

## TPS Level II: STEM

### Use Primary Sources to Address Science, Technology, Engineering and Math across the Curriculum

**TPS Level II Goal:** Create, teach, and evaluate science, technology, engineering, and math lessons that integrate primary sources from the Library of Congress and exemplify effective instructional practices.

#### Introduction:

*“Science is not a set of facts; it’s a communal process of imagination, exploration and argumentation grounded in evidence collected from the natural world. To this end, historical texts, models, documents, and images are an amazing resource for teaching science as a process and way of knowing.”*

~Trevor Owens, former Special Curator for the Library of Congress Science Literacy Initiative and current Digital Archivist in the Office of Strategic Initiatives.

The integration of STEM and the natural sciences across the curriculum is critical to understanding the human-built world and to develop analytic and synthesis skills for problem solving. The Library of Congress contains many historically significant and technical documents that can be used to address science, technology, engineering, and mathematics topics in any classroom.

#### Objectives:

An important concept in STEM is the understanding that the nature of science is not static and, as new technologies are developed, change in scientific thought occurs. Participants will:



- Investigate the changing nature of science and technology and how these interact with and change society, concepts identified in a variety of state and national standards.
- Investigate these concepts through a variety of hands-on example classroom activities that focus on the development of critical thinking skills. Example activities utilize close-reading of text, gathering of data, and analysis of technical drawings to decipher evidence of technological advancements.
- Create a learning activity focused on a STEM topic applicable to their own classroom that integrates primary sources from the Library of Congress and exemplifies effective instructional practices.
- Project a timeline for implementation of their learning activity.

### Common Core Standards:

**CCSS.ELA-Literacy.K-2.W.8**-With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

**CCSS.ELA-Literacy.3-5.W.7**-Conduct short research projects that build knowledge through investigation of different aspects of a topic.

**CCSS.ELA-Literacy.6.RI.7**-Integrate information presented in different media or formats (e.g. visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.

**CCSS.ELA-Literacy.6-12.W.9**-Draw evidence from literary or informational texts to support analysis, reflection, and research.

**CCSS.ELA-Literacy.6-12.RH.2**-Determine the central ideas or information of a primary or secondary source.

**CCSS.ELA-Literacy.6-8.RH.7**-Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.

**CCSS.ELA-LITERACY.RI.9-10.7**-Analyze various accounts of a subject told in different mediums (e.g., a person's life story in both print and multimedia), determining which details are emphasized in each account.

**CCSS.ELA-Literacy.WHST.11-12.7** - Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

**CCSS.ELA.Literacy.WHST.11-12.9** - Draw evidence from informational texts to support analysis, reflection, and research.

**CCSS.ELA-Literacy.9-10.RI.1**- Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

**CCSS.ELA-Literacy.11-12.RI.1**-Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.

**CCSS.ELA-LITERACY.RI.11-12.7**-Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.

**CCSS.ELA-Literacy.11-12.RH.7**-Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.

### Next Generation Science Standards:

**K-2-ETS1-1** Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.

**3-5-ETS1-1** Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

**MS-ETS1-1** Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

**HS-ETS1-1** Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics as well as possible social, cultural, and environmental impacts.

**HS-PS3-3** Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.

### PA Science Standards:

**S3.A.1.1.2:** Identify examples of common technological changes, past and present, in the community (e.g., energy production, transportation, communication, recycling).

