

Analyzing Primary Sources with a STEM Lens



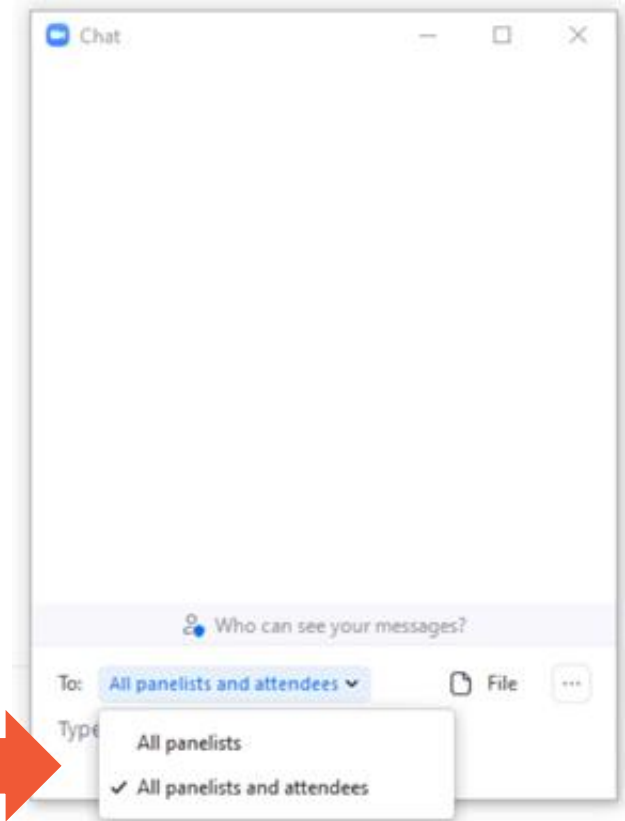
Notice of recording

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

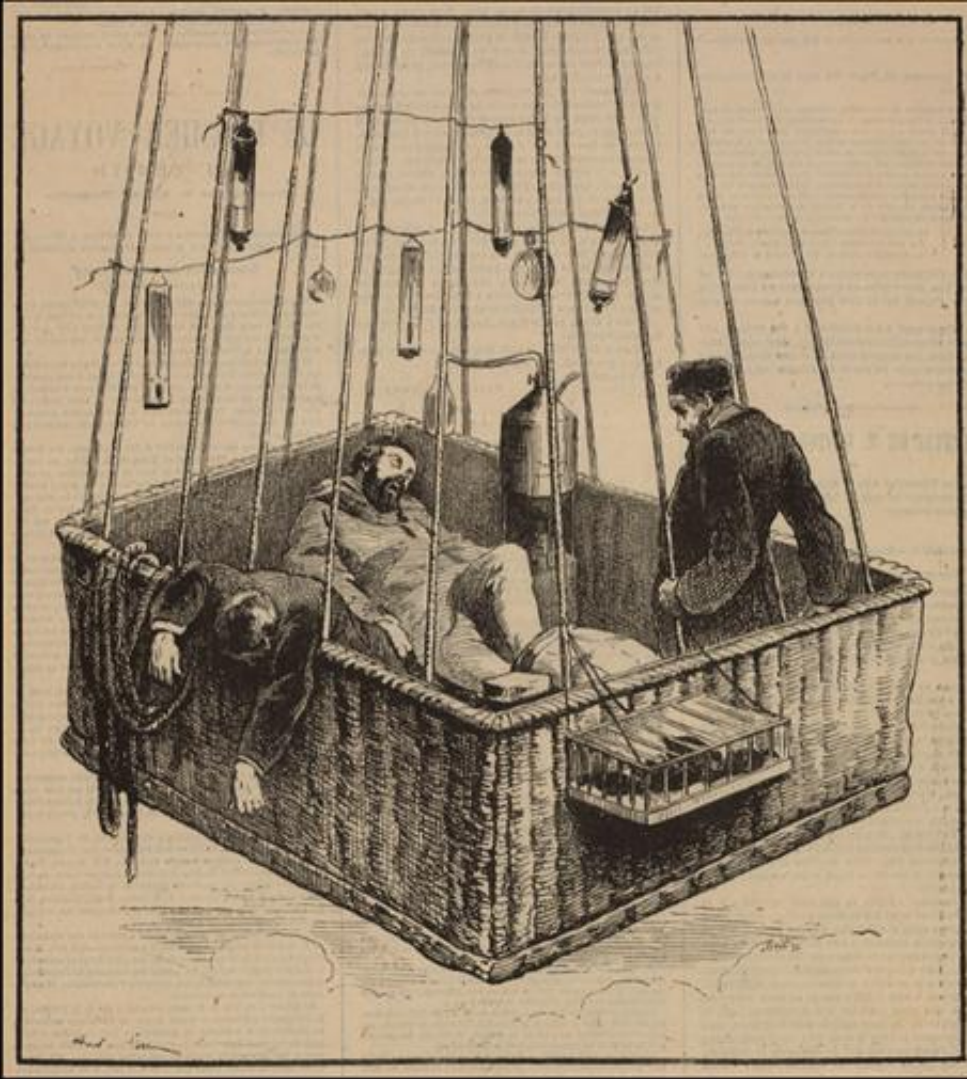
2021-22 Albert Einstein Distinguished Educator Fellows



