Name: _____ Period: _____ Date: _____

Modern Atomic Theory Review Worksheet

1. Sketch a wave and indicate one wavelength of the wave.
2. Explain what it means for an atom to be in an excited state and what it means for an atom to be in its ground state.
3. How does an excited atom return to its ground state?
4. How is the wavelength (color) of light related to the energy of the photons being emitted by an atom?
5. What is a photon?
6. Describe Bohr's model of the hydrogen atom.
7. Compare orbit to orbital.
8. What does it mean to say that an orbital represents a probability map for an electron?
9. What is the symbol for the lowest-energy hydrogen orbital?
10. Give the symbols for each of the orbitals that constitute the third and fourth principal energy levels of hydrogen.
11. Describe electron spin.
12. What does the Pauli Exclusion Principle tell us about electrons?
13. What is Hund's Rule?
14. What is the Aufbau Principle?
15. How many electrons can be placed in a given s subshell? In a given p subshell? In a specific p orbital?
16. Compare valence electrons to core electrons.
17. Compare electron configuration to noble gas configuration.
18. Write the electron configurations for the following atoms
    a. Na b. N c. Be d. Sr
19. Write the noble gas configuration for the following atoms
    a. P b. Se c. Zr d. Ce
20. Write the orbital diagram for the following atoms
    a. P b. C c. Mg d. Ga