are cyclical, while others have a beginning and an end. Some events happen quickly, while others occur slowly over time.

**2.ESS2:2** Observe and analyze how blowing wind and water can move Earth materials (soil, rocks) from one place to another, changing the shape of a landform and affecting the habitat of living things.

**3.PS1:3** Describe and compare the physical properties of matter including color, texture, shape, length, mass, temperature, volume, states, hardness, and flexibility.

**3.LS1:1** "past animals"

**4.LS4:1** Obtain information about what a fossil is and ways a fossil can provide information about the past.

**4.ESS1:1** Generate and support a claim with evidence that over long periods of time, erosion (weathering and transportation) and deposition have changed landscapes and created new landforms.

**4.ESS3:1** Obtain and combine information to describe that energy and fuels are derived from natural resources and that some energy and fuel sources are renewable and some are not (fossil fuels, minerals).

**5.LS4:1** Analyze and interpret data from fossils to describe types of organisms and their environments that existed long ago. Compare similarities and differences of those living organisms and their environments. Recognize that most kinds of animals (and plants) that once lived on Earth are now extinct.

**8.LS4:1** Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change in life forms throughout Earth's history.

**8.ESS2:1** Analyze and interpret data to support the assertion that rapid or gradual geographic changes lead to drastic population changes and extinction events.

**8.ESS2:1** Describe the relationship between the process and forces that create igneous, sedimentary and metamorphic rocks

**8.ESS2:4** "plate boundaries and seafloor spreading"

**ESS.ESS2:8** Using maps and numerical data, evaluate claims, evidence and reasoning that forces due to plate tectonics cause earthquake activity, volcanic eruptions, and mountain building.

**GEO.ESS2:7** Communicate scientific and technical information about how the dynamic nature of the rock cycle accounts for the interrelationships among rock and mineral types, and describe how the total amount of material stays the same throughout formation, weathering, sedimentations, and reformation.







# Human Origins: Searching for our Fossil Ancestors

Skeletons, skulls, stone tools, and cave art illustrate the science of paleoanthropology and the physical and cultural changes leading to modern humans. Docent- or staff-led programs include discussions of homologous structures, adaptations, tool use, survival and extinction, and continuing skeletal changes.

Recommended for sixth grade and older.

**For specific curriculum objectives for each grade, see page 13.**

**Time required: 45 minutes**



**CURRICULUM STANDARDS NEXT PAGE**

# CURRICULUM STANDARDS FOR HUMAN ORIGINS

## SCIENCE

**5.LS4:1** Analyze and interpret data from fossils to describe types of organisms and their environments that existed long ago. Compare similarities and differences of those living organisms and their environments. Recognize that most kinds of animals (and plants) that once lived on Earth are now extinct.

**8.LS4:1** Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change in life forms throughout Earth's history.

**8.LS4: 2** Construct an explanation addressing similarities and differences of the anatomical structures and genetic information between extinct and extant organisms using evidence of common ancestry and patterns between taxa.

**BIO.LS4** Evaluate scientific data collected from analysis of molecular sequences, fossil records, biogeography, and embryology. Identify chronological patterns of change and communicate that biological evolution is supported by multiple lines of empirical evidence that identify similarities inherited from a common ancestor (homologies).

## ART

**5.VA.R1.A** Explain how images can convey cultural associations.

**6.VA.R1.A** Analyze how images and cultural associations influence ideas, emotions, and actions.

**6.VA.R1.B** Identify and interpret works of art that reveal a variety of world cultures and values.

**6.VA.R2.A** Interpret art to identify ideas and mood conveyed by determining relevant context and analyzing use of media and subject matter while using appropriate art vocabulary.

**6.VA.Cn2.A** Analyze how art reflects changing times, traditions, resources, and cultural uses.

**7.VA.Cn2.A** Analyze how responses to art are influenced by understanding the time and place in which it was created, the available resources, and cultural uses.

**8.VA.P3.A** Analyze why and how an exhibition or collection may influence ideas, beliefs, and experiences.

**8.VA.Cn2.A** Distinguish different ways art is used to represent, establish, reinforce, and reflect group identity.

**HS1.VA.R1.A** Analyze how one's understanding of the world is affected by experiencing images.

**HS1.VA.Cn2.A** Describe how knowledge of culture, traditions, and history may influence personal responses to art.

**HS2.VA.R1.A** Evaluate the effectiveness of an image or images to influence ideas, feelings, and behaviors of specific audiences.

