Education Programs

fall 2018 through spring 2019

Includes outreach!

McCLUNG MUSEUM of Natural History and Culture
Learning Experiences

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.

Visits to the museum and the education programs offered are FREE!
Museum Policies for Teachers & 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: mcclungmuseum.utk.edu/education/k-12/onsite.

**Feedback:** We welcome educators’ comments, concerns, and suggestions for future visits to the museum. Please fill out an online evaluation form at: tiny.utk.edu/k12visiteval.

**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.

The Museum Store

The Museum Store features an assortment of books and educational toys for children and 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.

**Reservations:**
- required for all group visits
- are first come, first served

Groups without a reservation may be turned away. Submit your reservation request at tiny.utk.edu/mcclungschooltours.

**Minimum group size is 10 students.**

**Maximum group size is 100 students.**

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

For more information on tour reservations, contact Leslie Chang Jantz (l cjantz@utk.edu) or Callie Bennett (croll2@utk.edu) or 865-974-3662.
For All The World To See
Visual Culture and The Struggle for Civil Rights
AUGUST 31- OCTOBER 21, 2018
For All The World to See:
Visual Culture and the Struggle for Civil Rights

For All the World to See: Visual Culture and the Struggle for Civil Rights is an exploration of the power of the image in America’s pursuit of racial justice. Through a compelling assortment of photographs, television clips, art posters, and other historic artifacts, this exhibit traces how images and media disseminated to the American public transformed the modern Civil Rights movement and jolted Americans, both black and white, out of a state of denial or complacency.

Visitors to this immersive exhibition will explore more than 35 compelling and persuasive visual images, including photographs from influential magazines, such as *Life*, *Jet*, and *Ebony*; CBS news footage; and TV clips from *The Ed Sullivan Show*. Also included are Civil Rights era objects that exemplify the range of negative and positive imagery—from Aunt Jemima syrup dispensers and 1930s produce advertisements to Jackie Robinson baseball ephemera and African American portraiture.

*For All the World to See* is not a history of the Civil Rights movement, but rather an exploration of the vast number of potent images that influenced how Americans perceived race and the struggle for equality.

**Time required: 45 minutes to 1 hour**
Available August 31–October 21, 2018

Questions? Contact Leslie Chang Jantz (lcjantz@utk.edu) or Callie Bennett (croller2@utk.edu) at 865-974-3662.
Many Visions, Many Versions

Art from Indigenous Communities in India

FEBRUARY 1-MAY 26, 2019
Many Visions, Many Versions: Art from Indigenous Communities in India

Many Visions, Many Versions: Art from Indigenous Communities in India is the first comprehensive exhibition in the United States to present contemporary artists from four major indigenous artistic traditions in India. The exhibition includes art from the Gond and Warli communities of central India, the Mithila region of Bihar, and the narrative scroll painters of West Bengal. Featuring 47 exceptional paintings by 24 celebrated artists, this exhibition reflects diverse aesthetics that remains deeply rooted in traditional culture, yet vitally responsive to the world at large.

For Americans of all ages eager to know more about Indian art, Many Visions, Many Versions offers an opportunity to learn about life and culture in India through these remarkable artworks. By focusing on the four most prolific indigenous art traditions in India—Myth and Cosmology, Nature Real and Imagined, Village Life, and Contemporary Explorations—this exhibition is able to showcase the diversity and richness of Indian culture and offers a new vision of contemporary art in India.

Time required: 45 minutes to 1 hour
Available February 1-May 26, 2019
Archaeology and the Native Peoples of Tennessee
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.

For specific curriculum objectives for each grade, see inside the back cover of this brochure.

Time required: 45 minutes to 1 hour
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
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.

For specific curriculum objectives for each grade, see inside the back cover of this brochure.

Time required: 45 minutes
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. See curriculum specifics on the inside back cover.

**Time required: 30 to 45 minutes**
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 noted on the inside back cover, 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 to 1 hour
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.

Find specific social studies curriculum content by grade on the inside back cover.

