Analyzing Primary Sources with a STEM Lens
Notice of recording

This session is being recorded. If you choose to participate, any of your comments or questions will become part of the Library’s collections.
Please introduce yourself in the chat!

- Your first name
- Where you’re joining us from
- Your subject area and grade level

Please select **ALL PANELISTS AND ATTENDEES** in the To: box
Welcome!

Lesley Anderson, @LAnderson_STEM
Peter DeCraene, @ShowTheWork
2021-22 Albert Einstein Distinguished Educator Fellows

https://science.osti.gov/wdts/einstein
Objectives

- Connect historical documents to STEM topics, using the Observe-Reflect-Question protocol
- Identify Library resources for STEM classrooms
Observe: What do you see?
Observe: What do you see?

Reflect: What do you think?
Observe: What do you see?

Reflect: What do you think?

Question: What do you wonder?
# Primary Source Analysis Tool

**Name:** An Eager Student

<table>
<thead>
<tr>
<th>Observe</th>
<th>Reflect</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>I see a basket</td>
<td>Hot air balloon</td>
<td>What are the men doing?</td>
</tr>
<tr>
<td>Lots of ropes heading upward</td>
<td>Must be a long trip...the men are sleeping.</td>
<td>When was this picture made? Who drew it and why?</td>
</tr>
<tr>
<td>Gadgets are tied to the ropes</td>
<td>They are passed out due to lack of oxygen.</td>
<td>Who are the men in the picture? Are they famous?</td>
</tr>
<tr>
<td>Three men are in the basket</td>
<td>They have weather instruments; they're taking measurements at different altitudes</td>
<td>Why would they take birds up with them?</td>
</tr>
<tr>
<td>Two men have eyes closed/slumped over</td>
<td>I think those are birds in the little basket.</td>
<td>Why didn't they take something up with them so they wouldn't pass out?</td>
</tr>
<tr>
<td>Extra rope draped over the side</td>
<td>The rope is tied to the ceiling, and the basket is like a swing.</td>
<td></td>
</tr>
<tr>
<td>A second little basket in the foreground</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Further Investigation:**

**Additional Notes:**
About this Item

Title
[View of journalist Joseph Crocè-Spinelli, naval officer Henri Sivel, and Gaston Tissandier in the basket of the balloon, “Zénith,” after losing consciousness due to lack of oxygen after reaching an altitude of nearly 28,000 ft., near Paris, France, April, 1875] / [...] ; Lefman, sc.

Created / Published
[S.l. : s.n., 1875]

Subject Headings
- Tissandier, Gaston,--1843-1899
- Sivel, Henri Théodore,--1834-1875--Death & burial
- Crocè-Spinelli, Joseph Eustache,--1845-1875--Death & burial
- Balloonists--1870-1880
- Ballooning accidents--France--1870-1880

Headings
Wood engravings--1870-1880.

Notes
- Newspaper clipping from French serial La Nature?
- Title devised by Library staff.
- Tissandier collection.

Medium
1 print : wood engraving.

Call Number/Physical Location
LOT 13400, no. 35 [P&P]

Repository
Library of Congress Prints and Photographs Division Washington, D.C. 20540 USA
How could you use this primary source in your STEM classroom?

- Scientific instruments
- Relationship between temperature and pressure
- Effects of high altitude on the human body (hypoxia)
- Early explorers
- Early aviation and transportation

Tell us your thoughts in the chat!
Finding Primary Sources at the Library: https://www.loc.gov/programs/teachers
Finding Primary Sources at the Library:
http://blogs.loc.gov/teachers/
Finding Primary Sources at the Library:
https://www.loc.gov/programs/teachers/classroom-materials/
Finding Primary Sources at the Library: 
https://www.loc.gov/programs/teachers/classroom-materials/primary-source-sets/
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CLASSROOM MATERIAL

Scientific Data: Observing, Recording, and Communicating Information

Reports, maps, notes, letters, diagrams, sketches, and more represent a broad sample of communication styles, formats, and methods in a wide range of scientific disciplines.
Primary Source Sets:
https://www.loc.gov/programs/teachers/classroom-materials/primary-source-sets/

