Click® Teacher Guide: February 2024



Simple Machines

The world's most basic machines have few moving parts and are called simple machines. While they do not lessen the amount of work that needs to be done, they do reduce the amount of force needed to get the work done. This issue of CLICK magazine explores the simple machines we use on a daily basis and how they make our lives easier.

CONVERSATION QUESTION

How do we use simple machines?

TEACHING OBJECTIVES

- Students will learn how simple machines make work easier.
- Students will learn about an assortment of household simple machines.
- Students will learn how three boys use simple machines to try to free a possum.
- Students will classify information.
- Students will examine structure and function of simple machines in the kitchen.
- Students will analyze problems and solutions.
- Students will complete a simple machine scavenger hunt.
- Students will participate in a visual discrimination activity.
- Students will combine theme-related facts with number concepts.



Science an

r Young Kids

SELECTIONS

- Meet the Machines Expository Nonfiction
- Kitchen Helpers Graphic Information
- Operation: Rescue Possum Realistic Fiction

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Meet the Machines

pp. 7–12, Expository Nonfiction

Young readers will learn how the use of simple machines can make big things easier to move. Humorous animated characters illustrate the concepts in this informative article.



RESOURCES

Classifying Information: Simple Science

OBJECTIVES

- Students will learn how simple machines make work easier.
- Students will classify information.
- Students will complete a simple machine scavenger hunt.

KEY VOCABULARY

- *ramp* (p. 9) a surface connecting a higher and a lower level; a slope
- *axle* (p. 11) a rod, bar, or pole on which a wheel revolves
- pulley (p. 12) a wheel with a grooved rim around which a rope or chain can move

ENGAGE

Conversation Question: How do we use simple machines?

Motivate the class to learn about simple machines with this hands-on activity. Remind students that before the invention of modern machinery, people used simple items to make work, like lifting heavy objects, easier. Equip each student with a ruler, a pencil, and a box of crayons. Challenge them to lift the box of crayons with one finger. (The simple machine solution is to use the pencil and ruler to make a lever.) Replacing the crayons with heavier and lighter objects allows students to explore the relationship between fulcrum, load, and force.

INTRODUCE VOCABULARY

Post and discuss the vocabulary terms with the class. Be sure that they understand what each object looks like by showing them the drawings throughout the article or online resources. Then, have them fold a piece of paper into quarters and label three of the boxes with the key words and make a visual representation of each. After reading the article, they will use the remaining box to illustrate an additional theme-related word from the text.

READ & DISCUSS

As a post-reading activity, lead a discussion based on the following questions.

- 1. What is a simple machine?
- 2. Why are ramps that go around better than a straight ramp?
- 3. How is a screw different than a ramp?
- 4. How does the position of the fulcrum affect how the lever works?
- 5. Explain how a wheel and axle work together as a simple machine.

SKILL FOCUS: Classifying Information

INSTRUCT: Elicit from students that the main idea of the article is to provide readers with information regarding various simple machines. Review the article with the students, emphasizing the subheadings on the top of each page. Present the *Classifying Information: Simple Science* graphic organizer *and* tell students that they will be using information from the article to place each simple machine characteristic in the correct column of the chart.

ASSESS: Circulate as students are working. Have students place the facts in the correct columns, and then glue them down after you have given them a thumbs-up. Challenge them to add an additional fact.

EXTEND

Science: Give students the opportunity to experience the real-life application of simple machines. Assign a scavenger hunt as a homework activity, instructing students to find as many simple machines in their homes/yards as they can. Depending on the level of your students, have them draw or write their findings and label the types of simple machines (ramp, screw, wedge, lever, wheel & axle, pulley). Allot time for students to share their discoveries on the next school day.

Simple Science

Classifying Information Look at the pictures and read the words in the article. Cut out the descriptors at the bottom of the paper and then place them correctly on the sorting mat below.

| RAMP | LEVER | WEDGE |
|------|-------|-------|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Cut and place in the correct column.

| This simple machine can be round and pointy or long and thin. | It doesn't move, but it helps you move things. | A board that tilts on a fulcrum. |
|---|--|---|
| A seesaw is a type of this simple machine. | Your teeth are a natural example of this kind of simple machine. | It doesn't have to be straight. It can turn around and around like a path up a mountain. |

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Kitchen Helpers

pp. 24–27, Graphic Information

Students will be presented with several pages of "kitchen helpers" and explanations for their use. The initial two pages of the article feature an illustration of a standard kitchen, and readers are encouraged to find all of the simple machines listed. The remaining pages detail how these tools assist in kitchen activities.



RESOURCES

Structure and Function: What's Cookin'?

OBJECTIVES

- Students will learn about an assortment of household simple machines.
- Students will examine structure and function of simple machines in the kitchen.
- Students will participate in an activity to enhance visual discrimination skills.

KEY VOCABULARY

- *pivots* (p. 26) turns or rotates
- hinge (p. 26) a movable joint on which a door, gate, or lid swings as it opens and closes or connects linked objects
- *slopes* (p. 27) goes downward or upward at an angle

ENGAGE

Conversation Question: How do we use simple machines?

Distribute the article, "Kitchen Helpers" and have students do a picture walk through the pages. Then, instruct them to open the magazine to pages 24–25. Ask students to scan the pages and locate: a clock, an oven mitt, and a measuring cup. Guide students to discuss what the purpose of each would be in the kitchen. Then tell the class that following the reading activity they will return to the pages to locate all of the simple machines that they learned about in the article.

