SAFETY DEMONSTRATION/DISCUSSION/VISUAL AIDE

(use with Safety mini-class)

What

120 VAC zip wire with plug on one end and exposed wires on other end.
Run a cable tie through holes in plug prongs so it can not be actually plugged in.

Discussion Questions

Note: Questions 3 and 4 are the important items for this mini class. Questions 1 and 2 will help prepare the scouts for questions 3 and 4. Questions 1, 2 and 5 will reinforce concepts further discussed in another mini class. Question 5 can be skipped here.

1. If we plug this in and the bare wires are not touching, what kind of a circuit is it? (Open)

2. If plugged in and we brought the two wires bare wires together, what kind of circuit is it? (Short) What would happen? (Sparks, wires welded together, wire insulation melted, fuse in building electrical system blown.) Why? (No limit to the electrical current that can flow in the wires.)

3. What would happen if we plugged it in and then used one hand to touch the two bare wires? (Electrical shock in hand and may get burned. May leave us a little dazed.)

4. What would happen if we held one bare wire in one hand and the other bare wire in the other hand and then had someone plug it in? (Electrical shock through our body, possibly affecting our heart and killing us; as a minimum burn both hands and leave us a quite dazed. Illustrates the importance of the one hand rule.)

5. If we connected the two wires to a light bulb and plugged it in, what would happen? (Bulb would light.) Why would the wires not overheat and the building fuse blow? (The bulb is electrical load (resistance) in the circuit which limits the amount of electrical current that can flow in the circuit.)