**HS2.VA.Cn2.A** Compare and connect functions of art in a variety of societal, cultural, and historical contexts to contemporary and local contexts.







# Ancient Egypt: The Eternal Voice



The people of ancient Egypt speak to us through the primary sources of writing, artifacts, and art. The purpose of the program in this exhibit is to use these sources as evidence for their beliefs, technology, society, and daily lives, as well as the history of their rulers.

Important artifacts include: the painted coffin of the priestess Anesenmes, c. 1000 BCE; six animal mummies, including two cats; a limestone sarcophagus, c. 100-300 BCE; and many artifacts of daily life and tomb furnishings

In addition to the specific curriculum content, the programs support language arts literacy standards in history and social studies in integrating information presented visually, orally, or quantitatively with other information in print and digital texts.

**Time required: 45 minutes**



**CURRICULUM STANDARDS NEXT PAGE**

# CURRICULUM STANDARDS FOR ANCIENT EGYPT

## SOCIAL STUDIES

**3.01:** Analyze maps and globes using common terms, including: country, North Pole, equator, prime meridian, hemisphere, region, latitude, South Pole, longitude, and time zones.

**3.06:** Identify and locate the major continents and oceans using maps and globes: Africa.

**3.07:** Identify and locate major countries, including: Egypt.

**3.08:** Identify major physical features of the world, including: Rivers—Amazon, Nile and Deserts—Gobi, Sahara.

**6.04:** Identify and explain the importance of the following key characteristics of civilizations: culture. Government, religion, social structure, stable food supply, technology, and writing.

**6.13:** Identify and locate geographical features of ancient Egypt, including: Mediterranean Sea, Nile, Delta, Nile River, Red Sea, The regions of Upper and Lower Egypt, the Sahara.

**6.14:** Explain how agricultural practices impacted life and economic growth in ancient Egypt, including the use of irrigation and development of a calendar.

**6.15:** Explain the structure of ancient Egyptian society, including: relationships between groups of people, how social classes were organized by occupation, positions of pharaohs as god/kings, role of slaves.

**6.16:** Explain the polytheistic religion of ancient Egypt, with respect to beliefs about the afterlife, the reasons for mummification, and the use of pyramids.

**6.17:** Analyze the impact of key figures from ancient Egypt, including: Growth under the leadership of Queen Hatshepsut and her economic policies, Ramses the Great's military conquests leading to growth of the kingdom, Significance of the discovery of Tutankhamun's tomb on the understanding of ancient Egypt.

**6.18:** Analyze the achievements of ancient Egyptian civilization, including: hieroglyphics, papyrus, and the pyramids and Sphinx at Giza.

**6.19:** Examine the cultural diffusion of ancient Egypt with surrounding civilizations through trade and conflict, including its relationship with Nubia.

## SCIENCE

**K.ESS3:1** Use a model to represent the relationship between the basic needs (shelter, food, water) of different plants and animals (including humans) and the places they live.

**2.ESS1:** Recognize that some of Earth's natural processes are cyclical, while others have a beginning and an end. Some events happen quickly, while others occur slowly over time.

**3.LS4:3** Explain how changes to an environment's biodiversity influence human resources.

## ART

**K.VA.R1.A** Describe what an image represents.

**K.VA.R2.A** Interpret art by identifying subject matter and describing relevant details while using appropriate art vocabulary.

**3.18** Analyze how people interact with their environments while using appropriate art

vocabulary

**K.VA.Cn2.A** Identify a purpose of an artwork.

**1.VA.R1.A** Compare images that represent the same subject.

**1.VA.R1.B** Select and describe works of art that illustrate daily life experiences.

**1.VA.R2.A** Interpret art by categorizing subject matter and describing relevant details while using appropriate art vocabulary.

**2.VA.R2.A** Interpret art by identifying the suggested mood and describing relevant subject matter while using appropriate art vocabulary.

**2.VA.Cn2.A** Compare and contrast purposes of artwork from various cultures, times, and places.

**3.VA.P3.A** Identify and explain how and where different cultures record and illustrate stories and history of life through art.

