Paving the Way for STEM in History Museums
If You Build It, They Will Come: 
Incorporating STEM Topics into School 
Programs at History Museums
Workshop Goals

By the end of this webinar you will:

● Understand how to create engaging educational activities for student audiences

● Explore different programming types and interpretation techniques, and how to implement them at your site and as outreach into the classroom

● Practice program planning skills that can be applied at your site

● Walk away with concrete examples of how STEM can be incorporated into school programs at history-based sites
Why focus on the teacher and student audiences?

- Mission Critical
- Attendance Numbers
History Museums and STEM—why go multidisciplinary?

- Adds to your interpretation
- Ties into the stories of people/being human
- History connects to everything else
- Helps teachers
How to decide what to create programs around?

- Curriculum Connections--TEKS
- What Unique Assets Does Your Site Have?
- What You DON’T Have
Curriculum Connection—TEKS

- Texas Essential Knowledge and Skills

- Texas Education Agency (TEA) website
  - https://tea.texas.gov/academics/curriculum-standards/teks/texas-essential-knowledge-and-skills

- Lead4Ward
  - https://lead4ward.com/docs/resources/snapshots/ss/teks_snapshot_ss_gr_04.pdf

- Stay up to date on revisions.
- Trouble Finding Connections?
Curriculum Connection—TEKS

- Trouble Finding Connections?
  - “Etc.”
  - Search other grade levels
Curriculum Connection—TEKS

● Trouble Finding Connections?
  ● Process Skills

    ● 4.19(B) analyze information by applying absolute and relative chronology through sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, finding the main idea, summarizing, making generalizations and predictions, and drawing inferences and conclusions

    ● 4.22 Social Studies skills. The student uses problem-solving and decision-making skills, working independently and with others. The student is expected to use problem-solving and decision-making processes to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution.
Science TEKS

- 4.2(A) plan and implement descriptive investigations, including asking well defined questions, making inferences, and selecting and using appropriate equipment or technology to answer his/her questions; (B) collect and record data by observing and measuring, using the metric system, and using descriptive words and numerals such as labeled drawings, writing, and concept maps; (C) construct simple tables, charts, bar graphs, and maps using tools and current technology to organize, examine, and evaluate data;

- 4.3(C) connect grade-level appropriate science concepts with the history of science, science careers, and contributions of scientists.

- 4.4 collect, record, and analyze information using tools, including calculators, microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, mirrors, spring scales, balances, graduated cylinders, beakers, hot plates, meter sticks, magnets, collecting nets, and notebooks; timing devices; and materials to support observation of habitats of organisms such as terrariums and aquariums.
How to decide what to create programs around?

- Curriculum Connections--TEKS
- What Unique Assets Does Your Site Have?
- What You DON’T Have
What Unique Assets Does Your Site Have?

- What is something that your site can do really well?
- What is something unique to your site, that a school group couldn’t encounter anywhere else?
  - Stories
  - Artifacts
  - Physical features

PLAY TO YOUR STRENGTHS
How to decide what to create programs around?

- Curriculum Connections--TEKS
- What Unique Assets Does Your Site Have?
- What You DON’T Have
How do you get students to come to your site?

TEACHERS!

Come back in June!
Making Connections with Students

- School Field Trips
- Special activities or programs for students at your site
- Special activities or programs for students in their classrooms
Student Programs

- Benefits
  - Artifacts/Primary sources
  - Experiential learning
  - Learning experiences with someone OTHER than teacher
  - Growth as a person learning about their world
Making Connections with Students

- School Field Trips
- Special activities or programs for students at your site
- Special activities or programs for students in their classrooms
School Field Trips—Logistics

School Field Trips will look different for all organizations, depending on:

- Physical Size
- Staffing Capabilities
- Your topic/collection
- Goals. What would success look like for you?
School Field Trips—Examples
School Field Trips—Examples
School Field Trips—What will they actually do?

- Think? Do? Feel?
- “Seeing Something”
- “Doing Something”
School Field Trips—Tours, Guided vs. Self-Guided
School Field Trips—Self-Guided Activities

MAKING A LIVING
BULLOCK TEXAS STATE HISTORY MUSEUM

Look at the exhibitions! How have Texans made a living? Think about it! Make a connection!

FIRST FLOOR
Packing for a Colony

LOOK at the items carried on the La Bèlle ship to establish a new colony. Soldiers, sailors, colonists, and priests brought the items they needed to make a living.

NAME each of these artifacts. Did the owners bring them to trade or to keep? CIRCLE one.

TRADE or KEEP
TRADE or KEEP
TRADE or KEEP
TRADE or KEEP
TRADE or KEEP
TRADE or KEEP
TRADE or KEEP

I’ll trade you for it!
1. DRAW the artifact from La Bèlle that you would like to own.
2. I would trade my (item you own) ______ for the (La Bèlle item) ______ because ______

Next, WALK through the first floor until you find a bison statue.
School Field Trips—Self-Guided Activities

Scavenger Hunt

Search the Bullock Museum to find an artifact that represents each of the following ideas. Use your camera or phone to take a picture for each concept. You should be able to explain how your artifact photo connects to the idea. Don't forget to be creative!

