

David Nagel
LABS 2001
Inquiry Activity

Title: Beyond Island Hopping

Lesson Summary: Students will use a baby pool with sand ISLANDS in to look at concept relating to species survival and the concept of island biogeography. Insects such as crickets, moths, mealworms. (Specifically I will use crickets for this investigation)

General Goal: This lesson will have the students begin to explore and hopefully understand the idea of Island Biogeography

Duration: One 85 minute period. (Might be able to take a few days with mealworms)

Specific Learning Objectives:
PROCESS OBJECTIVES

- For students to hypothesize how organisms MAKE it and survive a TRIP to an ISLAND
- o To have students keep a notebook of hypothesis and observations that they will record over a period of a few classes.
 - Collecting data, graphing data
 - o To have students possibly look at ways that the size and distance of the islands (compared to actual ISLANDS in nature) how the generic sizes (completely round, flat, measured distances apart, etc.) might not be a totally accurate representation of what this simulation is trying to show (prove).
 - THEY WON'T BE TOLD what the cans of sand REALLY represent. They will come up with idea hopefully on their own.
 - Students will be able to use their results and apply them to larger scale natural island environments.

Prerequisite Knowledge/Skills for Students:

- 1) How to make / state a hypothesis
- 2) Be able to accurately collect data

Background Information: VERY little. They will have pre-conceived notions on how crickets move, moths, etc.

Preparation for Lesson:

- Baby pool
- WATER!!
- Sand to put in cans for islands
- Cans
 - o 2 different sizes
 - § Coffee 1
 - § Coffee 2

§ Tubs of empty “I can’t believe it’s not butter”
§ Etc.
COVER for the pool. (Mosquito netting worked well.)

Instructional Strategy:

ENGAGEMENT: I am going to give the kids VERY little background info. I am going to tell them to make a hypothesis of how many crickets (to start with) will make it to the cans of sand in the water from the HOME CAN! (When they ask why...I will simply shrug my shoulders and smile and say, “let’s just see!” I will GRID the pool into 4 sections. One quadrant of small ‘canisters,’ one medium, one large, and one BIG!! I will place a BIG one in the middle. I will put a number of crickets (to be determined after a trial this summer or fall), on the middle or HOME base. I will have a sheet which is a model of the pool and the islands numbered. (The system will be s1, s2, s3, m1, m2, etc.) I will want them to hypothesize about specific islands as well as groups. More specifically, I will want them to collect data for 4 groups of cans (islands). Small Near, Small Far, Large Near, Large Far.

I will tell them WHAT I am going to do in terms of the cricket placing. I will have them make their hypothesis and then start the experiment.

EXPLORATION: Students will observe the crickets moving from the home island to different islands. (I am not sure yet how long I will RUN the experiment. I am thinking 20 minutes. I will know more after the summer trial run!!)

After compiling their data on their grid sheet. Students will chart and the graph the data.

	Far	Close
Sss		

I will have LARGE and FAR on the left side of this chart. (I couldn’t write it in on this form)

Then students will graph their results. They will complete 2 separate graphs. One will be a line graph with the # of species surviving on the vertical axis, and size of ‘can’ on the horizontal. The other will have the # of species surviving on the vertical and the distance from the home ‘can’ on the horizontal. Students will then be responsible for coming up with conclusions as to which “cans” (Islands) have a better chance for species to make it to and be able to survive.

I will then introduce the concept of Island Biogeography. We will read Lesson IV in Conservation Biology on ‘The Theory of Island Biogeography. (This is where I am looking to fill in a POST culminating activity looking at REAL Island environments in nature. I am unsure exactly how I will do this)

Assessment:

· With most of my assignments, students receive points for following directions and keeping

their observations neat and clear in their notebooks.

- Students will be graded on:
 - o Hypothesis
 - o Data collecting
 - o Charts (completed and accurate)
 - o Graphs (Complete and neat)

Conclusion as to WHAT are possible explanations as to why we saw the results we did. (We will also be able to compare them to the results of other classes.)

Comments:

As a possible Post-activity, I will look for some real DATA on species and survival rates in some island environments. I would then have the students apply the concept of Island Biogeography that we discussed in class and compare data we find to what we were able to do in class with the crickets. The students would then have to write a paper discussing issues and possible variables either used or missing on our class simulation.