06: Electricity

Content Area: **Science**
Course(s): **Honors Physics**
Time Period: **February**
Length: **1**
Status: **Published**

Enduring Understandings:

- Batteries can turn chemical energy into electrical energy
- Capacitors are built to store charge and energy and to create fields.
- Current can be predicted from voltage and resistance
- Electrical forces are similar to gravity in their structure but different because they can be attractive or repulsive
- Series circuits have a single path for electron flow and parallel circuits have multiple paths.
- There are two types of charge called positive and negative

Essential Questions:

- How can we predict the amount of electricity and energy we will use in a given circumstance?
- How can we use charges to make life easier for us?

Lesson Titles:

- Batteries (Current and Voltage)
- Capacitors
- Electric Fields
- Electrical Energy
- Electrostatic Force
- Introduction to Charges
- Ohm's Law
- Parallel Circuits
- Resistance
- Series Circuits

Career Readiness, Life Literacies & Key Skills

WRK.K-12.P.1	Act as a responsible and contributing community members and employee.
WRK.K-12.P.4	Demonstrate creativity and innovation.
WRK.K-12.P.5	Utilize critical thinking to make sense of problems and persevere in solving them.
WRK.K-12.P.8	Use technology to enhance productivity increase collaboration and communicate

	effectively.
WRK.K-12.P.9	Work productively in teams while using cultural/global competence.

Inter-Disciplinary Connections:

LA.RH.11-12.7	Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, qualitatively, as well as in words) in order to address a question or solve a problem.
LA.RST.11-12.9	Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.
LA.RST.11-12.10	By the end of grade 12, read and comprehend science/technical texts in the grades 11-CCR text complexity band independently and proficiently.
LA.WHST.11-12.1.A	Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence.
LA.WHST.11-12.1.B	Develop claim(s) and counterclaims using sound reasoning and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline appropriate form that anticipates the audience's knowledge level, concerns, values, and possible biases.
LA.WHST.11-12.1.C	Use transitions (e.g., words, phrases, clauses) to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.
LA.WHST.11-12.2	Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.
LA.WHST.11-12.2.E	Provide a concluding paragraph or section that supports the argument presented.
LA.WHST.11-12.10	Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Instructional Strategies, Learning Activities, and Levels of Blooms/DOK:

- Chromebook Activity
- Independent Studies
- Lectures on Charges, Electrostatic Force, Electric Fields, Capacitors, Batteries (Current and Voltage), Resistance, Ohm's Law, Electrical Energy, Series Circuits, Parallel Circuits
- Problem Solving
- Science Labs on Charges, Electrostatic Force, Electric Fields, Capacitors, Batteries (Current and Voltage), Resistance, Ohm's Law, Electrical Energy, Series Circuits, Parallel Circuits

Modifications

Formative Assessment:

- Anticipatory Set
- Closure
- Quizzes on Charges, Electrostatic Force, Electric Fields, Capacitors, Batteries (Current and Voltage), Resistance, Ohm's Law, Electrical Energy, Series Circuits, Parallel Circuits
- Warm-Up

Summative Assessment:

- Alternate Assessment
- Benchmark
- Marking Period Assessment
- Unit test on Electricity

Alternative Assessments:

Performance tasks
Project-based assignments
Problem-based assignments
Presentations
Reflective pieces
Concept maps
Case-based scenarios
Portfolios

Benchmark Assessments:

Skills-based assessment
Reading response
Writing prompt
Lab practical

Resources & Materials:

- https://sites.google.com/site/delseaphysics1/Home