



SfS Away from the Classroom!

SCIENCE
FROM SCIENTISTS

LS42: Mechanisms for Biodiversity (Recommended for Grades 6-8)

Please use the following resources to learn about the mechanisms for biodiversity!

Watch these Videos:

[Population Genetics: When Darwin Met Mendel - Crash Course Biology #18](#) (first five minutes)

[Why is biodiversity so important? - Kim Preshoff](#)

Answer these questions:

- What are the four major mechanisms of evolution in populations?
- What three types of diversity make up biodiversity?
- What is a keystone species?

Activity: Follow these directions to measure the biodiversity in your backyard ecosystem!

You will need:

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| <ul style="list-style-type: none"> • Science notebook • Pencil | <ul style="list-style-type: none"> • Calculator |
|--|--|

1. Copy this table in your science notebook.
2. Go outside with your notebook to record and count the various living organisms living or visiting your area.
3. Count both the types of organisms (species) and the number of each. Example: 2 pine trees, 3 maple trees, 1 oak tree is 3 species of trees and 6 total trees
 - Don't worry if you don't know the name of a specific species of animal, tree or plant - simply knowing it is different than the rest and counting them is enough!

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| <p>Trees:</p> <p>Hint: look for different types of bark and leaves on your trees</p> | <p>Trees:</p> <p>Total species:</p> <p>Total number:</p> |
| <p>Plants:</p> <p>Hint: look for flowers, bushes, grass and weeds</p> | <p>Plants:</p> <p>Total species:</p> <p>Total number:</p> |
| <p>Animals:</p> <p>What types of animals visit your yard or live there?</p> | <p>Animals:</p> <p>Total species:</p> <p>Total number:</p> |
| <p>Insects and Bugs:</p> <p>Hint: look for flying, crawling, and burrowing insects and spiders</p> | <p>Insects and bugs:</p> <p>Total species:</p> <p>Total number:</p> |
| <p>Total Number of species:</p> <p>Total number of individuals:</p> | |



4. Use this formula to calculate the biodiversity index:

Biodiversity index = total # of different species ÷ total number of living organisms

The closer the index is to 1, the more diverse your area is!!

5. Make sure you date your biodiversity count! The biodiversity of your backyard can change depending on the season, the weather, and even the time of day! Re-do your biodiversity count to see how your index changes over time.

To watch how mechanisms of evolution affect biodiversity in a population, check out this virtual fish population:
<http://virtualbiologylab.org/ModelsHTML5/PopGenFishbowl/PopGenFishbowl.html>

Make observations & use Claims, Evidence, and Reasoning!

1. **Claim:** Populations change over time.
 - **Evidence:**

 - **Reasoning:**

2. **Claim:** Biodiversity increases as the number of species and numbers of individuals increases.
 - **Evidence:**

 - **Reasoning:**