FLINN SCIENTIFIC

Name_____

Temperature Worksheet

Observations and Analysis

Table 1.	Cold Water	Room Temperature Water	Warm Water
Temperature (°C)			

Table 2.	Cold Water	Room Temperature Water	Warm Water
Initial Buret Volume (mL)			
Final Buret Volume (mL)			
Volume of Sodium Thiosulfate (mL)			
Concentration of DO (ppm)			
Oxygen Saturation (%)			

Questions

1. Use graph paper to plot the dissolved oxygen concentration as a function of temperature for the cold, room temperature, and warm water samples.
   a. The independent variable.
   b. The dependent variable.
2. For water that is 100% saturated, describe the relationship between water temperature and the amount of dissolved oxygen.
3. On a sunny day, at what time of day is the concentration of dissolved oxygen the highest? Explain.
4. Would the DO of water taken from a stream where it enters a lake be higher or lower than the DO of water taken from mid-depth of the lake? Explain.

Primary Productivity Worksheet

Observations and Analysis

Table 1.

	Initial Water Sample	Dark Water Sample	50 cm Depth	75 cm Depth	100 cm Depth	125 cm Depth
Initial Buret Volume (mL)						
Final Buret Volume (mL)						
Volume of Sodium Thiosulfate (mL)						
Concentration of DO (ppm)						

Table 2.

	50 cm Depth	75 cm Depth	100 cm Depth	125 cm Depth
Gross Primary Productivity (Equation 4)				
Net Primary Productivity (Equation 5)				
Volume of Oxygen per L H_2O (Equation 2)				
Amount of carbon fixed per L H_2O (Equation 3)				

Questions

1. What is the one-day respiration rate for the field samples? (Equation 1)

2. Use graph paper to plot the net primary productivity versus simulated depth and the gross primary productivity versus simulated depth.
   a. The independent variable.
   b. The dependent variable.
3. What is the relationship between oxygen production and assimilation of carbon?

4. Refer to the productivity graph. At what simulated depth did respiration approximately equal productivity? (*Hint:* The point at which there is no net productivity.)

5. A mammal uses only 1 to 2 percent of its energy to breathe, while a fish uses about 15% of its energy to move water over its gills. Explain why a fish must expend more energy than a mammal to breathe.