<https://science.osti.gov/wdts/einstein>

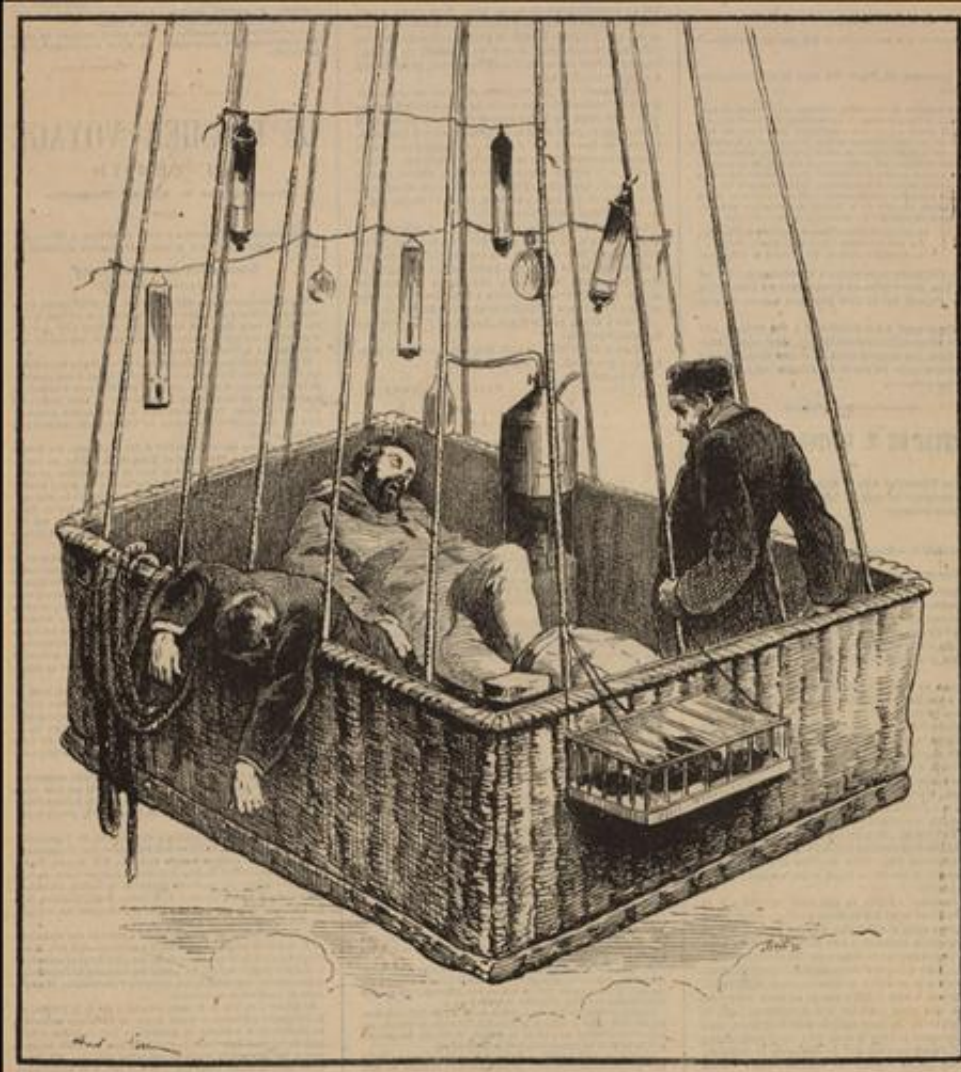
Objectives

- ❑ Connect historical documents to STEM topics, using the Observe-Reflect-Question protocol
- ❑ Identify Library resources for STEM classrooms



Observe: What do you see?

