Alternative Assessment

1. How many ways can two or more batteries be connected in a circuit with a light bulb? How will the current change depending on the arrangement? First draw diagrams of the circuits you want to test. Then identify the measurements you need to make to answer the question. If your teacher approves your plan, obtain the necessary equipment and perform the experiment.
2. Research the career of an electrical engineer or technician. Prepare materials for people interested in this career field. Include information on where people in this career field work, which tools and equipment they use, and the challenges of their field. Indicate what training is typically necessary to enter the field.
3. The manager of an automotive repair shop has been contacted by two competing firms that are selling ammeters to be used in testing automobile electrical systems. One firm has published claims that its ammeter is better because it has high internal resistance. The other firm has published claims that its ammeter is better because it has low resistance. Write a report with your recommendation to the manager of the automotive repair shop. Include diagrams and calculations that explain how you reached your conclusion.
4. You and your friend want to start a business exporting small electrical appliances. You have found people willing to be your partners to distribute these appliances in Germany. Write a letter to these potential partners that describes your product line and that asks for the information you will need about the electric power, sources, consumption, and distribution in Germany.
5. Contact an electrician, builder, or contractor, and ask to see a house electrical plan. Study the diagram to identify the circuit breakers, their connections to different appliances in the home, and the limitations they impose on the circuit's design. Find out how much current, on average, is in each appliance in the house. Draw a diagram of the house, showing which circuit breakers control which appliances. Your diagram should also keep the current in each of these appliances under the performance and safety limits.