Lesson 1 Simple Circuits I

Objectives: Students get hands-on experience making simple circuits and experimenting with electrical components.

Materials: For each group: 2 batteries in battery holders, 10 alligator clips, 2 knife switches, 2 small lamp sockets with flashlight lamps, 2 motors, 1 buzzer.

For each student: Handout Electric Symbols and Circuits

Sponge: Catch up on journals.

Initial Discussion: Ask if anyone has ever worked with electricity. Talk about projects students have done.

Talk about the dangers of electricity – especially with house current.

Show students how to use alligator clips. Emphasize fragility of components – connections can pull out making components or alligator clips unusable.

Project: In groups, students experiment with making simple circuits. Students answer the following questions in their journals, drawing circuit diagrams to show how they solved the problems.

- ∞ Can you create a circuit that lights up a light?
- ∞ Can you create a circuit that lights up two lights?
- ∞ Can you create a different circuit that lights up two lights? The lights in one of the circuits will be brighter than the lights in the other circuit. In which circuit are the lights brighter?
- ∞ Can you create a circuit that uses a switch to turn on and off the light(s)?
- ∞ Experiment with the electrical components you have. What can you make? Draw pictures of the circuits you create and describe what they do.

Vocabulary: Circuit – A closed path followed or capable of being followed by an electric current
Component – A part of a mechanical or electrical complex

Final Discussion: Have students show off their most interesting circuits. Talk about series and parallel (use handout Electric Symbols and Circuits).

Clean up: Have students put components carefully into ziplock bags.