

Biodiversity Counts!

Essential Questions:

How can biodiversity be measured?

At A Glance: This indoor activity helps students understand the concept of counting organisms in a plot study or line transect prior to doing the outdoor activity.

Getting Ready

Prepare one “habitat” bag for each scientist team ahead of time by placing “species” in a plastic ziploc baggie. “Species” are peanuts, pasta, rocks, etc. Each bag has a different combination of numbers of species. For example, one bag has many of one species, one bag has a few of five to six species, and the other bags have different combinations of species and numbers of individuals. The bag with just one species should have many individuals to keep this team busy while other teams are counting. Write a number on each bag.

Procedure

1. Introduce the term “biodiversity” to learners as referring to a variety of life. Bio means ‘living’ and ‘diversity’ is variety. So when we are talking about biodiversity we are looking at the variety of organisms (and their genes) in an ecosystem.
2. Divide learners into 4 to 6 scientist teams. Assign the team a number and give each team a “habitat” bag with “species” inside.
3. Explain to learners that the bag is like a habitat and is a home to the species within its borders. The items in the bag are “species”. Make analogies to local or regional habitats and the species that live there to help learners to understand that their team’s bag and its contents is a model of a real habitat.
4. Ask scientist teams to choose a recorder and give each team a Biodiversity Counts! worksheet, a species key and a pencil.
5. Ask teams to work together to count the different species and record the numbers on the worksheet. This can be done either by pouring the contents of the bag onto the Biodiversity Counts! Worksheet (with the circle on it) or by moving the items around to sort and count them without opening the bag. (Using the worksheet with the circle on it helps learners get ready for counting the species in a plot sample on their school site.)
6. Using the Biodiversity Counts! Key, team recorders will write down the names and numbers of species and tally them. The key is used to help learners know what to call the species and also gives them good practice in using reference materials. Tell learners that scientists often use keys called field guides to help them identify species that they have observed. In this key, peanuts are snakes. Learners should write “snake” in the species column of the worksheet and the number of them in the second column. Teams should tally the numbers of individuals and write the total in the gray box (the last row).
7. Ask teams to discuss what other species could use the “species” of their “habitat” bag to survive and write the names of these species in the third column. For example, if snakes are

Objectives: *Learners will:*

- 1) define the term biodiversity.
- 2) describe how biodiversity can be measured.

Skills: recording data, inference, answering own questions, analysis

Supplies:

- Biodiversity Counts! Datasheet
- pencils
- ‘Habitat bags’ *see datasheet key*
 - elbow macaroni
 - Spiral macaroni
 - Peanuts in shell
 - dried peas
 - rocks

Subjects: science, math

Time: 20 – 30 minutes

Location: indoors

present in a habitat, then hawks may also be present because they would have a food source. Teams should then tally the number of the different species they observed and record the total in the gray box. This allows learners to see that having a variety of species can lead to even greater variety and greater numbers.

8. After all teams have counted and recorded their species, ask a member from each team to tell the others what species they found in their habitat. Guide discussion about the needs of their species and whether or not they are met in this habitat. For instance, if a habitat has only peanuts (representing snakes), they will not live very long unless they adapt to eating their own kind.

9. Discussion can be expanded to include issues concerning the extinction of a certain species and the effect that has on other species populations or issues concerning the introduction of exotic species for biological control or by accident and the effects of this on native populations. Stress to learners that biodiverse habitats are healthier, more stable and balanced.

10. Conclude the activity by asking learners, "Which habitat is more biodiverse, a habitat with lots of one species or a few of several different species?" They will be able to see from the totals of their columns that a greater variety of "species" in their "habitat" is more biodiverse.