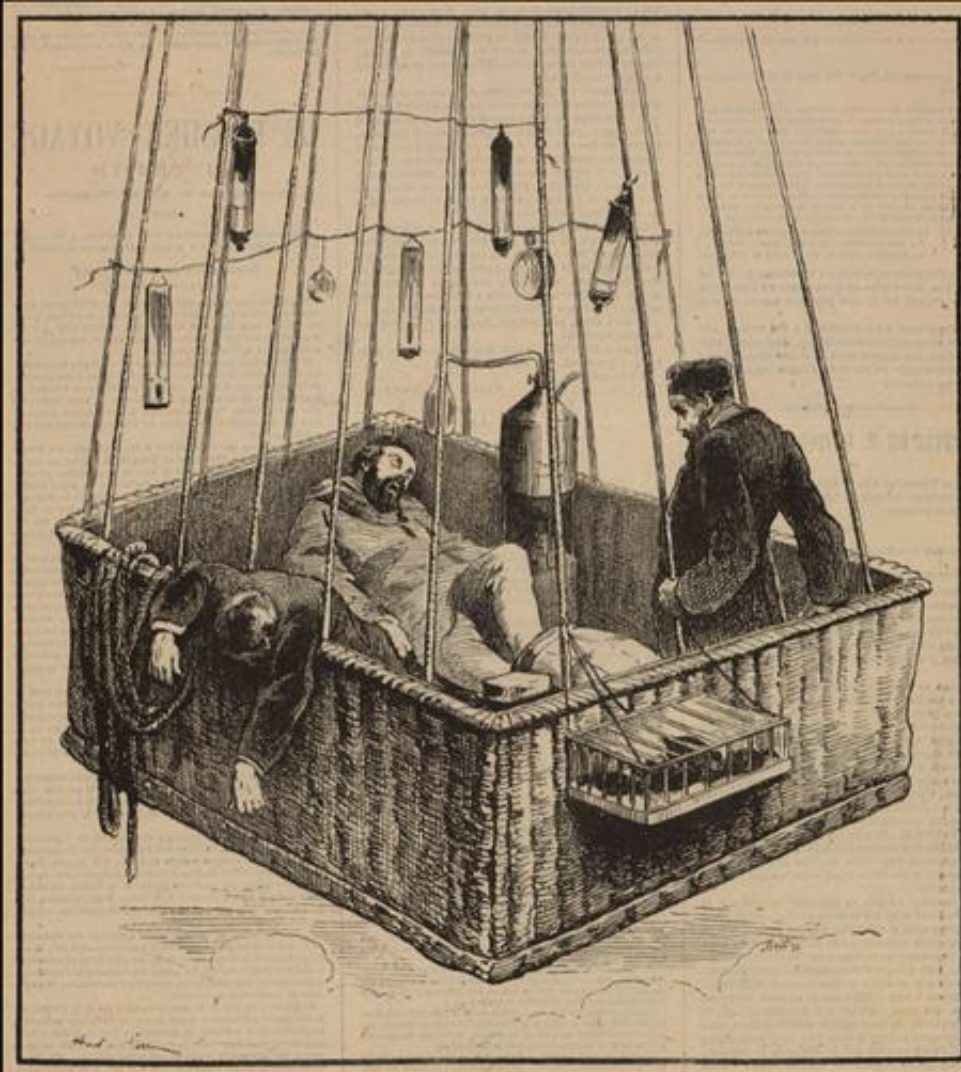




Observe: What do you see?

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



OBSERVE

I see a basket

Lots of ropes heading upward

Gadgets are tied to the ropes

Three men are in the basket

Two men have eyes closed/slumped over

Extra rope draped over the side

A second little basket in the foreground

REFLECT

Hot air balloon

Must be a long trip...the men are sleeping.

They are passed out due to lack of oxygen.

