

Electron House

LESSON: Orbital Diagrams / Electron Configuration

OBJECTIVE: To learn to draw orbital diagrams and write electron configurations for any element in the periodic table.

DIRECTIONS: Obtain a sheet of unlined paper from your teacher and complete the following activity.

Please read steps 1 through 5 thoroughly before beginning this activity.

1. Draw a four-story house. Number each level, with number 1 being the bottom level.
2. On the first level, draw one bedroom (draw something like a large rectangle to represent the bedroom). Name this bedroom the " S " bedroom. Now, draw one bed inside this bedroom.
3. On the second level, draw two bedrooms. Distinguish the bedrooms as the "S" bedroom and the "P" bedroom. Draw the "P" bedroom larger than the "S" bedroom. Draw one bed in the "S" bedroom, and draw three beds in the "P" bedroom.
4. On the third level, draw three bedrooms. Distinguish the bedrooms as the "S" bedroom, the "P" bedroom, and the "D" bedroom. Draw the "P" bedroom larger than the "S" bedroom, and draw the "D" bedroom larger than the "P" bedroom. Draw one bed in the "S" bedroom, three beds in the "P" bedroom, and five beds in the "D" bedroom. Do something "jazzy" to the "D" bedroom to let your guests know that it is "special", and can only be used under special circumstances.
5. On the fourth level, draw four bedrooms. Distinguish the bedrooms as the "S" bedroom, the "P" bedroom, the "D" bedroom, and the "F" bedroom. Keep the same bedroom sizes as in step 4 above, but draw the "F" bedroom the largest. Draw one bed in the "S" Bedroom, three beds in the "P" bedroom, five beds in the "D" bedroom, and seven beds in the "F" bedroom. Do something "jazzy" to the "F" bedroom to let your guests know that on this level, this bedroom is the "special" one.

This house is a contemporary analogy of an electron cloud, and that electrons "live" in these bedrooms. The house itself, represents the electron cloud. Each floor within the house represents an energy level. Each bedroom represents a sublevel within an energy level. Each bed represents an orbital within the sublevel.

Imagine some "electrons" visiting your "house". Let's discuss the "sleeping arrangements" of the electrons using the order of energy level, sublevel, and orbital fill—up.

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