Small Populations

January 24, 2003

Grades K-3

OBJECTIVES

- Students realize the difference between small and large populations
- Students gain an understanding of dynamics in small vs. large populations
- Students create and interpret graphs based on their previous activities
- Students hold a “science conference” to discuss and evaluate graphs from each group

SKILLS DEVELOPED

- Observation
- Compare and Contrast
- Cooperation
- Imagination and Creativity
- Counting
- Graphing
- Analytical Thinking
- Oral presentation

KNOWLEDGE AND VALUES DEVELOPED

- Introduction to concept of small population dynamics
- Introduction to data presentation and interpretation
- Appreciation for impacts of threats to biodiversity
SUPPLIES NEEDED

* 4 pair of size XS slippers (e.g. Locals or Surfah)
* 4 pair of size XL slippers
* 4 ink pads

Assortment of decorative ink stamps (e.g. butterflies, trees, flowers, other animals and plants)

2 pieces of poster board cut into quarters

Drawing paper, markers, colored pencils or pens

Graph paper and rulers

* Based on class size of 16, broken down into 8 groups of 2 students each. Each group will end up receiving 1 large slipper and 1 small slipper. Groups may share ink pads and stamps.
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Activity 1

Shoe Store… Do These Slippers Fit?

Students have an opportunity to play shoe store. All slippers are placed into a box. Each student has an opportunity to select a pair of slippers from the box and try them on. Slippers will be either too big or too small. After students have had a chance to try on different size slippers the science partner leads a discussion on small, medium and large. From there the science partner introduces and discusses the term population. After these discussions, students are asked to write and illustrate the words small, large and population.

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Activity 2

The Life Inside Your Slippers

For this activity students are arranged into 8 groups of 2 students. Each group is to receive 1 small slipper, 1 large slipper and 1 piece of poster board. Students are asked to trace the outline of each slipper onto the poster board. Once they have finished this task they decorate the inside of their slipper tracing with different animal and plant ink stamps. Try to make sure that stamps do not overlap too much as they will be counted later. The idea is for them to use a diversity of stamps to fill in the slipper.

When this portion of Activity 2 is complete the science partner will lecture on the dynamics of small populations vs. large populations. This lecture will use a flip chart and drawings for guided imagery. Previous concepts of biodiversity and threats to biodiversity will be woven into the lecture.
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Activity 3

How Many Critters Fit in a Slipper?

In the first part of Activity 3 students will compile “data” on the number of plants and animals that fit into their small and large “populations”. Each team will create a chart listing the types of animals and plants (e.g. butterfly, whale, flower, and palm) that were used to decorate the small and large tracings. The students may wish to write out the names of these objects or use the stamp itself. Students tally the number of each object for each size slipper. For example, a chart may look like this:

<table>
<thead>
<tr>
<th>Population Size</th>
<th>Number of Animals</th>
<th>Number of Plants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Large</td>
<td>20</td>
<td>45</td>
</tr>
</tbody>
</table>

After the students have completed their charts they will move onto graphing the data from each size slipper. A simple bar graph may be used in this situation. Students may need assistance with the format of a graph. The science partner will demonstrate a bar graph before having the students create their own. Again the students may wish to write out the labels for their objects or use the ink stamps. A bar graph may look like this:
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Activity 4

Kanuikapono Science Conference

In this activity students conduct a mini-science conference. Students start off by evaluating their own graphs. One objective may be to determine if biodiversity decreases with decreasing population size. Students will be encouraged to discuss their results within each group. After each group has had a chance to discuss their work graphs are posted around the room. Students are asked to observe other groups work comparing the results. The science partner may wrap up the science conference with a discussion of the results. Students will be asked to voice their interpretations.