



Teacher's Pre- and Post-Program Visit Guide

Program	Simple Machines at Work (and Play)
Grade Level	Grades 1-3
Time	50 minutes
Location	Duke Energy Children's Museum

Program Objectives

- Students will identify names and types of six simple machines.
- Students will identify complex machines are combinations of simple machines.
- Upon request, students will predict the motion/operation of a given simple machine.

Program Description

After a fun introduction to simple machines, employ big doses of experimentation and creativity to analyze each machine station. Discover the function of each simple machine and their use to accomplish jobs both big and small.

Major Vocabulary and concepts

gear	wedge	lever
fulcrum	pulley	wheel and axle
inclined plane	screw	simple machine

Ideas for pre-visit activities

- In your classroom, introduce simple machines. Define the terms above and demonstrate the uses for each simple machine. List everyday objects that employ simple machines—tire-jacks, can openers and doorstops, for example.
- Use the simple machines as spelling/vocabulary words for the week. Use the terms in writing explorations and as journal topics.

Ideas for post-visit activities

- Back in the classroom, have students cut out photos of simple machines to identify.
- Use knowledge of simple machines to construct a sculpture that moves! Incorporate at least one simple machine into each sculpture. Research to find artists that use machines or parts of machines in their creations.
- Discover the history of simple machines. Were they used to build the pyramids in Egypt? Do research on the subject and draw your own conclusions.

Standards

Ohio: Physical Science, Science and Technology, Scientific Inquiry, Scientific Ways of Knowing

Kentucky: Physical Sciences, Scientific Inquiry, Applications and Connections

Indiana: The Physical Setting, The Nature of Science & Technology, Scientific Thinking, Common Themes

Related Exhibits and Features

- In the Duke Energy Children's Museum, visit the *Kid's at Work* exhibit—do you see simple machines in the crane (pulleys)?
- *Water Works* also contains several simple machines. Find a wheel, pulley and inclined plane in this exhibit.
- Find the simple machines located in *The Woods*. There are inclined planes, pulleys and gears.

Resources

- *Simple Machines Made Simple*, Ralph St. Andre
- *Science Experiments with Simple Machines*, Sally Nankivell-Aston and Dorothy Jackson