Post Activity 1 - Acting Out an Electric Circuit

Task 1a. Reviewing. Time Limit - 5 minutes; Group Size - Whole class

1. Review what students already know about electricity. Ask:
    - What is electricity?
    - What is electrical current?
    - What is an electric circuit? What are two types of electric circuits?
2. Tell students that they cannot see electricity because electrons, the charged particles whose movement through a substance creates electricity, are too small to be seen even with a microscope. When electrons flow through certain substances (like copper wire), they form an electrical current. Electrical current provides energy to power all kinds of things, from video games to refrigerators to street lights!

Task 1b. Acting out Series Circuit. Time Limit - 10 minutes; Group Size - Whole class

3. Act out a simple electric circuit, as follows:
    - Ask students to join you in forming a circle. Tell students that you represent a battery and they represent a wire conductor. The circle represents a circuit.
    - Distribute an object -- like a ball, a book, or an eraser -- to each member of the circle, including yourself. Ideally, everyone should have the same object. Tell students that these objects represent electrons inside a wire conductor. Explain that a wire conductor is full of electrons.
    - Remind students that you are playing the part of the battery (power source) in this circuit, and explain that all batteries have a positive end, represented by your left hand, and a negative end, represented by your right hand.
    - Pass your "electron" to the student on your right. The student receiving your electron should in turn pass the one he or she is holding to the right. Have students continue passing on electrons to the person to their right. Tell students that because electrons share the same negative charge, they repel one another, which keeps them moving along in the same direction. State again that the flow of electrons through a conductor is called electrical current.
4. Tell students that as long as the circle remains intact and the electrons continue to flow, their circuit is *closed.*
5. To illustrate what happens when a circuit breaks, or *opens*:
    - Create a gap in the circle of students that is too wide across to pass electrons (or object used to represent). The current will stop as a result.
6. Challenge students by selecting one to act as a switch and another to act as a load ……i.e.: fan (waving arms). Demonstrate how the flow of electrons is disrupted as the switch breaks the current.

Task 1c. Acting out Parallel Circuit. Time Limit - 10 minutes; Group Size - Whole class

7. Further challenge the students by asking them to demonstrate a parallel circuit. Ask:
    - How will you have to organize yourselves to represent a parallel circuit?
    - How will the electrons flow?
8. Ask students to use the same concept of a switch and fan for the parallel circuit. Ask how to demonstrate the parallel circuit with two fans and two switches.

Task 1d. Circuit Diagrams. Time Limit - 15 minutes; Group Size - Individual

9. After demonstrations, ask students to use the series circuit and parallel circuit handout (from the printable materials pages on the website http://www.e-missions.net/elabs/?/electricity_materials/) and diagram the circuits they just completed. Tell students to design three more of each circuit on their handouts and to be creative with the amount of switches and loads.