

## Teaching with Primary Sources – MHU



### Lesson Plan: The Inventor's Process

Recommended Grades: 2<sup>nd</sup> grade

Subjects: SS, ELA, Information and Technology

Time Required: eight 30 minute sessions

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### **Overview**

In this lesson, students will learn about the design process through primary sources, picture books, and group work. First, students will examine characteristics needed to become an inventor and consider how characters respond when they face a challenge. Then, students will analyze a primary source set illustrating the progression of flight. Finally, student groups will use recycled materials to envision, create, and evaluate original designs.

### **Curriculum Standards**

#### **ELA**

RL.2.3 Describe how characters in a story respond to major events and challenges.

RL.2.7 Use information gained from the illustrations and words in a print or digital text to demonstrate understanding of its characters, setting, or plot.

RL 2.1 Ask and answer such questions as who, what, when, where, why, and how to demonstrate understanding of key details in a text.


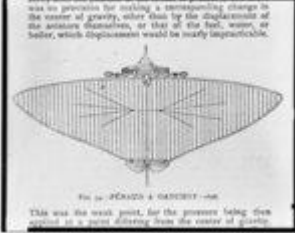

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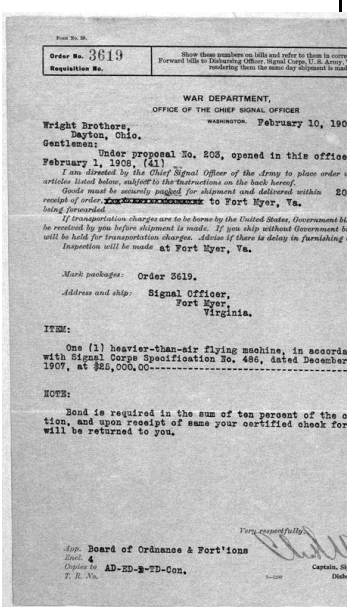
RI 2.3 Describe the connection of a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.

## Social Studies

2.H.1.1 Use timelines to show sequencing of events

2.H.1.2 Identify contributions of historical figures through various genres

Primary Sources	
	<p><b>Title</b></p> <p>[Crumpled glider wrecked by the wind on Hill of the Wreck (named after a shipwreck)]</p> <p><b>Contributor Names</b></p> <p>Wright, Wilbur, 1867-1912, photographer</p> <p>Wright, Orville, 1871-1948, photographer</p> <p><b>Created / Published</b></p> <p>[1900 Oct. 10]</p> <p><a href="https://www.loc.gov/item/2001696439/">https://www.loc.gov/item/2001696439/</a></p>
	<p><b>Title</b></p> <p>[Alphonse Penaud design for twin-propeller monoplane with large wing]</p> <p><b>Contributor Names</b></p> <p>Chanute, Octave, 1832-1910.</p> <p><b>Created / Published</b></p> <p>[1894]</p> <p><a href="https://www.loc.gov/item/2006691793/">https://www.loc.gov/item/2006691793/</a></p>
	<p><b>Title</b></p> <p>[Wilbur gliding to the right, bottom view of glider]</p> <p><b>Contributor Names</b></p> <p>Wright, Wilbur, 1867-1912, photographer</p> <p>Wright, Orville, 1871-1948, photographer</p> <p><b>Created / Published</b></p> <p>[1902 Oct. 10]</p> <p><a href="https://www.loc.gov/item/2001696487/">https://www.loc.gov/item/2001696487/</a></p>



**Title**

Subject File: United States--War Department--Army Signal Corps--Correspondence, 1908

**Created / Published**  
1908

**Source Collection**

Wilbur Wright and Orville Wright papers, 1809-1979

<http://www.loc.gov/teachers/classroommaterials/primarysources/flights/pdf/purchase.pdf>



*I Manoscritti di Leonardo da Vinci Sul Volo degli Uccelli e Varie Altre Materie.* Paris: E. Rouveyre, 1893. Facsimile folio. [General Collections](#), Library of Congress (22.1)

<https://www.loc.gov/exhibits/dreamofflight/dream-dream.html>




**Title:** Experience du globe aerostatique du MM. Charles et Robert au Jardin des Thuilleries le 1er decembre 1783  
**Date Created/Published:** A Paris : Chez Esnauts et Rapilly, rue St. Jacques, à la ville de Coutances, [1783]  
**Medium:** 1 print : etching, hand-colored.  
**Summary:** Print shows Jacques Alexandre César Charles and Marie-Noël Robert riding in the gondola of a balloon ascending from the Tuileries Garden, Paris, France, December 1, 1783 in the first hydrogen balloon flight. (Source: A.G. Renstrom, LC staff, 1981-82.)

