Design Your Own Experiment

All cells are encapsulated by membranes that are selectively permeable. These membranes have specific protein channels integrated throughout them in order to facilitate the movement of solutes. You recently used dialysis tubing to model the passage of water and various solutes through a cell's membrane.

a. As an undergrad, you were staying late in the laboratory, when you accidently wiped off all the labels from your Post Doc's samples. Use the materials found in the class, design an experiment to discover the unknown solutions concentrations.
b. Once your experiment is designed, check with the teacher for final approval before you begin your investigation.

Some questions you might want to address:

- What determines the rate and direction of osmosis?
- What would you happen if you used a starch solution instead of the protein?
- How would you diagram the flow of water based upon the contents of your model cell and the surrounding solution?
- When will the net osmosis rate equal zero in your model cells? Will it ever truly be zero?
- Based upon your observations, can you predict the direction of osmosis in living cells when the cells are placed in various solutions?
- How is the dialysis tubing functionally different from a cellular membrane?

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