

Unit 2 - Circuits

Content Area: **Technology**
Course(s): **Technology 3**
Time Period: **December**
Length: **8 Classes**
Status: **Published**

Unit Overview

This unit will take approximately 8 classes.

Vocabulary for this unit includes: circuit, positive, negative, conductor, open/closed circuit, break

Priority Standards

CS.3-5.8.2.5.ED.2	Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.
CS.3-5.8.2.5.ED.3	Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task.

Essential Questions

- How do components work together to create a working circuit?
- How do directions and resources assist me with meeting my goal?

Unit Learning Goals

- SWBAT draft a prototype / schematic of basic math practice quiz circuit.
- SWBAT identify, illustrate and explain the components of a basic circuit.
- SWBAT utilize a prototype /schematic and a set of instructions to create and assemble a math practice quiz board with correct mathematical problems.

Unit Learning Targets

- I can draft a prototype of basic math practice quiz circuit.
- I can identify, illustrate and explain the components of a basic circuit.
- I can utilize a prototype and a set of instructions to create and assemble a math practice quiz board with correct mathematical problems.

Marzano Elements

- Establishing & Maintaining Effective Relationships in a Student Centered Classroom
- Helping Students Examine their Reasoning
- Helping Students Practice Strategies, Skills, & Processes
- Helping Students Process New Content
- Previewing New Content
- Using Formative Assessment to Track Progress

Strategies for Differentiating Instruction

- Allow and encourage more or less complex circuit designs as student ability permits.
- Allow and encourage more or less complex math problems on a student's board as student ability permits.
- Allow and encourage more or less complex artistic designs for a student's board as ability permits.
- Simplify directions and model as needed for less advanced students.

Unit Assessments (Required)

- Assessment of prototype creation
- Assessment of circuit design / function
- Assessment of math facts (correctness and difficulty)

Unit Assessments (Optional)

- Assessment of artistic design of board

Unit Learning Goals / Targets / Plans

Class	Topic	Lesson / Activity	Standard / Learning Goal / Target
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1	Introduction to Circuits	What is a Circuit?	<p>Standard: CS.3-5.8.2.5.ED.3 - Follow step by step direct task.</p> <p>Learning Goal: SWBAT identify, illustrate and explain the components of a circuit.</p> <p>Learning Target: I can identify, illustrate and explain the components of a circuit.</p>
2	Circuit Project Introduction	Introduce model and create a prototype of a Math Practice Circuit.	<p>Standard: CS.3-5.8.2.5.ED.2 - Collaborate with peers to provide the best results with supporting sketches or models.</p> <p>Learning Goal: SWBAT draft a prototype / schematic of a circuit.</p> <p>Learning Target: I can draft a prototype / schematic of a circuit.</p>
3-8	Creation of Math Practice Circuit	Construction, testing and finalization of Math Circuit Project.	<p>Standard: CS.3-5.8.2.5.ED.3 - Follow step by step direct task.</p> <p>Learning Goal: SWBAT utilize a prototype and a set of problems.</p> <p>Learning Target: I can utilize a prototype and a set of mathematical problems.</p>

Technology Integration

Please review priority standards as listed above.

Cross Curricular Connections

- 3.OA.A Represent and solve problems involving multiplication and division.
- 3.OA.D Solve problems involving the four operations, and identify and explain patterns in arithmetic.
- 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-ETS1-3. 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.

21st Century Life & Career Ready Practices

- CRP11 - Use technology to enhance productivity.
- CRP2 - Apply appropriate academic and technical skills.
- CRP4 - Communicate clearly and effectively and with reason.
- CRP6. Demonstrate creativity and innovation.
- CRP8 - Utilize critical thinking to make sense of problems and persevere in solving them.

Materials and Resources

[Google Classroom](#)

[Circuit Video 1](#)

[Circuit Video 2](#)

[Circuit Board Project Example](#)

[Electrical Quiz Board](#)

[Khan Academy](#)