

Cincinnati Public Schools
Remote Learning Plan
Grade 7
SCPA - 7 Science Moraga
Week 7- Biomes

Student Name _____ **Bell** _____

Weekly Outcomes:

- **Learning Outcome - Week 7: Biomes - Describe the relationships between the biotic and abiotic factors in a biome**
- **Directions** - Do your Reading and Questions for the week. Then select and complete activities from the menu for that week. **OR** go one Schoology
- **Task** - Complete Reading Comprehension and the Read and Respond Non Fiction for the week and 100 points worth of work from the menu **for the week.**
- **How do I know if my work is good?**
 - Information is accurate.
 - All parts of the question are answered completely.
 - Work is detailed and completes the required task.
 - If applicable, work is colorful and visually appealing.
- **What if I need help?**
 - Visit www.discoveryeducation.com and read the Engage and Explore tabs for the following lessons (Do this through Schoology on the left hand side bar)
 - Biomes Sweet Biomes
 - Visit <http://studyjams.scholastic.com/studyjams/jams/science/ecosystems/biomes.htm> and explore the slide shows/videos listed below. Once finished, complete the “Test Yourself” activity.
 - Biomes

Week 7: Biomes - Describe the relationships between the biotic and abiotic factors in a biome

What do **temperature**, wind, and rain, have in common?

They are all part of climate, the statistical summary of **temperature**, **humidity**, **atmospheric pressure**, wind, rainfall, other meteorological measurements in a given region over long periods. In other words, is it dry or wet, hot or cold, or humid? And it is these abiotic factors that help determine the nature of a **biome**.

Terrestrial Biomes

If you look at the two pictures in Figure **below**, you will see very few similarities. The picture on the left shows a **desert** in Africa. The picture on the right shows a rainforest in Australia. The desert doesn't have any visible plants, whereas the rainforest is densely packed with trees. What explains these differences?





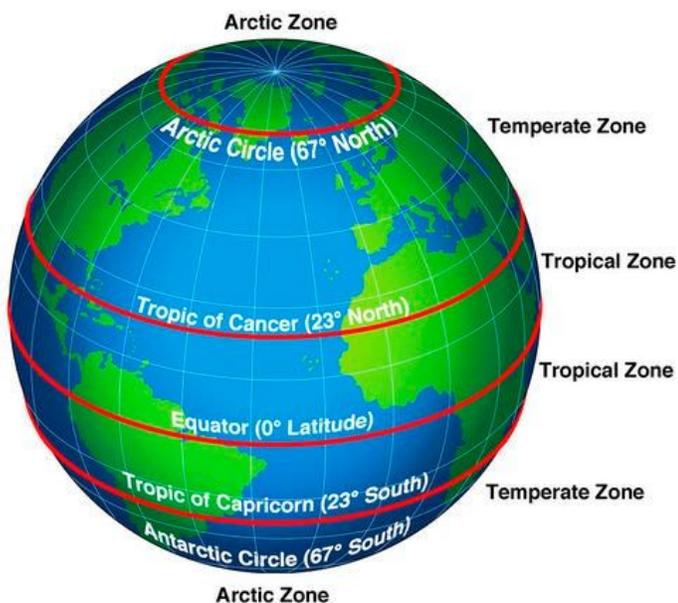
Sahara Desert in northern Africa (left). Rainforest in northeastern Australia (right). Two very different biomes are pictured here. A biome is a group of similar ecosystems with the same general abiotic factors and primary producers. Both are found at roughly the same distance from the equator.

Terrestrial biomes include all the land areas on Earth where organisms live. The distinguishing features of **terrestrial biomes** are determined mainly by climate. Terrestrial biomes include tundras, **temperate** forests and grasslands, chaparral, temperate and **tropical** deserts, and tropical forests and grasslands.

Terrestrial Biomes and Climate

Climate is the average **weather** in an area over a long period of time. **Weather** refers to the conditions of the atmosphere from day to day. Climate is generally described in terms of temperature and moisture.

Temperature falls from the equator to the poles. Therefore, major temperature zones are based on **latitude**. They include **tropical**, **temperate**, and **arctic** zones (see Figure below). However, other factors besides **latitude** may also influence temperature. For example, land near the ocean may have cooler summers and warmer winters than land farther inland. This is because **water** gains and loses **heat** more slowly than does land, and the water temperature influences the temperature on the coast. Temperature also falls from lower to higher altitudes. That's why **tropical** zone mountain tops may be capped with snow.