**S3.A.1.1.1:** Distinguish between fact and opinion.

**3.4.8B4:** Explain how societal and cultural priorities and values are reflected in technological devices.

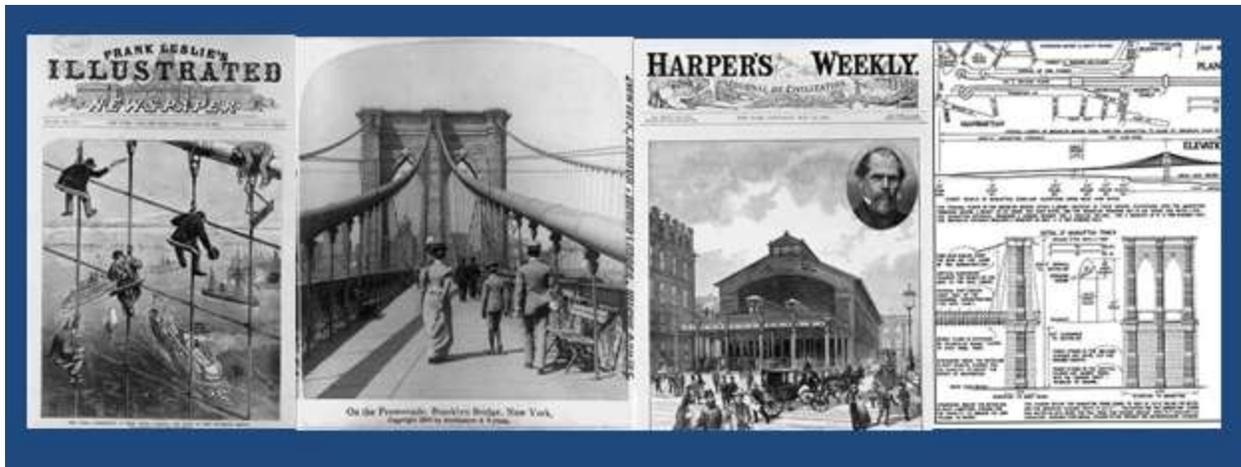
**3.4.10.A2:** Interpret how systems thinking applies logic and creativity with appropriate comprises in complex real-life problems.

**3.4.10.B4:** Recognize that technological development has been evolutionary, the result of a series of refinements to a basic invention.

**3.4.10.D3:** Synthesize data, analyze trends, and draw conclusions regarding the effect of technology on the individual, society, and the environment.

**3.4.10.E7:** Evaluate structure design as related to function, considering such factors as style, convenience, safety, and efficiency.

**3.1.12.A9, 3.2.10.B7, 3.2.12.B7:** Judge that conclusions are consistent and logical with experimental conditions.



## Day 1

### 9:00 Review of the Library of Congress digital sources and the TPS program

- <http://loc.gov>
- <http://tps.waynesburg.edu/swpa>

#### TPS methodology can enrich STEM learning

1. [Striping Model of Inquiry](#)
2. Compare and contrast Striplings model with the [Scientific Process Model](#)

### 9:30 Sample Activity

#### Analyzing Primary Sources from a Scientific and Technical Perspective

1. **Connect** to "[A Woman Dropping Her Tea-cup...](#)" from the [World Digital Library](#).
2. **Investigate:**
  - Open the [Library of Congress analysis tool](#).
  - Select "Political cartoons" as the format.
  - Take a few minutes to analyze the primary source.
  - Record observations, reflections, and questions.
  - Save your completed analysis form and print it for later reference.
3. **Connect** to "[Formerly Good Earth](#)" from the "Down to Earth" [exhibit](#) at the Library of Congress.
4. **Investigate:**
  - Open the [Library of Congress analysis tool](#).
  - Select "Political cartoons" as the format.
  - Take a few minutes to analyze the primary source.

- Record observations, reflections, and questions.
  - Save your completed analysis form and print it for later reference.
5. **Construct:** In small groups, compare and contrast the two political cartoons.
    - What was similar? What was different?
    - What purpose did each cartoon serve? Use evidence from your analysis to make inferences about why each was made and for what audience.
    - What was the artist's point of view? What evidence did you observe to support this point of view?
  6. **Express:** As a class, share findings to develop a consolidated data set about the cartoons.
  7. **Wonder:** Consider all the data gathered and discuss hypotheses about these two images.
    - What questions do you still have?
    - How would you find out more?
  8. **Reflect:** *How might you use this type of activity in your classroom?*
    - How might you introduce the analysis form?
    - How might this type of activity support STEM learning with your students? What purpose will it serve?

**10:00 Break**

**10:15 Sample Activity** (Aligned with the Scientific Process)

***The Brooklyn Bridge: One Example of How Technology Changed Society***

**Part 1: Observe**

1. **Connect:** The Brooklyn Bridge was a marvel in technology when it was constructed in the latter part of the 19<sup>th</sup> Century. Record the technological advancements of this bridge described in these secondary sources. Refer to these sources for historical context throughout this investigation.
  - Watch this video from History (formerly The History Channel):  
<http://www.history.com/topics/brooklyn-bridge>
  - Refer to this article from the Library's Today in History feature for context:  
<http://memory.loc.gov/ammem/today/jun12.html>
2. **Investigate:** Study this blueprint of the [Brooklyn Bridge](#). Find evidence of the technological advancements discussed in the video and the article above.
  - Download the .TIF file and print a copy for close analysis and to record your findings.

