Paving the Way for STEM in History Museums

TEXAS HISTORICAL COMMISSION!
REAL PLACES TELLING REAL STORIES

BEYOND THE ROAD
TxDOT

BULLOCK TEXAS STATE HISTORY MUSEUM

Engaging STEM Topics Through Interactivity

Webinar Goals

- Explore planning processes used to create high- or low-tech interactive components that incorporate STEM-based ideas into history exhibits.
- Discuss readily-available tools for both digital and tactile interactives.
- Use examples drawn from TxDOT's work on historic bridges in Texas to provide techniques for creating and presenting interactive content to the public.

BULLOCK MUSEUM

Overview

- Planning
- Sustainability
- Prototyping
- Evaluation
- Real world example: *La Belle* at the Bullock Museum

Planning

Start with the essentials: learning goals and guiding questions.

- What do you want someone to learn?
- Why is this topic important?
- What's the story you want to tell?
- Who is your audience?
- Are there any particularly interesting aspects or unique features that will draw visitors in?

BULLOCK MUSEUM

Methodology

Select the methodology that best fits your learning goals.

Considerations for low-tech, tactile interactivity:

- Group or individual activity
- Tailor to audience
- Staff needed
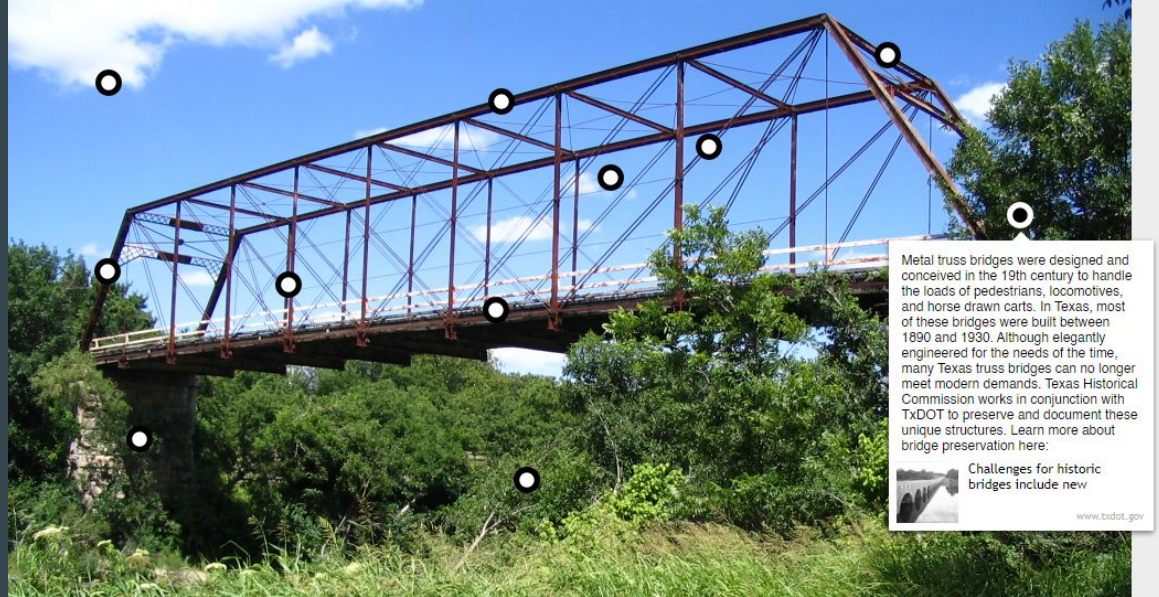- May not always be out on the floor

BULLOCK MUSEUM

Methodology

Select the methodology that best fits your learning goals.

Considerations for digital interactivity:

- Hardware
- Interaction mechanics
- Group or individual audience
- Place
- Where does it live? Does this create limitations? Opportunities? Or both?

BULLOCK MUSEUM

Methodology

Metal truss bridges were designed and conceived in the 19th century to handle the loads of pedestrians, locomotives, and horse drawn carts. In Texas, most of these bridges were built between 1890 and 1930. Although elegantly engineered for the needs of the time, many Texas truss bridges can no longer meet modern demands. Texas Historical Commission works in conjunction with TxDOT to preserve and document these unique structures. Learn more about bridge preservation here:

Challenges for historic bridges include new

www.txdot.gov

Sustainability

How will you sustain the experience once it's built?