They have weather instruments; they're taking measurements at different altitudes

I think those are birds in the little basket.

The rope is tied to the ceiling, and the basket is like a swing.



QUESTION

What are the men doing?

When was this picture made? Who drew it and why?

Who are the men in the picture? Are they famous?

Why would they take birds up with them?

Why didn't they take something up with them so they wouldn't pass out?

FURTHER INVESTIGATION:

ADDITIONAL NOTES:

About this Item

Title

[View of journalist Joseph Crocé-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
- Crocé-Spinelli, Joseph Eustache,--1845-1875--Death & burial
- Balloonists--1870-1880
- Ballooning accidents--France--1870-1880

Headings

Periodical illustrations--1870-1880.

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

Part of

[Lot 13400 \(87\)](#)

[Tissandier Collection \(424\)](#)

[Prints and Photographs Division \(945,800\)](#)

[Library of Congress Online Catalog \(1,243,391\)](#)

Format

[Photo, Print, Drawing](#)

Locations

[France](#)

Languages

[English](#)

Subjects

[Ballooning Accidents](#)
[Balloonists](#)
[Crocé-Spinelli, Joseph Eustache](#)
[Death & Burial](#)
[France](#)
[Periodical Illustrations](#)
[Sivel, Henri Théodore](#)
[Tissandier, Gaston](#)
[Wood Engravings](#)

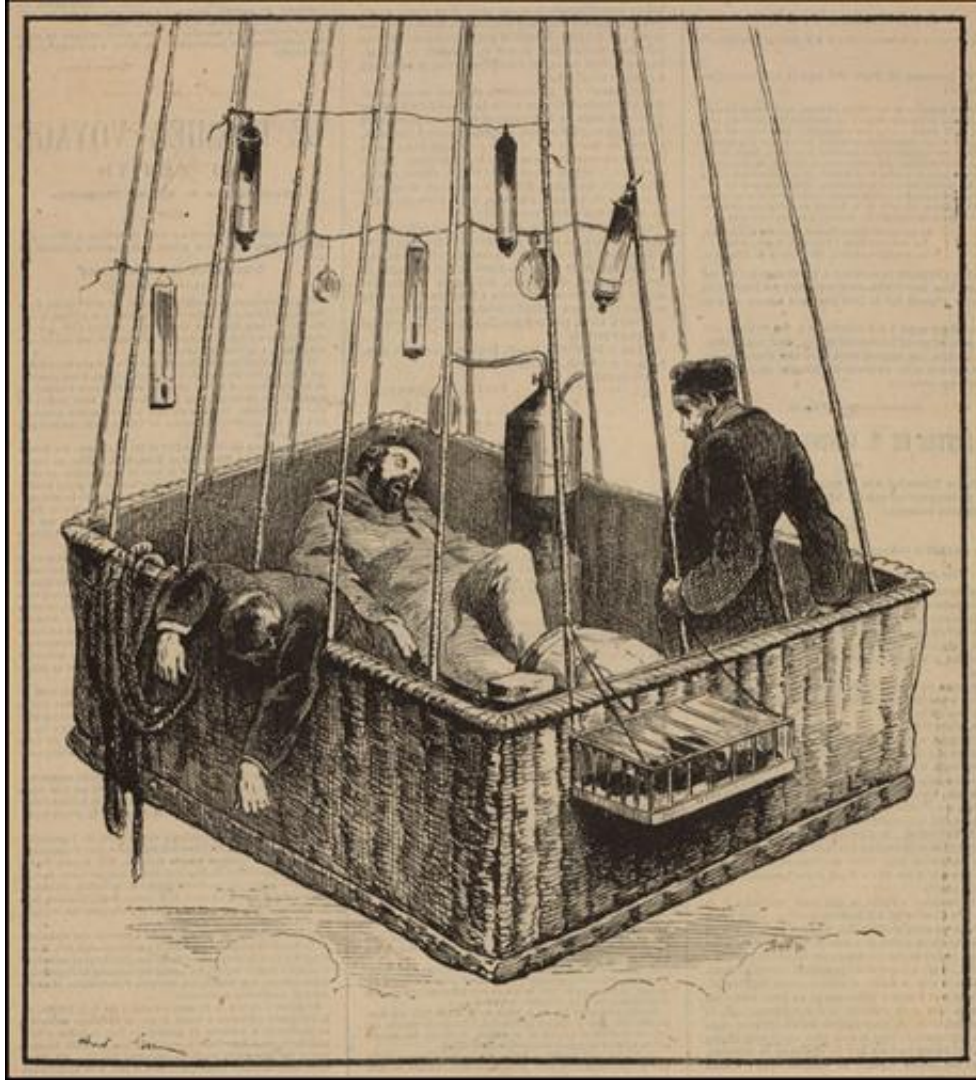


How could you use this primary source in your STEM classroom?