- Circle evidence of technological advancements and label them. Record significant dates, events, and discoveries. Review the video and text to check your findings.
3. **Construct/Express:** As a whole class:
- Discuss and create a consolidated list of the new technologies exemplified by the Brooklyn Bridge.
  - Construct a timeline of the design and construction of the Brooklyn Bridge. Display this in the room for context throughout the exercise. Continue to add items as they are discovered.

## Part 2: Question and Make Hypotheses

1. **Reflect:** *How were the new technologies greeted by the people of the time? How did New Yorkers learn about the Brooklyn Bridge?*
2. **Connect:** Can you think of a modern example of a new technology that you like or use, but that your friends, parents, or grandparents are opposed to?
3. **Construct:** Individually, research how they heard about the new technologies and what information influenced New Yorkers during the building of the Brooklyn Bridge.
  - Open the Chronicling America collection of digitized [historic newspapers](#) at the Library of Congress.
  - Search the collection, limiting the date and state and try a few search terms to learn what New Yorkers were reading about the bridge's construction. Record pertinent information for discussion.
4. **Express:** Share your findings with the class. Record appropriate information on the timeline and in the class notes.
5. **Reflect:** *What information did you find that could have influenced public perceptions of this new bridge?*
6. **Investigate:** Analyze primary sources to glimpse how the Brooklyn Bridge was perceived by society and consider some of the effects it had on society.
  - Divide into small groups of three to five.
  - Open the Library of Congress Analysis tools to record data: <http://www.loc.gov/teachers/primary-source-analysis-tool/>
  - Half of the groups will analyze a song sheet: "[The Highway in the Air](#)"
  - The other half will analyze a newspaper account (First article): <http://chroniclingamerica.loc.gov/lccn/sn83030272/1883-05-24/ed-1/seq-2.pdf>

## Part 3: Draw Conclusions

1. **Reflect:** Discuss and record findings with the whole class.

- *What point of view did the authors project about the Brooklyn Bridge? What evidence did you find of this? Did the point of view surprise you?*
  - *What societal changes were implied by the sources?*
2. **Connect:** Infographics are visual representations of data. Graphs are one [type of infographic](#). Infographics can be powerful tools for persuasion as well as visual communication. As a class, investigate infographics as a tool to process and communicate data.
    - [Word Clouds](#) as representations of [presidential inaugural addresses](#)
    - [Number Crunch](#) representing the Library of [Library of Congress](#)
  3. **Wonder:** *What can we learn from sharing or consuming information graphically? Are there advantages/disadvantages to this mode of communication?*
  4. **Investigate:** In small groups develop infographics from the primary sources used in the first part of this exercise.
  5. **Express:** There are many Web 2.0 tools on the internet that make word clouds. Word clouds organize text into an infographic format. You will be constructing word clouds from transcripts of the primary sources you analyzed earlier and comparing it with that analysis.
 

Wordsift, <http://www.wordsift.com/>, is one site that allows you to make word clouds. You may use this one or one of your choosing.

    - a) [Highway in the Air song sheet transcript](#)
    - b) [The Brooklyn Bridge in The Sun, May 24, 1883 transcript](#)
  6. **Wonder:** Summarize the word clouds and compare it to the previous analysis of the source. What did the word cloud tell you? Did the word cloud pick up something that was missed earlier? Did the word cloud skew some information?
  7. **Reflect:** Each group should research and seek out which source- the original or the word cloud has the more factual interpretation? Was there bias in the original article? Record the findings for a group discussion.
  8. **Express:** Each group will share what they developed (project the infographics) and lead a discussion of their findings and conclude with the facts about their source. Discuss how data may have been skewed in the original source and in the word cloud or the bridge disaster reports. Cite evidence and sources for all the factual information.
  9. **Reflect:** Answer the following questions about the resources. Record answers in front of classroom or in a [worksheet format](#) to use as a pre-write for an essay.
    - Was your original source (from Part 2) primary or secondary? Support your answer with evidence.
    - What was learned about technological advancement and society from these sources?
    - What did the analysis of the word cloud show that you did not pick up in your initial analysis of the text documents?