**3.VA.Cn2.A** Recognize that responses to art can change depending on knowledge of the time and place in which it was made.

**4.VA.P1.A** Analyze how traditional and emerging technologies have impacted the preservation and presentation of artwork.

**4.VA.R1.A** Determine the main idea of an image, and explain how it is supported by key details.

**4.VA.R2.A** Interpret art by analyzing how context, relevant subject matter, and use of media shape meaning while using appropriate art vocabulary.

**4.VA.Cn2.A** Through observation, infer information about time, place, and culture in which a work of art was created.

**5.VA.R1.A** Explain how images can convey cultural associations.

**5.VA.R1.B** Compare one's own interpretation of a work of art with the interpretation of others.

**5.VA.Cn2.A** Identify how art is used to inform or change beliefs, values, or behaviors of an individual or society.

**6.VA.R1.A** Analyze how images and cultural associations influence ideas, emotions, and actions.

**6.VA.R1.B** Identify and interpret works of art that reveal a variety of world cultures and values.

**6.VA.Cn2.A** Analyze how art reflects changing times, traditions, resources, and cultural uses.

**7.VA.R1.A** Analyze multiple ways that images influence specific audiences.

**7.VA.Cn2.A** Analyze how responses to art are influenced by understanding the time and place in which it was created, the available resources, and cultural uses.

**8.VA.Cn2.A** Distinguish different ways art is used to represent, establish, reinforce, and reflect group identity.

**HS1.VA.R1.A** Analyze how one's understanding of the world is affected by experiencing images.

**HS1.VA.R1.B** Hypothesize ways in which art influences perception and understanding of human experiences.

**HS1.VA.Cn2.A** Describe how knowledge of culture, traditions, and history may influence personal responses to art.

**HS2.VA.R1.A** Evaluate the effectiveness of an

image or images to influence ideas, feelings, and behaviors of specific audiences.

**HS2.VA.Cn2.A** Compare and connect functions of art in a variety of societal, cultural, and historical contexts to contemporary and local contexts.

**HS3.VA.R1.A** Evaluate the connections within a collection of art or artists from a particular time and place, and determine the potential influence on specific audiences.

**HS3.VA.R1.B** Analyze how responses to art develop over time based on knowledge, life experiences, and perceptions of the world.







# Art of World Peoples in the Decorative Experience Gallery

Culture, economics, religion, government, geography, and history are reflected in the original art objects and artifacts of this exhibit, arranged geographically by continent. Students will practice extracting information from these works and using them as evidence for many aspects of human existence around the world. The exhibition is especially strong in Chinese history, regional art of Native Americans, and art reflecting natural resources, religion, and social status.

**Time required: 45 minutes**



**CURRICULUM STANDARDS NEXT PAGE**

# CURRICULUM STANDARDS FOR ART OF WORLD PEOPLES

## SOCIAL STUDIES

**2.02:** Compare & contrast the beliefs, customs, ceremonies, and traditions of the various cultures represented in the U.S.

**2.03:** Distinguish how people from various cultures in the community and nation share principles, goals, and traditions.

**2.17:** Compare and contrast regions of the U.S. (i.e., Southeast, Northeast, Great Plains, Southwest, Rocky Mountains, and Pacific Northwest) in terms of physical features, resources, climate of regions of the U.S.

**2.18:** Analyze how the location of regions affects the way people live, including their: food, clothing, shelter, transportation, and recreation.

**3.1:** Analyze maps and globes using terms, including: country, equator, hemisphere, latitude, longitude, North Pole, prime meridian, region, south pole, time zones.

**3.2:** Use cardinal directions, intermediate directions, map scales, legends, and grids to locate major cities in Tennessee and the U.S.

**3.19:** Compare and contrast the geographic locations and customs (i.e., housing and clothing) of the Northeast, Southeast, and Plains North American Indians.

**6.38:** Describe how the desire for Chinese goods influenced the creation of The Silk Road and initiated cultural diffusion throughout Eurasia, including the introduction of Buddhism into ancient China.

**7.02:** Describe how the reunification of China prior to the Tang Dynasty helped spread Buddhist beliefs.

**7.06:** Summarize the effects of the Mongolian empires on the Silk Roads, including the importance of Marco Polo's travels on the spread of Chinese technology and Eurasian trade.

