Please answer these on your computer and email back to me. These should be well developed, paragraph type response. If you have any questions, ask me in class or email me. Thanks!

1. How do your columns differ? How are they the same? Explain the differences you see.

2. Did you observe changes in the control column? If so, explain why they occurred.

3. Sulfur reduction is a form of anaerobic respiration. *Desulfovibrio* are an example of bacteria that

reduce sulfur as a way of respiring in the absence of oxygen and release sulfide. Where in the

columns would you expect to find them and why?

4.Purple sulfur bacteria and green sulfur bacteria are two types of bacteria that use sulfide to support

photosynthesis. In general, green sulfur bacteria tolerate higher levels of sulfide than purple sulfur

bacteria do. Predict where the green and purple sulfur bacteria would be in relation to each other.

Also predict where in the column the purple sulfur bacteria would be in relation to the *Desulfovibrio*

bacteria.

5. If samples were extracted from the various layers of all the columns, where would you find

photosynthetic organisms such as cyanobacteria and algae? Explain why.

Worksheet Winogradsky Column—Student Activity

6. Explain how Winogradsky columns illustrate the diversity of microorganisms found on Earth today

in terms of the diversity of niches they occupy.

7. Explain what the Winogradsky columns illustrate about life on early Earth.

8. Describe the differences in the experiment you set up. In other words, how did your variables have different data? Be sure to explain WHY this was the case.

9. Provide a reason as to WHY the bottle became ‘hard’ as the experiment continued. In fact, some bottles exploded the top off! WHY did this occur?

10. What differences did you notice between the carbon vs the sulfur sources? If you did not notice any differences, explain what differences should have taken place.