Elisabet Ney Museum Curriculum

Topic: Women in Texas History

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Table of Contents

Introduction 2

Curriculum Outline 3

Sample Lesson Plans 6

Social Studies: Texas Women Research Poster

Activity Guide 9

List of Influential Texas Women/Guiding Questions 10

ELAR: Writing a Biography

Activity Guide 11

Math: Suspension Bridge Activity

Activity Guide 12

Suspension Bridge Worksheet 13

Science: Bessie Coleman Airplane Experiment

Activity Guide 15

Introduction to Aeronautics 17

Experiment Results Chart 18

Experiment Worksheet 19

Art: Collaborative Quilt Activity

Activity Guide 20

Additional Resources 21

Introduction

Welcome to the Elisabet Ney Museum's interactive curriculum, designed specifically for 3rd-4th grade classrooms. Through these lesson plans, students will learn more about Elisabet Ney and other prominent women in Texas history. This guide will allow students to explore these themes while incorporating mathematics, science, reading, social studies and art. Following this introduction, you will find a curriculum outline, a sample lesson plan with detailed instructions and additional materials including student activity worksheets.

This guide will allow students to practice a variety of skills including independent inquiry and scientific experimentation, while simultaneously learning more about women, including Elisabet Ney, who made significant contributions to history. Through the **Texas Women Research Poster**, students will practice their research skills and create a poster about a prominent woman in Texas history. Students will then continue learning about biography and create either an autobiography or a biography of a subject (real or fictional) of their choosing in the activity for **Writing a Biography**. The **Suspension Bridge Activity** will introduce students to Sarah Horton Cockrell, who constructed the first iron bridge over the Trinity River in Dallas, Texas. This activity incorporates mathematics by allowing students to learn about different bridge structures and practice measuring angles. In the **Bessie Coleman Airplane Experiment**, students will learn about Bessie Coleman, the first African American woman to earn a pilot's license. Students will apply this information, along with a brief lesson on aerodynamics, by creating and testing their own paper airplanes. Finally, students will apply what they have learned about Texas women by creating a small informative collage about their research subjects in the **Collaborative Quilt Activity**.

For Student Museum Tours:

The Elisabet Ney Museum is open to the public Wednesday-Sunday, noon to 5:00 pm. Class visits may be scheduled earlier in the day as well. For more information on our field trip program, or to set up a class trip, please call 512-974-1628.

Curriculum Outline

Theme: Texas Women in History

Grade Level: 4th grade

Guiding Questions

- How did these women change history?
- What are some struggles that these women might have faced?
- How did these women overcome challenges?

Social Studies/History Connections

Students will conduct research on influential women in Texas history and then create posters to present their findings to the class. Students should include interesting information about their subjects' lives, including their backgrounds, their accomplishments, and pictures illustrating their life.

TEKS: 5C; 17A; 17D; 19C

English Language Arts and Reading Connections

Students will learn more about biography and write their own biography or autobiography using standard conventions.

TEKS: 16A; 17

Math Connections

Briefly learn about Sarah Horton Cockrell, a prominent Texas businesswoman who built the first iron bridge over the Trinity River in Dallas, Texas, and use diagrams of different types of bridges to practice measuring angles and perimeter.

TEKS: 6A;6C;7C

Science Connections

Read the story of Bessie Coleman, the first African American woman to earn a pilot's license and have students create and test their own aircrafts through an experiment.

TEKS: 2B; 2D; 6D

Art Connections

Students will create a collage of images to represent the woman they researched in the Texas Women Research Poster activity.

TEKS: 1A; 2C

Field Trip Ideas

Visit a female Texas Representative's office at the Capitol to learn about women in Texas history and politics.

Career Connections

Artist, gallery owner, museum curator, politician, pilot, scientist

Vocabulary

Biography

Lift

Drag

Thrust

Gravity

Evaluation and Assessment

Students will create a research poster about an influential Texas woman that includes three interesting facts, their subject's contribution(s), and images. Students might also explain why they chose their subject and what they found most interesting.

Students will understand the terms "biography" and "autobiography" and will have created their own example that includes details about their chosen subject, including dates and locations.

