

What is a population?

a group of organisms of the same species in the same area at the same time

What is a community?

All of the different species in one ecosystem

What is an ecosystem?

The biotic (living) and abiotic (nonliving/physical) parts of an environment interacting.



Which ecosystem do you think is healthier?

Ecosystem A

34 species

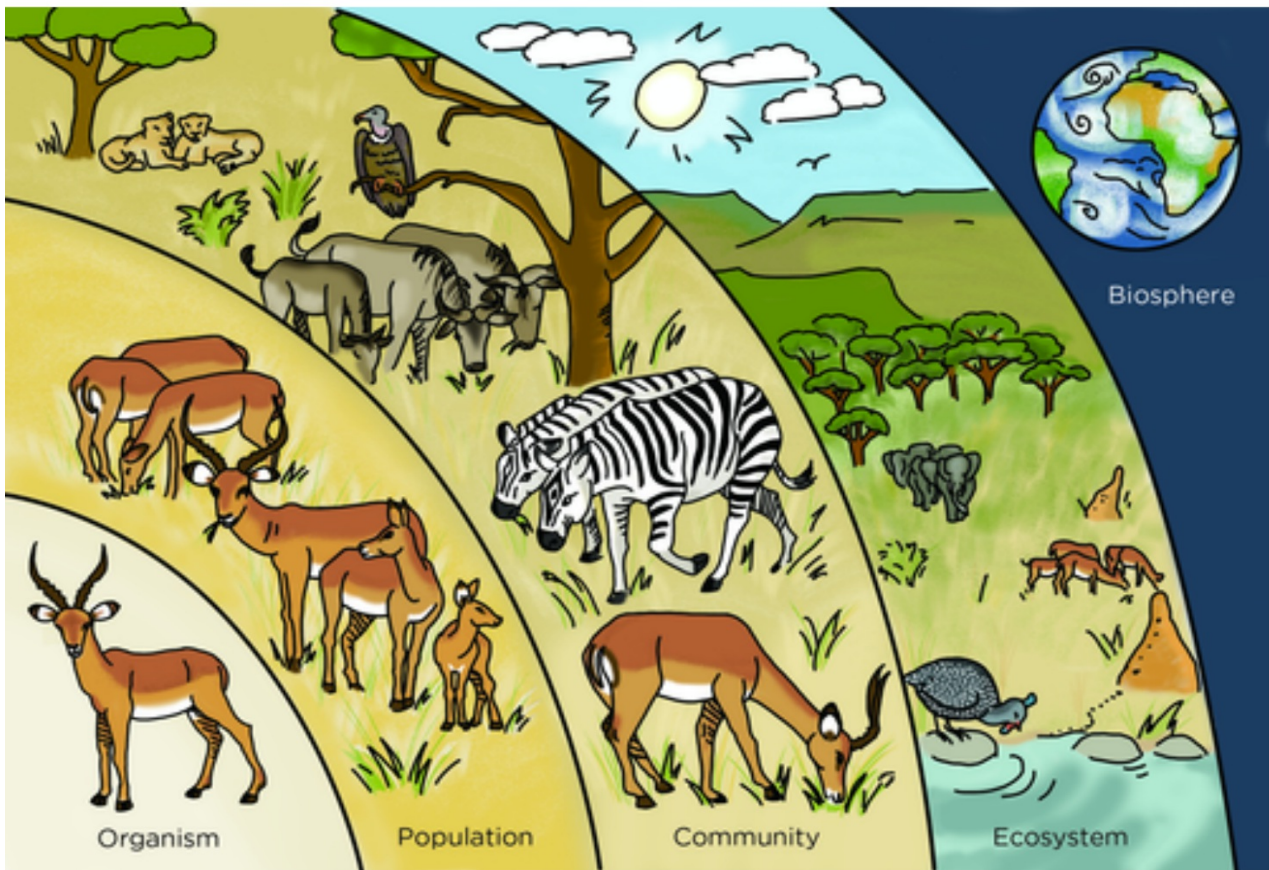
2875 individuals



Ecosystem B

1 species

4000 individuals



Organism

Population

Community

Ecosystem

Biosphere

Objective:

Students will define biodiversity and describe species richness and abundance

To Get: Species Richness and Abundance Reading

To Take Out: Blue Warm Up Paper
RFP Research on Species (stamp)

Homework: Review Species Richness and Abundance and retake exit card as needed

Anyone who was absent yesterday needs to choose an organism for their project



What do you think the word
"Biodiversity" means?