- What affect does society at the time of the construction of the Brooklyn Bridge have on technology of the time?
- What affect did technology of the time of the constructions of the Brooklyn Bridge have on society of the same time period? Provide some examples of these affects from current day society?
- Did outside influences effect how society reacted to the new technologies developed with the Brooklyn Bridge construction?

## 11:15 Discussion: Ideas for completing the scientific process

### Part 4: Report Results and Create New

#### A. *Write an essay about how new technologies change society.*

- Use evidence gathered on the writing frame form to show how technology changed American society in the late 1800's.
- Relate this historic change with a technology that is changing society today.

#### B. *Develop promotional material to sell the technological advancements demonstrated by another bridge.*

*Hypothetical: Imagining that the bridge (you selected) is slated to be built soon. Your firm has been selected to design a promotional campaign to convince governmental agencies to move forward with building this bridge.*

- Your project should be visually interesting, yet informative.
- Include technical facts and advantages to society.

Review these examples for ideas:

- ✓ <http://www.loc.gov/pictures/item/96516488/>
- ✓ <http://www.maine.gov/mdot/pnbo/docs/pnborackcard2014.pdf>

1. Connect to the Library of Congress' [Historic American Buildings Survey/Historic American Engineering Record/Historic American Landscapes Survey](#)
2. Search for a bridge other than the Brooklyn Bridge that exhibits technological advancements and/or provides advantages to society.
3. Download and print the .TIF file.
4. Examine the technical drawing of this bridge. What is different than the Brooklyn Bridge? What is similar? Look beyond the aesthetic features of your bridge and hypothesize about the structure's function. Research the background information about your bridge. What factors influenced the design? Take notes about your bridge.

5. Find images of your bridge (photographs or pictorial images) that demonstrate your findings. Search for references in historic newspapers, songs, audio recordings, or artwork.
  - ✓ For example: Little Crossings Bridge, National Road (U.S. Route 40)  
<http://www.loc.gov/pictures/item/md1549.sheet.00001a/>

C. **Build a bridge to show the technological advances exhibited by the Brooklyn Bridge.** NOTE: Present and assign one or more of these activities to your students, depending on your classroom needs and available time.

- [Building Begins with a Beam](#)
- [Human Arch](#)
- [Creative Cardboard Engineering](#)

### 11:30 Lunch

**12:30 Reflect:** How do primary sources fit into a STEM curriculum, in general? How could these resources and/or teaching strategies be adapted to your classroom?

**12:45 Investigate/Connect:** Design a STEM lesson for your own classroom. As a Final Project for this course, you will write a STEM lesson using the [TPS Lesson Plan Template](#). You will present a draft of this lesson during our next class. Optional: You may earn 10 additional PDE activity hours by implementing your lesson and providing written professional reflections on the experience. Further information is included at the end of this agenda.

Example Lesson Plans from the Library of Congress Teachers Page:

- [Science and Technology](#)
- [Nature and the Environment](#)

### Investigate:

1. *From the list below, investigate 6 to 8 of the science resources available from the Library of Congress web site.*
2. *Download and save 3 or more topic-specific sources that could be used in a STEM-infused lesson in your classroom to [this organizer](#) for later reference in developing your lesson plan.*
3. *Decide which source(s) you will use in your STEM lesson and draft a plan using the [TPS lesson plan format](#).*
4. *Be prepared to discuss your exploration of the Library's science resources.*
5. *Share your draft lesson plan with the group during the next class session.*

## **Selected STEM-related Resources from the Library of Congress**

*Read through this checklist and mark 6 to 8 of the following resources to investigate. From those, download and save to your organizer 3 or more individual topic-specific primary sources that could be used in a STEM-infused lesson for your classroom. Decide which of those primary source(s) you will use and draft a plan using the TPS lesson plan format.*

