



Royal Rangers

Merit Requirements: Silver-Bordered Merit

Electricity Merit

1. Define the following terms:
 - a. Voltage
 - b. Amperage
 - c. Resistance
 - d. Watt
 - e. Watt-hour
 - f. Kilowatt
 - g. Ohm's Law
 - h. Insulator
 - i. Wire gauge
 - j. Receptacle
 - k. Switch
2. Explain what a transformer is and how it works.
3. Explain the difference between alternating current (AC) and direct current (DC).
4. List items in your home that use a direct current and those that use an alternating current.
5. Draw a diagram of your home showing these electrical components: outlets, switches, lights, and appliances. Label the location of the fuse box(es). Then draw a diagram of the fuse box and number the fuses or circuit breakers. On the diagram of your home, label each outlet, switch, light, and appliance with the number of its controlling fuse or circuit breaker.
6. Obtain copies of your state and city requirements from the governing agency for becoming an electrician and place the material in your workbook. Be prepared to explain the state and city requirements for becoming an electrician to your commander.
7. Explain one method of generating electricity.
8. Explain how an electric motor runs.
9. Explain what an electromagnet is.
10. Explain how an incandescent light works.
11. Explain the purpose and necessity of a grounding wire on home appliances.
12. List the generally accepted home wire color codes for the following:
 - a. Neutral wire
 - b. Hot wire
 - c. Ground wire
13. Read your home electric meter and calculate your cost for electricity for one month. List the month of the bill you are calculating, the meter reading in kilowatt-hours (KWH), and the cost per KWH. Then calculate your electricity cost ($KWH \times \text{cost per KWH} = \text{electricity cost}$).
14. Construct a functional doorbell using a nine-volt battery, a doorbell, a switch, and the necessary wiring. Attach these components in a series connection to a small board. Demonstrate and explain how a doorbell operates and what each part does.
15. Explain and demonstrate how to give first aid to someone who has been rescued from contact with a live electric line.