Video on Biodiversity

Questions: (7 min video)

(answer questions on the top of the paper)

1. How does the video define biodiversity?

Total # of species, Genetic Diversity, Ecosystem Diversity

2. How do humans affect biodiversity?

Decrease biodiversity- hunting/destruction of habitat,

3. Why is biodiversity important in an ecosystem?

Biodiversity provides STABILITY to an ecosystem

(more producers= more consumers= more decomposers)

Biodiversity and Species Richness and Abundance

1) What is biodiversity? _____
2) How do humans affect biodiversity? _____
3) Why is biodiversity important to an ecosystem? _____

Species richness and relative abundance are the two factors that are considered when measuring species diversity.

Explanation:
Species richness and relative abundance are the two factors that are considered when measuring species diversity.

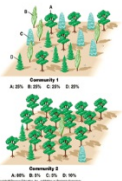
- Species richness refers to the number of species in an area.
- Species abundance refers to the number of individuals per species.
- Relative species abundance is how common a species is relative to the other species in a defined location.

For example, in the image below, we can see that these two communities are composed of the same species and are identical in regards to species richness. They have four different species of trees.

However, they differ in regards to relative species abundance. Community 1 is made up of equal proportions of species A, B, C, and D. Community 2 has a high relative species abundance composed of species B, C, and D. If we look at Community 1, each of the four species contributes to 25% of the population. The relative abundance of each species is more evenly distributed than Community 2.

While both communities have the same species richness, Community 1 would have greater diversity due to the relative abundance of each species present. In conclusion, the number of species factors into species diversity but also the number of individuals in each species is also considered. Both affect species diversity.

Define Species Richness: _____
Define Species Abundance: _____



Species Richness and Abundance

Instructions:

Place a :) next to things you already knew,

! next to things you found interesting

? next to things you did not fully understand.

Highlight key information as you read.

15 minutes:

Work by yourself or with your
table partner to complete the
reading

AND the Comprehension
Questions after the reading.

Reading:

Species **richness** and relative **abundance** are the two factors that are considered when measuring species diversity.

Explanation: Species richness and relative abundance are the two factors that are considered when measuring species diversity.

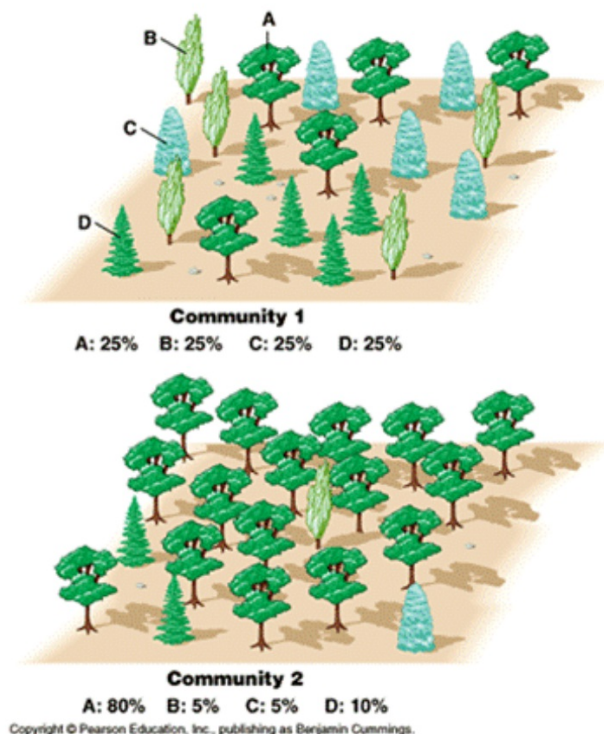
- **Species richness refers to the number of species in an area**
- **Species abundance refers to the number of individuals per species.**
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For example, in the image below, we can see that these two communities are composed of the same species and are identical in regards to species richness. They have four different species of trees.

