

# Unit 3 Study Guide – Energy and Electrons - Honors

*By the end of this unit, you should achieve these learning targets:*

Learning Target	How am I doing with this? Write down evidence!
I can explain real world scenarios involving the three major forms of energy transfer.	
I can identify the difference between kinetic energy and potential energy.	
I can discuss real world examples of the six (6) different forms of energy.	
I can discuss the basic idea behind the Law of Conservation of Energy.	
I can identify the major parts of a wave and common units for each measurement. ( $\lambda$ and $\nu$ )	
I can identify the location of the seven (7) major types of electromagnetic radiation on the spectrum.	
I can explain how wavelength and frequency affect the energy of a wave.	
I can identify how to determine the type of EM radiation when given $\lambda$ or $\nu$ .	
I can calculate $\lambda$ or $\nu$ given the other variable and the correct formula and know proper units for both.	
I can calculate $E_{\text{photon}}$ if given $\lambda$ or $\nu$ and know the proper unit.	
I can explain the basic organization of electrons around an atom.	
I know the basic shapes for the s and p sublevels and know what sublevels are found at each energy level.	

I know how many electrons can fit in one orbital of any sublevel and how many total electrons can therefore fit in that sublevel.	
I can explain the process of an electron transitioning from ground state, to excited state, and back to ground state.	
I can explain what determines the color and/or type of EM radiation emitted from an atom.	
I can successfully complete an orbital diagram of an atom or ion.	
I can successfully write an electron configuration for a given atom or ion.	
I can use an orbital diagram or electron configuration to determine what element it represents.	
I can successfully complete orbital diagrams or electron configurations for Cu and Cr	

**Write down any information you struggled with in the space below to review again:**

**Remember, 10-15% of this exam may consist of questions and topics from previous unit exams:**

- **Unit 1 - Fundamentals of Chemistry**
- **Unit 2 - Atomic Structure and Nuclear Chemistry**