Time required: 45 minutes to 1 hour
Freshwater Mussels: Treasures Past and 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: 30 to 45 minutes
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 4–12
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 tiny.utk.edu/mcclungschooltours.
For more information on these offerings, please contact Leslie Chang Jantz (lcjantz@utk.edu) or Callie Bennett (croller2@utk.edu).
FOR ALL THE WORLD TO SEE: VISUAL CULTURE AND THE STRUGGLE FOR CIVIL RIGHTS

TENNESSEE VISUAL ARTS CURRICULUM

5.6 Analyze the key events and struggles during the Civil Rights Movement

AAH.17 Define various methods used to obtain civil rights

AAH.19 Assess the extent to which the Civil Rights Movement transformed American politics and society (C, R, P)

GC.3.1 Describe the roles of broadcast, print, and electronic media, including the Internet, as means of communication in American politics.

Visual Art History: Standard 3.0, 3.2, 4.0, 4.14.2

Middle school students will explore technologies as well as media, identify symbols and themes, and discuss the historical and cultural contexts for the works.

High school students will compare and contrast the design, materials, and purposes of works, explore reasons for subjects, and describe changes in arts and the influences that produce them.

National Core Arts Standards, Anchor Standard 11: Relate artistic ideas and works with societal, cultural, and historical context to deepen understanding.

MANY VISIONS, MANY VERSIONS: ART FROM INDIGENOUS COMMUNITIES IN INDIA

TENNESSEE VISUAL ARTS CURRICULUM

1.3 Re-tell stories from folk tales, myths, and legends from other cultures.

1.4 Use collaborative conversations with diverse partners to discuss family customs and traditions.

3.57 Interpret different levels and primary sources to describe the main components of history and culture including language, clothing, food, art, beliefs, customs, and music.

Visual Art History: Standard 3.0, 3.3, 4.0, 4.14.2

Elementary students will identify media, elements of art and principles of art and principles of design, subject matter and art from different cultures, times, and places.

Middle school students will explore technologies as well as media, identify symbols and themes, and discuss the historical and cultural contexts for the works.

High school students will compare and contrast the design, materials, and purposes of works, explore reasons for subjects, and describe changes in arts and the influences that produce them.

National Core Arts Standards, Anchor Standard 11: Relate artistic ideas and works with societal, cultural and historical context to deepen understanding.

1.15 Describe the relationship between historical events and contemporary issues.

LIFETIME AND WELLNESS CURRICULUM

9th-12th: Substance Use and Abuse

7th, 7th-8th

TENNESSEE VISUAL ARTS CURRICULUM

Elementary students will identify media, elements of art and principles of design, subject matter and art from different cultures, times, and places.

Middle school students will explore technologies as well as media, identify symbols and themes, and discuss the historical and cultural contexts for the works.

High school students will compare and contrast the design, materials, and purposes of works, explore reasons for subjects, and describe changes in arts and the influences that produce them.

National Core Arts Standards, Anchor Standard 11: Relate artistic ideas and works with societal, cultural and historical context to deepen understanding.

ARCHEOLOGY AND THE NATIVE PEOPLES OF TENNESSEE

TENNESSEE SOCIAL STUDIES CURRICULUM

K-12: The World Around Us. What is the past? People, families, and communities of the past, food, clothing, shelter; geography; Sequoyah; K-3, K.4, K.6, K.12, K.13, K.2, K.4, 5.3

1st: Tennessee’s Place in America. The first people to Tennessee is the focus, including the Cherokee town of Tanasi; landforms and rivers; Cherokee folktales; picture timelines of Native American history, and comparing historic ways of life to today. L.3, L.4, L.6, L.7, L.10, L.12, L.13, L.18

2nd: Life in the U.S. Beliefs, customs, traditions, and ways of life of Native Peoples of Tennessee; ancient timeline of Tennessee; Sequoyah; and Trail of Tears. 1.1, 1.2, 1.2.2, 1.2.3, 1.2.7, 1.2.9, 1.2.11, 1.2.13, 1.2.14

3rd: World Geography & Cultures. Maps and globes, Native American Interaction with the environment and use of natural resources; Native American History in the Southeastern U.S., and Tennessee in particular for comparison to peoples in other parts of the world (see Arts of World Peoples programs). 3.1, 3.4, 3.6, 3.8, 3.9, 3.10, 3.15, 3.17

