



The Tennessee  
Armillary Sphere Sundial  
Science, Symbol, Art and Identity



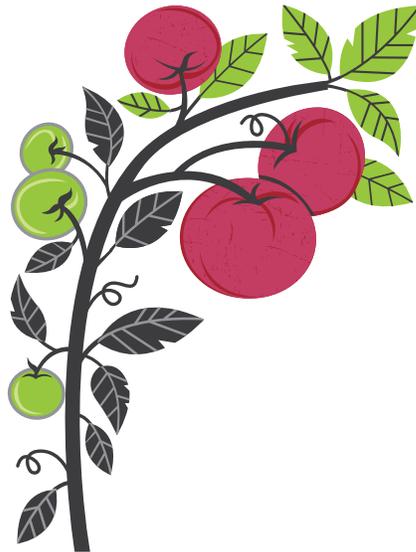


# The Tennessee Armillary Sphere Sundial Science, Symbol, Art and Identity

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## A Teacher's Guide

Written by Cherri Coleman and Brandi Self







## Welcome to the Armillary Sphere Sundial Teacher's Guide

The Governor and I are excited for you to learn more about the Armillary Sphere Sundial located in the Kitchen and Cutting Garden at the beautiful Tennessee Residence. We built the Kitchen and Cutting Garden to highlight the unique Tennessee agriculture traditions at the executive residence. The garden grows produce to serve in the home, and thousands of students and guests visit each year to learn about gardening and healthy eating.

In 2015, the Kitchen and Cutting Garden received first place in the International Master Gardener Association Search for Excellence recognition program in the category of Best Demonstration Garden. The award recognizes the garden as the highest quality teaching garden within Master Gardener programs across the United States and Canada. Students participate in hands-on activities in the garden, such as planting, harvesting, composting and weeding. A garden can be a terrific tool for students to learn about healthy fruits and vegetables, science, problem-solving, sustainability and the environment.

The Armillary Sphere Sundial presents a similar inter-disciplinary opportunity to learn about science, art and identity through its rich artistic and cultural connections to Tennessee. The Armillary Sphere Sundial Teacher's Guide expands the notion of a teaching garden by including lesson plans and activities for teachers to incorporate art and storytelling into classroom curriculum. We hope that you enjoy learning about the Armillary Sphere Sundial.

Thank you for taking the time to use this guide.

Warm regards,

A handwritten signature in black ink that reads "Crissy Haslam". The signature is written in a cursive, flowing style.

Crissy Haslam  
First Lady of Tennessee



The Tennessee Arts Commission is honored to partner with Tennessee's First Lady in producing this unique teacher's guide. We believe that participation in the arts benefits students by increasing learning and achievement, developing critical thinking skills for a 21st century workforce and preparing students for success in work and life.

With the mission to cultivate the arts for the benefit of all Tennesseans and their communities, the Commission invests in arts and cultural activities for hundreds of schools annually through Arts Education grants and programs. These activities give students the chance to experience the arts by visiting a museum, seeing a performance, or making works of art.

It is our hope that visits to the Tennessee Residence's Kitchen and Cutting Garden and this complementary teacher's guide to the Amillary Sphere provide additional rich, meaningful learning experiences.

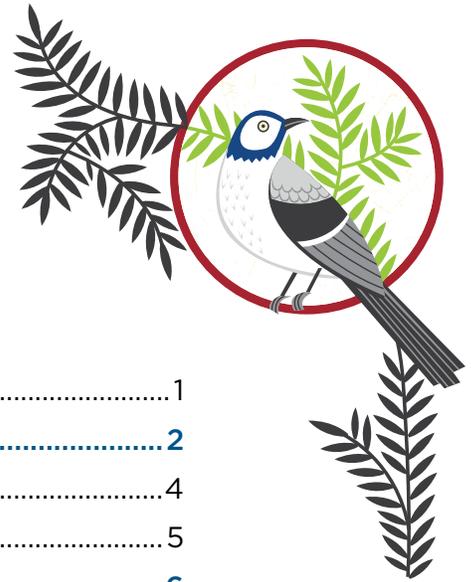
Sincerely,

A handwritten signature in black ink, appearing to read "Stephanie B. Conner".

Stephanie B. Conner, Chair  
Tennessee Arts Commission

A handwritten signature in black ink, appearing to read "Anne B. Pope".

Anne B. Pope, Executive Director  
Tennessee Arts Commission



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# Summary

This Teacher’s Guide is intended to be used for students in grades 3-6; however, the content is adaptable to older students through use of the expansions listed at the end of each lesson.

## How and why do people define themselves in time and space?

That is the essential question.

Learning how to read the world and discover the power of one’s own voice is an empowering experience. In this unit, students will have the opportunity to use inquiry, creativity and choice to transform themselves as they take responsibility for and pride in their own work and learning.

The essential question captures their task and frames their exploration, including:

- Sundial and maps - exploring the question through science
- Myth - exploring the question through language
- Metalworking - exploring the question through art
- Field trip - analyzing another’s approach to the question through reflection

## Focus Standards

Visual Arts Standards

6.1 Understand and discuss connections between visual arts and other arts disciplines.

6.2 Understand and discuss connections between visual arts and disciplines outside the arts.

These standards are included in every lesson and are not repeated in the lesson plans.

## Significant Content

- Curriculum Standards and Arts Integration with elements of Project-Based Learning
- Five Steps of the Creative and Innovative Process
- Application of 21st Century Skills
- In-Depth Inquiry
- Working Collaboratively
- Voice and Choice
- Critique and Revision
- Public Exhibition - Students present their work to other people, beyond their classmates and teacher. (This can be as simple as posting to your hall bulletin board or as expansive as performance and exhibition.)

## Key Points

- Interpretation of the Armillary Sphere Sundial and its relation to concepts of space, time and our identity as citizens of Tennessee
- Group identity, through the study of sundials, myth and symbol

## Student Activities

Students will investigate sundials, work collaboratively to write an original myth, study the processes of metal working and create their own metalwork illustration.

## Scope

The unit is made up of six 45-minute lessons, followed by a public exhibition of student work. The time allotments included in each lesson refer to the minimal amount of time. Teachers who wish to have more time for writing and peer-review or to engage in the expansion activities may adjust the lessons accordingly to best suit the needs of their students.

## Prior Knowledge

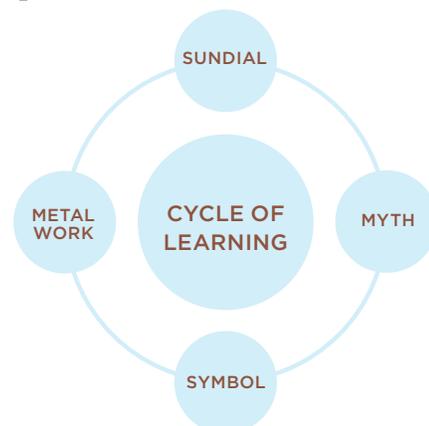
Some familiarity with maps and globes is assumed; however, with a little creativity, the unit can serve as an exciting way to introduce young learners to this social studies content.