Students should be able to measure angles on common shapes and understand mathematical principles including perimeter and area.

Students should be able to create a paper airplane that flies and understand basic aerodynamics and physics concepts.

Collaboratively, students will create a class "quilt" that reflects the contributions of Texas women to history. Each student will create their own square collage representing their chosen research subject using basic principles of art and design.

Sample Lesson Plan

Student Outcomes

Students will gain an understanding of the impact that women have had in Texas history.

Objectives

Students will research and create a poster based on influential Texas women.

Students will write an autobiography or biography.

Students will explore geometry by measuring angles and calculating perimeter.

Students will design a plane using information from the life of Bessie Coleman and basic physics principles.

Students will create a collaborative quilt that reflects the accomplishments of Texas women from history.

Introduction Activity/Guiding Questions

- How did these women change history?
- What are some struggles that these women might have faced?
- How did these women overcome challenges?

Vocabulary

Biography

Aerodynamics

Physics

Lift

Drag

Thrust

Gravity

Procedures

Texas Women Research Poster: Have students choose a famous woman who was from Texas or made significant contributions to Texas history. They may choose from the provided list or pick another influential Texas woman. Have students conduct research on their subject, answering the guiding questions provided below. Online biographical entries are provided on the Additional Resources page. Then, have them create a poster illustrating their chosen subject with facts about her life, images, etc. Students may also present posters to the class if desired.

Writing a Biography: Introduce this activity by discussing the meaning of "biography" and "autobiography." In the **Research Poster Activity**, students might have used a biography or a biographical entry online to learn more about their chosen Texas woman. Students will then create their own short autobiography or biography. They may write about themselves, someone they know, a historical figure or a fictional character. Students should include details about the time period and geographic location that their subject lived. They should also provide details about their subject, such as their hobbies, occupation and family.

Suspension Bridge Activity: Introduce the activity by providing a brief background of Sarah Horton Cockrell, a Texas businesswoman who was responsible for constructing the first iron bridge over the Trinity River in Dallas, Texas. Distribute Suspension Bridge Activity worksheets, which feature large images of bridge designs. Allow students to practice measuring the angles they find on the different bridge designs. Students may also measure perimeter or calculate the area.

Bessie Coleman Airplane Experiment: After reading about Bessie Coleman and discussing basic aerodynamics principles, have students conduct a brief experiment. Each student will create and decorate a paper airplane. The airplanes will then be tested. Student will line up at a "starting line" and launch their aircrafts

one by one. Measure how far each airplane traveled and compile this data in a chart. Discuss which airplane went the furthest and why this might be.

Collaborative Quilt Activity: Students should each create a small collage with images, drawings and information about their chosen Texas woman. They may include photographs of their subject along with images that represent their life and contributions. On the back, have students include an interesting fact about their subject. When finished, all of the collages may be assembled into a large class quilt to showcase the achievements of Texas women.

Technology Needed

Microsoft Word

Evaluation

Students will create a research poster about an influential Texas woman that includes three interesting facts, their subject's contribution(s), and images. Students might also explain why they chose their subject and what they find most interesting.

Students will understand the terms "biography" and "autobiography" and will have created their own example that includes details about their chosen subject, including dates and locations.

Students should be able to measure angles on common shapes and understand mathematical principles including perimeter and area.

Students should be able to create a paper airplane that flies and understand basic aerodynamics and physics concepts.

Collaboratively, students will create a class "quilt" that reflects the contributions of Texas women to history. Each student will create their own square collage representing their chosen research subject using basic principles of art and design.

Texas Women Research Poster

Social Studies Activity Guide

TEKS: 5C; 17A; 17D; 19C

In this activity, students will conduct research over a significant woman in Texas history and create a poster to showcase their findings. The list included with this guide provides several influential figures that students might choose from. Have each student conduct research on their chosen subject, finding information about her background, occupation and achievements. Students might consult the library or online resources. Biographical information for the women on the provided list is available in the Additional Resources section.

