



# Electronics Merit

1. Define the following terms:
  - a. Resistor
  - b. Capacitor
  - c. Transistor
  - d. Electrical circuit
  - e. Series circuit
  - f. Parallel circuit
  - g. Series-parallel circuit
  - h. Integrated circuit
  - i. Printed circuit board
  
2. Illustrate the schematic symbol of each of the following parts:
  - a. Resistor
  - b. Capacitor
  - c. Transistor
  - d. Diode
  
3. Present to your commander actual samples you have done for the following:
  - a. Solder two wires together using rosin core solder. The solder splice should show the proper technique, not too much or too little heat.
  - b. Solder two wires together and show the effects of a “cold” solder splice. Explain what can happen with a cold solder splice.
  - c. Insulate a soldered splice using two techniques.
  
4. Explain how to avoid heat damage to components such as a transistor. Also explain how to avoid damage to a circuit board while soldering.
  
5. Build an electronic project that has some kind of output, e.g., mechanical, audio, etc. You may purchase a kit from an electronics supply store and assemble it for this purpose. Show your intended project to your commander before purchasing the kit. The project should include a resistor(s), capacitor(s), and transistor(s). As part of the project, complete the following:
  - a. Make a schematic drawing of the project. Be ready to read and interpret the schematic diagram for your commander.
  - b. Show how the project works and explain how it operates to the best of your ability.
  - c. Apply Ohm’s Law to at least one part of a circuit in this project.



Leader's Initials

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6. List the type of meters or Multimeter settings you would use for the following electrical measurements:
  - a. Voltage
  - b. Amperage
  - c. Resistance

Then using a Multimeter, demonstrate how to make the above electrical measurements on the electronic project built in Requirement 5.

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7. Write a five hundred to a thousand-word report on some type of a digitalized electronic control device. Focus your research on the components in a chip or circuit needed to make this device function. Report your findings about the device, indicating its purpose, a summary of how it works, and some of its major components. Cite your sources at the conclusion of the report.

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8. Describe a control device that has not been invented. Explain its purpose and who would benefit from this invention.

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9. List some of the careers available in the electronics field. Select a profession that most interests you in this field and research the high school classes that could prepare you to work in this field. Write a short report of your findings.