The UbD Template, Version 2.0

<table>
<tr><td>Time Frame: 3-4 weeks (approximately 15-20 instructional days)</td><td>Unit Title: Exploring Electricity</td><td>Course Name: STEAM</td></tr>
<tr><td colspan="3">Stage 1 - Desired Results</td></tr>
<tr><td rowspan="3">Established Goals

What content standards will this unit address?

<u>Next Generation Science Standards (NGSS):</u>

MS-PS2-3: Ask questions about data to determine the factors that affect the strength of electric and magnetic forces.
MS-PS3-5: Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.
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.</td><td colspan="2">Transfer</td></tr>
<tr><td colspan="2">Students will be able to independently use their learning to…
- Investigate the components and characteristics of electrical circuits.
- Apply knowledge of circuits to design and build functional electrical devices.
- Analyze the impact of electricity on society and the environment.
- Develop critical thinking and problem solving skills through scientific inquiry.

What kinds of long-term independent accomplishments are desired?</td></tr>
<tr><td colspan="2">Meaning</td></tr>
<tr><td>UNDERSTANDINGS
Students will understand that….
Electricity is the flow of electric charges and can be harnessed to power devices.

Electrical circuits consist of components that control the flow of electricity.

Electrical devices and systems are designed based on the principles of electricity.</td><td>ESSENTIAL QUESTIONS
Students will keep considering

How does electricity work, and what are its essential properties?

What components are necessary for an electrical circuit to function properly?

How can we design and build functional electrical devices using circuits?</td></tr>
</table>

<table>
<tr><td rowspan="3">Common Core State Standards for Mathematics (CCSS-M):
6.EE.B.6: Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.
Common Core State Standards for English Language Arts (CCSS-ELA):
CCSS.ELA-LITERACY.W.6.2: Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.</td><td>Responsible use of electricity is important for safety and conservation.

The production and consumption of electricity have both positive and negative impacts on society and the environment.</td><td>What safety precautions should be followed when working with electricity?

How does electricity impact our daily lives, society, and the environment?</td></tr>
<tr><td colspan="2">Acquisition</td></tr>
<tr><td>Students will know…

The properties and behavior of electric charges.

The components and characteristics of electrical circuits.</td><td>Students will be skilled at…

Designing and building functional electrical devices.

Analyze
Identifying the impact of electricity on society and the environment.

Develop
Critical thinking and problem-solving skills through scientific inquiry.

Determining skills and processes to use in order to safely work with electricity?</td></tr>
</table>