## Other themes

- Concept to reality; intangible to tangible; abstract to concrete
- Creative process vs. scientific process

## Cycle of Learning

- 1) the entry exploration of shadow plot and sundial
- 2) myth and identity
- 3) symbol
- 4) the metalworking process
- 5) field trip: the sundial as a realization of content



# Lesson One

## Finding Ourselves in Space and Time

**Primary Focus:** Social Studies

**Interdisciplinary Connections:** Science, Visual Arts

### Instructional Procedure

#### Discover Part I (10 minutes)

- Stand a student on a fixed mark in a sunny location, preferably on pavement. Explain that we are going to find the student's place in time.
- Have the student strike a pose and trace his/her shadow in colored chalk, recording the name of the student and the time.

#### Discover Part II (15 minutes)

Return to the classroom.

- In what other ways can we define place?
- Divide the students into groups and have them work together to find the following on maps and globes: your city, your region of the state, Tennessee, U.S., the northern hemisphere. They may also search the name of our planet and our galaxy.
- Bring the students together to share their findings.

#### Discover Part III (10 minutes)

- Return to the chalk drawing approx. 30 minutes later and stand that same student in the same marked location.
- Observe that the shadow has moved and trace the outline of the shadow in a different color chalk. (This is called a shadow plot.)
- Why is this happening? (We are moving through time; rotation of the earth.)
- Teacher tip: Be sure to photograph the chalk drawings and save for student exhibition later.

#### Apply (10 minutes)

- Read the text.
- Make a simple sundial (see suggested website in sidebar).
- Fill out the "My Place" worksheet in class or as homework.

### Objective

Students will explore sundials, maps and globes as scientific tools that help us understand our place in space and time.

### Materials Needed

A sunny location on the playground or parking lot; sidewalk chalk; a local, state and U.S. map; a globe; a cell phone or camera to photograph shadow plot; paper sundial at link below; scissors; adhesive tape; "My Place" worksheet

### Standards Addressed

- Science SPI 0307.T/E.1
- Science SPI 0307.T/E.2
- Social Studies 3.2

### Projects/Activities

- Explore the science of sundials with a shadow plot
- Use globes and maps
- Create a sundial
- "Finding Ourselves" worksheet

### Vocabulary

rotation, hemisphere, shadow, technology, tool, country, map

### Opportunities for Assessment

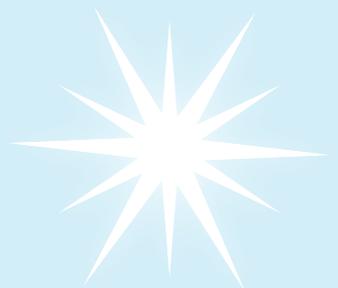
- Sundial
- My Place in Time Worksheet
- Finding Ourselves Worksheet

### Suggested Websites

- Simple paper sundial correct to 15 minutes. The Trigonometry is done for you. [www.instructables.com/id/15-minute-paper-craft-sundial/](http://www.instructables.com/id/15-minute-paper-craft-sundial/)
- Search [www.google.com](http://www.google.com) for images of sundials from around the world.

## Take it further

- Discuss Polaris and the North Star, and orient the sundials with a compass. Observe the results. Is the sundial reading correctly?
- Take a look at daylight saving time and how it can cause the sundial to read differently than your clock.
- Research famous sundials from other cultures such as Stonehenge, Newgrange or Egypt's Valley of the Kings.



# Lesson One

## Finding Ourselves in Space and Time

*“Hide not your talents. They for use were made. What’s a sundial in the shade?” ~ Benjamin Franklin*

Sometimes, when we look at a beautiful night sky, we can feel very, very small. We want to belong. We want to know where we fit. We want to understand our place in this big universe. Knowing our place is important because when we understand our world we can predict and to some degree control our lives within it.

Throughout history, people have looked to the land to help them define their place, their talents and values, and to help them define their identity; but they look to the sun and stars to define their place in time.

To better understand place and time, people have been creating new materials and objects to better their lives. By creating these tools, or objects to make lives easier, people are able to coordinate with others to do their daily chores more quickly or efficiently.

Early people learned that if they marked the place the sun rose on the spring equinox, they would know when it was time to plant; if they marked the autumn equinox, they would know when it was time to harvest. So they built huge sundial-like structures such as Stonehenge and Newgrange. These gave them some idea where they were in relation to the year and the seasons and helped them with their planting and harvesting.



Just like you, they also noticed their shadows moving through time as the day passed and just like you, they marked them and felt some control over their time. As our civilizations grew and our days became busier, it became more and more important to know the time so that people could schedule a meeting with each other or coordinate their work. Sundials became a much needed tool and an early example of technology, or the use of science to make people’s lives easier. By using this new technology, people could know what time of day it was before the invention of clocks or watches.



As civilization grew, people needed more information about their world. As they traveled, explored and navigated the globe, maps became essential tools for finding their place on land, and charting the stars helped them know where they were on an empty sea. Because there was a need, the sundial began to evolve into a more complex tool: the armillary sphere that tracked not only the movements of the sun but the stars and planets as well. The simple scientific tool had become an artistic model of the universe.

Today, maps and globes continue to help us understand where we are in spaces, but modern clocks, watches and digital technology have replaced the simple sundial as a tool to help us understand where we are in time. And yet ...



The simple elegant science of the sundial is still respected. For example on Mars, there’s a sundial doing its job as an important part of the Mars Rover, Curiosity.



## My Place in Time Worksheet

My name is \_\_\_\_\_(name)

and I am a \_\_\_\_\_(School or team symbol)

at \_\_\_\_\_,(School)

in the city of \_\_\_\_\_,(city)

in the \_\_\_\_\_(region) of the state of Tennessee,

in the \_\_\_\_\_, (country)

on the continent of \_\_\_\_\_

in the \_\_\_\_\_ hemisphere,

on planet \_\_\_\_\_ in the solar system,

in the \_\_\_\_\_ galaxy.

And, even though I am just \_\_\_\_\_ years old,

I know how to make the star we  
orbit 92,960,000 miles away tell me  
if it's time to go to lunch.



# Finding Ourselves in Space and Time Worksheet

Match each word with its meaning.

- \_\_\_\_\_ technology
- \_\_\_\_\_ tools
- \_\_\_\_\_ invention

- a. using science to improve lives
- b. useful tool created for the first time
- c. objects to make work easier

1. In what ways did ancient civilization use sundials to make their lives easier?

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2. Why do you think sundials were replaced with new technology such as watches and digital clocks?

