**Instructions:**

* Open the presentation.
* Watch the embedded video clips and move through the embedded content.
* Answer the “Questions to answer”.
* Make sure you understand the “Things you should make sure you understand”.
* Feel free to view the “Supplementary Resources”.
* Write down any questions that you have about the material.

**Topic Presentation:**

[**click here**](http://prezi.com/m2mplsjawtsg/ap-bio-cells-4-transport/)

**Textbook Reading:**

* **Chapter 5: Membrane Transport and Cell Signaling**

**Supplementary Resources:**

**“Crash Course: Biology” Videos:**

[In Da Club - Membranes & Transport: Biology #5](http://www.youtube.com/watch?v=dPKvHrD1eS4&list=PL3EED4C1D684D3ADF&index=5&feature=plpp_video)

**Videos By Paul Andersen:**

“[Cell Membranes](http://www.youtube.com/watch?v=y31DlJ6uGgE)”

“[Transport Across Cell Membranes](http://www.youtube.com/watch?v=RPAZvs4hvGA)”

**Questions to answer:**

1. How does the second law of thermodynamics allow for diffusion of substances?
2. How is active transport possible, since it contradicts the tendencies of the second law of thermodynamics?
3. Diagram one complete cycle of the Sodium-Potassium pump.  Is this active or passive transport?
4. Is it possible for a solution to be both hypertonic and hypotonic?  Why or Why not?
5. How do large molecules get taken in to or removed from the cell?

**Things you should make sure you understand:**

* The similarities and differences between simple diffusion, facilitated diffusion, and active transport.
* Where cells get the energy to power active transport.
* The relationship between osmosis and tonicity.
* The adaptive strategies of animal, plant, and protist cells for dealing with the tonicity of their environments.