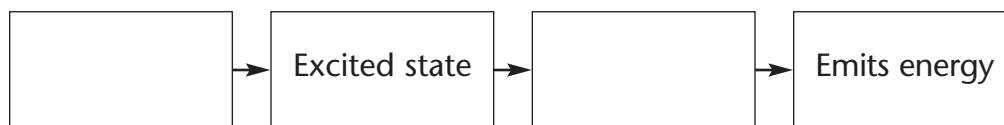


## Chapter 4 Atomic Structure

**Section 4.3 Modern Atomic Theory****(pages 113–118)***This section focuses on the arrangement and behavior of electrons in atoms.***Reading Strategy (page 113)**

**Sequencing** After you read, complete the description in the flow chart below. Write how the gain or loss of energy affects electrons in atoms. For more information on this Reading Strategy, see the **Reading and Study Skills** in the **Skills and Reference Handbook** at the end of your textbook.

**Bohr's Model of the Atom (pages 113–116)**

- Circle the letter of the sentence that tells how Bohr's model of the atom differed from Rutherford's model.
  - Bohr's model focused on the nucleus.
  - Bohr's model focused on the protons.
  - Bohr's model focused on the electrons.
- What can happen to an electron in an atom when the atom gains or loses energy? \_\_\_\_\_  
\_\_\_\_\_
- Is the following sentence true or false? When electrons release energy, some of the energy may be released as visible light. \_\_\_\_\_

**Electron Cloud Model (page 116)**

- Is the following sentence true or false? Bohr's model was correct in assigning energy levels to electrons. \_\_\_\_\_
- When trying to predict the locations and motions of electrons in atoms, scientists must work with \_\_\_\_\_. Circle the correct answer.  
precision      probability      accuracy
- An \_\_\_\_\_ is a visual model of the most likely locations for the electrons in an atom.

## Chapter 4 Atomic Structure

**Atomic Orbitals** (page 117)

7. Is the following sentence true or false? An orbital is a region of space around the nucleus where an electron is likely to be found.
- \_\_\_\_\_

Use this table to answer questions 8 and 9.

| Energy Level | Number of Orbitals | Maximum Number of Electrons |
|--------------|--------------------|-----------------------------|
| 1            | 1                  | 2                           |
| 2            | 4                  | 8                           |
| 3            | 9                  | 18                          |
| 4            | 16                 | 32                          |

8. Higher energy levels have \_\_\_\_\_ orbitals than lower energy levels do.
9. The maximum number of electrons in an energy level is \_\_\_\_\_ times the number of orbitals.

**Electron Configurations** (page 118)

10. Circle the letter of the number of energy levels needed for a lithium atom's three electrons when the atom is in its ground state.
- one
  - two
  - three
11. Is the following sentence true or false? An excited state is less stable than a ground state. \_\_\_\_\_
12. Circle the letters of each sentence that is true when all of the electrons in an atom are in orbitals with the lowest possible energies.
- The electrons are in the most stable configuration.
  - The electrons are in an unstable configuration.
  - The atom is in its ground state.