



Simple Machines Lab

The Simple Machines program is a highly engaging learning experience for students in both third and fourth grade. The combination of hands-on experiments as well as cooperative group learning and presenting gives them invaluable experience with engineering principles as well as language arts skills.

The Simple Machines program incorporates educational concepts in the following standards:

Indiana Academic Standards for Science 2016

Illinois Common Core State Standards

THIRD GRADE - INDIANA ACADEMIC STANDARDS FOR SCIENCE 2016

Physical Science (PS)
3.PS.2 Identify types of simple machines and their uses. Investigate and build simple machines to understand how they are used.

Engineering (E)
3-5.E.1 Identify a simple problem with the design of an object that reflects a need or a want. Include criteria for success and constraints on materials, time, or cost.
3-5.E.2 Construct and compare multiple plausible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
3-5.E.3 Construct and perform fair investigations in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

LATE ELEMENTARY (grades 3&4)
ILLINOIS COMMON CORE STATE STANDARDS

STATE GOAL 11: Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.

B. KNOW AND APPLY THE CONCEPTS, PRINCIPLES AND PROCESSES OF TECHNOLOGICAL DESIGN.

11.B. 2a (Late Elementary) – Identify a design problem and propose possible solutions.

11.B. 2b (Late Elementary) – Develop a plan, design and procedure to address the problem identifying constraints (e.g., time, materials, technology).

11.B. 2c (Late Elementary) – Build a prototype of the design using available tools and materials.

11.B. 2d (Late Elementary) – Test the prototype using suitable instruments, techniques and quantitative measurements to record data.

11.B. 2e (Late Elementary) – Assess test results and the effectiveness of the design using given criteria and noting possible sources of error.

11.B. 2f (Late Elementary) – Report test design, test process and test results.

FOURTH GRADE - INDIANA ACADEMIC STANDARDS FOR SCIENCE 2016

Engineering (E)
3-5.E.1 Identify a simple problem with the design of an object that reflects a need or a want. Include criteria for success and constraints on materials, time, or cost.
3-5.E.2 Construct and compare multiple plausible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
3-5.E.3 Construct and perform fair investigations in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

Physical Science (PS)
4.PS.3 Investigate how multiple simple machines work together to perform everyday tasks.