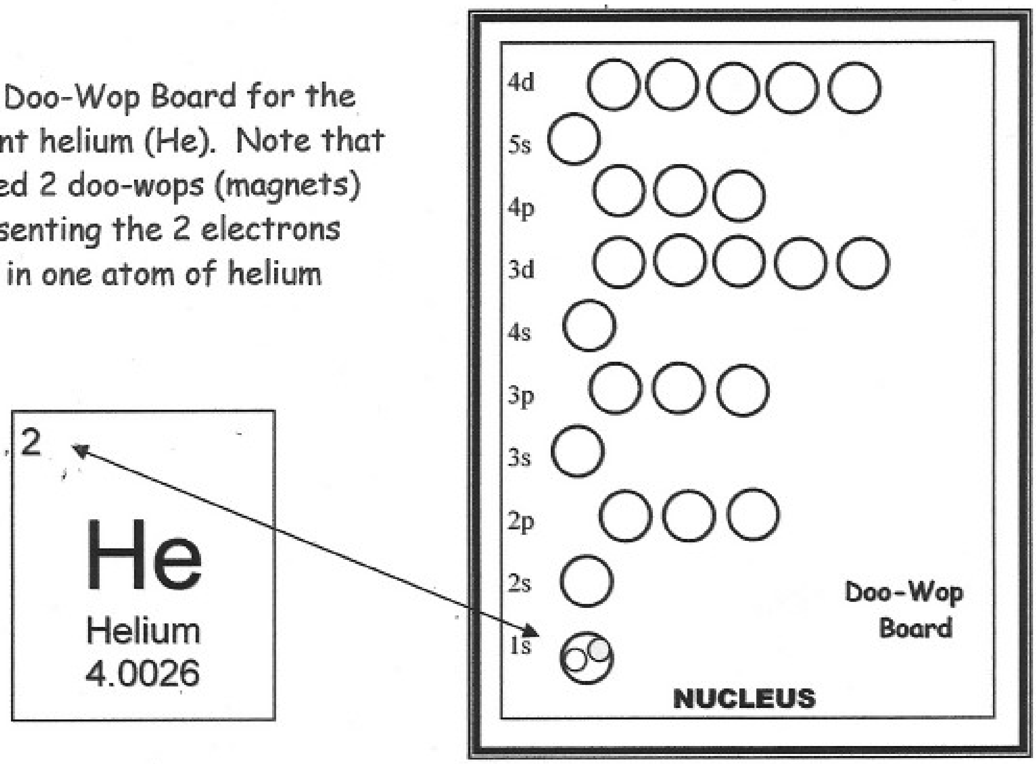
how electrons fill the orbits is that electrons begin filling the orbits nearest the nucleus first and proceed outward (upward on the Doo-Wop Board™). Imagine that you are holding your Doo-Wop Board in a sink. As you fill the imaginary sink with water, the bottom cup or orbit will fill first. That cup is the 1s orbit. Then the 2s orbit will fill and then the 2p orbits and so on. This is exactly how you will place your doo-wops (electrons) into the cups: from the bottom up (or to be more precise, from the inside of the atom outward).

Now back to our example of helium. You found from the periodic table of elements that each atom of helium has two electrons traveling in its electron cloud. Following the "fill rule" above, you should place the two doo-wops you are holding into the first (bottom) cup. Recall that within each shape of orbit you will find two electrons, hence we placed both of the electrons that an atom of helium has in the first orbit. Look at the diagram below to see what your Doo-Wop Board™ should look like. Note that we placed one chip of each color in the 1s orbit (cup).

You may be wondering why you are using two colors of doo-wops. The answer is that the two colors of doo-wops represent the two possible spins of those electrons: clockwise and counter-clockwise (the spin quantum number).

Filled Doo-Wop Board for the element helium (He). Note that we used 2 doo-wops (magnets) representing the 2 electrons found in one atom of helium



By looking at your Doo-Wop Board™, you can describe helium as having two electrons in its electron cloud and they are both found traveling in a spherical-shaped orbit on the first energy level from the nucleus. This is called "reading" your board.

At this point in our discussion, we haven't yet explored what this information means regarding the reactivity or stability of helium. You will find a considerable amount of material in the next lessons which will help you make inferences regarding the reactivity or stability of each element. For now, let's look at another example.

**Example 2 - Describe the arrangement of electrons found in an atom of carbon.** Find carbon on your periodic table of elements. The symbol for carbon is C. If you look on the right-hand side of the table you will see the element carbon on the first row of elements going across the top of the table.

The atomic number for carbon is 6 meaning that an atom of carbon has 6 electrons, 6 protons and, generally, 6 neutrons. We are concerned with the number of electrons which is 6. Take 6 doo-wops, representing the 6 electrons, three of each of the