WHAT'S THE IMPACT? RESEARCH AND TOURISM IN ANTARCTICA

LAB: WASTE AND ANTARCTIC ICE

Where there are people, there is waste. How might that waste affect Antarctic ice?

Materials
5 -100 ml beakers (per group)
Coffee Grounds
Salt
Tissue paper (cut into small pieces)
Motor Oil
Thermometers

1. Observation

Waste materials like coffee grounds, salt, tissue, and motor oil can affect polar ice.

2. Hypothesis/Prediction

How will the presence of waste materials affect polar ice? Write a prediction statement.

3. Procedure

Before you begin, remember that the results of your experiment will be more reliable if you develop a consistent procedure.

- Place 50 ml of water into each beaker.
- Place one teaspoon of each type of waste material into each beaker, stir thoroughly.
- Record the starting temperature of each beaker onto the data table.
- Place the beakers into the freezer.
- Record the temperature change for each beaker every 15 minutes

4. Data Analysis

- Construct one line graph for all data. (5 lines on one graph)

5. Conclusion/Discussion

- Which beaker of water took the longest to freeze? Which took the shortest amount of time to freeze?
- Does your hypothesis match the conclusion? How would you change your prediction statement if you were to conduct the experiment again?
- List three sources of error for this experiment.
- How might these particular waste materials end up in polar ecosystems?
- How does this lab help you to understand the potential impact of humans on polar ecosystems?

Extension Reading:
Antarctic Explorers: Erich von Drygalski: http://www.south-pole.com/p0000085.htm
In 1902, a German polar exploration ship was actually freed from polar ice in Antarctica using trash and waste!

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Data Table

Waste Material → Time ↓	Plain Water	Coffee Grounds	Salt	Motor Oil	Tissue
Starting Temp					
15 minutes					
30 minutes					
45 minutes					
60 minutes					
75 minutes					
90 minutes					
105 minutes					
120 minutes					