

Lesson Plan

Simple Machines

Book: *Making a Pulley System for Rapunzel*

Series: Fairy Tale Science

Level: Beacon

Objective

To help students use key details from a video to identify real-world examples of simple machines.

Supplies

- *Making a Pulley System for Rapunzel* book
- “Simple Machines” video from PBS Science Trek: <https://tpt.pbslearningmedia.org/resource/idptv11.sci.phys.maf.d4ksim/simple-machines/>

Before the Activity

Read *Making a Pulley System for Rapunzel*, or assign it to students to read on their own.

Activity

A pulley helps people lift things. It is an example of a simple machine. Explain that there are a total of six simple machines. The other kinds of simple machines are a lever, a wedge, a screw, an inclined plane, and a wheel and axle. To learn more about these simple machines, play the “Simple Machines” video for the class. The video explains that “simple machines are tools to make work easier.” It also gives examples of how people use each one. Use the following prompts to discuss these ideas as a class:

Lever

- What examples does the video give of levers? (Answer: seesaw, scissors)
- How do these tools make work easier? (Answer: They help lift people or cut paper.)
- Can you think of other examples of levers? How do they help make work easier? (Sample Answer: A crowbar can help people pry up a board.)

Pulley

- What examples does the video give of pulleys? (Answer: crane, elevator, fishing pole)
- How do these tools make work easier? (Answer: They help lift objects, people, or fish.)
- Can you think of other examples of pulleys? How do they help make work easier? (Sample Answer: Pulleys can help people lift window blinds or theater curtains.)

Wheel & Axle

- What examples does the video give of wheels and axles? (Answer: tires on a car, knobs on a radio)
- How do these tools make work easier? (Answer: They help people move large loads or control the radio's sound.)
- Can you think of other examples of wheels and axles? How do they help make work easier? (Sample Answer: A shopping cart helps people carry items they want to buy.)

Inclined Plane

- What example does the video give of an inclined plane? (Answer: a wheelchair ramp)
- How does this example make work easier? (Answer: It helps people go up.)
- Can you think of other examples of inclined planes? How do they help make work easier? (Sample Answer: A loading ramp makes it easier to pack or unpack a truck.)

Wedge

- What example does the video give of a wedge? (Answer: a tool for chopping wood)
- How does this example make work easier? (Answer: It helps split a log.)
- Can you think of other examples of wedges? How do they help make work easier? (Sample Answers: A knife is a wedge that helps cut through food. A shovel is a wedge that helps dig in dirt.)

Screw

- What example does the video give of a screw? (Answer: a jar lid)
- How does this example make work easier? (Answer: It helps open/close the jar.)
- Can you think of other examples of screws? How do they help make work easier? (Sample Answer: Screws are used to hold pieces together when building furniture or other objects.)

Evaluation

Could students recall the examples of simple machines mentioned in the video? Could they think of other real-world uses of each simple machine?

Standards

This lesson may be used to address the Common Core State Standards' speaking and listening standards, grade 3 (SL 3.2), and the National Science Education Standards' Content Standard E, grades K–4.