

Global Ecology – The Major Biomes

Activity Information

Grade Appropriate Level: 8 or 9

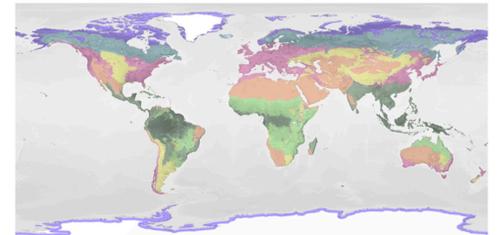
Duration: 1 – 1.5 hours

Materials: set of class atlases, worksheets #1 and #2, large map (or overhead) of the World Biomes, essay topic for homework, any relevant current articles on biomes, e.g. National Geographic, pens, crayons, pencils and notebooks, reference material

Mission: Biomes

Objectives

This lesson plan, which is intended as the first in a series of lessons on ecology, introduces the student to the major biomes which gives the student an overview of a set of ecosystems influenced primarily by climatic conditions.



Click on a biome button below for more information on that biome ([download image](#)).



Prescribed Learning Outcomes

Language Arts, Science, Social Studies, Personal Planning

- Students will know what a biome is.
- Students will understand that climatic conditions are the major influence on the distribution of biomes.
- Students will learn that similar biomes are found on different continents in regions that have similar climates.
- Students will be able to locate and identify the major biomes on a world map. Please use interactive map in [NASA link below](#) (pictured above).
- Students will develop a global understanding; e.g., various regions, environments around the world.

Skills

- draw conclusions, interpret data, classify information, apply knowledge

Introductory Activity

- Talk to the students about beginning a new unit on ecology. Ask anyone to raise their hand if they have heard about the Amazon Rainforest.
- Encourage the students to brainstorm all the facts they have heard about.
- As students contribute their ideas, write the information into a web format on an overhead or chalkboard.
- Give students time to copy the web as it is being constructed.
- Finish the introduction by explaining that the students have webbed one of the major biomes of the world.

Some important points that should be included are:

- many varieties of animals and plants (species diversity)
- plenty of rain (abundant precipitation)

- warm climate
- large tracts of land are being cleared for farms
- found in the Amazon basin of South America
- largest rainforest in the world
- types of aboriginal populations that might live within and depend upon the rainforest (cultural, environmental and economic purposes)

Suggested Instructional Strategies

- Having introduced the word *biome* to the students, the teacher invites them to come up with a definition given that the Amazon Rainforest is a biome.
- The teacher encourages students to think of other biomes that they might have heard about.
- Together, the students and the teacher come up with a workable definition:

A *biome* is a large tract of land with a dominant type of vegetation that is controlled by the climate of the area. An example would be the Amazon Rainforest in South America and the Northern Coniferous Forest in North America.

Examples of Terrestrial Biomes:

hot deserts, grasslands, deciduous forests, cold deserts, tundra and mixed tropical forests

- Students have time to copy down the definition.
- Teacher explains that one of the most important factors that influence a biome is the climate.
- Students brainstorm physical factors that contribute to the climate: precipitation, temperature, winds, mountains and valleys, hours of sunlight
- Students understand that climate is the important factor that influences the formation of a biome.
- Students hand out the atlases as teacher hands out Worksheet #1: The Major Biomes (Included). Explain the worksheet and where to find helpful information.
- Teacher hands out the next assignment, Worksheet #2 (Included) which is a blank world map. Teacher gives instructions to complete the world map by predicting where the major biomes would be.
- Using the Atlases, students make prediction about where the major biomes are in the world and colour them on the second worksheet.
- Teacher gives instructions to complete the world map by predicting where the major biomes would be. (Students may refer to the maps on World Rainfall and Temperature and their first worksheet to help them. The Map worksheet is to be coloured and have a key.
- At the end of this activity they compare their predictions with the large map of the Major Biomes of the World that the teacher displays.
- Teacher allows for a share and compare time with the students.
- At the conclusion of the lesson, teacher reviews the key ideas and assigns a short homework exercise.

KEY IDEAS

- A biome consists of a set of ecosystems that share a dominant type of vegetation.
- The dominant vegetation, for example Northern Coniferous Forest, classifies the type of biome.
- Climate is the major factor influencing the type of biome.
- Different continents have similar biomes in climatically similar areas.

