Simple Machines in Everyday Tools

Heritage Hill State Historical Park
Growing Community Region
1850-1912

Grade Range: 3-5
Time: 30-40 minutes

Relevant Wisconsin Standards for Social Studies:

SS.Geog3.b.4 *Classify various ways that people and countries depend on one another. Summarize how transportation and communication have changed economic activities over time.*
SS.Hist4.a.i *Describe the historical context (situation) of a primary or secondary source.*
SS.Inq3.b.i *Select appropriate evidence from sources to support a claim.*
SS.Inq3.c.i *Assess how evidence supports a claim.*

HERITAGE·HILL
STATE HISTORICAL PARK

LESSON INFORMATION

Learning Target(s):
I can identify simple machines and connect them to their uses.
I can discuss how machinery has changed over time.

Academic Language:

- Inclined Plane: surface low on one end and higher on the other.
- Screw: inclined plane around a central cylinder.
- Wedge: two inclined planes connected.
- Lever: plane on a fulcrum.
- Pulley: wheel and axle with a groove around the outside.
- Wheel and Axle: gears connected by a platform.

ASSESSMENT

Formative Assessment:
This lesson can be assessed during the matching activity or afterward during an end-of-class conversation. This can also occur when you provide student feedback.

RESOURCES

Resources and materials available to support your planning:
Simple Machines Graphic PDF
Simple Machines Worksheet PDF (includes key)

Technology Integration (or limitations): This activity can be printed on paper. Students can do further simple machine research using online resources.

LESSON STRUCTURE

Transition to Lesson:

- Start the lesson with a discussion about simple machines using questions such as:
  - What simple machines do you see in this classroom?
  - Why do we use simple machines?
  - Have you seen any simple machines at home?
- If students do not have prior knowledge about simple machines, use the Simple Machines Graphic or an additional resource to teach them about each simple machine.
- Give students the Simple Machines Worksheet. You can either give them paper copies or project the worksheet on the board and have students work through the activities in groups or as a whole class.

During:
Once the simple machine pictures are matched up to the type of machine it is, students will look for ways that the simple machines are present in Heritage Hill's Blacksmith Shop. The teacher will guide them through each machine to ask which simple machines they contain. If time allows, teachers can ask students about which simple machines they see in modern classrooms.
Modifications/Accommodations/Differentiation/Increases in Rigor: The images can be displayed on the whiteboard as well. For students who are unable to see the worksheet, they can use the links provided in the lesson plan to see the graphics up close.
Closure:
To wrap up this lesson, encourage students to look for three simple machines that evening and report back on them tomorrow.
Possible Extension Activities:
Simple Machine Creation Extension Activities (2 options): ● To extend this activity further, you can have students create their own simple machine. An easy option is a marker/pen/crayon and a ruler, which can be used to make a lever. Have the students put the ruler on top at different points and see how much they can move the ruler. You can ask them to add an eraser to one end and see how high they can raise it. ● Another option is to have students create a pulley using string and a water bottle. Use an old plastic bottle (a soda or Gatorade bottle are sturdiest) and some string. Tie small objects to one end of the string and have students pull the object using the other string that is looped over or around the bottle.