INTRODUCE VOCABULARY

Post and discuss the key vocabulary words and definitions on the board. Then display the following cloze sentences and have students supply the correct word:

- 1. The hill ______ downward, so it is great for sledding.
- 2. During the dance, the ballerina _____ on her feet.
- 3. The squeaky door had a rusty ______.

READ & DISCUSS

Reinforce comprehension of the details in the article by using the following prompts to direct discussion.

- 1. What simple machine raises and lowers window blinds?
- 2. How does the paper towel roll spin around the holder?
- 3. Why is the bottom of a sink actually a ramp?
- 4. What part of a lightbulb is a screw?
- 5. What is the purpose of the lever on a toaster?

SKILL FOCUS: Structure and Function

INSTRUCT: Guide students to obtain information from the text, captions, and drawings in the article. Remind them that the article was written to teach readers how simple machines are used in the kitchen. Present the *Structure and Function: What's Cookin'?* graphic organizer and tell students that they will be using information from the article to "Show & Tell" how each tool functions. Allow students to work in small groups to discuss what they have learned.

ASSESS: Review answers. Have students take the worksheet home and instruct them to "teach" someone they live with about the simple machines that fill our homes.

EXTEND

Visual Discrimination: Prearrange 15 objects/toys in a small area on the floor, covered with a blanket. Have the students gather in a circle around the objects. Tell them that when you remove the blanket, they will have two minutes to study the objects—no touching! After the two minutes, replace the blanket. Have students number a paper from 1 to 10. Ask 10 specific questions related to the objects. (Ex: What color was the ball? How many paperclips were there?) Visual discrimination is especially important when learning reading, writing, and mathematics. Stock your shelves with *I Spy* and *Where's Waldo?* books for practice.

What's Cookin'?

Structure and Function Gather information from the drawings and words in the article to explain how each tool looks and what it is used for. Include the category of simple machine. You may use pictures and words to record your answers.

| ΤοοΙ | Show/use pictures What does it look like? | Tell/use words What is it used for? What type of simple machine is it? |
|-------------|--|---|
| knife blade | | |
| staircase | | |
| jar lid | | |
| rolling pin | | |

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Operation: Rescue Possum

pp. 28–32, Realistic Fiction

Three brothers find an angry scared opossum stuck at the bottom of a deep window well. Each brother comes up with a solution to rescue the opossum using simple machines. Find out which simple machine solves the problem.



RESOURCES

Problems and Solutions: Problem Solved!

OBJECTIVES

- Students will learn how three boys use simple machines to try to free a possum.
- Students will analyze problems and solutions.
- Students will combine themerelated facts with number concepts.

KEY VOCABULARY

- **bait** (p. 29) food used to attract fish or other animals
- platform (p. 30) a flat, raised structure or area on which something can stand
- waddled (p. 32) walked with short steps, rocking the body from side to side

ENGAGE

Conversation Question: How do we use simple machines?

Invite students to share experiences in which they've witnessed an animal stuck in a difficult spot (ex: cat in a tree, bird in the garage etc.). Ask students if humans helped and what they did to assist. Tell the class that they will be reading a story about three brothers trying to rescue a small wild animal in "Operation: Rescue Possum."

INTRODUCE VOCABULARY

Post and discuss the three vocabulary words and definitions. Have students Think-Pair-Share with a partner. Give them the following directives, one at a time:

- What kind of **bait** is used to catch fish?
- Who would you expect to see speaking on a platform?
- What animals waddle?

READ & DISCUSS

Post and discuss questions prior to reading the article aloud. Then reread the article, pausing when answers to the questions are revealed.

- 1. What was the reason that the three brothers created "Operation: Rescue Possum"?
- 2. What supplies did the boys originally think they would need to rescue the possum?
- 3. What kind of simple machine did Artie and Danny intend to build?
- 4. Who was actually responsible for freeing the possum? How?
- 5. Explain what Jakey watched happen from up in his treehouse.

SKILL FOCUS: Problems and Solutions

INSTRUCT: Discuss with the class that in the story "Operation: Rescue Possum," there were two different solutions proposed to rescue the animal in the window well. Although both used simple machines, one solution was much more complicated than the other. Have students work in pairs to use information from the article and critical thinking skills to complete the *Problems and Solutions: Problem Solved!* worksheet.

ASSESS: Have students peer review their work by sharing completed worksheets with another pair of students. Circulate as they discuss the different solutions.

EXTEND

STEM: Depending on location, students may have never seen a possum. Use books or online resources to show students a possum. (A video clip showing the animal in motion is ideal.) Note the physical attributes aloud and share other interesting facts, such as: *They are the only marsupial native to the United States. They are scavengers who feed primarily at night.* Lastly, share this adorable piece of trivia: *Baby possums are so tiny at birth that 10 babies can fit in a teaspoon.* Have students use ten frames to make the number 10 at least three different ways. (9+1, 8+2, 7+3, etc.) Then have the class practice counting aloud to 100 by tens. Now that's a lot of babies!

Operation: Rescue Possum

Problem Solved!

Problems and Solutions Review the article for ideas and work with a partner to solve each problem in the gray box. Explain how the problems can be solved with the help of simple machines.

| Operation: Rescue Raccoon from | |
|--------------------------------------|--|
| Garbage Can | |
| Operation: Rescue Duck | |
| from Storm Drain | |
| Operation: Rescue Dog | |
| from Under the Deck | |