2.1: Atoms, Ions, and Molecules

1. On a periodic table find Oxygen. How many protons, electrons, and neutrons does it have?
   \[ P = \_\_\_\_, \quad E = \_\_\_, \quad N = \_\_\_ \]

2. On a periodic table find Cobalt. How many protons, electrons, and neutrons does it have?
   \[ P = \_\_\_\_, \quad E = \_\_\_, \quad N = \_\_\_ \]

3. Find Hydrogen. How many protons, electrons, and neutrons does it have?
   \[ P = \_\_\_\_, \quad E = \_\_\_, \quad N = \_\_\_ \]

4. Which element has 12 protons? How many electrons does it have? Neutrons?
   \[ \_\_\_\_ \quad \_\_\_\_ \quad \_\_\_ \]

5. Which element has 38 protons? How many electrons does it have? Neutrons?
   \[ \_\_\_\_ \quad \_\_\_\_ \quad \_\_\_ \]

6. What charges do these particles have? Electron _____ Proton _____ Neutron _____

7. Complete the atoms by placing the correct particles in the nucleus and filling in each orbital.
   
   ![Carbon](image1)
   ![Neon](image2)
   ![Chlorine](image3)

8. How does an atom become an ion?

9. Using a periodic table fill in the missing information for each element. To the right of the element write the number of protons, neutrons, and electrons.
   
   ![Ag](image4)
   
   Mercury
   
   39.098

10. On the back, define these terms: atom, element, compound, ion, ionic bond, covalent bond, molecule