<https://www.loc.gov/pictures/item/2002721982/>



**Title:** [Charles Lindbergh, full-length portrait, standing, facing front, beside the Spirit of St. Louis]  
**Date Created/Published:** c1927 June 2.  
**Medium:** 1 photographic print.  
**Reproduction Number:** LC-USZ62-93443 (b&w film copy neg.)  
**Rights Advisory:** No copyright renewal per LC Photoduplication Service.  
**Call Number:** BIOG FILE - Lindbergh, Charles Augustus, 1902-1974 [item] [P&P]

<https://www.loc.gov/pictures/item/93511692/>

	<p><b>Title</b> Fort Worth, Texas. Meacham Field. Passenger plane</p> <p><b>Contributor Names</b> Rothstein, Arthur, 1915-1985, photographer</p> <p><b>Created / Published</b> 1942 Jan.</p> <p><b>Subject Headings</b> - United States--Texas--Tarrant County--Fort Worth</p> <p><b>Format Headings</b> Safety film negatives.</p> <p><b>Genre</b> Safety film negatives</p> <p><a href="https://www.loc.gov/item/2017775262/">https://www.loc.gov/item/2017775262/</a></p>
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<p><b>Day 1: The introduction to this lesson will introduce students to characteristics of an engineering mindset.</b></p>	
<p><b>Step 1</b></p>	<p>Review of Rhyming Words</p> <ul style="list-style-type: none"> <li>• Teacher will discuss rhyme words and how rhyming words add rhythm to a book</li> <li>• Watch YouTube video of Shel Silverstein’s Poem “<a href="#">Crocodile Toothache</a>” (listen only once, and listen a second time while students list/draw pictures of any rhyming word they noticed)</li> </ul>
<p><b>Step 2</b></p>	<p>Whole Class Read Aloud/ Group work</p> <ul style="list-style-type: none"> <li>• Teacher reads Rosie Revere to whole class</li> <li>• Each table receives a copy of the Rosie Revere book to complete the Rosie Rhymes Worksheet (Appendix A) and place a sticky note on any word with which they are unfamiliar</li> </ul>
<p><b>Formative Assessment</b></p>	<p>Teacher reviews each groups’ unfamiliar words to determine which words to discuss with class in tomorrow’s lesson.</p>

<p><b>Day 2: Today’s lesson will clarify and introduce key vocabulary words within the book to help students begin describing the main characters.</b></p>													
<p><b>Step 1</b></p>	<p>Tables will receive a list of challenging vocabulary created by the teacher based on the words students flagged with sticky notes yesterday. As a group, students will try to determine the meaning of each word using the vocabulary chart below:</p> <table border="1"> <thead> <tr> <th><u>Vocabulary Word</u></th> <th><u>What’s Happening in the Text</u></th> <th><u>Words within the Word</u></th> <th><u>Hypothesis of Meaning</u></th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	<u>Vocabulary Word</u>	<u>What’s Happening in the Text</u>	<u>Words within the Word</u>	<u>Hypothesis of Meaning</u>								
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	Teacher will guide students through the Vocabulary chart by modeling three key terms: Engineer, Perplexed and Wheezed.												
<b>Step 2</b>	Groups will re-read the story within their group and make a list of words to describe each of the three main characters: Rosie, Uncle Fred, and Aunt Rosie.												
<b>Step 3</b>	Teacher will lead a discussion about each character, asking students to share an adjective and provide text evidence for those words. Teacher script: "What word would you use to describe _____? After the student response: "What does the character do in the text to help you know he/she is (insert student-provided adjective)?"												
<b>Formative Assessment</b>	Students complete a Character Map for Rosie, and then answer the question "What makes Rosie a great inventor?" <table border="1"> <thead> <tr> <th>Character Name: Rosie</th> <th>Text Evidence</th> <th>Character trait</th> </tr> </thead> <tbody> <tr> <td>Rosie says:</td> <td></td> <td></td> </tr> <tr> <td>Rosie does:</td> <td></td> <td></td> </tr> <tr> <td>Rosie thinks:</td> <td></td> <td></td> </tr> </tbody> </table>	Character Name: Rosie	Text Evidence	Character trait	Rosie says:			Rosie does:			Rosie thinks:		
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<b>Day 3: Teacher models the See, Think, Wonder process with the whole class using the "Crumpled Glider" image from the resource list.</b>	
<b>Step 1:</b>	Place image on the projector screen and provide each student with an individual copy. Have students circle anything they think is important to understanding the image.
<b>Step 2</b>	Share out student thoughts and circle them on the projected photo.
<b>Step 3</b>	At their tables, have students select one circled item in the image and complete the sentence, "The (whatever they have circled) is important in the image because _____."
<b>Step 4</b>	One person from each group will read their sentence aloud. Teacher will record thoughts on the board, and then ask the reflective question: "Based on all these ideas, what do you think is happening in this picture?" Provide time for each group to discuss their answer, and then, share out once more.
<b>Formative Assessment</b>	Each student writes one question on a notecard that they have based on the discussion of this image. Teacher will examine student questions to determine how deeply students are thinking about the primary source, and to guide the discussion of sources in the next lesson.

