

Discipline: Environment and Ecology
Standard Category: Ecosystems and their Interactions
Lesson Focus: Earth's biomes

Suggested Level:
Middle

PA Standard:	Related TESOL Standard:
4.6.10A: Explain the biotic and abiotic components of an ecosystem and their interaction.	Goal 2: To use English to achieve academically in all content areas. Standard 2: Students will use English to obtain, process, construct, and provide subject matter information in spoken and written form.

Lesson Focus:
Earth's biomes

Teaching Strategies:
Whole group instruction

Key Objectives in Accordance with TESOL Level:

Pre-Conversational/ Beginning	Intermediate	Advanced
Students will be able to: <ul style="list-style-type: none"> Given a picture of a location, match the biome that the picture represents. 	Students will be able to: <ul style="list-style-type: none"> Describe each of Earth's biomes, including information about climate and organisms there. 	Students will be able to: <ul style="list-style-type: none"> After describing each biome, compare and contrast: <ul style="list-style-type: none"> 3 forest biomes 2 water biomes 2 desert biomes. Making reference to climate and organisms.

Brainstorming

Graphic organizers

Pictures

Cooperative groups

Assessment Strategies:
Match

Description

Written comparison and contrast

Materials:

- Outline of major biomes
- Matrix
- Venn Diagrams

Procedures:

- Ask students of various origins what types climate, plants and animals were common to their homeland.
- Compile these lists onto chart paper by characteristics. You may want to pre label the columns as tundra, forest, grassland, rainforest, desert and water and then cover the title.
- Ask students if they are familiar with the term "biome".
- Define biome as a climax community or as an area that is largely determined by its climate in which plants and animals that make up the biome share common environmental problems.

5. Discuss how plants and animals are different in different parts of the world. In cooperative groups, brainstorm reasons why this is true.
6. Share responses
Beginning ESL students may not feel comfortable participating in whole-group speaking activities. Don't force them to speak. Beginners tend to develop listening skills in English before attempting to speak it.
7. Define terms and their relationship to the discussion on biomes
8. Teach each of the five major biomes and their breakdowns. Use many pictures that show conditions and organisms.
9. *ESL students at all levels benefit from the use of visuals.*
10. Provide outline and matrix to organize new material
11. Complete matrix in cooperative groups.
Extension Activity – Illustrate a biome after the removal of a natural resource. Present the illustration to the class to explain the changes as you'd see them occurring.

Assessment:

Identify Earth's major biomes, explaining similarities and difference, which include climatic conditions and organisms that reside there.

Beginning

Match picture with biome names

Intermediate

Describe each biome with climate conditions and organisms there

Advanced

Write a description of each biome, and do compare/contrast work

Notes:

Terms to Know:

- Biomes
- Bio – Life
- Eco – Habitat
- Migration
- Barriers
- Dispersal

Earth's Biomes

- Tundra
- Forest: Deciduous, Coniferous, Tropical Rain
- Grassland
- Desert: Hot, Cold
- Water: Marine, Freshwater

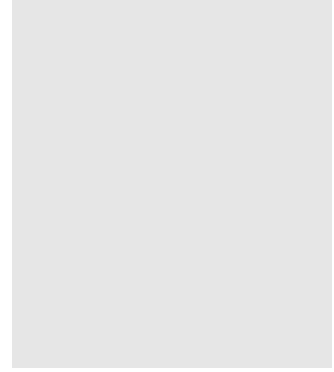
Helpful Websites for Earth's Biomes:

<http://www.geog.ouc.bc.ca/physgeog/contents/9k.html>

<http://www.worldbiomes.com/>

Additional Resources:

Science, Technology, Environment and Ecology Project (STEEP) Classroom Connections Kit has lesson plans and integrated units of study that address this standard. See the lesson entitled *The Extinction Game* and the integrated unit entitled *A Reef in Distress*.



Earth's Major Biome

1. Tundra Biome
2. Forest Biomes
 - a. Deciduous Forest
 - b. Coniferous Forest
 - c. Tropical Rain Forest
3. Grassland Biome
4. Desert Biomes
 - a. Cold Desert
 - b. Hot Desert
5. Water Biomes
 - a. Marine
 - b. Fresh Water

EARTH'S MAJOR BIOMES

BIOMES		Characteristics	Organisms
Tundra			
Forest	Deciduous		

	Coniferous		
	Tropical Rain		
Grassland			
Desert	Hot		
	Cold		
Water	Marine		
	Fresh Water		