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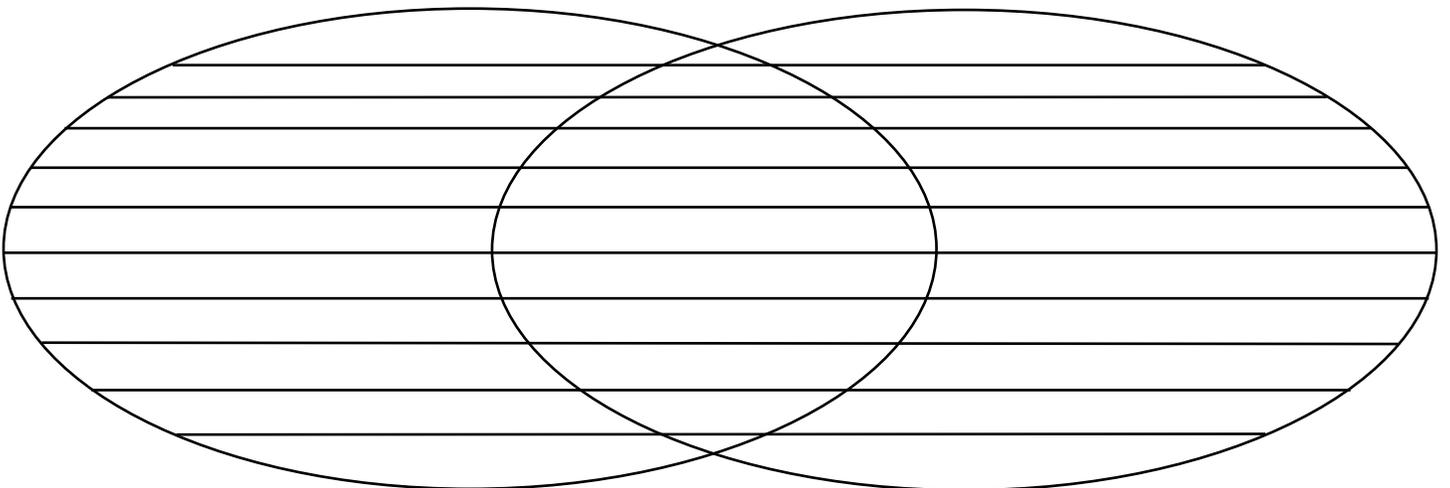
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3. Complete the Venn Diagram.

Sundial

Armillary Sphere



# Lesson Two

## Science, Story and Symbol

**Primary Focus:** Literary

**Interdisciplinary Connections:** Social Studies

### Instructional Procedure

#### Model (10 minutes)

- Listen to or read the modern myth, “Ta Na Se”
- Discuss (10 minutes)
- Was there science in the story?
- What does the story tell us about Tennessee history and culture?
- What do you think is the moral of the story?
- Who are the characters in the story?
- What did they do and what happened?
- Which of these characters are actually state symbols?
- What is a symbol and why do you think symbols are important? (A symbol embodies an idea or belief.)

#### Brainstorm (10 minutes)

- Allow the students to identify with a symbol and divide them into three groups: Mockingbird, Turtle, and Poplar.
- Give them the “Symbol and Character” worksheet.
- What are the traits of the Tennessee symbols? Discuss physical attributes (such as white flashes on the wings, etc.) and other things you find intriguing.
- What does the symbol you chose say about you?

#### Investigate (15 minutes)

- Read the brief text.
- Using search tools, individually investigate other types of myths about birds, animals or plants as they relate to the chosen symbol.
- Have students complete the Myth Summary Worksheet on one additional myth. Take notes on how the myths give clues about the way of life, geography and culture.

### Take it further

- Learn a myth from one of the various cultures, chosen or assigned and tell the story for the class or small group. (Speaking and Listening 4)
- Expand the study of “Ta Na Se” to integrate other subjects using the annotated version on pages 29-30.

### Objective

Students will investigate myth and symbol as an artistic and literary way of understanding the world and one’s place in it.

### Materials Needed

A copy of “Ta Na Se” or the means to view the video; “Symbol” worksheet; “Myth Summary” worksheet

### Standards Addressed

- Reading: Informational Text 3.2
- Reading: Literature 3.3
- Reading: Informational Text 3.2
- Reading: Informational Text 3.5
- Speaking and Listening 1
- Speaking and Listening 2

### Projects/Activities

- Listening to the story: “Ta Na Se”
- Discussing the story and characters
- Completing the “Symbol” worksheet

### Vocabulary

Myth, moral, symbol, character, traits

### Opportunities for Assessment

- Symbol and Character Worksheet
- Myth Summary Worksheet
- Tennessee Map

### Suggested Websites

- Performance of “Ta Na Se”  
[www.youtube.com/watch?v=nJEqKeK-ZlA](http://www.youtube.com/watch?v=nJEqKeK-ZlA)
- Native American Myth:  
[www.americanfolklore.net/folklore/native-american-myths/](http://www.americanfolklore.net/folklore/native-american-myths/)
- Greek and Roman Myths:  
[www.ngkids.co.uk/did-you-know/Greek-Myths](http://www.ngkids.co.uk/did-you-know/Greek-Myths)  
[www.storynory.com/category/myths/greek-myths/](http://www.storynory.com/category/myths/greek-myths/)

## Lesson Two

### Science, Story and Symbol

#### **Myth** (*miTH/noun*)

1. A traditional story, especially one concerning the early history of a people or explaining some natural or social phenomenon, and typically involving supernatural beings or events.

Myths are deeply rooted in tradition. Many have factual origins in history; some reveal ancient scientific knowledge and others are completely fictional. But they are not simply stories.

Myths contain language, symbol, science and

culture. They tell us about where and how people lived, their beliefs, their memories and why we are important in this big universe. The messages contained in myths are relevant even today. Hero tales act as a moral compass, teaching young men and women how to behave. Cautionary tales teach us how to be on the lookout for danger and protect ourselves. Tales of a Golden Age or a mythic land give us hope when times are tough.

A myth is the collected wisdom of thousands of years of the human experience from all over the world.

Myths are not simply stories. They are special tales—tools that use language to help us order our world and help us understand our place and what it is to be human.

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There are many stories about how Tennessee got its name, and this is one.

### “Ta Na Se” A Modern Myth

Written and performed by Cherri Coleman  
[www.youtube.com/watch?v=nJEqKeK-ZIA](http://www.youtube.com/watch?v=nJEqKeK-ZIA)

Across this land, there once rolled many, many waters; seas without shores that teamed with strange and wonderful creatures. The spirit that governed rock and minerals lived in the sea and she was busy there, patiently laying down bands of iron and limestone, creating a strong foundation for the land that was to follow.

When the time was right, Turtle, who was brave and strong, dove deep and brought up the land from the water. But the sea was not gone. She remained, hanging on the mountains in the east as snow and mist, gathering in the valleys and hollows of the highlands, and running as the Great River beside the plains of the west. And when The People rose up, they saw that the sea was still with them and said “We are the people of Ta Na Se” which is to say, the Land of Many Waters.

The water separated the land into three Great Divisions and gave each people their purpose: to the mountain folk the tending of the forests, to the hill people the care of the wild game and to the people of the plains the care of the Great River.

The land in turn gave them strength and taught them the cycles of life. It taught them to plant when the leaf of the white oak was the size of the mouse’s ear and to harvest when the leaves of the maple turned the color of the setting sun. The people lifted their eyes to the sky and were happy, because the water and the land gave rhythm to their lives and the Stars united them and told their place in the circle of time.

