

Introduction

Biodiversity is important! Having many different living things in an area allows ecosystems to maintain critical ecological services (like providing clean water, air, and pollination).

Biodiversity ensures resilience during natural disasters or threats, and preserves the ability for species and ecosystems to evolve under changing conditions.

Students will understand:

- Living things are diverse, can be grouped, and interact in their ecosystems
- Biodiversity is critical for maintaining healthy ecosystems

Vocabulary

Scientific name: Every recognized species is given a two-part name (Genus and Species.) Looking closely at the meaning of the latin words, a scientific name can be very informative.

For example: *Acer macrophyllum* (bigleaf maple) *Acer* = maple *macro* = big *phylla* = leaf

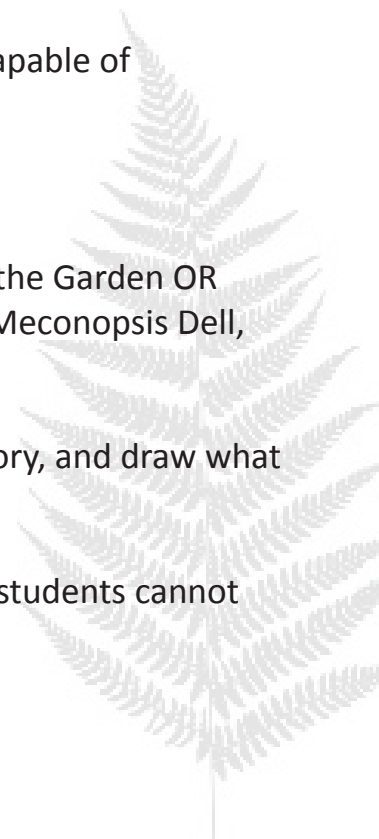
Biodiversity: The number and variety of all living things in an area, and their relationship to each other.

Ecosystem: A community of plants, animals, and microorganisms that interact with each other and with the physical environment.

Species: A group of closely related organisms that are very similar, and are capable of interbreeding.

Procedure

1. Ask students to find a specimen from each category as you walk through the Garden OR stop in an area to explore and record observations (suggested locations: Meconopsis Dell, or the area surrounding Forest Lake)
2. Working in groups of 2 or 3, have students find an example of each category, and draw what they see (draw the whole specimen or an interesting part of it.)
3. Look for plant labels in the ground or on branches to find plant names. If students cannot find a tag, encourage them to create their own descriptive name.
4. Wrap-up the activity with summarizing questions



Introductory Questions

1. What is biodiversity?

- Biodiversity is the number and variety of all living things in an area, and their relationship to each other.

2. Why is biodiversity important?

- Having many different living things in an area allows ecosystems to evolve under changing conditions, and maintain function. For example: If you have 10 species of trees in an ecosystem, and a disease removes one species, the ecosystem can still continue to function properly.

Summarizing Questions

1. What was the most interesting species you found in the Garden? What did you like about it?

2. What was the most diverse group (of plants or animals) you found in the Garden?

3. How might 2 or more different species interact?

- Animal interactions may include predator- prey, competition, mutualism, etc.
- Plants can provide food, shelter, and habitat for animals and insects

4. What are some similarities and differences between:

- 2 different conifer trees
- 2 different ferns
- 2 different grasses

5. How might some non-living parts of VanDusen Botanical Garden influence living things?

- Abiotic (non-living) features such as bodies of water, soil, terrain type, and climate influence where, and how successfully organisms can survive.



See pages 3 and 4 for additional notes to aid students' discoveries.

BIODIVERSITY DETECTIVES

Self-Guided Program: Teacher's Guide (Grades 2 - 4)



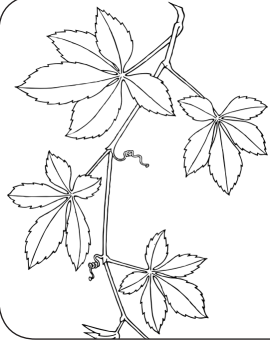
coniferous trees

- needles instead of leaves
- cone producing
- mostly evergreen (keep needles year-round)



deciduous trees

- lose leaves in colder seasons
- dormant in winter
- flowers develop to seed in one season



vines

- climbing or trailing plant
- climbing habit is used to reach sunlight



ferns

- spore producing (no seeds or flowers)
- "leaves" are called fronds
- found on every continent except Antarctica



lichen

- lichen is a close symbiosis between a fungus, algae, and yeast
- can be found thriving in extreme environments (acidic, salty, and toxic environments)



mosses

- spore producing
- do not have vascular tissue to transport water and nutrients, so it must grow near moisture
- "leaves" can be only one cell thick



grasses

- produce small, inconspicuous flowers which lack petals
- wind pollinated
- hollow, round stems



herbaceous perennials

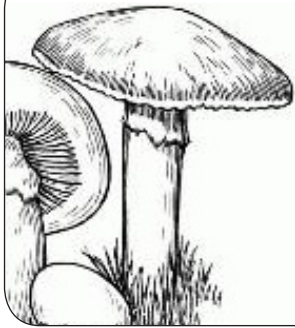
- non-woody stems
- die back every fall
- regenerate every spring

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BIODIVERSITY DETECTIVES

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fungi

- are not plants!
- don't carry out photosynthesis (lack chlorophyll)
- excellent decomposers
- no true roots, leaves, or stems



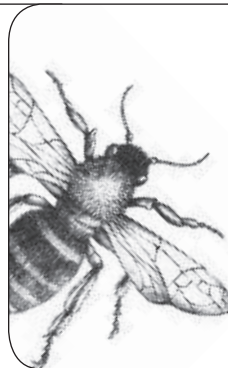
mammals

- have hair
- vertebrates
- warm blooded
- almost all mammals (except the platypus and echidna) give birth to live young



birds

- all birds have feathers
- vertebrates
- egg-laying
- every species has wings, but not all can fly



insects

- hard exoskeleton, no vertebrae
- three main body parts: head, thorax, and abdomen
- three pairs of legs
- pair of antennae on head

NOTES:

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