Science
Physics
Unit 8: Electric Current

Essential Understandings	▪ Causation: Nothing "just happens." Everything is caused. ▪ Interrelatedness: Everything in the universe is connected to everything else in the universe. ▪ Dynamism: Everything is changing in some way all the time. ▪ Entropy: Change has direction. Generally, simple precedes complex. Generally, order changes toward disorder. ▪ Uniformitarianism: The way the universe works today is the way it worked yesterday and the way it will work tomorrow.
Essential Questions	▪ How is electric current propagated through a conductor? ▪ How is electrical resistance related to voltage? ▪ What is the difference between direct current and alternating current? ▪ What is the difference between a series circuit and a parallel circuit? ▪ What is the nature of electric power?
Essential Knowledge	▪ Voltage is the product of electrical resistance and electrical current. ▪ For electricity to move through a conductor, the conductor must be part of a closed circuit. ▪ Schematic diagrams can be used to calculate resistance, current, and voltage found in an electrical circuit. ▪ Schematic diagrams can be used to plan the values of resistance, current, and voltage before constructing a circuit.
Vocabulary	▪ <u>Terms</u>: ○ alternating current, ampere, circuit, diode, direct current, electric current, electric power, electric resistance, Ohm, Ohm's Law, parallel, parallel circuit, potential difference, schematic diagram, series, series circuit, voltage source
Essential Skills	▪ Use mathematics to calculate electrical resistance, electric current, and voltage. ▪ Use schematic diagrams to determine if a circuit is series or parallel. ▪ Use schematic diagrams to calculate electrical resistance, electric current, and voltage. ▪ Use mathematics to calculate electric power.
Related Maine Learning Results	<u>Science and Technology</u> D. The Physical Setting D4.Force and Motion Students understand that the laws of force and motion are the same across the universe. c. Describe the relationship between electric and magnetic fields and forces, and give examples of how this relationship is used in modern technologies.

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Sample Lessons And Activities	▪ Word problem worksheets ▪ Electricity Labs ▪ Lectures ▪ Electricity demonstrations ▪ Electricity videos
Sample Classroom Assessment Methods	▪ Chapter tests ▪ Quizzes ▪ Laboratory reports
Sample Resources	▪ Publications: o Physical Science - Glencoe o MARVEL Data bases o GALE Resource Data bases ▪ Videos: o The Mechanical Universe