Over them all Mockingbird sang the song of the people, and it was so for a very long time.

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After many turnings of the seasons there came others. They did not speak with the same voice. Theirs were distant waters, different lands. The packs on their backs were filled with strange skills and they had different ways of being. But Poplar Tree gave them wood and sheltered them. Mockingbird learned their voice and sang their songs and because these people also loved the land, the family of the waters expanded.

The people shared their skills and soon a new plant grew among the corn, beans and squash: a vine that bore shiny red fruit, full of the seeds of potential. And the people said, "This has grown from our people's work together. Let us learn from it and make more good things for the land and for the people."

They were very industrious and by sharing their skills made many new and wondrous things. And indeed, in many ways the people's lives became much easier because of their invention. But in their enthusiasm, they forgot to consider the land. They forgot to look to the stars and to take the time to treasure the sound of their neighbor's voice. They began to feel the day was not enough and soon they began to break time, into smaller and smaller pieces, believing in this way they could fit more work between the fragments.

"Slow down", said Turtle, but they could not hear, for their busyness had made the world a noisy place.

And in time, the people of the land became like ants scurrying to and fro, until one day, they could no longer remember where they were running to, and walked in confusion, like people in a dream.

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Then, a woman came from beyond the Great River. Quietly she walked among the people, gathering up the shattered pieces of time. She lifted her face to the skies and singing the song of the people, called down the stars from the heavens, catching them in her apron that was the crimson red of the ripened corn.

And Turtle, as he did long ago reached deep, bringing up the red bands of iron and earth and with the heat of the stars they mended the broken pieces of time; forging them into a white-hot band, encircling the stars that lay on the crimson cloth.

When the people beheld it, they woke up. And they remembered.

We are the people of Tennessee. We take strength from this land and our spirit rides upon its many waters. Like the mockingbird we speak with many voices and like Poplar we shelter the stranger. We follow three stars, united and bound by an endless band, holding us safe, and marking our place in this circle of time.



# Symbol and Character Worksheet

List the physical traits of your symbol

Other interesting traits of your symbol

Draw your Symbol Here

What do you and your symbol have in common?

My symbol is thought of as ...

# Symbol and Character Worksheet Example

*My symbol has wings,  
a beak and feathers*

*My symbol can fly*

*We both know other  
languages*

*My symbol is thought  
of as a messenger*



# Myth Summary Worksheet

Title of Myth:

---

**Setting:**

Character

Unique Character Traits


Major Events of the Myth:

Conflict/Resolution:

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# Lesson Three

## Science, Story and Symbol

**Primary Focus:** Literary

**Interdisciplinary Connections:** Social Studies

### Instructional Procedure

#### Reflect and share (10 minutes)

- Send students back to their teams to share what they learned by researching other myths about birds and plants.

#### Introduce the problem

- Hand out the Myth Generator Worksheet.
- Briefly explain that today they will collaboratively create a myth that
  - Features their symbol as the main character.
  - Answers a question. (ex. Why the poplar grows straight and tall; How Mockingbird learned to sing many songs)
  - Reflects some of their own interests and values.

#### Brainstorm (10 minutes)

- As a group, allow students time to
  - Brainstorm concept ideas.
  - Evaluate ideas as a team.
  - Choose a plot for their story.

#### Storyboard/and or write the narrative (15 minutes)

- As a group, complete the Myth Generator Worksheet.
- Add details to create the narrative.

#### Evaluate (10 minutes)

- Allow students to pair with another team and share their story.
- Teams evaluate each other's work Using Two Stars and a Wish (2 positive comments and a critique) or similar technique.
- Students should take notes, ask questions and make revisions to their stories.

## Take it further

- Create an Opportunity for Voice and Choice
- How will the students showcase their work?
  - Publish the stories by exhibiting them on a bulletin board, online or in a book (W6)
  - Present the stories in a reading or oral performance (W4)
  - Make audio or video recordings of the stories (W5)

### Objective

The students will create a myth which answers a question and reflects their personal values.

### Materials Needed

Concept and Myth Generator worksheets

### Standards Addressed

- Speaking and Listening 1
- Writing 3
- Writing 4
- Writing 5

### Projects/Activities

- Share research
- Collaboratively create a myth
- Conduct peer review
- Make revisions

### Vocabulary

Plot, conflict, setting, myth

### Opportunities for Assessment

- Myth Generator Worksheet

### Suggested Websites

- Make your own myth program with animation  
[www.myths.e2bn.org/create/](http://www.myths.e2bn.org/create/)
- Wonderful article on Myth  
[www.livingmyths.com/What.htm](http://www.livingmyths.com/What.htm)
- Native American Myth  
[www.livingmyths.com/Native.htm](http://www.livingmyths.com/Native.htm)

Teacher's note: the length of time the students take to produce their work is dependent on the needs and abilities of the class, the final audience for their work and the manner in which it will be presented. Teachers should adjust the lesson and range of student choice to best fit the needs of their individual classrooms.

# Concept Worksheet

**Today you will write your own myth. It must:**

- Feature your symbol as the main character
- Answer a question (ex. Why the poplar grows straight and tall; How Mockingbird learned to sing many songs)
- Reflect some of your group's own interests and values

“Plot” is the structure of a story. It simply answers the question, “what is going on here?” The plot of every story has a beginning, middle and end.

Answer the following questions and, when you have agreed on your storyline, place the answers in your story grid worksheet.

## **Beginning**

- a. Your symbol will act as your central character.
- b. What is the character like? Can you think of three words or phrases to describe him or her? (Adjectives)
- c. Where and when are they? (Setting)
- d. Who is the secondary character and what are they like?
- e. What do they want to do or accomplish? (Goal)
- f. Are there any other characters that need to be introduced? Describe them.

## **Middle**

- a. Who or what might keep them from reaching their goal? (Conflict)
- b. How might they make it happen anyway?

## **End**

The end of the story should be the answer to the plot question you chose.  
Example: And that is why a dog's nose is always cold.

## **Connect and review**

- a. Connect the events in your story with words and phrases.
- b. Choose a member of your group to be the narrator and read it aloud.  
How does it sound?

# Myth Generator

**Setting:**

**Character:**

**Unique Character Traits:**

**Goal/Conflict:**

**Closing/Answer to Question:**

## Major Events of the Myth

# Lesson Four

## Symbol, Myth and Identity in Art

**Primary Focus:** Visual Arts

**Interdisciplinary Connections:** Social Studies, English Language Arts

### Instructional Procedure

#### Connect (5 minutes)

- Read text “Symbol, Myth and Identity in Art”
- Examine and post the Five Steps of the Creative and Innovative Process. Go over each of the five steps including definitions with students. Reflect on the process of writing the Group Myth using the five steps allowing students to connect between what they did and the Creative and Innovative Process.

