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Conceptual Physics: _____
Date: _____

Unit IX
Electricity & Magnetism
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IX

Creating Circuits

Objective: Build a parallel and a series circuit and demonstrate the similarities and differences between the two types of circuits.

Vocabulary:

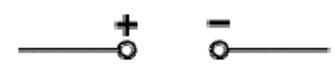
Circuit – A closed path through which electrons (electricity) flow.

Parallel circuit – An electrical circuit where the current flows through more than one path. If one path is interrupted, current will still flow through the other paths.

Series circuit – An electrical circuit where the current has only one path. If the path is interrupted at any point, it stops current flow in the entire circuit.

Symbols used:

Power supply (DC)



Light Bulb (Indicator)



Switch



Procedure:

1. Use the images below to create a circuit using aluminum foil, miniature lights and the DC power supply. Cut thin (5 mm wide) strips of foil and use a glue stick to paste the foil into place on top of the diagram. Leave a space that is 2 cm wide where the lights are indicated. For the power supply leave a space that is 4 cm wide. Leave a short (1 cm long) piece of the aluminum foil free from the paper.
2. Once you have pasted the aluminum foil onto the paper use masking tape to secure the lights into place as indicated. Use only a small piece of masking tape but make sure that the wires from the light are making contact with the foil.
3. Once you have completed construction of both circuits connect them to a power supply to make sure that they are functioning properly.
4. When everything works properly call the teacher to initial each diagram to show that your setup was functioning properly.
5. With the power still connected to the Series Circuit remove the tape from one wire of one of the bulbs. What happens to the lights in this system? _____
6. Now, connect the power supply to the Parallel Circuit. Again, remove the tape from one wire of one of the bulbs. What happens to the lights in this system? _____
7. Explain why a series circuit is okay for inexpensive Christmas tree lights but not so acceptable for the wiring in your home. _____