- Budget
    - Cost of replacement materials
    - Backup/replacement hardware
    - Cleaning and regular upkeep
- Staff
- Time

BULLOCK
MUSEUM

Sustainability
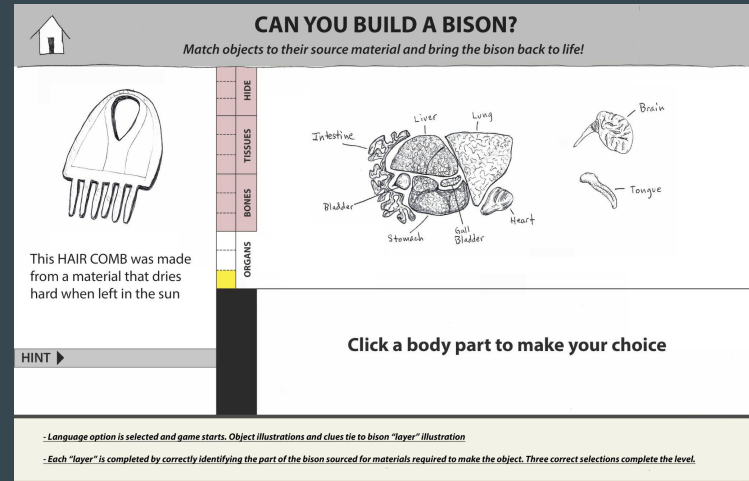
Prototyping

Paper prototypes

- ○ Best for walking through the initial user experience
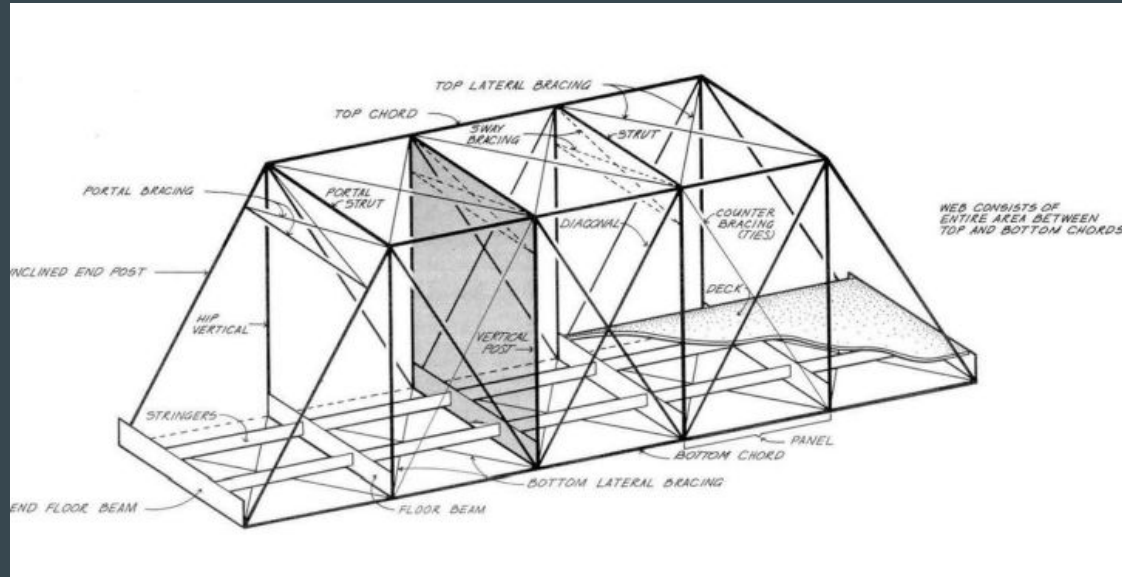
Alpha or beta tests

- ○ Test mechanics
- ○ Test hardware or enclosure
- ○ Fine tune vocabulary or instructions

Get as true to the end experience as possible

- ○ What other place specific-things do you need to be aware?

CAN YOU BUILD A BISON?
Match objects to their source material and bring the bison back to life!

