Electrical Engineering, Tuesdays 9-10:30am
Instructors: Jenni Buchannon, Rachel Ameche

Let's get electrical! Students will use snap circuit kits to understand topics of electricity and electric currents, open and closed circuits, potential and kinetic energy, voltage, batteries in parallel and in series, Law of Conservation of Energy, types of Energy, resistors, filaments, conductors and insulators, and parallel circuits. They will correlate that the circuit board is like the ones found inside televisions, radios, and other electronic devices. This class will take some of the concepts learned to a practical application with hands-on exploration. Some note taking is expected.

Week 1: Electricity, Electric currents, and Open and Closed Circuits: Students will build a simple circuit and learn how to draw electrical schematics. Students will differentiate between open and closed circuits, define electricity, current, charge, and read a passage and answer questions related to the learned concepts.

Week 2: Potential and Kinetic Energy: Quiz on open and closed circuits. Students will make a lamp circuit and experiment with batteries. Does the light change when you use one or two batteries? How do the two batteries need to be connected in order for the light bulb to light? What is Kinetic and Potential energy? What is voltage and volts?

Week 3: Batteries in Parallel and in Series: Students will build a circuit where the batteries are in a series vs. parallel. What are the advantages and disadvantages of both?

Week 4: Switches: Students will build a circuit and change out different switches to see what happens. Describe open and closed circuits with switches and the difference between maintained switches and momentary switches.

Week 5: Law of Conservation of Energy: Energy can not be created or destroyed, but can change forms. Students will build circuits that transform chemical energy into electrical energy into another form of energy.

Week 6: Resistors and Filaments: Students will build a circuit with a resistor and a speaker. What do you notice about the sounds coming from the speaker?

Week 7: Conductor vs. Insulator: Build a circuit with an LED and test with various items to see if it is a conductor or an insulator. A conductor is good at letting electricity pass through and known as having low resistance. An insulator blocks the current.

Week 8: Series vs. Parallel: Build circuits that are series and parallel and compare and contrast them.

Week 9: Final class project TBD.