

RADIO SAFETY

Objectives

- Prepare the scout to complete the following merit badge requirement:
 - 5 Explain the safety precautions for working with radio gear, particularly direct current and RF grounding.

Reference Material

- Merit badge pamphlet pages: 17 and 30-31.
- Visual aide: 120 VAC wire with plug on one end and bare wires on other end.
 - Safety Demonstration/Discussion/Visual Aide (write up about using above)

Suggested Activities

- Use visual aide and go over electrical shock questions which accompany it.
- Ask questions about the material on pages 30-31 in the merit badge pamphlet and provide additional insight to help the scouts understand the safety considerations.
- Use questions to get the scouts to understand the following points about RF safety and provide additional insight as needed (this material isn't really covered in the merit badge pamphlet).
 - A microwave oven demonstrates the power of RF energy. A microwave oven uses RF around 2500 MHz to cook food (See where this frequency falls on the chart on page 17 of the pamphlet.). You will note your microwave is enclosed in a metal case and the window has a metal screen to shield you from the RF and the microwave generator turns off when the door is opened to protect you from RF.
 - The amount of energy depends on the transmitter power, type of antenna and the distance from the antenna. Some antennas concentrate energy in one direction.
 - Some frequencies are more dangerous than others. As an example, a wave length of 2.5 cm would find the eyeball a good receiving antenna and could damage it.
 - During the Electronic Parts and Symbols mini class, you will see an example of the RF energy in and leaving an antenna.
 - It is important that RF sources be grounded.
 - Typical power, frequencies and distances from antennas do not create RF hazards for Ham operators, their families or their neighbors. Hams receive special RF safety training.

Verifying Scouts Have Met the Merit Badge Requirements

- Meet with each scout individually so they can present to you the information required to fulfill each of the above merit badge requirements.
- Sign the scout's record sheet in the spaces provided to indicate scout has fulfilled those requirements.
- If the scout is not able to meet any requirement, have them review the handout and referenced pages in the merit badge pamphlet and come back later to complete the requirement. Provide additional one-on-one mentoring if needed.