- [Inside Adams Blog](#) Library of Congress Science blog
- [Library of Congress YouTube channel](#)
- [Webcasts](#) from Library of Congress (includes NASA videos on planetary studies)
- [Everyday Mysteries](#) Fun science facts for younger students
- [Science and Technology](#) Selected content arranged by broad categories
- [Down to Earth](#) Exhibit featuring environmental concerns
- [The Dream of Flight](#) Exhibit on the Wright Brothers
- [Mapping a New Nation](#) Exhibit featuring the earliest maps of the US
- [Maps in our Lives](#) Exhibit explores surveying, cartography, geodesy, and geographic information systems
- [The Work of Charles and Ray Eames](#) *A Legacy of Invention* exhibit
- [World Treasures: Beginnings](#) Exhibit of how world cultures have dealt with the creation of the universe and explained the heavens and the earth
- [Understanding the Cosmos](#) Collection in *iBook* format. NOTE: An iPad is necessary to experience this resource in its fullest.
- [The Wise Guide](#) New, interesting or undiscovered environmental resources
- [Teaching with Architectural Drawings and Photographs](#) *Teaching with the Library of Congress Blog* entry
- [The Faces of Engineers](#) from the *Library of Congress Blog*
- [Science and Technology American Treasures](#) from the *American Memory* collections of the Library of Congress
- [Science Topics](#) *Science Subject Guide* from the Library of Congress

**1:45 Express:** Share with the group highlights of the sources you investigated and briefly describe connections to your own classroom curriculum and/or standards.

**2:00 Connect:** *The TPS Teachers Network provides tools to connect, communicate, and collaborate with peers and primary source experts online by employing social media tools and activities in a private, password-protected professional space.*

1. [Link to](#) these directions on how to log in to the TPS Teachers Network and establish log in
2. Explore the site. How could this site be useful for you, professionally?
3. Join and explore the STEM group within the TPS Teachers Network.

**2:30 Express: Choose a topic and resources** from Library of Congress and develop a STEM lesson. Use [this template](#).

- a. Upload a draft of your lesson to the TPS Teachers network STEM group by **Wednesday** before the next class. Identify it as a draft and request comments.
- b. Review and provide comments to fellow classmate's lessons.

**Reflect:** What questions do you have about finding and using primary sources from the Library of Congress for STEM classrooms?

**3:00 Dismiss**



## Day 2

### 9:00 Sample Activity

#### ***The Wonder of Changing Science in Curing Disease: The evolving fight to combat tuberculosis***

**Background Information:** *During the 1800's in the United States and parts of Europe, tuberculosis was the number one killer in the population. One in seven people died of TB at this time. Mothers prepared their children to live in the houses of others. No socio- economic class, age group, gender, or race was spared from the effects of this disease. Visualize one in seven humans dying of a disease.*

**Brainstorm:** What additional knowledge do you have about Tuberculosis? What other names are used for this disease?

**Small group discussion:** Imagine your circle of friends and family and count off what 1 in 7 deaths would mean to you. Using what you learned about graphical representing information, discuss in small groups what types of infographics could be used to promote awareness of the tuberculosis impact. Be ready to share your ideas with the class.

### 9:30 Whole group analysis: <https://archive.org/details/consumptioncurab00rose>

- a. **Cursory assessment of resource:** What kind of book is it? Who is the author? When was it published?
  - *What can we infer about the validity of this source?* (Be sure to use evidence from the source to back up inferences).

- b. **Read pp 28-37**, “Of Auxiliary, Causes of Consumption,” noting the author’s claims about the origins of consumption, unfamiliar words, and questions that occur to you as you read.
- Highlight causes of consumption in yellow,
  - Circle words or phrases that need defining, and
  - Write questions you have in the page margins.
- c. **Discuss** and consolidate findings:
- Causes of consumption
  - Identify and define terms
  - Record and discuss questions
  - Summarize what was learned about the topic from this source.

**10:15 Small group investigation:** Select the Library of Congress [analysis tool](#) for the format of source assigned to your group. In addition to the guiding questions included on the analysis tool, consider these content-specific questions:

- What historical period was this source produced?
- Who is providing/writing this information?
- Who is the intended audience?
- What does this primary source set tell us about the treatment for consumption?
- Does the writing appear to be scientific? Why/why not?

**Group #1:** [Poster](#)

*Outdoor play and tuberculosis.* New York: National Child Welfare Association: Co-operating with Natl. Assn. for the Study and Prevention of Tuberculosis, [between 1920? and 1923?]

**Group #2:** [Photograph](#)

*Sun parlor in tubercular hospital.* Photograph shows hospital ward with soldiers lying in beds; in background a nurse and possibly a doctor are seen. [between ca. 1910 and ca. 1920]

**Group #3:** [Advertisement](#)

*Use Van Beil's rye and rock, the tonic and only cure for coughs, colds and consumption.* 1888 Jan. 10.

