

Chemistry chapter 5: Electrons in Atoms

**Worksheet A**

On all math problems show the given, formula used, and work to receive full credit. Make sure all short answer questions are in complete sentences.  $c = \lambda \nu$   $c = 3.00 \times 10^8 \text{ m/s}$

1. Which color of light in the continuous spectrum has the greatest wavelength?
2. What color of light in the continuous spectrum has the shortest frequency?
3. What is the energy of a quantum of light of frequency  $4.62 \times 10^{15} \text{ hz}$ ?
4. A wave has a length of  $8.50 \times 10^{-6} \text{ m}$ . What is its frequency?
5. A photon of blue-green light has a frequency of  $6.17 \times 10^{14} \text{ Hz}$  and a wavelength of  $4.86 \times 10^{-7} \text{ meters}$ . What is the amount of energy released by this photon? (show your work)
6. With the exception of visible light (ROY G. BIV), list at least three other areas of the electromagnetic spectrum.
7. Describe how photons are emitted that you can visually see. (Be specific, use a diagram if necessary)

8. Name the part of the periodic table where the d orbitals are being filled?
9. Write the electron configuration and orbital diagram for the following atoms.
- Mercury
  - Oxygen
  - Na
  - Sn
  - Fe
  - Ce