After researching their chosen subject, students should create a poster to display their findings. They should include basic information including:

- Name
- Year of birth/death
- Early history/background
- Occupation/field of significance
- Achievements and contributions to history

Students might also attempt to answer some of the guiding questions provided on the next page through their posters. They should also use images to decorate their poster. After completing the project, students may present their posters to the class, providing information about their chosen subject. Continue this project through the **Collaborative Quilt Activity**, where each student can make a square collage to represent their research subject.

Texas Women & Guiding Research Questions

Barbara Jordan

Emma Tenayuca

Miriam A. Ferguson

Babe Didrikson Zaharias

Bessie Coleman

Elisabet Ney

Clara Driscoll

Selena Quintanilla

Georgia O'Keefe

Mary Ellen Rudin

What was this woman's significance in Texas history and U.S. history?

Describe your subject's background. Where was she born? Where did she grow up and what was her family like?

Did this woman complete any school or training to accomplish her goals?

How did this woman break barriers?

What do you find most interesting about this woman?

Writing a Biography

English Language Arts and Reading Activity Guide

TEKS: 16A; 17

This activity will allow students to learn more about biographies and autobiographies through a creative writing assignment. In the **Research Poster Activity**, students might have used a biography from the library or a biographical entry online to learn more about their chosen Texas figure. Introduce this activity by discussing what constitutes a biography and elements that many biographies and autobiographies share, such as date of birth, information about childhood, list of accomplishments, etc. Next, students will get to create their biographical writing. They may choose to write an autobiography about themselves or a biography about someone they know, a historical figure, or a fictional character. Students should include details about the time period and geographic location in which their subject lived. They should also include details about their subject's life and interests. Details might pertain the person's hobbies, occupation, family or friends. Provide students with the guiding questions below as they write their biography:

Guiding Questions:

What time period does this person live during?

Where does your subject live?

What do they do during a normal day?

What kinds of hobbies does this person have?

Do they have any family members? Friends? Pets?

What is an interesting fact about your subject?

Suspension Bridge Activity

Math Activity Guide

TEKS: 6A; 6C; 7C

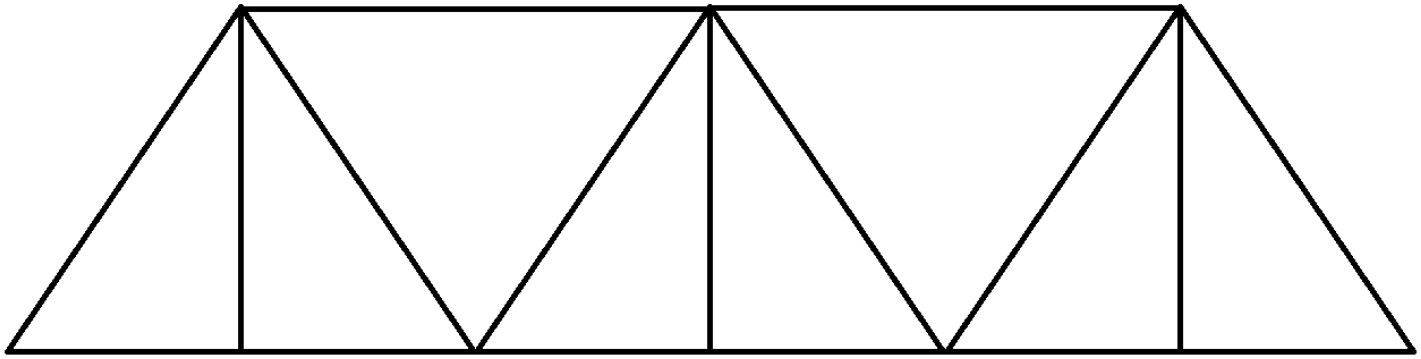
In this activity students will learn more about Sarah Horton Cockrell, a prominent Texas woman. Cockrell was born in Virginia and later moved to Texas, where she ran many family businesses with her husband, including a sawmill, gristmill and construction company. She is particularly well known for leading the construction of the first iron bridge over the Trinity River in Dallas, Texas, in 1872. This connected many major roads in Dallas and boosted the city's economic prosperity.