**W.11:** Explain the geographic and economic reasons why the Industrial Revolution began in England, including: natural resources, entrepreneurship, labor, and access to capital.

## ART

**K.VA.P3.A** Explain the function of an art museum, and distinguish how an art museum is different from other buildings and presentation spaces.

**K.VA.R1.A** Describe what an image represents.

**K.VA.R2.A** Interpret art by identifying subject matter and describing relevant details while using appropriate art vocabulary.

**K.VA.Cn2.A** Identify a purpose of an artwork.

**1.VA.R1.A** Compare images that represent the same subject.

**1.VA.R1.B** Select and describe works of art that illustrate daily life experiences.

**1.VA.R2.A** Interpret art by categorizing subject matter and describing relevant details while using appropriate art vocabulary.

**2.VA.Cn2.A** Compare and contrast purposes of artwork from various cultures, times, and places.

**3.VA.P3.A** Identify and explain how and where different cultures record and illustrate stories and history of life through art.

**3.VA.R2.A** Interpret art by analyzing how use of

media, mood, and subject matter shape meaning while using appropriate art vocabulary.

**3.VA.Cn2.A** Recognize that responses to art can change depending on knowledge of the time and place in which it was made.

**4.VA.P1.A** Analyze how traditional and emerging technologies have impacted the preservation and presentation of artwork.

**4.VA.R1.A** Determine the main idea of an image, and explain how it is supported by key details.

**4.VA.R2.A** Interpret art by analyzing how context, relevant subject matter, and use of media shape meaning while using appropriate art vocabulary.

**4.VA.Cn2.A** Through observation, infer information about time, place, and culture in which a work of art was created.

**5.VA.R1.A** Explain how images can convey cultural associations.

**5.VA.R1.B** Compare one's own interpretation of a work of art with the interpretation of others.

**5.VA.Cn2.A** Identify how art is used to inform or change beliefs, values, or behaviors of an individual or society.

**6.VA.R1.A** Analyze how images and cultural associations influence ideas, emotions, and actions.

**6.VA.R1.B** Identify and interpret works of art that reveal a variety of world cultures and values.

**6.VA.R2.A** Interpret art to identify ideas and mood conveyed by determining relevant context and analyzing use of media and subject matter while using appropriate art vocabulary.

**6.VA.Cn2.A** Analyze how art reflects changing times, traditions, resources, and cultural uses.

**7.VA.R1.A** Analyze multiple ways that images influence specific audiences.

**7.VA.Cn2.A** Analyze how responses to art are influenced by understanding the time and place in which it was created, the available resources, and cultural uses.

**8.VA.P3.A** Analyze why and how an exhibition or collection may influence ideas, beliefs, and experiences.

**8.VA.Cn2.A** Distinguish different ways art is used to represent, establish, reinforce, and reflect group identity.

**HS1.VA.P3.A** Analyze and describe the impact that an exhibition or collection has on personal awareness of social, cultural, or political beliefs and understandings.

**HS1.VA.R1.A** Analyze how one's understanding of the world is affected by experiencing images.

**HS1.VA.R1.B** Hypothesize ways in which art influences perception and understanding of human experiences.

**HS1.VA.Cn2.A** Describe how knowledge of culture, traditions, and history may influence personal responses to art.

**HS2.VA.R1.A** Evaluate the effectiveness of an image or images to influence ideas, feelings, and behaviors of specific audiences.

**HS2.VA.Cn2.A** Compare and connect functions of art in a variety of societal, cultural, and historical contexts to contemporary and local contexts.

**HS3.VA.R1.A** Evaluate the connections within a collection of art or artists from a particular time and place, and determine the potential influence on specific audiences.

**HS3.VA.R1.B** Analyze how responses to art develop over time based on knowledge, life experiences, and perceptions of the world.