4th: The History of America to 1860. Cultures of indigenous peoples of Tennessee, including the Cherokee (traditional government, houses, clans, way of life, etc.); European explorers, impact of settlement; and the Columbian Exchange; colonies and the Chinese: westward expansion and the Trail of Tears. 4.1, 4.2, 4.4, 4.5, 4.10, 4.12, 4.13, 4.15

5th: The History of America from 1860. The viewpoint of the Cherokee as an example of a Native American people removed from their homeland and subsequent threats west of the Mississippi River. 5.30

6th: World History & Geography. Climate, geographic, and cultural change in the Paleolithic (called Paleolithic in the Americas) to agriculture in U.S. and the different crops that developed in the Americas. 6.1, 6.2, 6.4, 6.5, 6.7

7th: World History & Geography, the Middle Ages to Exploration of the Americas. The impact of exchanges between Native Americans of the Southeastern U.S. and the Spanish and English and the effects of exploration on Native Americans. 7.1, 7.5

8th: U.S. History & Geography, Civilization to American West. Cooperation and conflict between Native Americans and colonists; Fort Loudon: Indian Removal Act and the Trail of Tears; Sequoyah. 8.9, 8.9, 8.5, 8.37

AP US History: Several themes, including exchange, pooling, environment, and ideas, beliefs & culture are reflected in the events of prehistoric, exploration, colonial, and early national periods of U.S. History.

THE CIVIL WAR IN KNOXVILLE: THE BATTLE OF FORT SANDERS, NOVEMBER 29, 1863

TENNESSEE SOCIAL STUDIES CURRICULUM

5th: The History of America, from 1860, Uniforms, photographs, symbols on artifacts illustrate the two sides, and many artifacts show the everyday lives as well as action of Confederate and Union troops. Archaeological excavations at the battlefield site are also included. 5.6, 5.7, 5.9, 6.10, 5.34

8th: US History & Geography. Students examine and reflect on leaders, everyday soldiers, and the action in Knoxville. 8.76, 8.7, 8.79, 8.80

GEOLGY AND FOSSIL HISTORY OF TENNESSEE

TENNESSEE SCIENCE CURRICULUM

Pre-K: Dinosaurs and their features

K.1.3.3 Explain how humans use their five senses in making scientific findings.

K.1.2.3 Use appropriate tools to make observations and answer testable scientific questions.

1.1.2.3 Observe and communicate information to classify plants by how they grow and the plant's physical characteristics.

2.1.2.3 Observe and communicate information on how to classify animals (vertebrates-mammals, birds, amphibians, reptiles, fish, invertebrates-insects) based on their physical characteristics.

2.1.2.3 Predict what happens to animals when the environment changes (temperatures, cutting down trees, wildfires, pollution, salinity, drought, and preservation).

2.1.3.3 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.

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

3.1.2.3 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.

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

3.1.1.3 Analyze the internal and external structures that aquatic and land animals and plants have to support survival, growth, behavior, and reproduction.

4.1.2.3 Use information about the roles of organisms (producers, consumers, decomposers), evaluate how those roles in food chains are interconnected in a food web, and communicate how the organisms are continuously able to meet their needs in a stable food web.

4.1.3.3 Obtain information about what a fossil is and ways a fossil can provide information about the past.

4.1.3.3 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.

4.1.3.3 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).

5.1.4.3 Analyze and interpret data from fossils to describe types of organisms and their environments that existed a long time 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.

5.1.5.3 Use evidence from the presence and location of fossils to determine the order in which rock strata were formed.

5.1.5.3 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.

5.1.5.2 Analyze and interpret data to support the assertion that rapid of gradual geographic changes lead to drastic population changes and extinction events.

5.1.5.2 Describe the relationship between the process and forces that create igneous, sedimentary and metamorphic rocks.

5.1.5.2 “plate boundaries and seafloor spreading”;

ES.1.3.3.2 Using mass and numerical data, evaluate claims, evidence and reasoning that forces due to plate tectonics cause earthquake activity, volcanic eruptions, and mountain building.

