

**ecoMentors Lesson Plan Template: Helping kids explore the planet! www.ecomentors.ca**

**Title:** Diversity of Living Things

**Grade Level(s):** Grade 6

**Time/Date:**

**School:**

**Teacher:**

**Directions to school, class:**

**Contact Info:**

**Ontario Curriculum Connection: Life Systems – Diversity of Living Things**

Vocabulary: Words & Concepts your class may be learning, look these up yourself too!

**Classification/ taxonomy** – The categorization of species according to their amount of similarity

**Phylum** – the major taxonomic groups of animals and plants. Contains classes.

**Vertebrate species** – Animals with vertebrae/back bone and a large brain

**Invertebrate species** – Animals without vertebrae/back bone

**Habitat** – The type of environment in which a species normally lives

**Adaptation** - An alteration or adjustment in structure or habits, often hereditary, by which a species or individual improves its condition in relationship to its environment.

**Biodiversity** - The number and variety of organisms found within a specified geographic region

**Ecosystem** - An ecological community together with its environment, functioning as a unit

Materials and Equipment: List these before and while you plan and revise so you're prepared.

Pieces of recycled paper, a big space for students to walk around in and move around (perhaps clear the desks towards the side of the classroom so the middle of room is bare).

Biodiversity and classification Quiz material (additional)

What is your class accomplishing?: Learning & Activity Goals, Objectives

- **Students will review the definition of classification and the different classes and phylas they learned.**
- **Identify and describe the characteristics of vertebrates, and use these characteristics to classify vertebrates**
- **Compare the characteristics of vertebrates and invertebrates**
- **Students will assign organisms to particular habitats and brainstorm possible adaptations that allow the organisms to survive there**
- **Understand the importance of preserving biodiversity**

**PROCEDURE**

The Spark: Introductions, Demonstrations, Show and Tell, Topic Intro (Break the ice!) ~5-10min

*Hi everyone, today we will talk about classification. What does it mean to 'classify' animals?*

*How have you learned to classify animals? In what groups can you classify animals? (Vertebrate: mammals, birds, amphibians, reptiles, birds; invertebrate: sponges, worms, mollusks, arthropods).*

Write on the board **Species to an ecosystem is like \_\_\_\_\_ to a \_\_\_\_\_**. Ask each student finish this sentence in a creative way. Ask each student to read their sentence aloud.

Brainstorming, Getting ideas, Connecting ideas (assess their knowledge!) ~10-20min

**Opening activity:**

1. On two small pieces of recycled paper, each student in the class will write down on each piece the name of a particular animal. They can write down any animal they'd like but they must be from different classes (e.g. you can write 'squirrel' on one piece of paper and 'worm' on another, but you couldn't write 'mouse' on one piece and 'bear' on the other → both are mammals and are from the same class) Students must pick animals from the following classes (write these on the board): **insects, mammals, birds, amphibians, reptiles, fish**. Also, make sure they are writing down the specific names. Make sure they don't see each others names.
2. Give your papers to your ecoMentor, who will put them all in a hat and mix up the pieces.
3. Next, let students choose one piece of paper from the hat, but don't tell others what is written on his/her paper.
4. After everyone has chosen an animal, let the students go around the classroom and try to create groups of organisms that are in the **same class**. HOWEVER, the trick is that they cannot tell each other the name of their animal. Instead, you must try to describe the animal by its food, behavior and habitat. If the students think their animals are in the same class they can form a group. Still not telling each other their animal name or the name of the class!
5. Once everyone has found themselves in a group of other organisms they think are classified in the same class, let them tell what organism they had and what class they have formed.

Activity, Game, Exercise, Debate, Puzzles, Problem Solving, Role Play ~10-30mins

**Case Study on biodiversity:**

Divide the class in 4 groups. 1 group is developers, 1 group is biologists, 1 group is recreational users, 1 group is farmers.

*You live in a small city. Just outside town there is an area of 100 km<sup>2</sup> that is so far undeveloped. It consists of wetlands and forests, and the biodiversity is very high. There are lots of interesting plant and animal species. The local government is planning to give that area more purpose; the mayor says that the area has to make money (hey, the guy needs to pay his vacations somehow..).*

*The local government organizes a meeting in which each interest group can suggest ways to use this land. Each interest group gets 5 minutes to make a proposal.. When you are making your proposal keep in mind that it has to cover certain factors: 1) Economic (you have to make money or give people jobs) 2) Social/community (it has to be beneficial for the people) 3) Environmental (has to be good for the environment). Write these 3 factors on the board. Think about short term and long term benefits!*

Each group should spend 10-15 minutes to come up with a proposal. Every group should present their proposal in max. 5 minutes. After each presentation the other groups can ask critical questions. After each presentation the class should decide what the 2 best aspects of the proposal were. *The mayor (teacher) can now form a final plan how to use the land.* The teacher should combine the best of each proposal to make the perfect plan!

Activity, Game, Exercise, Debate, Puzzles, Problem Solving, Role Play ~10-30mins

**Preserve biodiversity:** Divide the class into groups of about three students each. Ask the groups to discuss and list the reasons why they think biodiversity is important and why endangered animals and habitats should be protected. *Why should ecosystems be kept healthy, with every member of the ecosystem protected?* Groups should list all their ideas. Discuss the groups' ideas with the class. Inform students that, as they may have already realized from making their lists, there is more than one argument in favor of preserving biodiversity and maintaining healthy ecosystems. *Why is it important to preserve biodiversity? Let's go back to our first exercise, what would happen if one, two or three ingredients/bolts were left out of a recipe/plane?*

*What are different reasons people think it is important to preserve biodiversity?* List these answers on the board. Five major categories of these arguments are as follows:

- Economic: "Biodiversity can help people make money or keep people from losing money."
- Recreational: "People love outdoor activities like fishing and backpacking, which would not be possible if ecosystems were destroyed."
- Human health: "Biodiversity can help people find better cures for illnesses."
- Human rights: "If biodiversity is protected, indigenous people can continue to live in their native lands."
- Spiritual/intrinsic value: "Biodiversity should be preserved for its own sake," "Animals and plants have a right to live," and "People rely on wild places and creatures for spiritual fulfillment."

Ask students if they've identified any of these types of arguments in their lists. Tell them that many people who believe biodiversity should be preserved will use more than one of these arguments to make his or her point. For example, a person may believe that every species has an intrinsic right to live but may also be excited about prospects for finding new medications from the Earth's plant and animal species.

Contingency, Plan B, extra game or activity (Back up plan) ~5-10mins

Play the Biodiversity and Classification Quiz! (additional material)

Presentation of Findings ~5-15mins

Let the teacher summarize the perfect plan to use the land which integrates the best aspects of the proposals of every group!

Review, Conclusion and steps towards continued action ~5-10mins

*What did we learn today? What did you like most about this lesson? What reason to preserve biodiversity is most important to you? Why? Why is it so difficult to reach agreement on how preserve biodiversity?*

References

1. <http://www.nationalgeographic.com/xpeditions/lessons/08/g68/preserve.html>

Great work ecoMentor! After use of Lesson Plan revise, add ideas and repeat!