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

1	Introduction to Circuits	What is a Circuit?	**Standard**: **CS.3-5.8.2.5.ED.3 -** Follow step by step direc task. **Learning Goal**: SWBAT identify, illustrate and explain **Learning Target**: I can identify, illustrate and explain th
2	Circuit Project Introduction	Introduce model and crate a prototype of a Math Practice Circuit.	**Standard**: **CS.3-5.8.2.5.ED.2 -** Collaborate with peers to provide the best results with supporting sketches or mode **Learning Goal**: SWBAT draft a prototype / schematic o **Learning Target**: I can draft a prototype / schematic of b
3-8	Creation of Math Practice Circuit	Construction, testing and finalization of Math Circuit Project.	**Standard**: **CS.3-5.8.2.5.ED.3 -** Follow step by step direc task. **Learning Goal**: SWBAT utilize a prototype and a set of problems. **Learning Target**: I can utilize a prototype and a set of in mathematical problems.

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