ELECTRON CONFIGURATION

ELECTRON SHELLS

- Electrons constantly move around the _____ of an atom. They orbit the nucleus in specific _____ or _____ that surround the nucleus. A shell is also called an _____ _____. It called so because a shell is associated with a certain amount of _____.
- The shell closest to the nucleus has the _____ energy. _____ in this shell have the least amount of energy. As you move away from the nucleus, the _____ associated with a shell _____. Electrons in the shell furthest away from the nucleus have the _____ energy.
- Each shell has a maximum number of _____ it can hold.
  - The first shell can hold _____ electrons.
  - The second shell can hold _____ electrons.
  - The third shell can hold _____ electrons.
  - The fourth shell can hold _____ electrons.
- In large atoms, you can find up to _____ shells. No shell can hold more than _____ electrons.

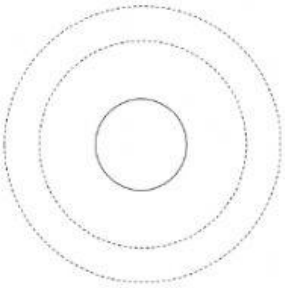
ELECTRON CONFIGURATION

- How electrons are arranged in the shells of an atom is called _____ _____. Electrons "fill" or take up _____ in each shell.
- In general, electrons fill _____ shells first because lower shells have _____ energy. Once a shell is full, electrons begin to fill the next _____ shell.

BOHR DIAGRAM

- To show electron configuration, we draw a diagram called a _____ Diagram. To draw a Bohr Diagram:
  1. Draw a _____ to represent the nucleus of an atom.
  2. Write the _____ of the element, the number of _____ and number of _____ inside the circle.
  3. Draw _____ around the circle to represent electron shells.
  4. Draw electrons as _____ on the rings. Remember, each "ring" can only hold so many electrons.

- Draw a Bohr diagram of Carbon, which has 6 protons, 6 neutrons and 6 electrons.



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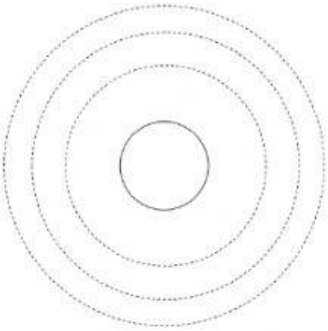
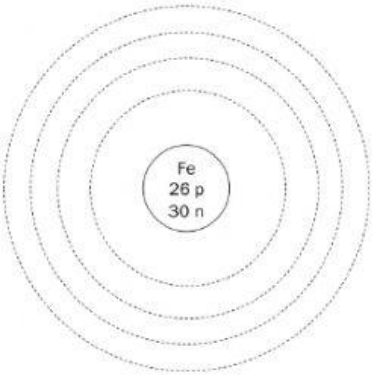
- Draw a Bohr diagram of Sodium, which has 11 protons, 12 neutrons and 11 electrons.



ELECTRON CONFIGURATION

- Atoms with four or more shells have a _____ electron configuration. Electrons do not _____ fill lower shells before filling _____ shells.
- Electrons are configured this way because it requires less _____ to take up space in higher shells before completely filling _____ shells.
- Draw the electron configuration for iron, which has 26 electrons.



VALENCE ELECTRONS

- The electrons found in the outermost orbital are called _____ electrons. For this reason, the outermost shell is also called the _____ shell. The number of _____ electrons determines many chemical _____ of an element.
- An atom cannot have more than _____ valance electrons. An atom with _____ valance electrons is said to have a _____ outer shell. For example, _____ has 8 valance electrons.
- Helium has a full valance shell with only _____ electrons. Helium only has one shell. The maximum number of electrons held in the first shell is _____ electrons. Since the shell holds the maximum number of _____ it can hold, Helium is said to have a _____ valance shell.

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