

Name: \_\_\_\_\_

Hour: \_\_\_\_\_

### Do Microorganisms Live in Antarctica Too?

We know that we have lots of microorganisms growing where we live, but can microorganisms like bacteria also live in the harsh, cold, dry climate of Antarctica? Part of our research project while we are down here in Antarctica is looking at the microorganisms that live in the Taylor Glacier. We are taking dirty ice (ice with lots of dirt/sediment in it) and clean ice (ice without sediment) samples and analyzing them to see if they contain microorganisms and if the microorganisms are alive. In this activity, we will be sampling different types of ice and other common places to see if we can find some microorganisms living in Antarctica!

#### Pre-Lab Questions:

1. What do you think microorganisms need in order to grow and reproduce?
  
  
  
  
  
  
  
  
  
  
2. What is the average temperature and humidity in Antarctica? What is the average temperature and humidity where you live?

**Problems:**    **#1.** Do microorganisms in Antarctica prefer to live in clean or dirty ice?  
                  **#2.** Do the bacteria that we find in Antarctica grow and reproduce more in warm or cold temperatures?

**Hypothesis #1:** Do you think we will find more microorganisms in the clean or the dirty ice? Why?

**Hypothesis #2:** Do you think that we will grow microorganisms faster in the warmer or in the colder environment? Why?

**The Experiment:** (view video of experiment on my journal page at [www.polarartrec.com](http://www.polarartrec.com))

1. Set up 18 tubes of liquid media (solid media in petri dishes would have been nice, but they froze)
2. Inoculate the media with ice, sediment, and swabs (see data table below)
3. Place the warm samples inside and the cold samples outside and allow the microorganism to grow.
4. Record observations of microorganism growth every day in the data tables #1 and #2. If the tubes are cloudy, it means that something is growing inside.

**Interpreting the Results:**

1. In which one of the tubes did you see microorganism growth first? Why do you think this occurred?
  
2. Did any of the tubes never grow any microorganisms? Why do think this occurred?

3. Did microorganism growth occur faster in the warm or cold temperature environment? Why do you think this occurred?
4. Did microorganism growth occur faster in the clean or in the dirty ice? Why do you think this occurred?
5. How did the microorganism growth in Lake Bonney ice compare to the microorganism growth in the clean and dirty ice from the Taylor Glacier?
6. Based upon our results, is it possible for microorganisms to exist in Antarctica? Explain.

