Teacher Sheet 1

MATH APPLICATION ACTIVITY: ICEBERGS!

OBJECTIVE: Students will:

- Understand the relationship of ice to water;
- Understand density as the ratio between mass and volume;
- Compute the density of different quantities of water and
- Understand why ice floats.

MATERIALS: For each group of students:

Student Activity Sheets
1 graduated cylinder
8 small containers (up to 200ml)
1 balance scale with mass
Access to a freezer

PROCEDURE:

1. Present the information in pages 1-2 to the class and discuss the day before the actual activity.

2. Divide the class into groups of 2-3.

3. Each group should:
   - ✓ Weigh the containers and record that information on the outside of the container and on the **Student Sheet.**
   - ✓ Fill the 8 containers with different amounts of water: 25, 50, 75, 100, 125,150,175 and 200ml.
   - ✓ Measure the weight of each container with the water in it and record on the activity sheet.
   - ✓ Freeze the water in each container.
   - ✓ Record the weight of each container and record.
   - ✓ Compute the difference.
   - ✓ Record the information on the **DATA TABLE** in **PART I.**

4. Students should then graph their results in **PART II: GRAPHING.**
   - ✓ X-axis= Amount of water in ml;
   - ✓ Y-axis= Amount of loss (difference) in grams
   - ✓ X-axis-25-200ml
   - ✓ Y-axis-2-10

Teacher Sheet 2

5. Using the graduated cylinder and an ice cube, each group should:
   - ✓ Determine the amount of displacement of water when an ice cube is added to the graduated cylinder.
   - ✓ Add their information to the table in **PART III.**

6. Students should then calculate the density of the 8 "icebergs" using the formula for density and record their answers in **PART IV**.

7. When the activity is complete students should then answer the questions in the **ANALYSIS** section.