BIO.2.1.3.2 Using information based on the geologic time and scale and history of the life of Earth, look for patterns in changes in organisms over time and explain how these patterns support the theory of evolution.
HUMAN ORIGINS: SEARCHING FOR OUR FOSSIL ANCESTORS
TENNESSEE SOCIAL STUDIES CURRICULUM
5.L.5A.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.

5.L.5A.2 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.

5.B.1.5A.1 Evaluate scientific data collected from analysis of molecular sequences, fossil records, biogeography, and paleoecology. 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).

5.B.1.5A.2 Using information based on the geologic time and scale and history of the life of Earth, look for patterns in changes in organisms over time and explain how these patterns support the theory of evolution.

5.H.1.5B.1 Identify major bones within the axial and appendicular divisions, describing their physiological roles in creating a body scaffold, internal organ protection, and anchor points for skeletal muscles participating in movement.

ANCIENT EGYPT: THE ETERNAL VOICE
TENNESSEE SOCIAL STUDIES CURRICULUM
3rd World Geography & Cultures. Mass and givers; Egyptian culture, customs, and art; Nile River, Sahara, pharaohs, art, writing, mummies; natural resources and environment and basic needs.

4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 4.9, 5.0

6th World History & Geography. Early Civilizations through Roman Empire. Characteristics of civilizations: agriculture, society, religion, and history; writing and visual art.

6.5, 6.6, 6.7, 6.15, 6.17, 6.18, 6.19, 6.20

Ancient Egypt. The environment, economy, technology, and social organization of ancient Egypt that led to civilization, and the changes in political traditions, religion, and history as seen in art, writing, and architecture.

Art 1, Art 11, Art 12, Art 13, Art 16

World Geography. The influence of the natural environment and natural resources, technological change, and cultural interactions as seen in the past landscape and population of ancient Egypt.


TENNESSEE VISUAL ARTS CURRICULUM
Visual Art Grades 6-8, Standard 1.0, 1.1, 2.0, 2.1, 3.0, 3.1, 3.2, 3.3, 4.0, 4.1, 4.2

Visual Art History, Standard 1.0, 1.1, 2.0, 2.1, 2.2, 3.0, 3.1, 3.2, 4.0, 4.1

National Core Arts Standards, Anchor Standard 11: Relate artistic ideas and works with societal, cultural, and historical context to deepen understanding.

ART OF WORLD PEOPLES IN THE DECORATIVE EXPERIENCE GALLERY
TENNESSEE SOCIAL STUDIES CURRICULUM
K The World Around Us. The different traditions and cultures of families around the world are explored through original objects, touchable objects, photographs, and a globe. Examples include Japan, the Arctic region, and countries of Africa.

K.1, K.4, K.6, K.12, K.14

1st Tennessee’s Place in America: Cherokee art and its materials, uses, decorative motifs and relationship to culture and traditions. Hands-on objects and activity included.

1.1, 1.2, 1.3, 1.4, 1.5, 1.6

2nd Life in the US. Students will compare Native American art from different regions of the US and relate the objects to natural resources and the cultures and ways of life of different peoples. Touchable objects and activity included.

2.1, 2.2, 2.3, 2.4, 2.8, 2.9, 2.10

3rd World Geography and Cultures. Mass and givers, original objects, and illustrations highlight several areas of the world and their peoples; teachers may choose one or two for comparison. Other exhibits which may be used for comparison include the Native Peoples of Tennessee exhibit (North America) and Ancient Egypt (north Africa).

All 3.1, 3.2, 3.4, 3.5, 3.9, 3.10, North America, 3.21, 3.22, Europe 3.39, 3.40; Africa 3.46, 3.48, 3.50; Asia 3.57, 3.58, Japan 3.57, 3.58

4th The History of America to 1860. Using historical art and artifacts as evidence, students will compare and contrast Native American life to colonists’ life including agriculture, trade, technology, and interactions among them.

4.5, 4.12, 4.32, 4.49

5th The History of America from 1860. Original objects illustrate the struggle of Native Americans in the west; people and aspects of industry including manufacturing and mass production vs hand-made goods; and the roles and women and African Americans in art, 5.20, 5.34, 5.47

6th World History and Geography. 5th century. Students examine early Chinese art and artifacts to the Han Dynasty for evidence of government, trade, culture, and religion, including emperors and the empire, the silk road, Confucius, Daoism, and Buddhism. Also included is a study of Roman art from Germany and their relationship to the expansion of the empire, engineering, and relations to Germanic tribes.