#### Prepare, Illuminate, Evaluate (20 minutes)

- When artists, regardless of art form, begin to create a new piece, they consider the message they wish to communicate. Artistic intent involves the decisions the artist makes to convey or communicate his or her message. Visual artists think of the shapes and colors they use; authors consider word choice and organization; musicians consider notes, tempo, beat, etc. Often artists use symbols to stand for or represent key events, emotions, characters, etc.
- Search symbols in myths and visual arts, such as Greek vases, Southwestern Native American basketry or stained glass windows. Discuss with students about what they see. Point out important ways symbols are used. Ask students to take notes of what clues the art gives them about geography and environment, clothing, technology and culture.
- Have students think back to the “Ta Na Se” myth. This is a work of art like the art they just observed. Visual arts vs. creative writing. What symbols did the storyteller (artist) use? Why were those symbols selected? What do they represent? As a class, fill out the first part of the graphic organizer.
- Show the students a picture of the armillary sphere sundial (See photo in beginning of this guide or at <http://www.metalmuseum.org/store/p/574-Armillary-Sphere-Sundial.aspx>). What do they notice? What symbols do they see? What do they stand for? Why did the artist select them? Have students work in partners to complete this part of the graphic organizer. Students can also read the attached article on the armillary and complete the questions. Show students the armillary video.

#### Elaborate (20 minutes)

- Show students the step-by-step visual arts process and final product example. Discuss again, artistic intent. This art piece is meant to symbolize the myth that was created. It should contain symbols that are important to the myth. Have students think about the collaborative myth that was created. Each student chooses symbols or characters from the team’s collaborative myth that they will include in their visual arts piece. They will fill in this part of the graphic organizer as they brainstorm the symbols they will use in their design.

#### Objectives

Students will analyze symbols in various art works.

#### Materials Needed

pencils; heavy cardboard; dark markers; all-purpose glue such as Elmer’s

#### Standards Addressed

- Reading: Literature 3.2
- Social Studies 3.14
- Visual Arts 1.4
- Visual Arts 1.5
- Visual Arts 3.1
- Visual Arts 3.2
- Visual Arts 4.1
- Visual Arts 4.2
- Visual Arts 6.1

#### Project Activity

Students will analyze symbols in the “Ta Na Se” myth and TN armillary. They will then brainstorm symbols that represent the collaborative myth.

#### Vocabulary

Symbol, artistic intent, Creative and Innovative Process

#### Opportunities for Assessment

- Graphic organizer
- Concept art

#### Suggested Websites

- [www.archive.artsmia.org/world-myths/](http://www.archive.artsmia.org/world-myths/)
- [www.smithsonianeducation.org/idealabs/myths/symbolsinart/](http://www.smithsonianeducation.org/idealabs/myths/symbolsinart/)
- [www.theoi.com/Galleries.html](http://www.theoi.com/Galleries.html)
- [www.theoi.com/GalleryS1.html](http://www.theoi.com/GalleryS1.html)

## Lesson Four

### Symbol, Myth and Identity in Art

#### **Symbol** ('sɪmbəl/noun)

1. A thing that represents or stands for something else, especially a material object representing something abstract.

Histories, myths and stories are **abstract**. They are things that we can neither touch nor see. They contain plots, details, messages and ideas that can be difficult to remember. But when we combine the symbols and key images in those stories with other arts such as sculpting, drawing or painting, we can tell a whole story visually, summing up all its ideas and events in a single glance.

Symbols are everywhere. Think of sports teams: the fierceness of bears, the bravery of Spartans and the strength of the Titans of legend. These are all traits our athletes want to identify themselves with. Because of this, teams use them as symbols to represent themselves. The team logo symbolizes their identity.

Portugal's symbol is the **armillary**. The word armillary means consisting of hoops or rings. It's everywhere you look. Why? Because way back in the late 1400's, Portugal was the world leader of the European Age of Discovery and Exploration. As they searched for a way to Asia by sea, they learned a lot about navigation and the geography of the Atlantic Ocean. A Portuguese trained explorer named Columbus accidentally "discovered" a continent we know as North America. Another Portuguese commander named Vasco da Gama reached India by sailing around Africa. Ferdinand Magellan led the crew that sailed the first ship all the way around the world. The Portuguese people are very proud of their explorers' accomplishments. To this day they show their pride and remember their history by displaying the tool the sailors used to chart the stars and find their way as a symbol of their nation.



*Portugal's Coat of Arms*

# Five Steps of the Creative and Innovative Process

**1** Preparation is becoming curious about a problem, then gathering information, doing research and exploring the work of others for inspiration. It fills the brain with lots of fuel for the imagination.

**2** Incubation is wondering. It allows time for the imagination to construct possible solutions in the mind.

**3** Illumination is the AHA! moment when a solution seems to magically appear. This moment often surprises us when we are doing something completely different.

**4** Evaluation is testing the idea. It asks the opinion of others, looking for ways to make it clearer.

**5** Elaboration is following through. It transforms the idea into a final product.



# Lesson Five

## Connecting Visual Arts and Myth

**Primary Focus:** Visual Arts

**Interdisciplinary Connections:** Social Studies, Science

### Instructional Procedure

#### Elaborate (25 minutes)

When people create they go through a series of steps. This is true whether they are a scientist making a new invention or an artist creating a painting. This is especially true of the armillary sphere sculpture, since it is both a scientific tool and visual art.

Like you, as the artist faced his challenge, he had to go through the Five Steps of the Creative and Innovative Process. Refer to the Five Steps posted in the classroom.

In previous lessons, you prepared by listening to a myth and researching other myths of other cultures. Then, you incubated the ideas by letting them rest in your mind through your afternoon and evening. Hopefully you had an AHA! moment of illumination as you brainstormed with your teammates, evaluated your ideas and got down to the work of elaborating on your thoughts to produce a finished product. Today we will repeat that process by combining symbol with visual art.

- See Metal Art Instructions. On heavy cardboard, draw or simply “coloring-book style” outline in light pencil. Do not include detail at this time.
- Correct and revise as needed.
- Trace over final pencil lines with dark marker.
- Apply a thick bead of glue to lines and allow to dry. *Teacher’s note: depending on the humidity, it can take from 20 minutes to 24 hours for the glue to dry. Be sure to prepare for this uncertainty.*
- Complete the metal work illustration.
  - Adhere the foil to the cardboard with a glue stick.
  - Wrap soft cloth or foil around fingers and rub gently to chase the design.

- Touch up small areas with a cotton swab.
- Fill in texture and detail using a dull pencil as an embossing tool.
- Sponge shoe polish over artwork, allow to set a few minutes to create a patina.
- Burnish by gently wiping off the excess polish.

### Reflection

Have students partner. Give each partner time to explain their artistic intent. Why did they choose the symbols? What significance did each symbol have to the myth? Explain how you went through the Five Steps of the Creative and Innovative Process when you created your myth symbol.

### Read

- Text “The Story of the Armillary Sphere Sundial” and complete the worksheet.

### Explore (20 minutes)

- Take some time to experience different types of metal working processes by choosing from the list of videos in the sidebar.

