

# Unit 2 - Circuits

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

## Unit Overview

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This unit will take approximately 8 classes.

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

## Priority Standards

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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

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

## Unit Learning Goals

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- 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

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- 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

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- 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

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- 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)

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

## Unit Assessments (Optional)

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- Assessment of artistic design of board

## Unit Learning Goals / Targets / Plans

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

## Technology Integration

Please review priority standards as listed above.

## Cross Curricular Connections

- 3-5-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.
- 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.

## **21st Century Life & Career Ready Practices**

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- 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**

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[Google Classroom](#)

[Circuit Video 1](#)

[Circuit Video 2](#)

[Circuit Board Project Example](#)

[Electrical Quiz Board](#)

[Khan Academy](#)