**Day 4: Teacher will reveal the content of the image from yesterday (crashed first flight) and then students will receive various primary sources of the history of flight and will attempt to place them in chronological order.**

<b>Step 1</b>	Teacher opens the class by displaying yesterday's image, and revealing that this is a crashed glider after the Wright brothers first attempt at flight. Teacher will then lead a short class discussion: <ul style="list-style-type: none"> <li>• Did the Wright brothers give up after this crash?</li> <li>• How do you know?</li> <li>• How is the similar or different to Rosie?</li> <li>• Why is flight important today?</li> </ul>
<b>Step 2</b>	Groups will receive a packet of images related to the progression of flight. Students will be asked to put the images in chronological order.
<b>Step 3</b>	Groups will compare their determined order to the correct order by following along on the <a href="#">teacher PowerPoint</a> of images. However, the teacher should ask for student responses one image at a time before revealing the next image in the sequence. Each time a student share an answer, the teacher needs to ask them to support their reasoning, or "Why?"
<b>Formative Assessment</b>	Close read of "War Department Correspondence, 1908" from Resource List <ol style="list-style-type: none"> <li>1) Who is writing the text?</li> <li>2) Who is the audience for the text?</li> <li>3) What is the letter asking?</li> <li>4) How does this relate to flight?</li> </ol>

<b>Day 5: Students will brainstorm and sketch a design for a future invention.</b>	
<b>Step 1</b>	Individual Journal: Think of one way you could improve the future. Describe the change you want to make, and determine an invention that might help with the change. Draw a sketch to accompany your journal writing.
<b>Step 2</b>	Groups will share their journals with each other and discuss the following questions for each idea: <ul style="list-style-type: none"> <li>• What materials would be needed?</li> <li>• What challenges would the inventor face?</li> </ul>
<b>Step 3</b>	Groups will receive a bag of recycled home items that have been donated by parents. As a group they will determine which invention they will best be able to complete with their provided items.
<b>Formative assessment</b>	The group will examine the original journal sketch and make any necessary changes based on their materials. They will answer the following questions: <ol style="list-style-type: none"> <li>1) What is the invention?</li> <li>2) How will it improve the world?</li> <li>3) What changes did you have to make to the original design?</li> </ol>

<b>Days 6 and 7: Students will build their invention.</b>	
<b>Step 1</b>	Each group will create their invention using the recycled materials.
<b>Formative assessment</b>	Teacher will monitor group process and coach them during the process on collaboration skills.
<b>Summative assessment</b>	Individual written reflection: Describe your experience being an inventor. What character traits are needed to be an inventor? How did Rosie display these character traits?

**Extension Activities**

- 1) Each group will create an advertisement for their invention using iMovie (or another platform). Then other groups will view advertisements and make suggestions for improvements.

Appendix Items

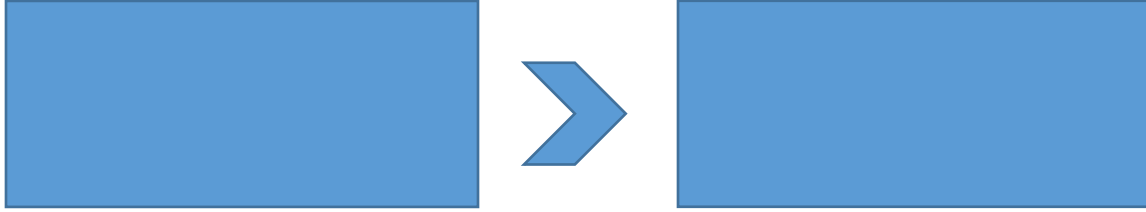
- A) Rosie's Rhymes Worksheet

Appendix A

# ***Rosie's Rhymes***

(Record rhyming pairs from the story in the boxes below.)





Use one pair of rhyming words to write a sentence.