

Grades 6-8 Lesson & Activities



JACOBUS VANDERVEER HOUSE & MUSEUM
BEDMINSTER, NEW JERSEY

Rebuilding History: Taking on the Role of an Engineer at the Jacobus Vanderveer House

Standards Addressed in This Lesson:

6.1 U.S. History: America in the World: All students will acquire the knowledge and skills to think analytically about how past and present interactions of people, cultures, and the environment shape the American heritage. Such knowledge and skills enable students to make informed decisions that reflect fundamental rights and core democratic values as productive citizens in local, national, and global communities.

Cumulative Progress Indicators (CPI's)

6.1.8.D.3.d

Analyze how prominent individuals and other nations contributed to the causes, execution and outcomes of the American Revolution.

Common Core Standards

CCSS.ELA-LITERACY.RST.6-8.3

Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

CCSS.ELA-LITERACY.SL.6.1

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6 topics, texts, and issues, building on others' ideas and expressing their own clearly.

Rationale: This interdisciplinary activity ties Social Studies and Science together, while supporting the themes of Creativity and Innovation, as well as Critical Thinking and Problem Solving, as presented in the Framework for 21st Century Learning.

Prior Knowledge: Students will need to have an understanding of Henry Knox's mission of transporting cannons from Fort Ticonderoga to Boston during the Revolutionary War. This can be achieved by reading the book "Henry and the Cannons" by Don Brown prior to visiting the Jacobus Vanderveer House. The book is also available in the house's library.

Length of Time:

- Activity 1 to be completed during the tour of the Jacobus Vanderveer house
- Activity 2 to take approximately 45 minutes after tour

Objectives: Students will be able to analyze common household items from the Revolutionary period and brainstorm ways to improve on their functionality. Students will then be able to design and

construct a more reliable sled than that of Henry Knox, which could transport cannons across multiple terrains.

Activities: (Sequence spelled out for teachers)

- As they tour the Jacobus Vanderveer house, students will complete the “Rebuilding History” chart. This can be done individually or in pairs/small groups.
 - Looking at pictures of items found throughout the house, students will brainstorm ways to make them more effective and functional while relying only on the materials and technologies available during the time period.
- Afterwards, once students’ ideas have been shared out and discussed, explain that they will be using the same type of thinking to improve upon the sleds that Henry Knox used to transport cannons from Fort Ticonderoga to Boston in 1776.
- Review the challenges Henry Knox faced in hauling weaponry across the Berkshires, as discussed in the book “Henry and the Cannons”.
 - Ropes became wet and slippery
 - Sleds were sinking after being on the water for 10 days
 - Sleds sank in mud and crashed through ice
 - Horses and oxen refused to continue through treacherous weather
- Students will be given the STEM planning template, which will guide them through the process of brainstorming and ranking ideas, sketching and building a prototype, and identifying areas on which to improve.
 - Brainstorm at least 3 construction options and circle the one your group decides to build
 - Draw a detailed sketch of your sled prototype, labeling the materials you are using for each part
 - Construct the sled prototype, making any adjustments as needed
 - Reflect on what you’ve created and consider how it could be improved upon if you had a free range of materials to work with
- Groups can take turns presenting their prototype and explaining why they believe it will be more successful than the original sled.

Accommodations for struggling learners:

- Students can be given partially completed STEM planning templates

Closure:

- Students will complete the reflection worksheet, which has them consider the struggles and successes they experienced during this activity. This work can be done at the Jacobus Vanderveer house, or back at school.

Materials:

- “Rebuilding History” chart
- STEM planning template
- Reflection worksheet
- Sled toolbox
- “Henry and the Cannons” by Don Brown

Rebuilding History

As you go through the Jacobus Vanderveer house, consider how the items shown below were incorporated into everyday life. Although necessary, each of these items were flawed in their functionality. Brainstorm ways you can improve upon each of these items, while still only using materials available during the Revolutionary War era.

<i>Item</i>	<i>What was it used for?</i>	<i>How can it be improved?</i>
 <p data-bbox="207 957 581 1003"><i>Open Hearth- kitchen</i></p>		
 <p data-bbox="214 1770 578 1816"><i>Slaubank Bed- parlor</i></p>		

<i>Item</i>	<i>What was it used for?</i>	<i>How can it be improved?</i>
 <p data-bbox="266 821 521 926"><i>Bed Warmer- Knox bedroom</i></p>		
 <p data-bbox="152 1457 639 1562"><i>Wattle and Daub insulation- Lumber room</i></p>		

Sled Construction: Reflection

1. *What was the most difficult part of this challenge? Why?*

2. *What was the best idea you came up with during this challenge? How did it benefit your sled?*

3. *How could the use of this new sled have impacted Henry Knox in his mission to transport cannons during the Revolutionary War?*

Name: _____

Date: _____

STEM Challenge

ASK

How can I create a sled to transport cannons from Fort Ticonderoga to Boston?
Constraint: The sled needs to travel across multiple terrains
(mud, ice, water, mountains, etc.)



IMAGINE

Brainstorm at least 3 ideas. As a group, determine which would be your best option and circle it.



1) _____

2) _____

3) _____

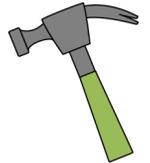
PLAN

Draw a detailed model of your sled. Label each part and keep a running list of materials!



CREATE

Make your sled! Below, record any adjustments you made as you were building.



IMPROVE

What is one thing you can do to make your sled better? Draw the adjustment below and explain how it would improve your sled's functionality.



Illustration

Justification

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