

1. How did Bohr expand on Rutherford's model of the atom?

2. Compare the energy of an electron in the ground state and an electron in the excited state.

3. When an electron falls from a higher energy level to a lower energy level, how is the energy released?

4. Explain how the gaseous neon atoms in a neon sign emit light.

5. List the seven colors of the visible light spectrum in order of increasing energy.

6. What is the energy difference between a photon of yellow light and a photon of violet light?

7. Determine the type of radiation (gamma rays, infrared waves, or radio waves) that has the:
 - a. longest wavelength _____
 - b. highest frequency _____
 - c. greatest energy _____

8. Arrange the types of electromagnetic radiation (ultraviolet light, microwaves, radio waves, X-rays) in order of increasing:
 - a. wavelength _____
 - b. frequency _____
 - c. energy _____

9. Compare the energy of the different types of radiation on the electromagnetic spectrum to help you answer the following questions.
 - a. Why is ultraviolet (UV) radiation more harmful to your skin cells than visible light? (or...why is tanning dangerous?)

 - b. You have to wear a lead shield when you get X-rays taken at the dentist. Why does the lead shield block the X-rays but it did not block the gamma radiation during the Shielding Radiation Lab (Lab 3-2)?

10. Compare the wave and particle models of light. What phenomena can only be explained by the particle model?