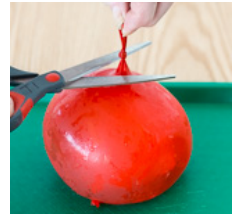


Ice Balloons-Exploring Ice and the Process of Exploration

Part-1: Making Observations and Analogies

Unwrap the frozen balloon and spend 1 minute looking carefully at the outside and inside of the ice. After one minute, write and connect...



- Write down at least five things that you notice. Use a magnifying glass and flashlight to see into the interior of the ice. Add these observations to your notebook and the jamboard.
- Connect your observations. Connect your new observations to things you have seen before. Write down five things that the features in the ice look like or remind you of. Add these observations to your notebook and the jamboard using a different color.
- Sketch and Wonder. Sketch a feature of the ice in your notebook and write down three questions that the ice has sparked in your mind. Add these questions to your notebook and the jamboard using a different color.

Part-2: Evaluating a Scientific Model.

Scientific models are mathematical or physical tools that provide simulations to allow us to analyze systems like large ice sheets. The frozen balloon will act as a physical model of the melting Greenland ice sheet. Every model has strengths and weaknesses. During this activity, look for ways that the balloon is similar (strength) and different (weakness) than the actual melting Greenland ice sheet.

Sprinkle some rock salt on the top of the frozen balloon. Add 1-2 drops of food color to the salt. Spend 1 minute looking carefully at the outside of the ice. After one minute, write and analyze...

- Write down three things that you notice. Use a magnifying glass and flashlight to see things better. Record these observations to your notebook.
- Model Strength: Analyze your ice sheet model by looking for features on your melting balloon model that are similar to the actual melting surface of Greenland. (Google "Greenland surface melting" -images.) Take a picture of your balloon feature and save the image from Google, Upload both to the board with a short description of the similarities that you observe on the Padlet. Add your analysis to your notebook.

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- **Model Weakness:** Analyze your ice sheet model and the surface of Greenland for features or things that are different. Post images with a short description of the difference you observe on the Padlet. Add your analysis to your notebook.

Part-3: Predicting and Experimenting.

When Ice from Greenland Glaciers makes it to the ocean the glacial front calves and releases icebergs.

- **Predict:** What percent of the frozen balloon will float above the water line if you put it into water?
- **Experiment:** Conduct an experiment to determine what percent of the ice is actually above the water.
- **Predict:** Would your ice float higher or lower in salt water?
- **Experiment:** Conduct an experiment to determine if your prediction was correct.
- **Sketch and compare.** Sketch your floating iceberg. Include your experimental percentages. Compare your results to data found on the internet.