**Group #4:** [Map \(p. 94\)](#)

*Statistical atlas of the United States...* United States. Census office. 9th census, 1870. [New York] J. Bien, lith., 1874.

**Discuss and consolidate new knowledge.** Record any new knowledge about Consumption. How do these sources add to our consolidated understanding of the disease and its impact on society during this time?

**10:45 Historical context: Point-of-view and Change over time**

- Reflect silently on this image for a few moments. Compare and contrast this depiction with the previous ones. <http://www.loc.gov/pictures/item/98516354/>
- Discuss your thoughts aloud as you consider these questions.
  - How is the message different?
  - What are the implications of this depiction, considering previous ones?
  - What could have brought about this change?

**11:00 Consider the wider implications:** What factors changed so that a cure for TB was developed? What can we learn from this episode in scientific history to help us combat disease today? How does one discovery affect society as a whole?

**Example final project task**—*Create a video to show what you learned:*

<https://www.youtube.com/watch?v=gUUmAvFSDb8&feature=youtu.be>

**Reflect:**

- How would you “close the loop” on the scientific process to leverage this learning process with other topics?
- How would a lesson like this be adapted for your classroom? What adaptations do you think would be necessary?

**11:30 Lunch**

**12:30 Peer presentations** (5 to 10 min. each)

Share a brief overview of the lesson you developed with the class, including:

- Brief description how the lesson fits within your classroom curriculum
- Student learning objectives
- Primary sources used from loc.gov
- Outline of steps for implementation of the lesson
- Evaluation criteria

Peer feedback: When you are not presenting your lesson plan, use the [rubric](#) provided to offer constructive feedback and suggestions to the presenter.

**2:30 Q & A**

**2:45 [Post Event Survey](#)** We value your comments and use this information to improve our professional development offerings.

**Optional: Post-workshop**

Once you have had the opportunity to implement the TPS lesson plan that you developed as part of this course, please share your reflections and any revisions that are necessary with TPS. Email the reflection form provided, along with your revised lesson, to [swise@waynesburg.edu](mailto:swise@waynesburg.edu). You will earn 10 additional PDE Act 48 hours and be awarded a TPS Level II Certification.

## Image Citations:

Thumbnail Image	Document Title, Author/Creator, Date	Library of Congress URL
Title Page		
	Keeping up with science / Shari. Creator(s): Weisberg, Shari, artist Date Created/Published: Ill. : Federal Art Project, WPA, [between 1936 and 1939]	<a href="http://www.loc.gov/pictures/item/98518267/">http://www.loc.gov/pictures/item/98518267/</a>
	[Theodore Roosevelt and John Muir on Glacier Point, Yosemite Valley, California, in 1903] Underwood & Underwood. Date Published: c1906 [photo taken 1903].	<a href="http://www.loc.gov/pictures/item/93503130/">http://www.loc.gov/pictures/item/93503130/</a>
	Subject File: Chanute, Octave--Photographs, Kitty Hawk, North Carolina, Originals, 1901.	<a href="http://www.loc.gov/item/wright002818/">http://www.loc.gov/item/wright002818/</a>
	Occupations related to mathematics Creator(s): Anish, Blanche L., artist Date Created/Published: [Ohio]: Federal Art Project, [between 1936 and 1941]	<a href="http://www.loc.gov/pictures/item/98518936/">http://www.loc.gov/pictures/item/98518936/</a>
Day 1 Header		
	HAER MD-128 (sheet 1 of 2) - Little Crossings Bridge, National Road (U.S. Route 40) spanning Casselman River, Grantsville, Garrett County, MD	<a href="http://www.loc.gov/pictures/item/md1549.sheet.00001a/">http://www.loc.gov/pictures/item/md1549.sheet.00001a/</a>
	On the promenade, Brooklyn Bridge, New York Creator(s): Strohmeier & Wyman., Date Published: New York: Strohmeier & Wyman, c1899.	<a href="http://www.loc.gov/pictures/item/89711596/">http://www.loc.gov/pictures/item/89711596/</a>
	New York--completing a great work--lashing the stays of the Brooklyn Bridge / from a sketch by a staff artist. Date Published: [1883] Illus. in: Frank Leslie's illustrated newspaper, 1883 April 28, p. [149]	<a href="http://www.loc.gov/pictures/item/90715548/">http://www.loc.gov/pictures/item/90715548/</a>
	The New York and Brooklyn suspension-bridge - New York entrance / from photograph by Gubelman. Date Published: 1883. New York entrance of Brooklyn Bridge, and insert of head-and-shoulders portrait of J.A. Roebling.	<a href="http://www.loc.gov/pictures/item/93512100/">http://www.loc.gov/pictures/item/93512100/</a>
Day 2 Header		
	Albert Einstein, 1879-1955 Creator(s): Turner, Orren Jack, photographer Date Created/Published: c1947.	<a href="http://www.loc.gov/pictures/item/2004671908/">http://www.loc.gov/pictures/item/2004671908/</a>
	Eruption of volcano, San Salvador Date Created/Published: c1917 Nov. 9.	<a href="http://www.loc.gov/pictures/item/91787463/">http://www.loc.gov/pictures/item/91787463/</a>
	Title: Meadowlark Date Created/Published: [between 1827 and 1838]	<a href="http://www.loc.gov/pictures/item/2002718999/">http://www.loc.gov/pictures/item/2002718999/</a>