HIDE
TISSUES
BONES
ORGANS

Intestine · Liver · Lung · Brain
Bladder · Stomach · Gall Bladder · Heart · Tongue

This HAIR COMB was made from a material that dries hard when left in the sun

HINT ▶

Click a body part to make your choice

- Language option is selected and game starts. Object illustrations and clues tie to bison "layer" illustration
- Each "layer" is completed by correctly identifying the part of the bison sourced for materials required to make the object. Three correct selections complete the level.

BULLOCK MUSEUM

Prototyping

Evaluation

Assess your experience at key points in development:

- Prototype testing
- While it's in the gallery or online

Assess the experience's life-cycle with an audience:

- Before an audience engages with the experience
- While an audience engages with the experience
- After an audience engages with the experience

What was confusing? What did they enjoy? Did the learning goal come across?

Test audiences are everywhere! Have a test script and record what you learn.

BULLOCK
MUSEUM

Evaluation

WARNING
UNITED STATES OVER 6 TONS
PROHIBITED

14-81K-5432
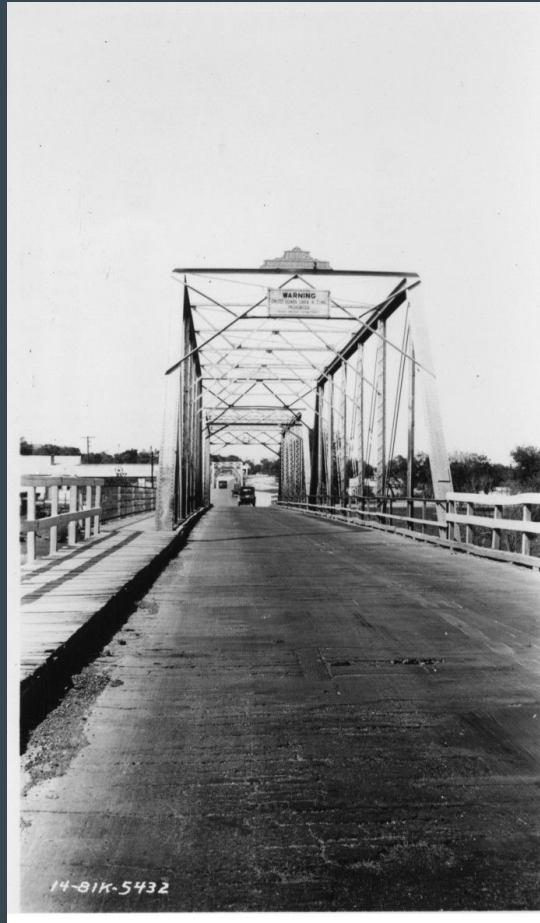
La Belle at the Bullock Museum

In developing the exhibit, a few concepts emerged as potential interactive elements:

- The scale of the ship
- The human aspect of starting a new colony
- Packing materials needed for the voyage

Three interactive experiences were developed after narrowing these concepts into learning goals.

BULLOCK
MUSEUM

La Belle at the Bullock Museum

Tactile interactive experience: *La Belle* cart

- Staffed
- Can tailor the experience to groups and individuals

La Belle at the Bullock Museum

Digital interactive experience: *What Would You Bring* and *Load the Cargo*

- One kiosk has two experiences
- As digital experiences they're quick but impactful
- There are 'right' and 'wrong' answers though that terminology isn't used

BULLOCK
MUSEUM

La Belle at the Bullock Museum

Digital interactive experience: *La Belle Augmented Reality Kiosks*

- Skim, swim, or dive experience based on level of interest
- Self-guided, visitors are encouraged to explore at their own pace
- Every interaction is logged in analytics

BULLOCK
MUSEUM

Join Us for An Activity!

Now that you've seen us start the process, join us to work through these initial steps yourself. We'll imagine a site that wants to create an interactive experience about bridge building in their area and by the end of the session will have created a learning and experience goal as well as a possible plan for prototyping.

Thursday, June 22 at 2pm or Friday, June 23 at 10am

Tell Us About Your Own Work!

Bring your institution's STEM-based project in any stage of development and we'll workshop it with colleagues across the state.

Thursday, July 29 at 2pm or Friday, July 30 at 10am

BULLOCK
MUSEUM