HOMEWORK

Students will write a short essay on the following topic: What effect do you think climate change would have on the major biomes of the world or in Canada? How have people contributed to the issue of climate change? Explain whether you think this effect would be a positive change or a negative change.

Suggested Assessment Strategies

- Student participation
- In-class worksheets
- Homework assignment

Worksheet #1 (Included)

- Build a grid of 9 squares.
- Plot Relative Rainfall along one side: Very little, Moderate, Heavy.
- Plot Relative Temperature along the other side: Cool, Temperate, Hot.
- List 9 biomes: Polar Grassland, Cool Desert, Northern Coniferous Forest, Temperate desert, Hot desert, Tropical Rainforest, Tropical Grassland, Deciduous Forest and Temperate Grassland.
- Students then fill in the grid, matching the biome to the climate.
- Students could add a representative animal and describe the human/aboriginal populations of each biome.

Worksheet #2: World Map

Free printable world maps for educational use:
<https://worldmapblank.com/blank-map-of-world/>

Cross-Curricular Interests

Environment and Sustainability
Aboriginal Studies

Suggested Links

<https://earthobservatory.nasa.gov/biome>

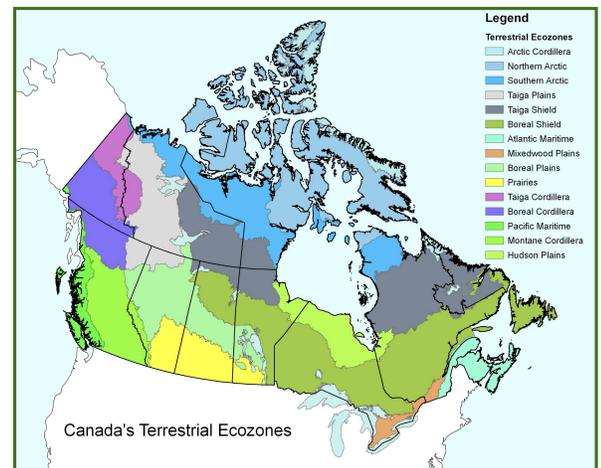
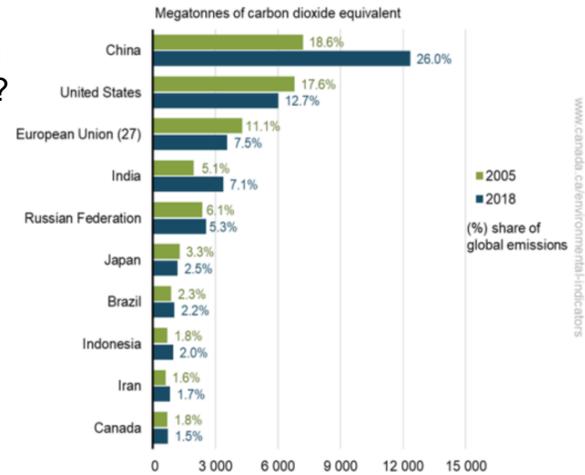
<https://m.youtube.com/watch?v=kmk7hTnzgpy>

<https://www.thecanadianencyclopedia.ca/en/article/boreal-forest>

https://www.nrcan.gc.ca/sites/nrcan/files/forest/Canada_terrestrial_ecozones_lg_e.jpg

<https://www.canada.ca/en/environment-climate-change/services/environmental-indicators/global-greenhouse-gas-emissions.html> (Greenhouse Gas emissions Image Above)

Greenhouse gas emissions from the top 10 emitting regions



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Worksheet #1:

Instructions: Use atlases or other helpful resources your teacher provides to research the biomes below. Then, carefully cut out each of the 9 biomes and place them on the chart, matching the biome to the climate where they belong. BONUS: research animals and/or human populations of each biome and draw a picture beside the biome in its place on the chart.

		Relative Rainfall		
		Very Little	Moderate	Heavy
Relative Temperature	Cool			
	Temperate			
	Hot			

Polar Grassland	Cool Desert	Northern Coniferous Forest	Temperate Desert	Hot Desert
Tropical Rainforest	Tropical Grassland	Deciduous Forest	Temperate Grassland	