Part I: Organic Macromolecule Lab Questions

1. What is the difference between qualitative and quantitative data? What kind of data are we collecting today?

   Qualitative is based on descriptions of characteristics while quantitative is based on numerical measurements.

2. What are the positive and negative controls for the three different tests? (what ingredients- i.e.- milk, starch, potatoes, etc)

Test	Positive Control	Negative Control
Reducing Sugar	Glucose	Distilled Water
Starch	Starch	Distilled Water
Protein	Egg Whites	Distilled Water

3. Why is it important to include BOTH negative AND positive controls when performing a test?

   Having both gives you something to gauge what your testing against. It gives you a clear definition of what it'd look like if what your testing is positive or if it's negative.

4. What **macromolecules (not ingredients)** are present in the two unknown solutions given to you by the lab instructor? (Wait until the end of lab to answer this question)

Unknown	Macromolecules Present
1	Starch
2	Reducing sugars, proteins

Part II: Design your own experiment to determine the concentration of a Reducing Sugar solution.

5. Please insert your experimental design below (see the ilearn page where you downloaded this document for a further explanation on what needs to be included on your experimental design).

I would first prepare a bunch of dilutions from the 2% reducing sugar stock solution to create a graph we can compare the unknown concentration to. These dilutions could range from 0.5% to 2% in known concentrations and stepping at 0.5% at a time and measure each using the spectrometer to create the graph. Using Benedict's solution and the hot plate, we could heat each solution to see what color the sugar concentration changes into. Finally, we can measure the absorbance of the unknown solution, compare it to the known concentration graph, and also use the Benedicts solution and hot plate to compare it’s color to the others as well.