However, they differ in regards to relative species abundance:

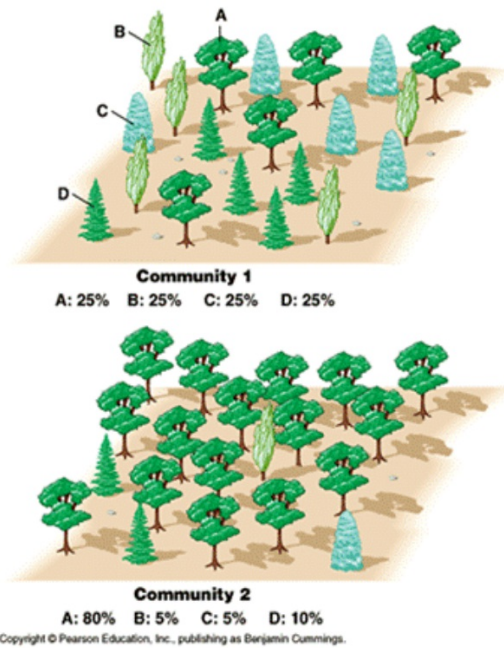
Community 2 is mostly composed of species A. Species A has high relative species abundance compared to species B, C, and D.

If we look at **Community 1**, each of the four species contributes to 25% of the population. The relative abundance of each species is more evenly distributed than Community 2.



While both communities have the same species richness, Community 1 would have greater diversity due to the relative abundance of each species present.

To conclude, the number of species factors into species diversity but also the number of individuals in each species is also considered. Both affect species diversity.



Define Species Richness:

Define Species Abundance:

Define Relative Species Abundance:

Comprehension Check:

Taylor is a bird watcher. She takes data on the number of birds and their different species for a wildlife refuge. Her most recent data set includes:

Site 1 She counted 294 birds, belonging to 27 species.

Site 2 She counted 288 birds belonging to 33 species.

1. Which site has the most bird richness?

Claim	Evidence
Site 2 has the most bird richness	Richness refers to number of species. Site 2 has 33 species and Site 1 only has 27

Evans Parkway in Montgomery County MD May 28th 2018 Identified 19 species, 6 are listed below (https://ebird.org/view/checklist/S46099804)		Aspen Hill in Montgomery County MD May 19th 2018 Identified 49 species, 6 are listed below (https://ebird.org/view/checklist/S45832326)	
Bird species	Number of individuals counted	Bird species	Number of individuals counted
Mourning Dove	4	Mourning Dove	2
Chimney Swift	2	Chimney Swift	6
Red-bellied Woodpecker	2	Red-bellied Woodpecker	7
Fish Crow	9	Fish Crow	1
American Robin	6	American Robin	10
House Sparrow	15	House Sparrow	0

2. Which species has the most relative abundance?

Claim	Evidence
American Robin	Abundance refers to number of individuals. There are 16 American Robins

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3. Which location has the most species richness?

Claim	Evidence
Aspen Hill	49 species in Aspen Hill compared to 19 species in Evans Parkway

After completing the Species Richness and Species Abundance exploration, write a final definition of biodiversity using all that you have learned.

Final Definition of Biodiversity

Biodiversity refers to the variety of life in an ecosystem. It includes the number of different species (richness) and the number of individuals (abundance).

Complete the Biodiversity Exit Card on MyMCPS

2019-2020 DAMASCUS HIG...

View Progress

+ Module

Home

Modules

Collaborations

Files

Syllabus

The screenshot shows a user interface for a course. On the left is a navigation menu with 'Home' highlighted in orange, and other options: 'Modules', 'Collaborations', 'Files', and 'Syllabus'. The main content area shows a module titled '02 Endangered Species' with a green checkmark, a plus sign, and a three-dot menu icon. Below this is a sub-item 'MyMCPS Biodiversity Exit Card' with a green checkmark, a plus sign, and a three-dot menu icon. A black arrow points to the sub-item. The sub-item also includes the text 'Multiple Due Dates | 4 pts'.