

Quiz for Video 11 – Light and the Bohr Model

- Which property is directly related to the ENERGY of a photon?
 - wavelength
 - frequency
 - speed
 - amplitude
- How much of the electromagnetic spectrum is visible light
 - All
 - Most
 - Less than half, but a large fraction
 - Very little
- What is the success of the Bohr Model?
 - It demonstrates quantization of energy and energy levels
 - It shows that electrons orbit like planets
 - It works for all atoms
 - It shows the nucleus is actually larger than we thought
- What is a photon?
 - A wave of light
 - A specific wavelength
 - A particle of light
 - A type of atom
- How does the energy of an emitted photon relate to the change in energy of an electron?
 - The photon has more energy
 - The electron loses more energy
 - The amount of energy is equal
- When a photon is absorbed by an electron, what will happen to the energy of the electron?
 - Energy increases
 - Energy decreases
 - Energy is unchanged
 - Impossible to say
- Are the lines on the hydrogen emission spectrum the only transitions within hydrogen?
 - Yes - we would see them if they were present
 - Yes – but each line is actually multiple transitions
 - No – there are many that are not visible light
 - No – some transitions don't have wavelengths associated with them
- If I have a photon with a wavelength of 525 nm, what is its frequency?
 - $3.00 \times 10^8 \text{ s}^{-1}$
 - $5.72 \times 10^5 \text{ s}^{-1}$
 - $5.25 \times 10^{14} \text{ s}^{-1}$
 - $5.72 \times 10^{14} \text{ s}^{-1}$
- If I have a photon with a wavelength of 525 nm, what is its energy?
 - $3.00 \times 10^{-19} \text{ J}$
 - $3.79 \times 10^{-19} \text{ J}$
 - $5.25 \times 10^{-19} \text{ J}$
 - $8.79 \times 10^{-19} \text{ J}$
- What is the major shortcoming of the Bohr Model?
 - It only works for Hydrogen
 - It only shows 5 energy levels maximum
 - Orbits are actually oval, not circular
 - It is only 2 dimensional