

LTBR Outreach: Living Ice

A film and activity that excites high school students about microbiology and the challenges of discovering life in Antarctica

Collaboration with
MSU film program
and the BSI:



I. Documentary style film:



II. Synergistic laboratory exercise:

Pond Water Popsicles



Experimental Design

Hypothesis: Develop a hypothesis based on one of the following questions. Your instructor may allow you to develop a hypothesis based on another question that arises during the student topic.

Question: Check One!

How does temperature affect the growth of microorganisms?
 How does freezing time affect the growth of microorganisms?
 How does glucose concentration affect the growth of those microorganisms?
 Other: _____

Hypothesis: _____

Variables:

Independent variable (test): _____

Dependent variable (test): _____

Procedure:

Detail the procedure you will use to solve the above problem. You should use the laboratory techniques listed to analyze your sample before and after freezing. One should be included in the data sheet. Only temperature was variable in your experiment.

This experiment must include a control group that is left unchanged as well as two other groups that are manipulated. If you have repetitive control and replicate for each before proceeding with the experiment.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

Procedure Approval: _____ (Signature) (Signature)

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Project Goals:

- Introduce students to cold environment microbiology (and terms such as: **psychrophile**, **cryoprotectant**, and **astrobiology**.)
- Create an educational activity and documentary-style film that work synergistically
- Answer "So what?" – both must demonstrate why Antarctica research is important to the average person
- Have students reflect on the broader impacts of their experiment (i.e. medical, environmental and exobiological implications)