**Guided Reading 12.2**

**Integrated Science – Matter Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Per:\_\_\_**

1. Define *spectrum.*
2. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ spreads or separates light into individual colors.
3. The smallest amount of light energy is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ were originally proposed by Niels Bohr.
5. When electrons absorb energy they move to a (higher / lower) energy level.
6. When electrons release energy, it is emitted as \_\_\_\_\_\_\_\_\_\_\_\_\_.
7. The theory that attempts to explain particles that are very small is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
8. What is Heisenberg’s “uncertainty principle”?
9. Electrons have (more / less) energy when they are farther away from the nucleus.
10. How many electrons can occupy space in the first, second, third, and fourth energy levels of the electron cloud?
    1. First:
    2. Second:
    3. Third:
11. Draw electron diagrams for the elements Carbon, Nitrogen, and Oxygen.