

Grade 7 - Interactions Within Ecosystems: Canadian Biomes Grade Project

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This assignment was specifically designed as a whole grade project so that 5 different sections of Grade 7 Science worked collaboratively (though indirectly) with each other, resulting in the equivalent of 5 large, colourful, information-packed bulletin boards! The size of this project could easily be scaled down to accommodate the size of your school, as smaller groups would simply produce fewer organisms and smaller final displays. It provides students a chance to explore a particular ecosystem, to choose organisms for study, and to express their artistic abilities.



Teacher notes

1. Each group of students is responsible for collaboratively creating a background that shows the basic geographic and climatological features of their assigned biome. For example, tundra may be represented by brown/rocky background with the occasional patch of snow, moss or lichen. Students within the group are assigned sub-tasks to help accomplish this goal (Part A), such as 1) Definition and title and 5) Map of Canada. If you are using smaller groups, these sub-tasks can be pooled with each other or simply omitted (e.g. may be covered in class). Do not omit the role of coordinator. This student should be carefully chosen by the teacher, as it is a position of responsibility and diplomacy!
2. Each individual student is responsible for an illustration and “information bite” for one abiotic factor and two biotic factors (one animal and one plant). Printing on a large (8” x 5” or 8” x 11”) cutout or drawing representing the organism looks much nicer than a tiny picture and a paragraph on white paper, especially when the food web arrows are installed in the final assembly.
3. The teacher should keep track of species/ factors so there is no overlap between biomes. The range of many species crosses biome lines, but there are more than enough species to keep everybody happy.

Alternatives / Enrichment

1. You may want to encourage phyletic diversity by making sure that each biome has at least one fish, one invertebrate, one reptile, etc. Students will know more about mammals and birds and the other taxa may be ignored!
2. Check to see which of your biotic factors are species at risk (Vulnerable, Threatened, Endangered). You can do so on the website for the Committee on the Status of Endangered Wildlife in Canada website (http://www.cosewic.gc.ca/eng/sct0/sar_2004_11_e.cfm) or search “COSEWIC” on your favorite web browser for the home page. You may even want to focus exclusively on species at risk and send students directly there to find organisms.

EECOM/COEO/OSEE Fall Conference

Creating Ripples: Education, Environment, and Culture at Camp Tawingo (Huntsville) September 29 to October 2 will feature presentations on Environmental Curriculum and Activities, Community Engagement, Global Education, Outdoor Experiences, Critical Reflection, Ethics, and Leadership. Many proposals have been received from every province and from other countries. This co-sponsored event gives us a wonderful opportunity to meet environmental educators from across Canada and beyond. Program details and registration information are available at www.eecom.org.

3 Hosts:



1 Partner:



Canadian Biomes

Research your biome as a group and complete a bulletin board display for the class. All other students in the grade will use your display to find information about different biomes to know and understand all the biomes of Canada. Neatness and accuracy of information are important. Remember to put the information in your own words, and to write down the references for where you got the information. Each class will be divided into 2 groups of 10 – 11 people and each group will design 1 display: 2 biomes per class.

Part A: Team Work

Our Biome: _____

As a group, you will design the general layout of your display and how it will fit with the biome that is physically close to your own. Appoint smaller committees to decide and design the following sub-tasks based on suggestions from the rest of the group. The coordinator is in charge of making sure there is no overlap in their colleagues' individual work (see Part B). The first 4 steps are numbered because parts of them must be started before starting others. (e.g. everyone must know the definition of the biome before choosing biotic and abiotic factors)

1. Definition of your biome and a large, attractive title 0 1 2 3

Subcommittee: _____

2. Attractive and appropriate background (sources alphabetized at the bottom) 0 1 2 3

Subcommittee: _____

3. Meshes well with neighboring biome (submit a log of contacts and "contract" agreements signed by all subcommittee members of all concerned biomes) 0 1 2 3

Subcommittee: _____

Contact information for coordinator(s) of neighboring biomes: _____

4. No overlap of species, good variety of niches (submit a list of which abiotic and biotic factors are being submitted by whom, and notes on any other related agreements) 0 1 2 3

Coordinator: _____

5. Map of Canada showing the location of your biome and 2 interesting facts about it 0 1 2 3

Subcommittee: _____

6. Layout attractive and includes connecting arrows to illustrate the food web (consult with background subcommittee regarding your suggestions for layout with this responsibility in mind) 0 1 2 3

Subcommittee: _____

Part B: Individual Work

Each individual student will be responsible for a series of pieces of information. Your contribution must include the following information. You may use a card or a cutout for your biotic and abiotic factors. (Be sure to write your name on your contributions):

1. **Abiotic Factor** (information card explaining how it is important to at least 1 of your organisms)

0 1 2 3 4 5

2. **Biotic Factors** (1 plant, 1 animal) Include specifics about **habitat** and **niche** and a **hand drawn illustration or cutout**.

Be sure as a group that your biome includes a **variety** of niches and trophic levels of animals. (check with your coordinator first!) On each illustration, include an indication of the organism's actual size (e.g. "1/20th life size")

0 2 4 6 8 10 12

3. Environmental concern for one of your species and a possible solution! 0 1 2 3

4. Resources used (at least 2 sources in MLA format) listed at the bottom of the display. Use 1 piece of paper per source so the background committee can alphabetize all your group's sources. Use the Name (year) format on your contributions. (e.g. "Smith (1998)") 0 1 2



Canadian Biomes

Details and Specifics

Coordinator: you must be organized and have good negotiating skills (Be a good diplomat: get people organized and happy with what they must do for the sake of the team.) You must keep a list of species and abiotic factors and who is doing them so you can guarantee no overlap.

Abiotic factors can be any one of the following:

- **climate factors** such as average temperature, amount of precipitation (length of growing season) and any special weather phenomena in the biome.
- **Soil conditions** such as amount of topsoil, quality of topsoil and acidity.
- Another abiotic factor that is special about the biome (i.e.: amount of sunlight, the length of the growing season, the amount of wind).
- Abiotic factors may overlap slightly, but there must be some distinct difference between the factor as it affects the species (e.g. requires direct light vs. requires longer day length to flower)

Biotic factors

- **Plants and animals** that live in the biome and how they have adapted to conditions in that biome. You may refer to more than one aspect of their habitat or community.
- You may discover that there are different ecosystems within your biome. You may address these, but do not overlap with other biomes.

Environmental Concerns

Research and describe one environmental problem in the biome (i.e.: a certain kind of pollution or an endangered animal that lives in the biome). Briefly describe the problem and suggest one solution or preventative measure.

Biome Pairings

To facilitate communication between group members of neighboring biomes, classes will work on biomes in the following pairings.

F1 A & B: (bulletin boards in the hall)

Kelp Forest & Intertidal (rocky, hard surfaces)
 Temperate Rainforest & Mountain (or Alpine)

N.B. The subcommittee responsible for meshing well with their neighboring biomes for **Intertidal** and **Temperate Rainforest** should trade names and contact information.

F1 C, D, &E: (bulletin boards in Classroom)

Boreal & Tundra
 Grasslands & Estuaries (includes Tidelands a.k.a. Tidal Mudflats)
 Lakes and Rivers & Temperate Deciduous Forests

N. B. The subcommittee responsible for meshing well with their neighboring biomes for **Estuaries**, **Temperate Deciduous**, and **Lakes and Rivers** should trade names and contact information.

The subcommittee responsible for meshing well with their neighboring biome for **Boreal** and **Lakes and Rivers** should trade names and contact information.