- 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>

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<https://www.loc.gov/programs/teachers/classroom-materials/primary-source-sets/>

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The official blog of the teaching resources at the Library of Congress

Twitter
@TeachingLC, the Library's account for educators


Related Resources
[America's Library](#)
[Chronicling America: Historic American Newspapers](#)

Classroom Materials

Created by teachers for teachers, these ready-to-use materials provide easy ways to incorporate the Library's unparalleled primary sources into instruction.

Search

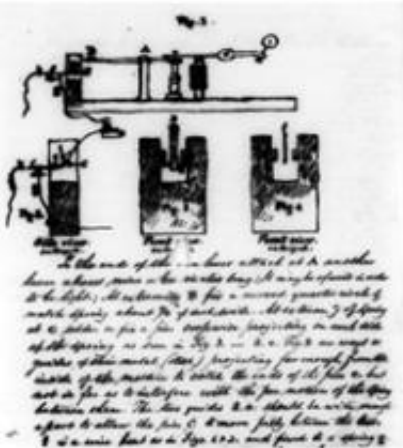
Search Classroom Materials



Primary Source Sets
Sets of primary sources on specific topics.

Primary Source Sets:

[https://www.loc.gov/programs/teachers/classroom-materials/primary-source-](https://www.loc.gov/programs/teachers/classroom-materials/primary-source-sets/)



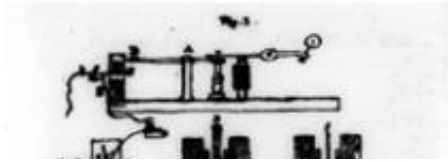
CLASSROOM MATERIAL

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-](https://www.loc.gov/programs/teachers/classroom-materials/primary-source-sets/)



CLASSROOM MATERIAL

Scientific Data: Observing, Recording, and Communicating Information

CLASSROOM MATERIAL

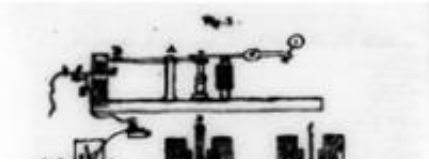
Understanding the Cosmos: Changing Models of the Solar System and the Universe

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-](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!

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

(Based on the inserted table of prices.)

Table of Lowest and Highest Prices of Mess Beef, per Barrel, in New York.
From "The American Almanac and Treasury of Facts," 1881.)

Year	Lowest	Highest	Year	Lowest	Highest	Year	Lowest	Highest	Year	Lowest	Highest
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1827	8 50	9 75	1841	7 00	10 25	1855	8 25	14 00	1869	5 00	16 50
1828	8 50	10 00	1842	6 25	8 25	1856	8 00	12 00	1870	5 00	16 00
1829	8 00	10 50	1843	6 00	8 37	1857	9 50	15 00	1871	8 00	18 00
1830	7 62	10 00	1844	5 00	6 75	1858	9 00	12 00	1872	4 00	12 00
1831	7 00	9 25	1845	5 50	9 75	1859	5 00	9 75	1873	8 00	12 00
1832	8 37	10 75	1846	6 25	8 50	1860	4 50	5 50	1874	8 25	11 50
1833	8 50	11 00	1847	8 25	13 75	1861	5 00	6 25	1875	8 00	10 00
1834	8 50	10 00	1848	7 75	13 00	1862	5 00	10 75	1876	8 50	11 00
1835	8 75	13 50	1849	8 75	14 00	1863	5 00	9 00	1877	9 50	11 25
1836	9 25	13 50	1850	8 00	9 75	1864	5 00	16 00	1878	9 00	13 50
1837	11 00	15 00	1851	7 50	9 75	1865	9 00	14 00	1879	9 50	11 00
1838	14 00	16 00	1852	8 25	17 00	1866	11 00	21 50	1880	8 50	10 25

\$20

\$15

\$10

\$5

\$25

\$20

\$15

\$10

\$5

SCALE OF CHART. — Each space between the price lines represents fifty cents.

