

Name: _____ Date: _____ Period: _____

Neutrally Buoyant No More

1. What is the research question being investigated?

2. Make a hypothesis for the above research question.

3. Design your plankton using the materials at your lab station (clay, feathers and toothpicks). You must design two identical plankton. Weight the amount of clay to ensure your plankton weight the same. Draw your design below. Label the features and why you included them on this design (i.e. to reduce weight or increase drag, etc.).

4. Record the temperature of both the warm and “cold water” tanks below. Then, fully submerge a dry plankton in each tank and record the amount of time it takes to sink to the bottom of that tank.

	“Cold water” tank	Warm water tank
Temperature (°C)		
Sinking rate (s)		

5. What observations can you make regarding the differences for plankton in warm and “cold” water environments?

6. If you could do it again, would you change your design for your plankton? If so, how?

7. If you could do it again, would you create a different plankton for both the warm and “cold water” tanks? Explain.

8. What is happening to current sea surface temperatures and why?

9. How much have sea surface temperatures changed over the past century?

10. Thinking about the needs of phytoplankton specifically, why might this change in sinking rate affect global oxygen production?

11. What could happen to atmospheric carbon dioxide levels due to increasing ocean temperatures and why?

12. If ocean temperatures continue to rise, do you think phytoplankton will be able to adapt quickly enough to the changes? Why or why not?

13. What could be contributing to lower primary production levels observed in years with warmer ocean temperatures?
