Unit 1 Little Bits

Content Area: **Technology**
Course(s):
Time Period: **November**
Length: **5 Days**
Status: **Published**

Unit Overview

In the Little Bits unit, students will learn the basics of electrical engineering. They will use the Little Bits sets to construct basic circuits. Students will then refine and extend their basic circuits by adding input sensors such as temperature, light, or electrical modulators. They will experiment with various output devices like motors, lights, speakers and LCD displays. Students will further extend their circuit creations by performing basic programming operations on their devices.

Standards

8.1.5.CS.1	Model how computing devices connect to other components to form a system.
8.1.5.CS.2	Model how computer software and hardware work together as a system to accomplish tasks.
8.1.5.CS.3	Identify potential solutions for simple hardware and software problems using common troubleshooting strategies.
8.1.5.NI.1	Develop models that successfully transmit and receive information using both wired and wireless methods.
8.2.5.ED.3	Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task.
8.2.5.ED.5	Describe how specifications and limitations impact the engineering design process.
8.2.5.ED.6	Evaluate and test alternative solutions to a problem using the constraints and trade-offs identified in the design process.
8.2.5.ITH.2	Evaluate how well a new tool has met its intended purpose and identify any shortcomings it might have.
8.2.5.ITH.3	Analyze the effectiveness of a new product or system and identify the positive and/or negative consequences resulting from its use.

Materials

- littleBits Kits

Assessment

Formative Assessment

- Teacher Observation

- Checks for Understanding
- Exit Tickets

Summative Assessment

- Performance Tasks & Projects

Accommodations & Modifications

Special Education

- Follow IEP Plan which may contain some of the following examples…
- In class/pull out support with special ed teacher or assistant
- Preferred seating
- Directions repeated/clarified
- Extended time for completing tasks
- Vocabulary support
- Limit number of tasks

504

- In class/pull out support with special ed teacher or assistant
- Preferred seating
- Directions repeated/clarified
- Extended time for completing tasks
- Vocabulary support
- Limit number of tasks

ELL

- Translation device/dictionary
- Preferred seating
- Directions repeated/clarified
- Extended time for completing tasks
- Vocabulary support
- Limit number of tasks

At-risk of Failure

- Preferred seating
- Directions repeated/clarified
- Extended time for completing tasks
- Vocabulary support
- Limit number of tasks

Gifted & Talented

- Independent projects
- Online games

- Extension activities

Interdisciplinary Connections

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.
ETS1.A	Defining and Delimiting Engineering Problems
	Constructing Explanations and Designing Solutions
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.
ETS1.B	Developing Possible Solutions
ETS1.C	Optimizing the Design Solution

Career Readiness, Life Literacies & Key Skills

9.4.5.CT.3	Describe how digital tools and technology may be used to solve problems.
9.4.5.CT.4	Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global (e.g., 6.1.5.CivicsCM.3).
9.4.2.TL.1	Identify the basic features of a digital tool and explain the purpose of the tool (e.g., 8.2.2.ED.1).
9.4.2.TL.6	Illustrate and communicate ideas and stories using multiple digital tools (e.g., SL.2.5.).