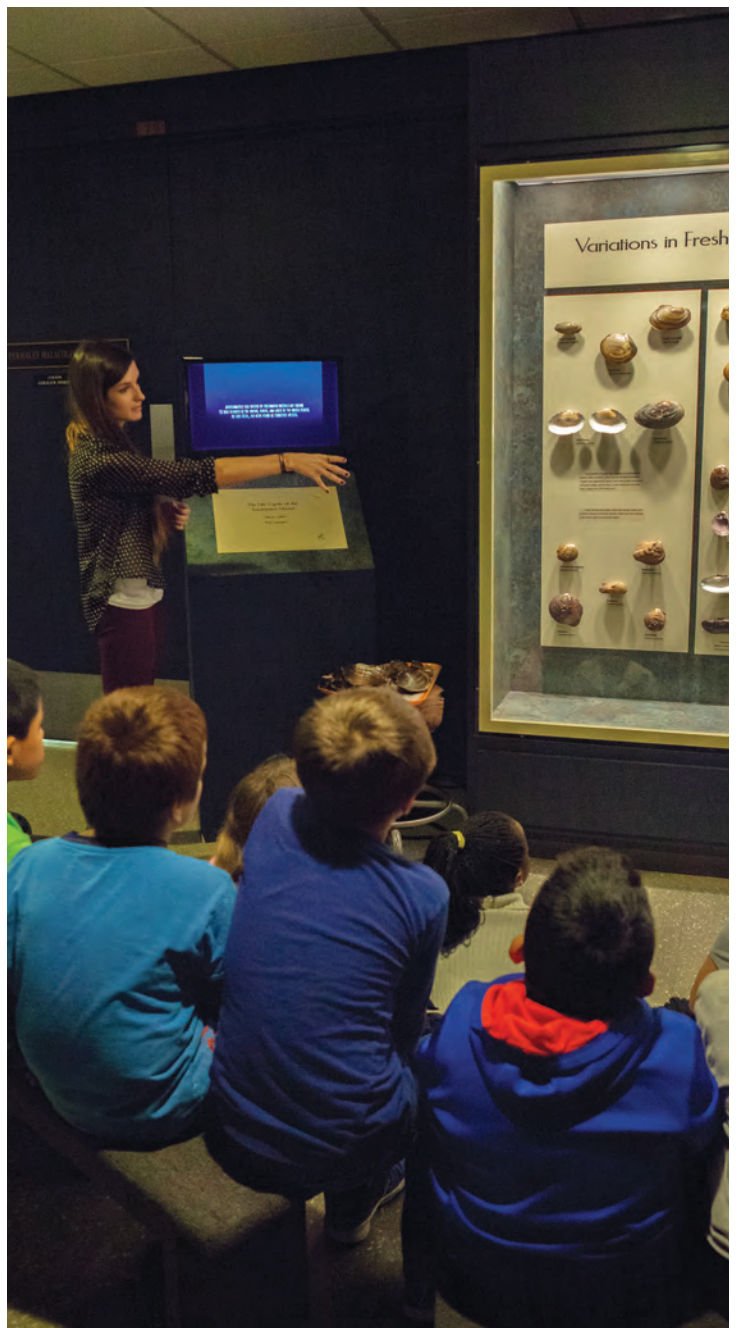




# Freshwater Mussels: Treasures Past & Present

The program and exhibit on these little-known, but ecologically significant animals explores many topics in the life sciences, including ecology, life cycle, symbiotic relationships, classification, and human uses and impacts on natural populations. Students observe features of mussel shells, infer organism characteristics and watch a short life cycle video.

**Time required: 45 minutes**



**CURRICULUM STANDARDS NEXT PAGE**

# CURRICULUM STANDARDS FOR FRESHWATER MUSSELS

## SOCIAL STUDIES

**5.27:** Identify the cultures of the major indigenous settlements in Tennessee, including: the Paleo (Coats-Hines Site), Archaic, Woodland (Old Stone Fort, Pinson Mounds), and Mississippian (Chucalissa Indian Village).

**TN.51:** Describe how the Great Depression and New Deal programs impacted Tennesseans, including the significance of: the Agricultural Adjustment Act, Civilian Conservation Corps, Tennessee Valley Authority, and Great Smoky Mountains National Park.

## SCIENCE

**K.LS1.1** Use information from observations to identify differences between plants and animals (locomotion, obtainment of food, and take in air/gasses)

**K.ESS3.1** Represent the relationship between the basic needs different plant and animals and the places they live

**2.LS1.1** Use evidence and observations to explain that many animals use their body parts and sense in different way to see, hear, grasp objects, protect themselves, move from place to place, and seek and find, and take in food, water and air.