<table>
<thead>
<tr>
<th>Travel</th>
<th>Family</th>
<th>Economy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovation</td>
<td>Change Over Time</td>
<td>Conflict</td>
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<tr>
<td>Revolution</td>
<td>Patterns</td>
<td>Exploration</td>
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</tbody>
</table>

Bonus Challenge:
- A bird's eye view of something
- A selfie in the Museum with something that relates to you
- Something that represents the future
School Field Trips—Self-Guided Activities

- TEKS Process Skills

4.19(B) analyze information by applying absolute and relative chronology through sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, finding the main idea, summarizing, making generalizations and predictions, and drawing inferences and conclusions
Making Connections with Students

- School Field Trips
- Special activities or programs for students at your site
- Special activities or programs for students in their classrooms
Special activities or programs for students at your site

- Classes
- Gallery Carts
- Festival Days
Special activities or programs for students at your site

- Classes
- Gallery Carts
- Festival Days
STEM Connections

- STEM Connections in your Collection
- Connect to Community Issues
STEM Connections—Science Thursday
STEM Connections—Science Thursday
STEM Connections—Science Thursday
STEM Connections—Science Thursday
STEM Connections—Science Thursday
STEM Connections—Science Thursday

Decoding Codebook

Suspect 2 Belgian nurses as spies for Allies.

=O'=#8:= iti tuklo towa%!#hushi love$

Suspect 2
Belgian

nurses
as
spies

for
Allies

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STEM Connections—Science Thursday
STEM Connections—Connect to Community Issues
STEM Connections—Connect to Community Issues
Making Connections with Students

- School Field Trips
- Special activities or programs for students at your site
- Special activities or programs for students in their classrooms
Program Planning Toolbox

TOOLBOX FOR MUSEUM SCHOOL PROGRAMS

Updated October 2016
Easy Steps to Engaged Learning

1. Ensure Physical Needs are Met.
   Point out washroom locations, provide appropriate seating and a comfortable environment. Allow time to eat snacks.

2. Be Welcoming.
   Welcome the group and introduce museum staff and volunteers who will be facilitating the program. Establish expectations. Have and know emergency plans.

3. Use Participatory Learning.
   Allow students to choose to participate in a way they are comfortable with. This can include posing and answering questions verbally, by writing, drawing, nodding, acting, etc.

   Set-up before the group arrives. Know your subject material. Allow time for activity, discovery, questions, discussion, and reflection. Do not just talk at your audience.

5. Empower Students to take Ownership of their Learning.
   Let students have choices, be creative, think critically and not focus on getting the “right” answer. Relate material to students’ lives.
Five Key Principles of Successful Museum School Programs

- **Programs Address Specific Curriculum Outcomes.** Strong links to curriculum will help teachers justify their museum visit and make the learning experience more relevant for students.

- **Activities are Object-Based.** Activities that use objects to create an authentic experience are not easily reproduced in a classroom.

- **“Good Questions” are Asked.** Scripts help interpreters by including a variety of different types of questions rather than providing lots of facts.

- **Learning is Student-Centered.** Use a variety of active, cooperative and explorative learning experiences for students, beyond watching and listening.

- **Museums and Program Partners work Together.** Include teachers, other museum staff, volunteers, community groups and stakeholders throughout the development process.
Pandemic Interlude

- Use this time for planning onsite school programs, but not necessarily launching them.
- Focus on outreach and digital efforts.
Making Connections with Students

- School Field Trips
- Special activities or programs for students at your site
- Special activities or programs for students in their classrooms
Special activities or programs for students in classrooms

- Travelling Trunks
- Distance Learning
Distance Learning

- 45 Minute Programs
- Museum Educator
- Texas History Topic
- Curriculum Connections
- Live, Interactive
Distance Learning

- 45 Minute Programs
- Museum Educator
- Texas History Topic
- Curriculum Connections
- Live, Interactive

First Encounters, When the Conquistadors Met the Karankawa

La Belle: The Ship that Changed History

Spanish Missions in Texas

Myths & Unsolved Mysteries of the Texas Revolution

Mavericks, Dogies, and Drover (cattle drives)

Texas and the Civil War

Gone to Texas (immigration)

What Makes Texas, Texas? (state symbols)
Distance Learning

- 45 Minute Programs
- Museum Educator
- Texas History Topic
- Curriculum Connections
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Distance Learning

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- Live, Interactive
Distance Learning

- Successes
  - Free
  - Staffing
  - Connect2Texas
Distance Learning—Connect2Texas.net

Saddle up and get ready to experience videoconferencing from the Lone Star State!

Videoconferencing can break down barriers of time, distance and expense by connecting people around the world in real time.
This is how the front of the Alamo looked in 1836.
Distance Learning—Engagement Strategies
Distance Learning—Engagement Strategies
Making Connections with Students

- School Field Trips
- Special activities or programs for students at your site
- Special activities or programs for students in their classrooms
STEM Connections

- TxDOT Partner Resources
- Monarch Butterfly Migration
- How connect to STEM? Connect to Community Issues
STEM Connections—Monarch Migration

Flight of the Butterflies

“A MUST SEE”
“STUNNING”
“FASCINATING”
“ENGROSSING”
“ASTOUNDING”

“MOVING... MAGNIFICENT”

“AS COMPELLING AS ANY SEQUENCE YOU’LL SEE IN A HOLLYWOOD MOVIE.”

STEM SEQUE
STEM Connections—Monarch Migration
STEM Connections—Monarch Migration
STEM Connections—Monarch Migration
STEM connections at a History Museum

Teacher Quotes from Surveys:

"We love that we were able to incorporate both science and social studies TEKS and that it was very hands-on for the students."

"[With Flight of the Butterflies film] They learned about Monarch Butterflies and their migration. Most of all they learned not to give up and that working hard pays off (Social Emotional Learning).

"We were able to immerse ourselves into Texas History and even be able to participate in science activities that helped to build on the schema of our students. We were most pleased in being there on a Thursday to do the science activities."
Ready to try it yourself?
Sign up for your slot in a Discussion Session

See you on:
Thursday, 10am or 2pm
Friday, 10am