



7th & 9th Grades Electricity Professional Development Ohio Energy Project

Goals:

- Tour an electrical generation plant and understand large scale generation, transmission and distribution of electricity.
- Build a series, parallel and short circuit.
- Understand the basic components of an electric circuit.
- Design a circuit to complete a given task.
- Create a circuit diagram using electronic symbols.
- Measure volts, current, and resistance in a circuit using a meter.
- Demonstrate ways energy can be transferred in an electric circuit (sound, light, heat and mechanical energy).

Ohio's Learning Standards:

7th Grade:

- Evaluate an electrical circuit in terms of type, voltage, current, resistance and the transfer of energy to other forms.
- Design, create and compare a series and parallel circuit.
- Demonstrate an increase or decrease in resistance in a circuit.
- Create a closed circuit that includes a parallel circuit and resistance and that shows changes in current and voltage.

9th Grade

- Relate the flow of electrons through conductors and insulators and the concepts of current, voltage and resistance.
- Distinguish between conductors and insulators.
- Explain the two models of electric current in terms of charge and direction of flow.
- Describe how power sources, including batteries, are sources of voltage.
- Demonstrate how a variety of circuits are constructed as well as measure and compare the potential difference (voltage) and current.

Agenda & Materials:

- Tour Power Plant & Lunch
- Curriculum & Activities
- Coal Sequence
- Circuits are Everywhere – Dissecting a Solar Toy
- Snap Circuit Pro Kits
- Wrap Up & Evaluation

Additional Resources:

- Ohio Energy Project (www.ohioenergy.org): online teacher resources, student programs and professional development
- National Energy Education Development Project (www.need.org): online curriculum