

Lesson Topic: The World's Biomes

Lesson Summary: Students will research assigned biomes and identify specific facts about it, its location, as well as what kind of life is supported in that area (see handouts). Each class of students will then collaboratively create a collage representing the biome.

Grade Level: 6-8

Lesson Duration: 3-4 50 minute class periods or 2 90 minute class periods

NGSS Standards addressed:

- MS.Interdependent Relationships in Ecosystems
 - MS-LS2-2. Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.
 - MS-LS2-5. Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

Lesson Objectives:

- Students will be able to:
 - Identify the characteristics that make up terrestrial and aquatic biomes.
 - Describe the environmental factors and the plants and animals of each biome
 - Identify the location of different biomes on a world map
 - Recognize the interrelationship between environmental factors and the plants and animals within a biome
 - Describe examples of plant and animal adaptations to specific biomes

Vocabulary: Ecosystem, Biome, Terrestrial, Aquatic, Freshwater, Marine, Desert, Grassland, Forest (deciduous, temperate, rain, boreal), Tundra, Taiga, Savanna, Adaptation

Assessment:

- **Summative:** Students will turn in a completed research handout as well as a shaded world map on their specific biome for a grade to demonstrate completion and understanding of the content.
Students will compare and contrast each classes biome poster/collage and identify similarities and differences between them and turn in the completed handout
Students will demonstrate individual knowledge of the different biomes on the unit exam.
- **Formative:** Students will be informally assessed throughout the collage project by observation of class participation, and checking for understanding of the task at hand.

Instructional Style: Direct instruction, cooperative learning, collaborative

Materials: Research handout, blank world map handout, computers, construction paper, markers, colored pencils, glue, any creative materials that can be gathered, large (about 4 or 5 feet wide, and 6 feet tall) construction paper for the class poster.

Lesson Procedure: (Up to this point in the unit, students will have done a lesson and activity to become familiar with the vocabulary)

- Opener (5 minutes): In their science notebooks, students will answer the question posted on the whiteboard when they come in.
 - Question: What is a Biome? What different biomes can you name?
- The students will have 3 minutes to complete the opener, then the teacher will lead a discussion with the class about their answers for another 2 minutes.
- The teacher will briefly introduce the world's 5 main biomes: Desert, Grasslands (Savanna, Prairie, shrubland), Tundra (arctic, alpine), Aquatic (Freshwater and Marine), and Forests (rainforests, temperate, deciduous, coniferous, and taiga/boreal).
- The teacher will explain that each class period will research a different biome, then create a large poster/collage representing that biome. The poster must provide all the information needed for the other class periods to learn the important information about each biome.
- The teacher will put the five main biomes on small, folded pieces of paper and mix them up in a bowl. One student per class will be asked to draw a biome out of the bowl. The biome that is drawn will be the focus of that class.

- To make the biomes more relatable to the region (Wyoming), and less broad, each biome will be narrowed down to these:
 - Desert: Four desert regions of the United States (Great Basin, Mojave, Sonoran, Chihuahuan)
 - Grasslands: Prairie, Great Plains
 - Tundra: Alpine tundra
 - Aquatic: Freshwater, North Platte, Alcova, Pathfinder ...
 - Forests: Boreal
- Although their research is narrowed down, they must still shade the world map to represent ALL the regions of their biome. For example, the Tundra will include arctic tundras on the map, and aquatic will include the marine biomes as well.
- The students will be asked to retrieve their computers or iPads for the research portion of the lesson. (Note: if the classroom is not provided with computers or iPads, then the teacher should reserve class time in the school's computer lab)
- The teacher will hand out the research activity and blank world map to each student. Students will be allowed to work with partners if they choose to do so on this portion of the lesson, but each must still turn in an individual assignment.
- Students will be given the rest of the class period to work on their research, as well as the following class.
- As students finish their research assignment, they may begin contributing to the class poster.
- Students may choose to draw animals or plants that represent their biome on separate pieces of paper (Or whatever they may choose to use) to paste onto the poster. They must also include facts about their biomes, and facts can also accompany the animal and plant drawings. One world map should also be included on the poster. The goal to be as creative and detailed as possible with the biome poster. Students should be able to use their strengths to contribute. They may also print pictures to paste as well. They can bring supplies from home, or outside to use if they want.
- The teacher will facilitate throughout the entire process, as the students should be working on becoming independent learners, and improving their research skills.
- As the classes finish their posters, they will be displayed either around the classroom or outside in the hall area.

- For the final part of the assignment, students will observe the posters created by the other classes, and fill out a research handout for each biome that is represented. Posters can be brought in to the classroom and discussed as a class, as each student fills in their information about each biome.
- The teacher will lead the discussion, and encourage students to make connections between each biome.
- Students will be asked to paste their completed handouts about each biome in their science notebooks, or staple them together and hand them in.

Biome Research Topic:

Name:

Weather:

What is the climate like? Precipitation, storms, weather patterns

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Temperature:

What are the high and low temperatures in this biome? What seasons does it have? What are the temperatures during those seasons?

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Landforms, bodies of water

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Soil/Ground Composition: Fertile?

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Vegetation:

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Animals: (Be specific, don't just write snake, bird, or bear, write the exact type of animal)

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Describe one example of a predator/prey relationship

Give one example of a plant or animal adaptation in this biome

Biome Research Topic:

Name:

Shade in the regions on the map where this biome can be found. Use a different color to shade the region of the specific location of your exact assigned biome.

Where is your assigned biome located? Continent, country, state, region, latitude, longitude. Be as specific as possible so your peers could locate it on a map.

