# CALIFORNIA STATE SCIENCE FAIR
## 2007 PROJECT SUMMARY

**Name(s)**

Caroline V. Green

**Project Number**

# J1911

**Project Title**

## The Effect of the Number of Goldfish in a Tank on the Dissolved Oxygen Content of the Water

**Abstract**

**Objectives/Goals**

My goal was to measure the change in the dissolved oxygen content of a fixed volume of water in a fish tank while varying the number of goldfish therein.

**Methods/Materials**

The volume of dissolved oxygen (mg/L) in two identical tanks each filled with 20 liters of tap water was measured with a Vernier dissolved oxygen probe and recorded. One tank served as a control and remained empty of fish. Two goldfish were placed in the other, or experiment, tank. Every half hour, two more fish were added, until the tank contained six fish for the final half hour of readings. The dissolved oxygen content in the experiment tank was recorded throughout the experiment. Control tank readings were also taken at the beginning and end of each half hour interval. The protocol was repeated on a subsequent day to verify the results, with the exception that fish were added in the experiment tank until the final count was eight.

**Results**

The dissolved oxygen content of the experiment tank fell consistently throughout the experiment as fish were added, and remained consistently below the levels recorded in the control tank.

**Conclusions/Discussion**

I conclude that the number of goldfish in a tank has a significant role in the dissolved oxygen content of the water. The dissolved oxygen content of the water decreases as the number of goldfish in a tank increases.

**Summary Statement**

The number of fish in a fish tank directly impact the volume of dissolved oxygen in the water.

**Help Received**

Mr. Penkala helped define the test parameters, provided the instruments and demonstrated the graphing capability of the Excel software. My father helped proofread my report. My mother helped cut out some pictures used on my display board.