PREPARATION

1. Make a data table to record the properties of each unknown that you test.
2. Use the note cards to copy the information listed on each of the sample cards. If the word *observe* is listed, you will need to visually inspect the sample and then write the observation in the appropriate space.

PROCEDURE

1. Arrange the note cards of the known elements in a rough representation of the periodic table. In other words, all of the known elements from Group 1 should be arranged in the appropriate order. Arrange all of the other cards accordingly.
2. Inspect the properties of the unknowns to see where properties would best "fit" the trends of the elements of each group.
3. Assign the proper element name to each of the unknowns. Add the symbol for each one of the unknown elements to your data table.

CLEANUP AND DISPOSAL

4. Clean up your lab station, and return the leftover note cards and samples of the elements to your teacher. Do not pour any of the samples down the drain or place them in the trash unless your teacher directs you to do so. Wash your hands thoroughly before you leave the lab and after all your work is finished.

ANALYSIS AND INTERPRETATION

1. **Organizing Ideas:** In what order did your group arrange the properties to determine the unknowns? Explain your reasoning. Would a different order have been better? If so, what is the better order and why?
2. **Evaluating Methods:** What properties were the most useful in sorting the unknowns? What properties were the least useful? Explain your answer.

CONCLUSIONS

1. **Interpreting Information:** Summarize your group's reasoning for the assignment of each unknown. Explain in a few sentences exactly how you predicted the identity of the nine unknown elements.

EXTENSIONS

1. **Predicting Outcomes:** Use only the data from your group's experiment to predict the properties of the not yet discovered element, which has an atomic number of 120 (assuming it does not radioactively decay).