To learn more about Sarah Horton Cockrell's life and contributions, visit https://www.womenintexashistory.org/biographies/sarah-horton-cockrell/.

After discussing Sarah Horton Cockrell, students will get to practice measuring and identifying lines and angles through the following activity page. The worksheet contains images of two different bridge structures that contain many different shapes, lines and angles. The worksheet provides a few basic questions, but the activity may be tailored as desired to fit the classroom. Students might be asked to measure the perimeter, calculate the area or measure each of the angles, for instance.

Name:

Suspension Bridge Activity

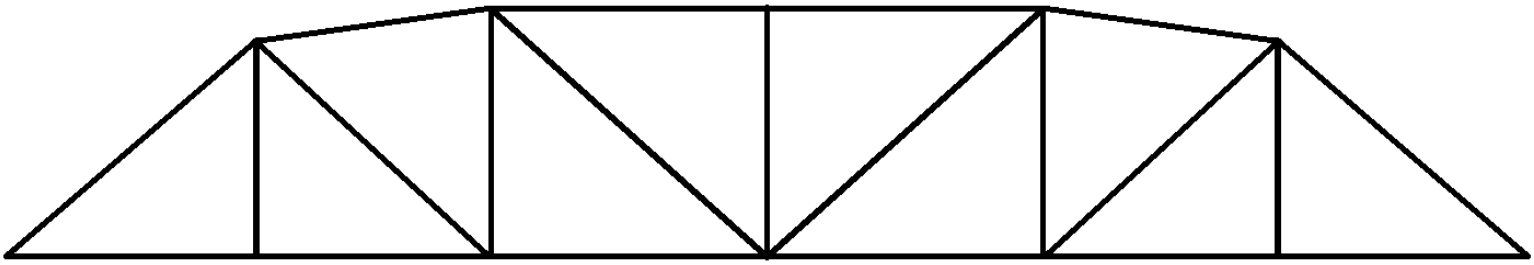


WARREN TRUSS BRIDGE

What shape is this bridge?

How many sides does this shape have?

Measure all of the sides and add them together. What is the perimeter of the bridge?



CAMELBACK TRUSS

What kind of shapes can you find in the bridge? Be specific.

Practice measuring the angles that you find. Label all of the right angles.

Bessie Coleman Airplane Experiment

Science Activity Guide

TEKS: 2B; 2D; 6D

This activity will introduce students to Bessie Coleman. Coleman was born in Texas in 1892. Determined to become a pilot, she took French classes and moved to France, where she would be allowed to attend aviation school. Coleman made history as the first African American woman and Native American woman to receive a pilot's license.

For more biographical information about Bessie Coleman, visit: www.womenshistory.org/education-resources/biographies/bessie-coleman.

After learning more about Bessie Coleman, students will get to conduct their own paper airplane experiment. Before allowing students to create their paper airplanes, present a brief overview of basic physics concepts. Introduce forces of flight including lift, drag and thrust.

For background information and ideas for creating paper airplanes, visit:

- NASA – Aeronautics: https://www.grc.nasa.gov/www/k-12/UEET/StudentSite/aeronautics.html
- NASA – Airplanes: https://www.grc.nasa.gov/www/k-12/UEET/StudentSite/airplanes.html
- NASA – Paper Airplanes: https://www.grc.nasa.gov/www/k-12/airplane/glidpaper.html

Following this, students will each design their own paper airplane. They may decorate their planes as desired and fold them to create a dynamic aircraft. Once each student has created their aircraft, the airplanes will be tested. Have the students line up at a "starting line" and launch their paper airplanes ones by one. Use a measuring tape to see how far each airplane traveled and record it in a chart. Following this, discuss which airplane shape traveled the furthest and why this might be.

