

## Simple Machines and Innovation in Connecticut Tobacco Farming

Name \_\_\_\_\_

Assessment options (discussion, diagram, and/or writing)

What did you learn about how complex machines use simple machines, (wheel and axle, pulley, inclined plane, wedge, lever, screw), to make work easier, faster, or cheaper? You may diagram to help explain your answer.

What habits of innovation,

- COLLABORATE
- LEARN FROM FAILURE
- CHALLENGE THE RULES
- DESIGN
- OPTIMIZE

did you use as you built models, solved problems, and/or created improved versions of tobacco farming machines? Describe how you used these habits as you worked with your group.

Choose one machine: \_\_\_\_\_

Explain how it used principles of force and motion to move.

Choose one tobacco farming machine, explain how the use of simple machines and/or complex machines save time, money, and/or labor.

What tobacco farming problems were the new technologies or tools addressing?

Think of a problem in your life today, what might you invent to solve the problem? What simple machines would you use? How would your invention work? Diagram and label your invention.

## **PROJECT OPTIONS**

- Choose a tool or machine from the Connecticut Tobacco Museum exhibit. Draw a diagram and build a 3-dimensional model of the machine using recycled materials.
- Draw, diagram, or create a 3-dimensional model to show how you would improve the machine. Write a paragraph explaining the improvements you are suggesting and why you think your ideas will save time, money or labor. Thomas Edison said, “to invent, you need a good imagination and a pile of junk.” Use your recycled materials to create better farming tool.

- Write from the point of view of a Connecticut tobacco farmer. Discuss a typical day, how do you use the machines or tools, what problems you encounter, how you solve problems
- Research the inventors, write a historical script, and dress in period costume and share the models and teach how simple machines were used in inventions to make work easier, cheaper, or faster.
- *Research to choose a quote, photograph, recording of music or other primary source document focusing on the historic tool or machine. Research the inventor of the tool or machine and discover if race, gender, or geography affected what technologies or tools were invented.*
- **Learning activity options:**
- *research early tools or machines using <https://www.tobaccohistsoc.org/> website. They will discuss, What did the new technology solve? What technologies did the people at the time of the invention grow up with?*
- *work collaboratively to create a model of the tool using recycled materials.*
- *identify simple machines used in the tool.*
- *share how the tool made work easier, faster, or cheaper.*
- *discover who used the tool.*
- *investigate how that tool or machine changed over time.*
- *either build a model of the more modern “improvement” OR they will design their own improvement to make the earlier machine make work easier, faster, and/or cheaper.*
- **Grades(s): 3-6**
- **Curriculum Connections:**
- trace the development of technology and the impact of major inventions on business productivity during the early development of the United States

- 3-5-ETS1 Engineering Design Students who demonstrate understanding can: 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.
- writing ELA -conduct short research projects using several sources to build knowledge
- reading ELA -integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.
- **Innovation Habits and Actions:**
- Students will COLLABORATE and LEARN FROM FAILURE as they create models of tools used in tobacco farming. Students will CHALLENGE THE RULES as they develop and IMPLEMENT and test their DESIGN to improve the historic invention.