Whose Shoe Is That?

Problem
How can a group of objects be classified?

Materials *per group of six*
students' shoes
pencil and paper

Procedure
1. At your teacher's direction, remove your right shoe and place it on a work table.
2. As a group, think of a characteristic that will divide all six shoes into two kingdoms. For example, you may first divide the shoes by the characteristic of color into the brown shoe kingdom and the nonbrown shoe kingdom.
3. Place the shoes into two separate piles based on the characteristic your group has selected.
4. Working only with those shoes in one kingdom, divide that kingdom into two groups based on a new characteristic. The brown shoe kingdom, for example, may be divided into shoes with rubber soles and shoes without rubber soles.
5. Further divide these groups into subgroups. For example, the shoes in the rubber-soled group may be separated into a shoelace group and a nonshoelace group.

6. Continue to divide the shoes by choosing new characteristics until you have only one shoe left in each group. Identify the person who owns this shoe.
7. Repeat this process working with the nonbrown shoes.
8. Draw a diagram similar to the one shown to represent your classification system.