

Part A: What is biodiversity?

1. Define biodiversity in your own words: \_\_\_\_\_  
\_\_\_\_\_
2. Why is biodiversity important? \_\_\_\_\_  
\_\_\_\_\_

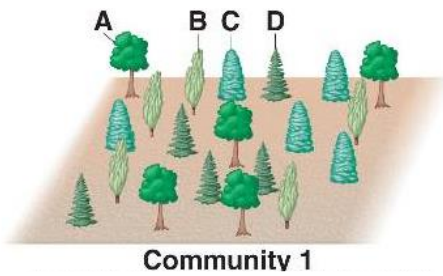
Part B: Calculating Biodiversity Indices

Ecologists use biodiversity indices to determine if a community or ecosystem is diverse: 1) species richness, relative abundance, Shannon-Weiner Index, species evenness, and Simpson Index. Ecologists will use more than one index to calculate the level of diversity. In our class, we will use species richness and relative abundance.

**Species Richness** = the number of different species in a community

**Relative Abundance** = the number of individuals in a species/the total number of individuals in a species.

Example:



Community 1:

Species Richness = 4

Relative Abundance of Species A =  $4/16 = 25\%$

Relative Abundance of Species B =  $4/16 = 25\%$

Relative Abundance of Species C =  $4/16 = 25\%$

Relative Abundance of Species D =  $4/16 = 25\%$



Community 2:

Species Richness = 4

Relative Abundance of Species A =  $16/20 = 80\%$

Relative Abundance of Species B =  $1/20 = 5\%$

Relative Abundance of Species C =  $1/20 = 5\%$

Relative Abundance of Species D =  $2/20 = 10\%$

1. Calculate the species richness (the) and relative abundance (the proportion each species represents of the total individuals in the community) for each of the following communities.

Community A

Species Name	Number of Individuals	Relative Abundance
White Oak	300	
Slippery Elm	350	
Black Walnut	298	
	Total # of Species =	Species Richness =

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*Community B*

Species Name	Number of Individuals	Relative Abundance
White Oak	35	
Slippery Elm	78	
Black Walnut	309	
Red Maple	12	
	Total # of Species =	Species Richness =

*Community C*

Species Name	Number of Individuals	Relative Abundance
White Oak	450	
Slippery Elm	475	
Black Walnut	402	
Red Maple	423	
Bur Oak	435	
	Total # of Species =	Species Richness =

- Rank each of the communities in order of least to greatest Species Richness.
- Rank each of the communities in order of least to greatest Relative Abundance.
- Develop a CER (Claim, Evidence, and Reasoning) to determine which community is most diverse.

Guiding Question: Which community is most diverse?	
Claim: Community _____ is most diverse because	
Evidence:	Reasoning: