

GRADE 3

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Science

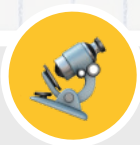
Simple Machines

A look at machines - what they do,
how they work, and how people use them.

Curriculum Connection:



Science

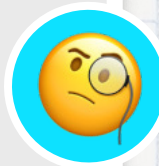


This lesson focuses on **understanding the principles and functions of simple machines**, including the six types of simple machines.

Students engage in scientific inquiry by conducting hands-on experiments, making observations, collecting data, and drawing conclusions about mechanical advantage. The exploration of simple machines aligns with the study of forces and motion in physical science.

Mathematics:

The lever experiment provides opportunities for students to **apply measurement and data analysis skills** by measuring distances and forces and comparing the results.



Critical Thinking and Problem Solving:



This lesson **fosters critical thinking skills** as students analyze experimental results, interpret data, and draw conclusions about the relationship between force and distance.

Students **apply problem-solving strategies** when designing and constructing the lever apparatus and when identifying and describing simple machines during the scavenger hunt.



Learning Goals:



1

Science

Students will **identify and describe the six types of simple machines**: lever, pulley, wheel and axle, inclined plane, wedge, and screw. They will understand the basic principles and functions of simple machines. Students will recognize examples of simple machines in everyday life and understand their applications.

2

Scientific Inquiry and Skills:

Students will engage in **hands-on experimentation** to explore the mechanical advantage of a lever. Students will make observations, collect data, and analyze the results of the lever experiment. They will draw conclusions based on experimental findings and explain the relationship between force and distance.

3

Critical Thinking & Problem Solving:

Students will **apply knowledge of simple machines** to design and construct a lever apparatus for the experiment. They will analyze and interpret data to identify patterns and draw conclusions about mechanical advantage. Students will develop critical thinking skills by discussing and explaining the relationship between force and distance in the lever experiment.

4

Communication & Collaboration:

Students will **engage in class discussions** to share ideas, observations, and conclusions about simple machines and the lever experiment. They will **communicate findings** and explanations orally during the experiment and the scavenger hunt activity.

Students will **collaborate in small groups** during the experiment and engage in group discussions.

5

Practical Application:

Students will **apply knowledge** of simple machines to identify and describe examples of simple machines in and outside the school environment during the scavenger hunt activity. They will recognize the practical applications and benefits of simple machines in everyday life and various fields of study.

[Play episode](#)


Scan to watch the episode:



Materials:

S02 E02

Science with Sophie

Simple Machines



Access this episode free on:

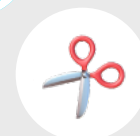
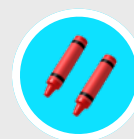
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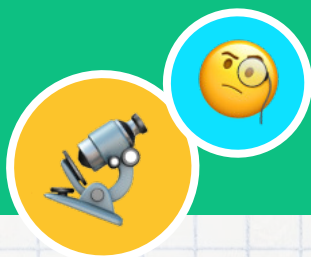
Lesson Supplies:

- | | |
|--|--|
| <input checked="" type="checkbox"/> Science with Sophie
S02 E02: Simple Machines | <input type="checkbox"/> Markers |
| <input type="checkbox"/> Whiteboard or chart paper | <input type="checkbox"/> Tape |
| <input type="checkbox"/> Scavenger hunt worksheet (attached) | <input type="checkbox"/> Two spoons |
| | <input type="checkbox"/> Popsicle sticks |
| | <input type="checkbox"/> Coins |



Lesson:

Begin the lesson by discussing machines with the students. Ask questions such as: What is a machine? Can you provide examples of machines you use at home or at school?



Video Discussion:

Watch the episode "Simple Machines"; from Science with Sophie. Pause the video when Sally asks, *"Where can you find simple machines?"* and discuss the question with the class. Encourage students to share their ideas and provide examples of where they have seen simple machines in their daily lives.

Scavenger Hunt Activity:

Distribute the prepared scavenger hunt worksheets to each student. Explain that they will be exploring the school environment to identify different simple machines. Instruct the students to fill out the worksheet by identifying and describing the simple machines they find.

Provide guidelines for the scavenger hunt, such as staying within specific areas of the school or obtaining permission from a teacher before venturing outside.

Scan to watch the episode:



Hands-on Experiment:

Lever & Mechanical Advantage:

Explain to the students that they will conduct an experiment to explore the mechanical advantage of a lever.

Follow Sally's directions from the episode to create a lever using two spoons, popsicle sticks, tape, and coins. Instruct the students to carefully tape the two spoons together, with the handles acting as the fulcrum. Have students place popsicle sticks under one spoon, gradually adding coins to the other spoon to lift.

After the experiment, ask the students, "Which distance required the least amount of force? Explain why."

Encourage students to discuss their observations and record their answers.

Extension:

Encourage students to take pictures of simple machines they find outside the school and create a simple machines photo collage or presentation. Invite students to research and present examples of complex machines that utilize simple machines as their components.

Assessment

Review the concept of simple machines, their functions, and where they can be found.

Discuss the findings of the scavenger hunt as a class, allowing students to share their observations and experiences.

Collect the completed scavenger hunt worksheets as an assessment of the students' understanding of identifying and describing simple machines.



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