**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](http://www.ohioenergy.org)): online teacher resources, student programs and professional development
* National Energy Education Development Project ([www.need.org](http://www.need.org)): online curriculum