## Take it further

- Investigate the Tennessee Iron Furnace Trail and learn how “the red bands” of iron were mined and processed in Tennessee. (SS3.10)  
[www.tnironfurnacetrail.org/MTSU%20Web%20Page.htm](http://www.tnironfurnacetrail.org/MTSU%20Web%20Page.htm)
- Create a timeline showing the formation of iron in the Pre-Cambrian age, through the mining and production of the Iron Furnace Trail to the commission and creation of the Armillary Sculpture. (SS3.16)

## Objective

Students will design a symbol for the collaborative myth and create a metalwork illustration based on their design.

## Materials Needed

Heavy duty aluminum foil; heavy cardboard; glue sticks; cotton swabs; dull pencils; black shoe polish; soft rags or paper towels

## Standards Addressed

- Science SPI 0307.10.2
- Science SPI 0307.Inq.1
- Social Studies 3.14
- Social Studies 3.27
- Visual Arts 3.1
- Visual Arts 3.2
- Visual Arts 4.1
- Visual Arts 4.2

## Project Activity

Students will complete a metalwork illustration of their story/symbol

## Vocabulary

Symbol, artistic intent, creative and innovative process

## Opportunities for Assessment

- Reflection

## Suggested Websites

- Ornamental Metal Museum “Repair Days”  
[www.youtube.com/watch?v=dS81iNrFhUM](http://www.youtube.com/watch?v=dS81iNrFhUM)
- Essentials of Blacksmithing  
This is excellent. Covers all tools and processes of the blacksmithing art but quite long (20min)  
[www.youtube.com/watch?v=ZToka1-8oQA](http://www.youtube.com/watch?v=ZToka1-8oQA)
- Quick ring forging process  
[www.youtube.com/watch?v=ZToka1-8oQA](http://www.youtube.com/watch?v=ZToka1-8oQA)
- Historical look at casting a bronze-age ax  
[www.youtube.com/watch?v=ytoXJz3Sf\\_o](http://www.youtube.com/watch?v=ytoXJz3Sf_o)
- Viking casting  
[www.youtube.com/watch?v=b3LGrq-9oEg](http://www.youtube.com/watch?v=b3LGrq-9oEg)

## Metal Art Instructions

1. Choose the character or symbol from your myth that you want to portray and create a concept drawing.



2. Using tissue paper, trace the outlines of the concept drawing in pencil. Do not add details at this time.



3. Lay the tissue on the smooth side of a piece of cardboard and trace the design with a marker. The marker should bleed through and transfer the design to the cardboard like this:



4. Go over the outline with a heavy bead of glue and allow to dry. Drying can take a very long time depending on the glue and the weather.



5. Go over the whole design with a glue stick.



6. Lay a sheet of heavy duty aluminum foil over the design and rub gently with fingers or tissues to raise the design on the foil.



7. Chase the glue lines with a cotton swab.



8. Using a dull pencil, deepen the lines around the glue bead and add texture and detail to the foil. Add additional symbols. This artist added musical notes on the wings. Don't forget to sign your name!



9. Patina the foil with a generous layer of black shoe polish.



10. Wipe off the excess shoe polish and shine the high points of the foil with a paper towel.



11. Mount on a piece of poster board and enjoy.

## The Story of the Tennessee Armillary Sphere Sundial



The Armillary Sphere Sundial is a sculpture representing Tennessee's identity and is dedicated to the school children of Tennessee. It sits at the center of the Kitchen and Cutting Garden of the Tennessee Executive Residence, the home of the Tennessee Governor, in Nashville.

It was designed by the National Ornamental Metal Museum Shop Foreman, Jim Masterson, in

Memphis, Tennessee who then spent over a year creating it in **collaboration** with the Metal Museum's staff of resident artists, apprentices, interns and volunteers before transporting the sculpture to Nashville in early July 2014.

The armillary is based on a Chinese design, which was once used to follow the movement of the stars. The columns supporting the armillary honor the Greek and Roman tradition of placing a sundial on a pedestal and setting it in the center of a garden. The shafts are made of copper, the capital and base are cast bronze and the foundation is of Tennessee crab orchard limestone.

The sculpture is meant to be representative of Tennessee and includes enameled pieces that represent Tennessee's symbols, including the tulip poplar, the tomato, the mockingbird and the eastern box turtle.

**The tomato plant** is the State fruit. There are a total of five tomatoes on the armillary. Three of them are **enameled** red to represent the three stars in the State flag. They were made with the techniques



of **raising** and **welding**.

The stems of the tomato are made of **forged** bronze. The leaves were cut with a water jet from copper, then **chased** to create the veins and details. Copper and bronze **patina** or tarnish over time. Although both metals will turn green, they will be different shades of green, just as they are in nature.



**The eastern box turtle** is the State reptile. The body is **forged** and fabricated bronze and the shell is made of **raised** and **enameled** copper.

**The tulip poplar** is the State tree. Its branches are made of **forged** bronze. The leaves are copper and were cut by hand, then **repousséd** or shaped by hammering on the reverse side, and then **enameled**.

**The mockingbird** is the State bird. It is made of **raised** and **repousséd** copper with **enamel** for color. The legs are bronze for strength.

**The stars** of the State flag are **chased** in threes on the circular band of the Armillary Sphere Sundial and represented by the three enameled tomatoes.

The Armillary Sphere Sundial is a true symbol of Tennessee. Jim Masterson's design embodies a sense of time, place and the spirit of the State of Tennessee.



#### Questions:

1. Name three Tennessee symbols that are included on the armillary.
2. There are three red tomatoes included on the armillary. Why is this significant?
3. The blacksmiths forged the tomato stems of bronze and made the leaves of copper. Why did they choose this type of metal?
4. If you could add one more Tennessee symbol to the armillary, what would it be? Why?

## Metalworking Terminology

### **Casting**

Liquid material is poured into a mold, a hollow cavity of the desired shape, and then allowed to harden. The solidified part is known as a casting. People have been casting for 6,000 years. The oldest surviving casting is a copper frog from 3200 BC.

### **Chasing**

Defining or refining a surface design and bringing the shapes to the height of relief required.

### **Forging**

The shaping of metal with a hammer, either by hand or machine. Forging has been done by blacksmiths for thousands of years; the traditional products were kitchenware, hardware, hand tools, edged weapons and jewelry.

### **Patina**

A thin layer that forms on the surface of copper, bronze and other metals. It is a tarnish produced by exposure to air or by other chemical processes. Patinas can provide a protective covering to materials that would otherwise be damaged by corrosion or weathering. They may also be artistically pleasing.

### **Raising**

Forming sheet metal over a solid object by repeated 'courses' of hammering.

### **Repoussé or Repoussage**

Shaping or ornamenting of soft metal by hammering from the back side to create a design in low relief.

### **Vitreous enamel**

Also called porcelain enamel, it is made by fusing powdered glass onto metal, glass or ceramics. Heated to between 750 and 850 °C (1,380 and 1,560 °F), the glass powder melts, flows and then hardens to a smooth, durable coating.

### **Water jet cutter**

An industrial tool that can cut a wide variety of materials using a very high-pressure jet of water, or a mixture of water and sand.