**CLASSROOM MATERIAL**
Scientific Data: Observing, Recording, and Communicating Information

**CLASSROOM MATERIAL**
Understanding the Cosmos: Changing Models of the Solar System and the Universe

A selection of Library of Congress primary sources exploring the topic of models of the solar system and universe, including models by Ptolemy, Copernicus, Descartes, and Galileo. This set also includes a Teacher's Guide with historical context and teaching suggestions.
Primary Source Sets:
https://www.loc.gov/programs/teachers/classroom-materials/primary-source-sets/

CLASSROOM MATERIAL
Scientific Data: Observing, Recording, and Communicating Information

CLASSROOM MATERIAL
Understanding the Cosmos: Changing Models of the Solar System and the Universe

CLASSROOM MATERIAL
Weather Forecasting
A selection of Library of Congress primary sources exploring the topic of weather forecasting, including data collection records and instruments. This set also includes a Teacher’s Guide with historical context and teaching suggestions.
Historical Charts

CLASSROOM MATERIAL
Charts and Graphs

A selection of Library of Congress primary sources exploring charts and graphs. This set also includes a Teachers Guide with historical context and teaching suggestions.

Date: 1900
Historical Charts

**Observe:** What do you see?

**Reflect:** What do you think? Why do you think so?

**Question:** What do you wonder?

Put your responses in the chat!
Price-Chart of Mess Beef for 56 Years.

Lowest and Highest Prices, per Barrel, in New York.

(Based on the inserted table of prices.)

<table>
<thead>
<tr>
<th>Year</th>
<th>Lowest</th>
<th>Highest</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$8.00</td>
<td>$10.00</td>
</tr>
<tr>
<td>1825</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1826</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1827</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1828</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1829</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


(Each space between the price lines represents fifty cents.)
Videos!

**Observe:** What do you see?

**Reflect:** What do you think? Why do you think so?

**Question:** What do you wonder?

Put your responses in the chat!
Now what do you see, think, wonder?

**Dates**
- 1906

**Locations**
- California
- San Francisco
- Yerba Buena Island

**Subject Headings**
- San Francisco Earthquake and Fire, Calif., 1906
- Earthquakes--California--San Francisco
- Fires--California--San Francisco
- Buildings--Earthquake effects--California--San Francisco
- Earthquake relief--California--San Francisco
- Central Tower (San Francisco, Calif.)
- Ferry Building (San Francisco, Calif.)
- Yerba Buena Island (Calif.)
- Oakland (Ferry)
San Francisco earthquake and fire, April 18, 1906

Summary
Shows the aftermath of the San Francisco earthquake of April 18, 1906, and the devastation resulting from the subsequent three-day fire. The earthquake struck at 5:12 a.m. San Francisco, with thousands of unreinforced brick buildings, and closely-spaced wooden Victorian dwellings, was poorly prepared for a major fire. The scenes in the film are preceded by interior titles, many of which are sensationalized. One scene showing a family eating in the street may have been staged for the camera. The film was probably made in early May, as one scene can be precisely dated to May 9, and another to sometime after May 1.

Notes
- Duration: 12 minutes at about 15 fps.
- Photographed in San Francisco, California and Oakland, California in early May, 1906
- Available also through the Library of Congress Web site as digital files.
- This film was selected for the National Film Registry.
The Observe-Reflect-Question protocol invites students to engage with primary sources, and connects STEM ideas across the curriculum.

The Library of Congress has many resources for STEM classrooms.

- Books, manuscripts, photographs, videos …
- Curated primary source sets on the Teachers page
Thank you!

For joining us today and sticking with your students these last two years!

Questions?

- Library of Congress: https://loc.gov/
- Ask a Librarian: https://ask.loc.gov/
- Teacher Resources: https://www.loc.gov/programs/teachers
- Teacher Blog: http://blogs.loc.gov/teachers/

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