**2.LS1.2** Obtain and communicate information to classify animals (vertebrates-mammals, birds, amphibians, reptiles, fish, invertebrate-insects) based on their physical characteristics.

**2.LS2.2** Predict what happens to animals when the environment changes (temperature, cutting down trees, wildfires, pollution, salinity, drought, land preservation)

**2.LS3.1** Use evidence to explain that living things have physical traits inherited from parents and that variations of these traits exist in groups of similar organisms.

**3.LS1.1** Analyze the internal and external structure that aquatic and land animals have to support survival, growth, behavior, and reproduction.

**4.LS2.3** Using information about the roles of organisms (producers, consumers, decomposers) evaluate how those roles in food chains are interconnected in a stable food web.

**4.LS2.4** Develop and use models to determine the effects of introducing a species to, or removing a species from, an ecosystem and how either one can damage the balance of an ecosystem.

**5.LS3.1** Distinguish between inherited characteristics and those characteristics that result from a direct interaction with the environment. Apply this concept by giving examples of characteristics of living organisms that are influenced by both inheritance and the environment.

**6.LS2.2** Determine the impact of competitive, symbiotic, and predatory interactions in an ecosystem.

**6.LS2.3** Draw conclusions about the transfer of energy through food web and energy pyramid in an ecosystem.

**6.LS4.1** Explain how changes in biodiversity would impact ecosystem stability and natural resources.

**BIO.LS2.1** Examine a representative ecosystem and, based on interdependent relationships presents, predict population size effects due to a given disturbance.

**ECO.LS2.2** Examples of adaptations of organisms in major marine and freshwater ecosystems. Develop explanation for the formation of these adaptations and predict how the organisms would be affected by environmental disturbances or long-term ecological changes.

## ART

**4.VA.Cn2.A** Through observation, infer information about time, place, and culture in which a work of art was created.

**6.VA.R1.B** Identify and interpret works of art that reveal a variety of world cultures and values.

**6.VA.Cn2.A** Analyze how art reflects changing times, traditions, resources, and cultural uses.

**HS1.VA.P3.A** Analyze and describe the impact that an exhibition or collection has on personal awareness of social, cultural, or political beliefs and understandings.

**HS1.VA.Cn2.A** Describe how knowledge of culture, traditions, and history may influence personal responses to art.

**HS3.VA.R1.B** Analyze how responses to art develop over time based on knowledge, life experiences, and perceptions of the world.





# OUTREACH PROGRAMS

**Can't come to the museum?  
We'll come to you for our outreach programs  
at a reasonable cost.**

## **ARCHAEOLOGY & THE NATIVE PEOPLES OF TENNESSEE**

*Social Studies, Grades 5-12*

Hands-on examination of artifacts and other materials highlight the story of 12,000+ years of human culture in East Tennessee. Students come away with an appreciation of early life ways, technology, cultural adaptations to a changing environment, and how archaeology contributes to our knowledge of human ingenuity and survival.

**Time required: one class period**

## **ANCIENT EGYPT: The Eternal Voice**

*Social Studies & Art, Grades 6-12*

A PowerPoint presentation, facsimile artifacts, and small group activity illustrate the splendor of ancient Egypt. The people, religion, monuments, art, writing, and contributions to world culture are explored. Some photographs in the presentation show artifacts from the museum's exhibition.



**FEES:** Outreach program fees are \$2 per student, with no charge for students on fee waiver and are only available during the school year. The fee includes both large-group and small-group activities with at least 4 weeks of anticipation.

**Visits to the museum are free.**

**RESERVATIONS:** Submit an outreach program request online at <http://tiny.utk.edu/schooltours>.

For more information on these offerings, please contact Leslie Chang Jantz ([lcjantz@utk.edu](mailto:lcjantz@utk.edu)) or Callie Bennett ([croller2@utk.edu](mailto:croller2@utk.edu)).







American  
Alliance of  
Museums



Smithsonian  
Affiliate



## McClung Museum of Natural History & Culture

1327 Circle Park Drive, Knoxville, TN 37996-3200

**865-974-2144** phone | [mcclungmuseum.utk.edu](http://mcclungmuseum.utk.edu)



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