## THE VILLAGE BLACKSMITH

Under a spreading chestnut tree  
The village smithy stands;  
The smith, a mighty man is he,  
With large and sinewy hands;  
And the muscles of his brawny arms  
Are strong as iron bands.

His hair is crisp, and black, and long,  
His face is like the tan:  
His brow is wet with honest sweat,  
He earns whate'er he can,  
And looks the whole world in the face,  
For he owes not any man.

Week in, week out, from morn till night,  
You can hear his bellows blow;  
You can hear him swing his heavy sledge,  
With measured beat and slow,  
Like a sexton ringing the village bell,  
When the evening sun is low.

And children coming home from school  
Look in at the open door;  
They love to see the flaming forge,  
And hear the bellows roar,  
And catch the burning sparks that fly  
Like chaff from a threshing floor.

Toiling, rejoicing, sorrowing,  
Onwards through life he goes;  
Each morning sees some task begin,  
Each evening sees it close;  
Something attempted, something done,  
Has earned a night's repose.

Thanks, thanks to thee, my worthy friend,  
For the lesson thou hast taught!  
Thus at the flaming forge of life  
Our fortunes must be wrought;  
Thus on its sounding anvil shaped  
Each burning deed and thought!

— Henry Wadsworth Longfellow (redacted)

# Lesson Six

## Field Trip

“The Reveal: Visiting the Tennessee Armillary Sphere Sundial”

**Primary Focus:** Visual Arts

**Interdisciplinary Connections:** Social Studies, Science

### Questions for Reflection

#### Science

- How is the armillary sundial the same/different from the art you created?
- Is it in a sunny spot?
- Does it tell the time or is it just decorative?
- Does it point north?
- Does it reflect the classical Greek/Roman style as a garden centerpiece?

#### Art

- Does it look the way you expected?
- Can you find the different processes and techniques such as forging, enameling and repoussé?
- How does it link the concepts of place, identity and time?
- How might you have approached it differently?

#### Symbol, Tennessee Culture and Identity

- How does the armillary sundial tell the story of TN? There are lots of sundials. Why is this one special?
- How does the armillary sphere, as a sculpture, represent our place in space and time?
- What has the study of the armillary taught you about your own values and sense of identity and place?

### Objective

Students will design a symbol for the collaborative myth and create a metalwork illustration based on their design.

### Materials Needed

None

### Standards Addressed

- Science SPI 0307.T/E.2
- Science SPI 0307.Inq.1
- Social Studies 3.14
- Social Studies 3.27
- Visual Arts 3.3
- Visual Arts 6.1
- Visual Arts 6.2

### Project Activity

Reflecting on learning and experiences

### Opportunities for Assessment

- Oral/written student reflection

### Suggested Websites

- Tennessee Office of the First Lady  
[www.tn.gov/firstlady](http://www.tn.gov/firstlady)
- Beautiful website addressing armillary spheres as tools and art  
[www.kuriositas.com/2012/12/the-armillary-sphere-marriage-of.html](http://www.kuriositas.com/2012/12/the-armillary-sphere-marriage-of.html)
- Excellent video about the sun and armillary spheres  
[www.youtube.com/watch?v=MochCdFEaPo](http://www.youtube.com/watch?v=MochCdFEaPo)

## Now Reveal your own Masterpieces!

- Present your art and stories for your fellow students or as part of a public exhibit such as a parent night or PTO event.
- Draw your own interpretation.
- Share your responses to the reflection questions.

## Field Trip to the Tennessee Residence Kitchen and Cutting Garden

- Field trips can be booked through the First Lady’s office at no cost to students.
- Reservations must be made at least two weeks in advance.
- Visit [www.tn.gov/firstlady/article/student-tour](http://www.tn.gov/firstlady/article/student-tour) or call 615-741-7846.

# Tennessee Executive Residence

This is to certify that

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has demonstrated mastery and excellence in the 21st Century Skills of Creativity and Innovation.

*Crissy Haslam*

Crissy Haslam  
First Lady of Tennessee

*Anne Pope*

Anne B. Pope  
Executive Director  
Tennessee Arts Commission

# Annotated Myth with Suggested Curriculum Connections

Originally inspired by the creation of the state flag, this story is written in the Native American myth form. Because of the simplicity of the style, third grade students should be able to be very successful writing their own. It employs a blend of the Creation Myth, Competitor and Cultural Hero narrative types. True to form, there are also many pairings and opposites which might make for a nice assessment activity.

## “Ta Na Se”

Written and performed by Cherri Coleman

Across this land, there once rolled many, many waters. (1) Seas without shores that teemed with strange and wonderful creatures. The spirit that governed rock and minerals lived in the sea (2) and she was busy there, patiently laying down bands of iron and limestone, creating a strong foundation for the land that was to follow. (3)

When the time was right, Turtle, who was brave and strong, dove deep and brought up the land from the water. (4) But the sea was not gone. She remained, hanging on the mountains in the east as snow and mist, gathering in the valleys and hollows of the highlands, and running as the Great River (5) beside the plains of the west. And when The People rose up, they saw that the sea was still with them and said “We are the people of Ta Na Se” (6) which is to say, the Land of Many Waters.

The water separated the land into three Great Divisions and gave each people their purpose. To the mountain folk, the tending of the forests; to the hill people, the care of the wild game; and the care of the Great River to the people of the plains. (7)

The land in turn gave them strength and taught them the cycles of life. It taught them to plant when the leaf of the white oak was the size of a mouse’s ear and to harvest when the leaves of the maple turned the color of the setting sun. The people lifted their eyes to the sky and were happy, because the water and the land gave rhythm to their lives and the Stars united them and told their place in the circle of time. (8)

Over them all, Mockingbird sang the song of the people, and it was so for a very long time.



After many turnings of the seasons there came others. They did not speak with the same voice. Theirs were distant waters, different lands. The packs on their backs were filled with strange skills and they had different ways of being (9). But Poplar Tree gave them wood and sheltered them (10) and Mockingbird learned their voice and sang their songs (11) and because these people also loved the land, the family of the waters expanded.

The people shared their skills and soon a new plant grew among the corn, beans and squash (12). A vine that bore shiny red fruit, full of the seeds of potential. And the people said, “This has grown from our people’s work together (13). Let us learn from it and make more good things for the land and for the people.”

They were very industrious and by sharing their skills made many new and wondrous things. And indeed, in many ways the people’s lives became easier because of their invention (14). But in their enthusiasm, they forgot to consider the land. They forgot to look to the stars and to take the time to treasure the sound of their neighbor’s voice. They began to feel the day was not enough and soon they began to break time, into smaller and smaller pieces, believing in this way they could fit more work between the fragments (15).

“Slow down”, said Turtle, but they could not hear, for their busyness had made the world a noisy place.

And the people of the land became like ants scurrying to and fro, until one day, they could no longer remember where they were running to, and walked in confusion, like people in a dream.



