Wormeaters (the Sequel) TEACHER GUIDE

Note: this activity builds on the one in the Natural Selection unit. If you have not done that activity, this one will need much more scaffolding.

Question/Goals:

How does variation that naturally exists within a population allow individuals to survive or perish?

The goal of the original game played in the Natural Selection unit was for students to explore a population with variation in a trait and the selective advantage of specific variations in a particular environment. In Wormeaters (the Sequel) they continue this exploration but this time they see how different variations might confer an advantage when the environment changes and the populations are isolated. This is basically a simulation of a simplified version of the Galapagos Islands and follows a discussion of why there are so many different species of ground finch in the archipelago. Students will play a very similar version of the game but this time each table will have a *different* prey item. The scenario is that the "worms" have all died out.

Timing: playing the game will take approximately 20-25 minutes followed by discussion.

Materials (per group of 5 students):

- Forks, spoons and sporks: 2 dozen spoons is plenty, 4 dozen each forks and sporks.
  - *Forky:* regular forks, two dozen.
  - *Forktunis:* remove all the middle tines leaving only the two outside ones, two dozen.
  - *Sporky:* regular sporks, two dozen.
  - *Sporticus:* remove the middle prong leaving only the two outside ones, two dozen.
  - *Spoony:* regular spoons, two dozen.
- Small paper cups (one per person).
- PREY ITEM: Something different for each table. We have used string, curly pasta, beans, pea gravel, sunflower seeds (small bird seed variety), etc. *It will work best if you have some items well-suited to predation by the spoon and spork on some "islands" and other items that will work best for forky and forktunis on other tables.*
- Tape, masking or scotch. If possible, a roll per group.
- Clock or stopwatch.

Setting Up:

1. Arrange enough tables –islands to accommodate the class in groups of 5.
2. Have extra beaks available at a central location or carry extras around and distribute.
3. Ask students to tape cups to table in front of them.
4. Explain the logistics of the game but refrain from telling them what they will figure out. Let them do the reasoning. You can let them know that they will try to catch as many worms as possible.
5. Explain how the data will be recorded.
6. Students will play five rounds of 30 seconds each. This is the equivalent of one generation.
7. Between generations students need time to count, record, and get new beaks.
8. After 5 generations students will record how many of each beak shape are left on their "island". One group member enters it on the class data table.

Suggestions:

- Ask students to graph how the population changed over time. In the first generation there should be equal amounts of beak shapes.
- If you are short on time, students can answer the discussion questions as homework. However, it is important to have a whole class discussion about how this activity supports the model –
- Where this is headed:

  Most of the further discussion of the game can occur in the context of the ground finches activity in which they look at data from Galapagos ground finches and then compare to what happened in the game.