## Writing Frame

<u>Key Topic</u>	
Resource #1 Citation:	Resource #2 Citation:
Main Idea	Main Idea
Essential Details	Essential Details

**What questions remain to be researched?**

### Getting Started

1. Visit the invitation link: <http://tpsteachersnetwork.org/register>.
  2. Complete the registration form:
    - First and Last Name
    - Username
    - Email address
    - Password
    - Terms and Conditions
  3. Complete your profile.
    - City and State
    - Grade level and subjects taught
    - TPS experience
  4. Check your email inbox and open the verification link to log in.
  5. Visit <http://tpsteachersnetwork.org> as often as you like.
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#### Tips:

**TPS Commons** is a common space for sharing ideas, resources, and strategies. It is the best place to engage in general, back-and-forth conversations.

**Digest of New Activity** can be set to email updates as a daily digest rather than individually. Select Profile/Preferences/Notification Digest

**Tags** are used to identify and locate resources, links, and discussions related to a specific topic. Be sure to add tags to every post.

**Groups:** Explore the Groups tab and join those of interest to you to connect with colleagues.

**Activity Streams:** Your Homepage displays a personal stream of recent activity from groups you joined. A Group's activity stream only includes activity within that group.

**Browser updates** can be downloaded here, to ease navigation: <http://whatbrowser.org>.

***Connect with TPS Mentors, Peers, & Partners***  
***Join Interest and Content Focus Groups***  
***Share Resources, Activity Plans & Ideas***  
***Discuss Strategies for Inquiry, Questioning & Assessment***

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<http://tps.waynesburg.edu/documents/861-getting-started-tps-teachers-network>

Teacher/Lesson Topic: \_\_\_\_\_

Expectations	<b>Score</b> 1 = excellent 2 = good 3 = needs improvement	<b>Constructive                      Comments and Feedback</b>
<b>Appropriate use of Primary Sources</b> <ul style="list-style-type: none"> <li>• PSs add to understanding of content/concepts</li> <li>• PSs are age-appropriate</li> <li>• PSs support development of academic skills</li> </ul>		
<b>Lesson is Appropriate for Grade/Age/Ability of Students</b> <ul style="list-style-type: none"> <li>• Motivating</li> <li>• Challenging</li> <li>• Sufficient supports included</li> </ul>		
<b>Inquiry Learning</b> <ul style="list-style-type: none"> <li>• Student-centered as much as possible</li> <li>• Students prompted to question and hypothesize</li> <li>• Requires evidential support for hypotheses</li> </ul>		
<b>Content is STEM appropriate</b> <ul style="list-style-type: none"> <li>• Synthesis of STEM topics with other subject matter</li> <li>• Development of critical thinking skills</li> </ul>		
<b>Teacher Content Knowledge</b> <ul style="list-style-type: none"> <li>• Sufficient knowledge of topic is evident</li> <li>• Academic language is included, but not overwhelming for students</li> </ul>		

**Peer Evaluation of TPS STEM Lesson Plan**