Then, a woman came from beyond the Great River. Quietly she walked among the people, and gathered up the shattered pieces of time. She lifted her face to the skies and singing the song of the people, and called down the stars from the heavens, catching them in her apron that was the crimson red of the ripened corn. (16)

And Turtle, as he had done long ago, reached deep, bringing up the red bands of iron and earth and with

the heat of the stars they mended the broken pieces of time; forging them into a white-hot band, encircling the stars that lay on the crimson cloth. (17)

When the people beheld it, they woke up. And they remembered.

We are the people of Tennessee, we take strength from this land and our spirit rides upon its many waters. Like the mockingbird we speak with many voices and like Poplar we shelter the stranger. We follow three stars, united and bound by an endless band, holding us safe, and marking our place in this circle of time.

## Annotations for suggested curriculum connections from this story

1. During the Precambrian and Paleozoic eras, Tennessee was submerged in sea water. It was above sea level during most of the Mesozoic, but marine waters advanced again across most areas in the Cenozoic period.
2. This comes from a Hopi reference of Hard Beings Woman and is an example of ethno-geology in myth.
3. Banded iron formation occurred in Tennessee in the Precambrian age.
4. This references the Earth Diver form of creation myth.
5. According to "State Symbols USA," the name Mississippi comes from the French "Messipi" - the French rendering of the Anishinaabe (Ojibwe or Algonquin) name for the river, "Misi-ziibi," meaning "Great River."
6. Ta Na Se is one spelling of the name first recorded in 1567 when Spanish explorers came to the area. The exact translation is lost, but it is generally thought to be a Cherokee word borrowed from the Creek language. The speculation on translation always has to do with rivers such as Village on the River, Where the River Bends or Many Waters.
7. Three geographical divisions of Tennessee
8. Different cultures reckon time differently, as affected by geography, agriculture and technology. Some cultures, such as ours, consider time as a continuous line, others as a circle and still others as a spiral (perhaps a good inspiration for an art project).
9. This section refers to the immigration of Europeans to the continent but does not limit the reference to any one population or incident.
10. The Tulip Poplar was chosen as a state symbol because not only is it found across the state, but its straight trunk provided the logs for settlers' cabins.
11. The Mockingbird is known for its many songs and ability to imitate other sounds. It is a wonderful symbol for a state famous for its music and of a state that has one of the fastest growing foreign born populations.
12. Corn, beans and squash are known as the Three Sisters, a very effective form of Native American cultivation.
13. The tomato as we know it is a hybrid of a native species. It came into use as a crop in the mid-1800's and is the official state fruit of Tennessee.
14. The rise of the industrial age
15. The invention of the train necessitated the "breaking" of time into smaller and smaller patterns and gave rise to the common use of watches.
16. The woman serves both as a Cultural Hero myth archetype and represents water.
17. The Tennessee state flag

## Acknowledgements

**First Lady Crissy Haslam** was born in Houston, Texas and moved with her family to Memphis, Tennessee when she was eight years old. She attended St. Mary's Episcopal School in Memphis and continued on to Emory University for college. Crissy graduated from Emory in 1980 with a double major in Finance and Marketing in the College of Business.

Crissy married Bill Haslam and moved to Knoxville in 1981. While working as the assistant director of admissions for UT-Knoxville, she received a Master of Science degree in Education in the program of College Student Personnel.

She has served on numerous civic and community boards, and currently serves as chair of the Tennessee Executive Residence Foundation and Commission. Crissy and Bill have 3 grown children. As First Lady of Tennessee, Crissy has introduced a three-part

initiative that focuses on the interplay between family engagement and literacy improvement in Tennessee. She has been traveling the state to stress the importance of parents as first teachers, parents as education partners, and also to raise awareness for the exponential value of reading on grade level by the 3rd grade.

**Cherri Coleman** is a Nashville native who combines many disciplines to inspire, motivate and empower. As an independent teaching artist of dance, theatre and heritage arts, she founded her own business at age 17, incorporated a nonprofit organization at 20 and staged her first full length ballet at 21. She has mentored the Beggar Boys Band, founded by a pair of 12 and 8-year-old musicians to provide period correct entertainment for state historic sites, and served as the founder and Artistic Director of Children's Dance Theatre, a company of 8 to 18-year-old dancers touring full-length productions such as *The Nutcracker*. Graduates of her student-led programs have gone on to lead roles on Broadway, international tours and careers in stagecraft, music and film.

A native Tennessean, Coleman keeps alive local traditions of storytelling, white oak and cane basketry while training the next generation of heritage art enthusiasts. She serves schools and museums across the state as a teaching artist and curriculum writer, combining her foundation in dance and theatre with professional experience in Living History, Storytelling and Heritage Arts to provide truly unique integrated discovery experiences.

Her current endeavors include Celebrating Our Roots, which partners with local historic sites to train high school and middle school students in leadership, community building and historic preservation and Math and the Art of Basketry, a hands-on exploration of geometry through visual art.

Coleman serves on the Board of Directors of the National Storytelling Network, is a member of the Tennessee Arts Commission Teaching Artist Roster and Artist Corps Tennessee.

**Brandi Self** earned her undergraduate degree in elementary education from Maryville College and her EA&S in Educational Administration from Lincoln Memorial University. She was an intermediate teacher with Knox County Schools for 12 years, earning several teaching excellence awards. During

that time she also served as Value Plus Leader at Mooreland Heights Elementary and helped lead the arts integration program. Self became the Arts360 District Coordinator for the Knox County Schools district arts integration model. She has been involved in curriculum planning on the school, district, and state level. She has also conducted several staff developments on curriculum development, effective teaching practices, common core, technology, and arts integration. Self is currently the Principal at Mooreland Heights Elementary and continues to oversee the arts integration initiatives, Arts360 and Value Plus for Knox County Schools.

**The National Ornamental Metal Museum** is the only institution in the United States devoted exclusively to the advancement of the art and craft of fine metalwork. One of the museum's most prominent features is its blacksmithing shop and foundry. The shops are staffed by a team of artists and apprentices who specialize in designing and creating custom-made unique works of art in a broad range of metals. The Metal Museum has become the center for metal arts—a place that actively promotes artists and their work and plays a vital role in the recognition and collection of metal work and the teaching of innovative practices. Carissa Hussong is the Executive Director for the Museum. Jim Masterson is the Shop Foreman and designer of the Tennessee Armillary Sphere Sundial. Jeannie Tomlinson Saltmarsh is the Metals Shop Coordinator and Foundry Technician.

**The Tennessee Arts Commission** is the state arts agency and its mission is to cultivate the arts for the benefit of all Tennesseans and their communities. Each year, the Commission funds arts and cultural activities through several grant categories for more than 600 schools, local governments and nonprofit organizations in communities across all 95 counties. The Commission is governed by a 15-member board appointed by the Governor. The Executive Director is Anne B. Pope and the Director of Arts Education is Ann Talbott Brown.

**Lucie Rice** illustrated the cover and interior graphics on the opening pages. Her work can be seen in magazines across the country, as well as in books and ad campaigns. View more of her work at [www.lucierice.com](http://www.lucierice.com).





[tn.gov](http://tn.gov)  
[tnartscommission.org](http://tnartscommission.org)

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