Name_____ Period _____ Date _____

Fish Experiment

STEM Sims

Lesson 1: How Are the Temperature and the Amount of Oxygen in Water Related?

Just like humans, fish need to breathe oxygen in order to survive. However, most fish do not breathe oxygen from air. Fish get their needed oxygen from the water. Water can hold different amounts of oxygen. Does the temperature affect how much oxygen water can hold?

Here are some definitions to help you in your investigation.

Breathe -	(fish) to take in water with dissolved oxygen and move the water out through their gills
Oxygen -	a colorless gas that is critical for all living things
Temperature -	a measure of the hotness or coldness of something
Celsius (°C)-	a unit of measure of temperature
Dissolved -	becomes part of a liquid system to make a solution
Concentration -	the amount of something dissolved in a solution
ppm -	a unit of measure of concentration
Solution -	a mixture of two or more things with one thing evenly spread out in the other thing
Variable -	something that can change
Independent variable -	a variable controlled by the experimenter
Dependent variable -	a variable that changes because of the independent variable
Graph -	a way to visually show two or more variables' data

Doing the Science

1. Open the Fish Experiment Simulation by clicking on the "Simulation" tab.

2. Move the "Temperature" lever on the bottom of the fish bowl to the far-left position.

3. Note and record the temperature and dissolved oxygen concentration in Table 1.

4. Slide the "Temperature" lever to the right to about the middle position.

5. Note and record the temperature and dissolved oxygen concentration.

6. Slide the "Temperature" lever to the far-right position.

7. Note and record the temperature and dissolved oxygen concentration.

Table 1.

Trial	Temperature (°C)	Dissolved Oxygen Concentration (ppm)
1		
2		
3		

Do You Understand?

1. What was the independent variable in this experiment?

2. What was the dependent variable in this experiment?

3. Was the amount of oxygen dissolved in the water visible to you? Explain why you could or could not see the oxygen in the water.

4. As the temperature increased, what happened to the amount of oxygen the water could hold?

5. What effect might your answer to the previous question have for the ability of fish to survive?

6. On your own paper, make a graph of temperature versus the dissolved oxygen concentration.