Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Pd: \_\_\_\_\_ Ast: \_\_\_\_\_

**Physical Science Honors: Electron Configuration Notes**

1. Why are electrons important?
2. What does it mean to be a “neutral atom”? How does this affect the meaning of the atomic number?
3. How many electrons are in a neutral atom of Iron (Fe)?
4. How does Bohr’s idea of “layers” in the atom affect the way we think about the electron cloud in the modern atomic model?
5. What are “orbitals”? What are the four types of orbitals named?
6. How many electrons can fit on each type of orbital?
7. Think of the atom as a multi-story hotel. In this analogy, the floors of the hotel represent the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and the rooms on each floor represent the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The people occupying each room represent the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The hotel staff must fill up the rooms in a specific order, and each room can hold a specific number of people.
8. Why do the orbitals fill up with electrons in a strange order?
9. Draw the electron configuration order.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Energy Level | Orbital | | | | |
|  | s | p | d | f |
| 1 |  |  |  |  |
| 2 |  |  |  |  |
| 3 |  |  |  |  |
| 4 |  |  |  |  |
| 5 |  |  |  |  |
| 6 |  |  |  |  |
| 7 |  |  |  |  |

1. Why is the periodic table shaped into “blocks” of elements?
2. What do the numbers and letters in the electron configuration represent?
3. Write the electron configuration for :
   1. Sodium (Na):
   2. Calcium (Ca):
   3. Bromine (Br):
4. What does a Bohr diagram show?
5. Draw a Bohr diagram for Chlorine (Cl):
6. What are valence electrons and why are they important?
7. What trick can be used to determine the number of valence electrons an element has? Which groups does this trick work for?
8. What is the “octet rule”?
9. Why don’t noble gasses react with other elements?
10. Why is Helium an exception to the octet rule?
11. What does an electron dot diagram show?
12. Why do we place the first two dots on the right side of the element symbol? Why do we place the remaining six dots on the other three sides?
13. Draw an electron dot diagram for:
    1. Nitrogen (N):
    2. Beryllium (Be):

*For Aluminum:*

1. Write the electron configuration:

**Al:**

1. Draw a Bohr diagram:
2. Draw an electron dot diagram: