PhET Simulation Pre-lab Activity

The Beer's Law Lab PhET simulation models the experiment you will be doing in Lab 8. Use the simulation to answer the following questions for your pre-lab, and to familiarize yourself with concepts you will use throughout your lab work and lab report.

A. Download the sim: http://phet.colorado.edu/en/simulation/beers-law-lab
B. **Explore** all of the controls in both tabs of the sim for 5 minutes.

Answer the following four questions in your lab notebook after the Introductory Statement and before the Pre-lab Questions from your lab manual:

Concentration Tab

PhET   1. Record 2 (or more) ways that you can accomplish the following actions in the simulation:

-   Change the solution volume
-   Change the number of moles of solute
-   Change the molarity of the solution

PhET   2. How are moles, volume, and molarity related?

Beer's Law Tab
Consider Beer's Law: $A = \varepsilon\, C\, \ell$
(A = absorbance, ε = molar absorptivity, C = concentration, and ℓ = path length)

PhET   3. Explain the relationship between A and C, using evidence from the simulation.

PhET   4. Based on Beer's Law, would you expect the wavelength used to affect your absorbance versus concentration relationship? What do you observe in the simulation?