6.30, 6.32, 6.33, 6.36, 6.37, 6.38, 6.50, 6.65, 6.69

7th World History and Geography to the Exploration of the Americas. Original objects and artworks illustrate many aspects of history, economics, government, and religion in Asia (China, Japan, the Middle East) and Africa. Specifics include the religion of Islamic art to beliefs; the importance of cultural traditions in families and societies in sub-Saharan Africa and indigenous religious practices in Africa; the Islamic and subsequent technological innovations and political changes; Japanese samurai.

7.1, 7.10, 7.35, 7.10, 7.20, 7.21, 7.22, 7.25, 7.31

8th US History and Geography. Original objects illustrate the differences between Native American and European American art and life; the struggle of Native Americans in the west; and people and aspects of industrial America including manufacturing and mass production vs hand-made goods.

8.5, 8.92

Ancient History. Chinese, Roman, and Islamic art and artifacts give information on the history of these peoples, and their contacts with others.


World Geography. Natural resources, population movement, and economic change are reflected in the art of China, the US, and Africa.

Art 20.1, Art 20.2, Art 20.26

TENNESSEE VISUAL ARTS CURRICULUM
• Elementary students will identify media, elements of art and principles of design, subject matter and art from different cultures, times, and places.

• Middle school students will explore technologies as well as media, identify symbols and themes, and discuss the historical and cultural contexts of the works.

National Core Arts Standards, Anchor Standard 1: Relate artistic ideas and works with societal, cultural, and historical context to deepen understanding.

FRESHWATER MUSSELS: TREASURES PAST AND PRESENT
TENNESSEE SCIENCE CURRICULUM
K.S.1.1 Use information from observations to identify differences between plants and animals (bloomont, obtaining of food, and take in air/gases)

K.S.3.1 Heredity

K.S.3.2 Represent the relationship between the basic needs different plant and animals and the places they live

2.L.3.1 Use evidence and observations to explain that many animals use their body parts and sense in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek and find, and take in food, water, and air.

2.L.3.2 Obtain and communicate information to classify animals (vertebrates/mammals, birds, amphibians, reptiles, fish, invertebrate/insects) based on their physical characteristics.

2.L.3.2 Predict what happens to animals when the environment changes (temperature, cutting down trees, wildlife, pollution, saltine, drought, land preservation)

2.L.3.3 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.L.1.1 Analyze the internal and external structure that aquatic and land animals have to support survival, growth, behavior, and reproduction.

4.L.2.3 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.L.2.4 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.L.3.3 Distinction 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.L.2.1 Determine the impact of competitive, symbiotic, and predatory interactions in an ecosystem.

6.L.2.2 Draw conclusions about the transfer of energy through food web and energy pyramid in an ecosystem.

6.L.4.1 Explain how changes in biodiversity would impact ecosystem stability and natural resources.

6.L.5.2 Examine a representative ecosystem and, based on interdependent relationships present, predict population size effects due to a given disturbance.

EO.1.5.2 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.

EV.1.5.3 Evaluate the impact of habitat fragmentation and destruction, invasive species, overharvesting, pollution, and climate changes on biodiversity (genetic species, and ecosystems).
**McClung Museum of Natural History and Culture**

1327 Circle Park Drive
Knoxville, TN 37996-3200
865-974-2144 phone
865-974-3827 fax
mcclungmuseum.utk.edu

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**Directions to the Museum**

- From I-40, take the Alcoa Highway (Hwy. 129) exit, then exit at Neyland Drive. Turn left onto Neyland. At Lake Loudoun Blvd., turn left and go to the end of the street. You will be at Volunteer Blvd. Turn right onto Volunteer. Take the next right onto Circle Park Drive. The museum is on the right.

- From Alcoa Highway, traveling north, exit at Neyland Drive, then follow the directions given above.

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*This brochure is sponsored by Covenant Health.*