1825.

PRICE-CHART OF MESS BEEF FOR 56 YEARS.

1880.

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\$20

\$15

\$10

\$5

Highest Price

Lowest Price

\$25

\$20

\$15

\$10

\$5

Highest Price

Lowest Price

1830

1840

RT. — Each

1850

the price line

1860

y cents.

1870

1825.

PRICE-CHART OF MESS BEEF FOR 56 YEARS.

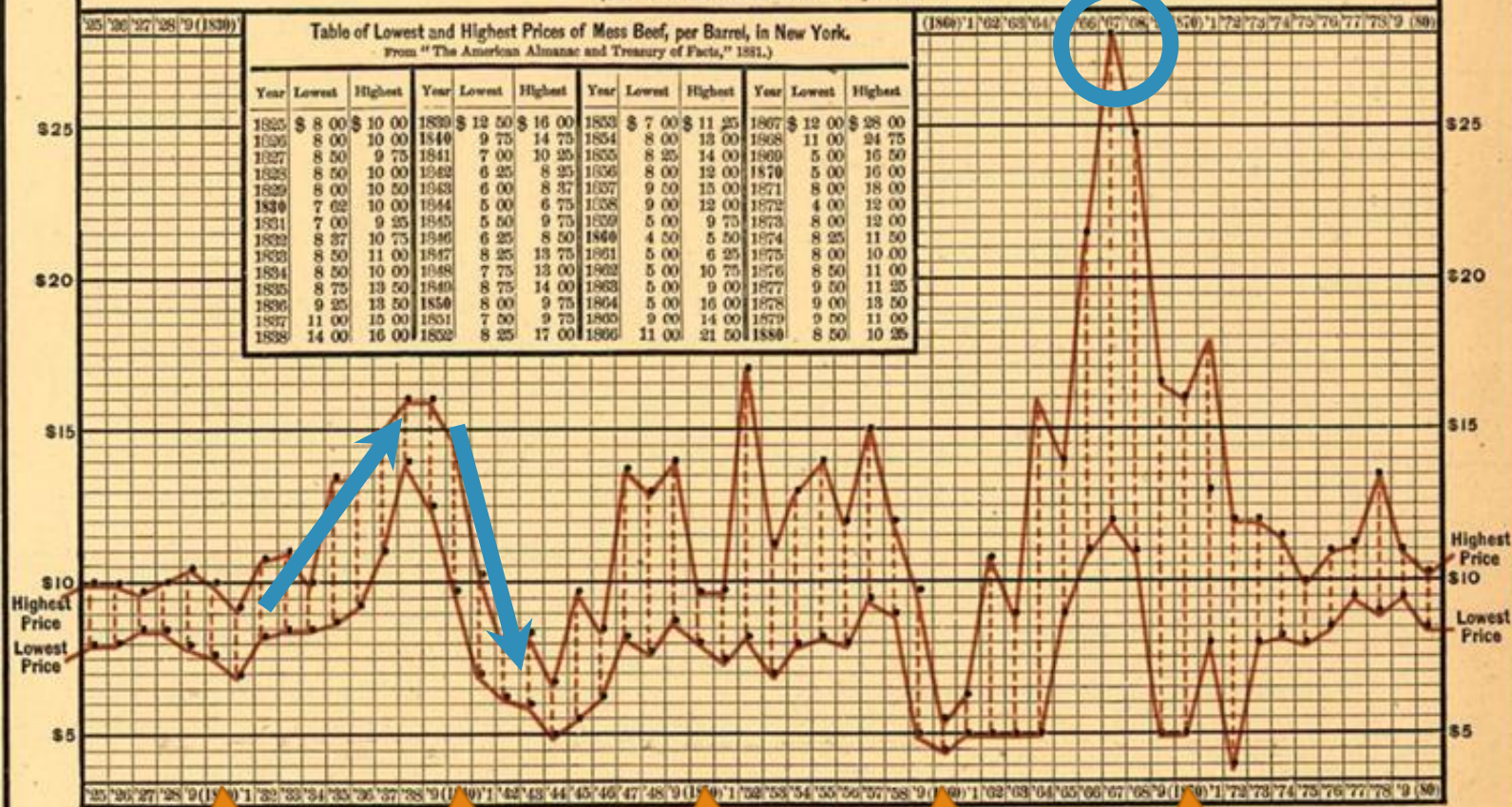
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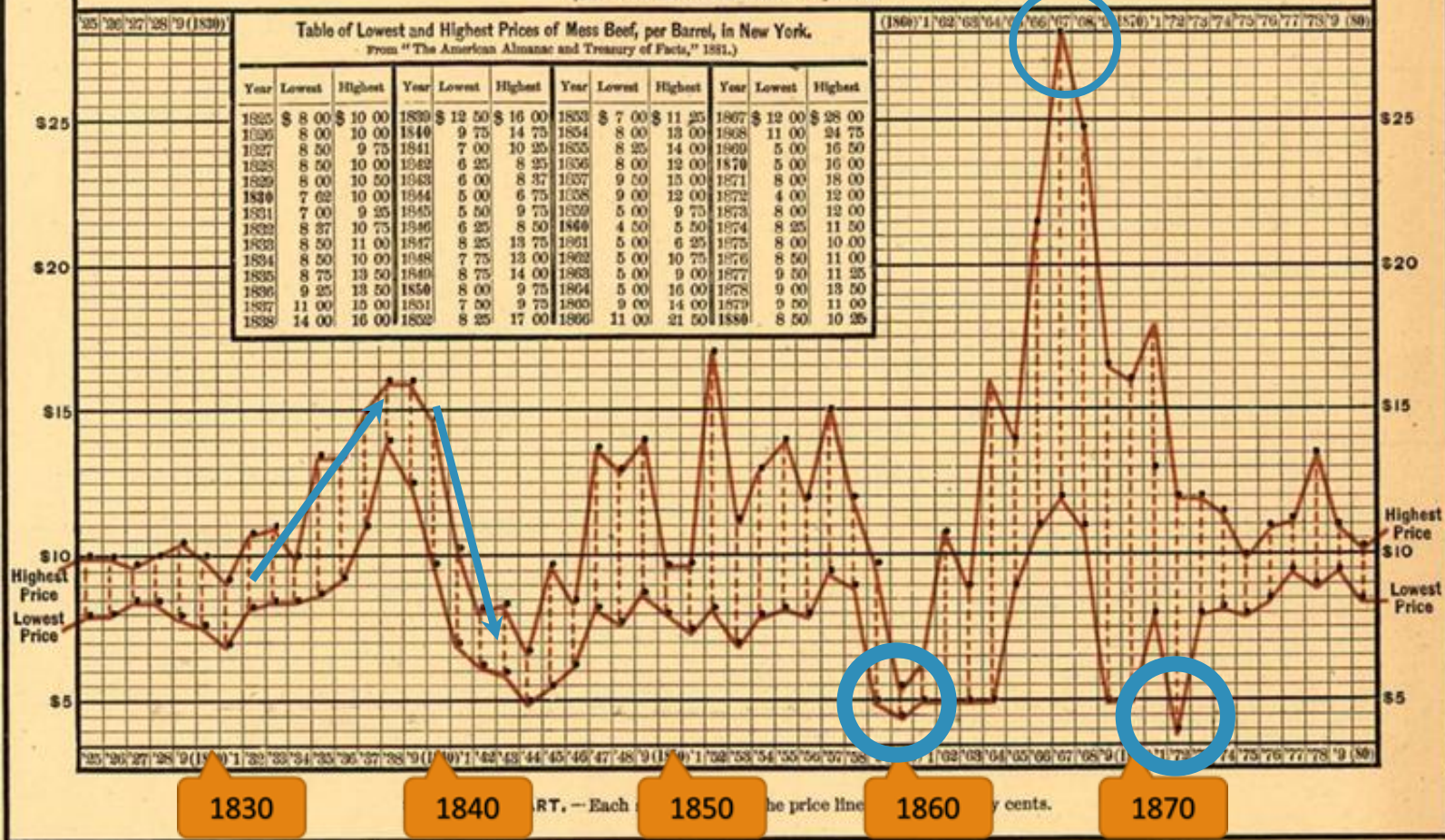
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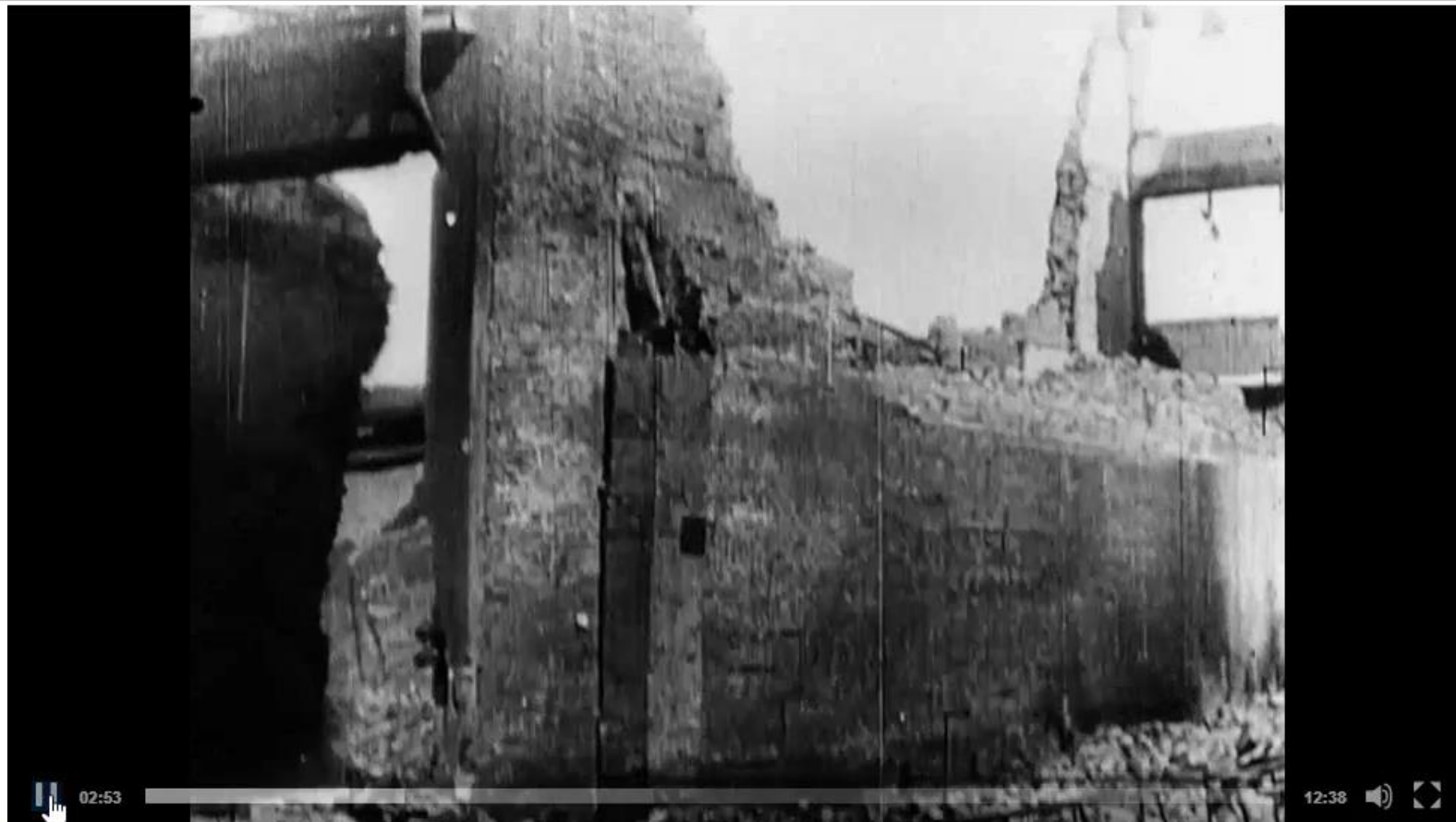
Videos!

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!



02:53

12:38



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.

Genre

Actualities (Motion pictures)

Silent films

Short films

Nonfiction films

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.
- Source used: Eagan, D. America's film legacy, 2010, p. 14-15.

Summary

- 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/>

Lesley Anderson: landerson@loc.gov

Peter DeCraene: pdecraene@loc.gov