
For Teachers:
Alignment to Curriculum Frameworks

Note: Lesson plans in this series are aligned to one or more of the following standards:

- U.S. Next Generation Science Standards (www.nextgenscience.org)
- U.S. Common Core State Standards for Mathematics (www.corestandards.org/Math)
- International Technology Education Association's Standards for Technological Literacy (www.iteea.org/TAA/PDFs/xstnd.pdf)
- Computer Science Teachers Association K-12 Computer Science Standards (<http://csta.acm.org/Curriculum/sub/K12Standards.html>)

◆ Next Generation Science Standards

Students who demonstrate understanding can:

- ◆ 3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
- ◆ 3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
- ◆ 3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.
- ◆ 4-PS3-2. Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents
- ◆ 4-PS3-4. Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.
- ◆ MS-ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
- ◆ MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
- ◆ MS-ETS1-3. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.
- ◆ MS-ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

Electric Dough

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***For Teachers:
Alignment to Curriculum Frameworks (continued)*****◆Standards for Technological Literacy - All Ages****Chapter 8 – The Attributes of Design**

- ◆ Definitions of Design
- ◆ Requirements of Design

Chapter 9 – Engineering Design

- ◆ Engineering Design Process
- ◆ Creativity and Considering all ideas
- ◆ Models

Chapter 10 – The Role of Troubleshooting, Research and Development, Invention, and Experimentation in Problem Solving

- ◆ Troubleshooting
- ◆ Invention and innovation
- ◆ Experimentation

Chapter 11 – Apply the Design Process

- ◆ Collect information
- ◆ Visualize a solution
- ◆ Test and evaluate solutions
- ◆ Improve a design

Chapter 16 – Energy and Power Technologies

- ◆ Energy comes in different forms
- ◆ Tools, machines, products and systems

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