Materials:

- Paper
- Scissors
- Measuring tape
- Colored pencils or markers

Introduction to Aeronautics

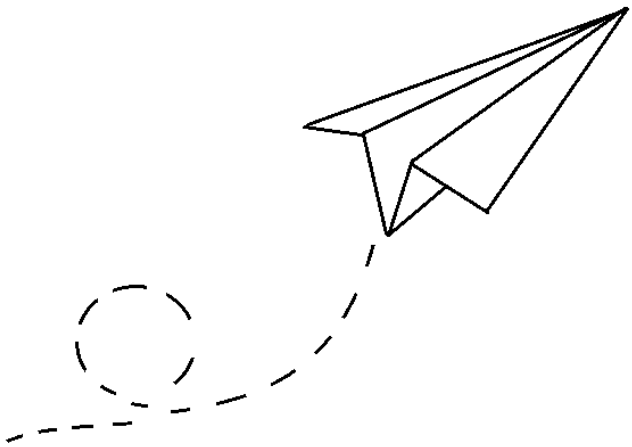
What is aeronautics?

Aeronautics refers to the study of flight and the science behind it. Scientists and engineers study aeronautics to design planes and spaceships. These scientists and engineers must understand important scientific principles including lift, thrust and drag. Lift, thrust and drag are all **forces**, or things that push or pull an object.

Lift: Lift is the force that pushes an object upwards. Once your paper airplane is in motion, the air that moves under its wings will provide the lift. This is why it is important to make wings on your paper airplane.

Thrust: Thrust is the force that pushes an object forward. On a plane, the engine usually provides the thrust. In this experiment, you will provide the thrust by throwing your paper airplane.

Drag: Drag is resistance, which slows an object down. Smooth, streamlined objects will have less drag and will travel faster and father.



Experiment Results Chart

Use the following chart, or a similar one, to record the results from each student's flight.

AIRPLANE NAME	DISTANCE TRAVELED (meters)	TIME IN AIR (seconds)

Name:

Bessie Coleman Airplane Experiment

Student Worksheet

What is the name of your aircraft?

How far did your airplane travel?

How many seconds did your airplane stay in the air for?

How could you have changed your design to make your airplane more aerodynamic?

Collaborative Quilt Activity

Art Activity Guide

TEKS: 1A; 2C

In this activity, the class will create a collaborative quilt to showcase the accomplishments of Texas women. Each student will be responsible for constructing a "square" to add to the completed quilt, which may be displayed on a wall or bulletin board. To create the squares, students should each begin with a square of construction paper or cardstock. On the front, students should create a small collage of images to represent their chosen subject. Begin with a photograph of the subject and add images that reflect her life. For instance, to create a collage for Elisabet Ney, students might add photos of her work, pictures or drawings of sculpting tools or a map of Germany. Students should look for images to add to their collage online and in magazines or newspapers. They may also add drawings of their own. On the back of each square, students should write an interesting fact about their chosen research subject.

Once all of the squares are completed, you may assemble them to form a large class quilt. The squares may be attached using tape or you can thread them together by punching holes along the sides and fastening the pieces together with yarn or string. Display the class quilt on a bulletin board or classroom wall.

Additional Resources

- For the **Texas Women Research Poster**, have students research their chosen subject either in the library or online. The website www.womenintexashistory.org provides an excellent database with biographical information about many of the women listed.
    - Elisabet Ney Biography: https://www.womenintexashistory.org/biographies/elisabet-ney/
    - Bessie Coleman Biography: https://www.womenintexashistory.org/biographies/bessie-coleman/
    - Clara Driscoll Biography: https://tshaonline.org/handbook/online/articles/fdr04
    - Miriam Ferguson Biography: https://www.womenintexashistory.org/biographies/miriam-a-ferguson/
    - Barbara Jordan Biography: https://www.womenintexashistory.org/biographies/barbara-charline-jordan/
    - Georgia O'Keefe Biography: https://tshaonline.org/handbook/online/articles/fok10
    - Sélena Quintanilla Biography: https://www.womenintexashistory.org/biographies/slena-quintanilla-prez/
    - Mary Ellen Rudin Biography: https://scientificwomen.net/women/rudin-mary-87
    - Emma Tenayuca Biography: https://www.womenintexashistory.org/audio/emma-tenayuca/
    - Babe Didrickson Zaharias Biography: https://www.womenintexashistory.org/biographies/mildred-babe-didrickson-zaharias/
- Additional information about Elisabet Ney may be found at www.austintexas.gov/page/elisabet-ney-biography.