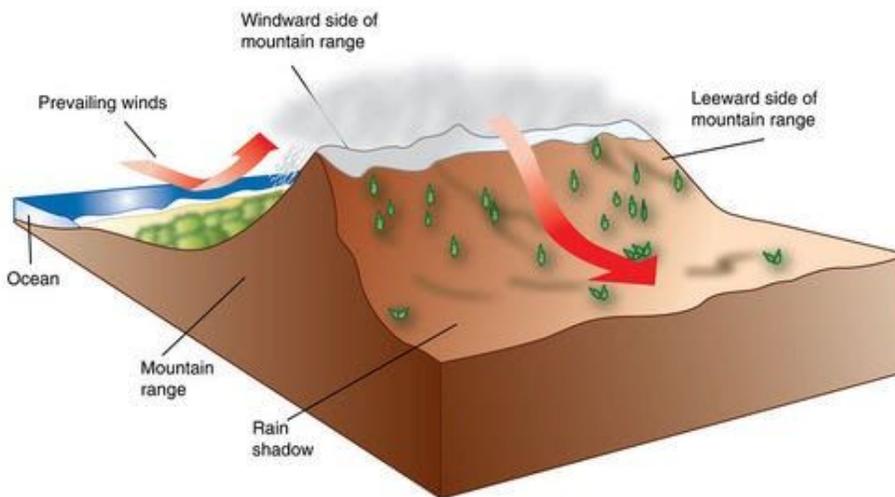
Temperature zones are based on latitude. What temperature zone do you live in?

In terms of moisture, climates can be classified as arid (dry), semi-arid, humid (wet), or semi-humid. The amount of moisture depends on both **precipitation** and **evaporation**. Precipitation increases moisture. Evaporation decreases moisture.

- The global pattern of **precipitation** is influenced by movements of **air masses**. For example, there is a global belt of dry air masses and low

precipitation at about 30° N and 30° S **latitude**.

- **Precipitation** is also influenced by temperature. Warm air can hold more moisture than cold air, so tropical areas receive more rainfall than other parts of the world.
- Nearness to the ocean and mountain ranges may also influence the amount of precipitation an area receives. This is explained in Figure [below](#).
- **Evaporation** of moisture is greatest where it is hot and sunny. Therefore, cold climates with low precipitation may not be as dry as warm climates with the same amount of precipitation.
- Moist air from the ocean rises up over the mountain range.
- As the air rises, it cools and its **water** vapor condenses. Precipitation falls on the windward side of the mountain range.
- The air is dry when it reaches the leeward side of the mountain range, so there is little precipitation there. This creates a “rain shadow.”



This diagram shows how precipitation is affected by the ocean and a mountain range.

Climate and **Plant Growth**

Plants are the major producers in terrestrial biomes. They have five basic needs: air, warmth, sunlight, **water**, and **nutrients**. How well these needs are met in a given **location** depends on the growing season and soil quality, both of which are determined mainly by climate.

- The growing season is the period of time each year when it is warm and wet enough for plants to grow. The growing season may last all year in a hot, wet climate but just a few months in a cooler or drier climate.
- Plants grow best in soil that contains plenty of **nutrients** and organic matter. Both are added to soil when plant litter and dead organisms decompose. Decomposition occurs too slowly in cold climates and too quickly in hot, wet climates for nutrients and organic matter to accumulate. **Temperate climates** usually have the best soil for **plant growth**.

Climate and **Biodiversity**

Because climate determines plant growth, it also influences the number and variety of other organisms in a terrestrial **biome**. **Biodiversity** generally increases from the poles to the equator. It is also usually greater in more humid climates. This is apparent from the **desert** and rainforest biomes pictured in Figure [above](#).

Climate and Adaptations

Organisms evolve adaptations that help them survive in the climate of the biome where they live. For example, in biomes with arid climates, plants may have special tissues for storing water (see Figure [below](#)). The [desert animals](#) pictured in Figure [below](#) also have adaptations for a dry climate.

The aloe plant on the left stores water in its large, hollow leaves. The cactus plant on the right stores water in its stout, barrel-shaped stems.



The Gila monster's fat tail is an adaptation to its dry climate. It serves as a storage depot for water. The kangaroo rat has very efficient kidneys. They produce concentrated urine, thus reducing the amount of water lost from the body.



In biomes with cold climates, plants may adapt by becoming dormant during the coldest part of the year. Dormancy is a state in which a plant slows down cellular activities and may shed its leaves. [Animals](#) also adapt to cold temperatures. One way is with insulation in the form of fur and fat. This is how the polar bears in Figure [below](#) stay warm.



Thick fur and a layer of blubber keep polar bears warm in their Arctic ecosystem. Why do you think their fur is white? Why might it be an adaptation in an Arctic biome?

Read and Respond NONFICTION

Article/Author: _____

Main Idea: _____

Three Important Facts or Statistics:

1. _____

2. _____

3. _____

One Opinion From the Article:

My Opinion About the Article:

Supporting Detail 1:

Supporting Detail 2:

Supporting Detail 3:

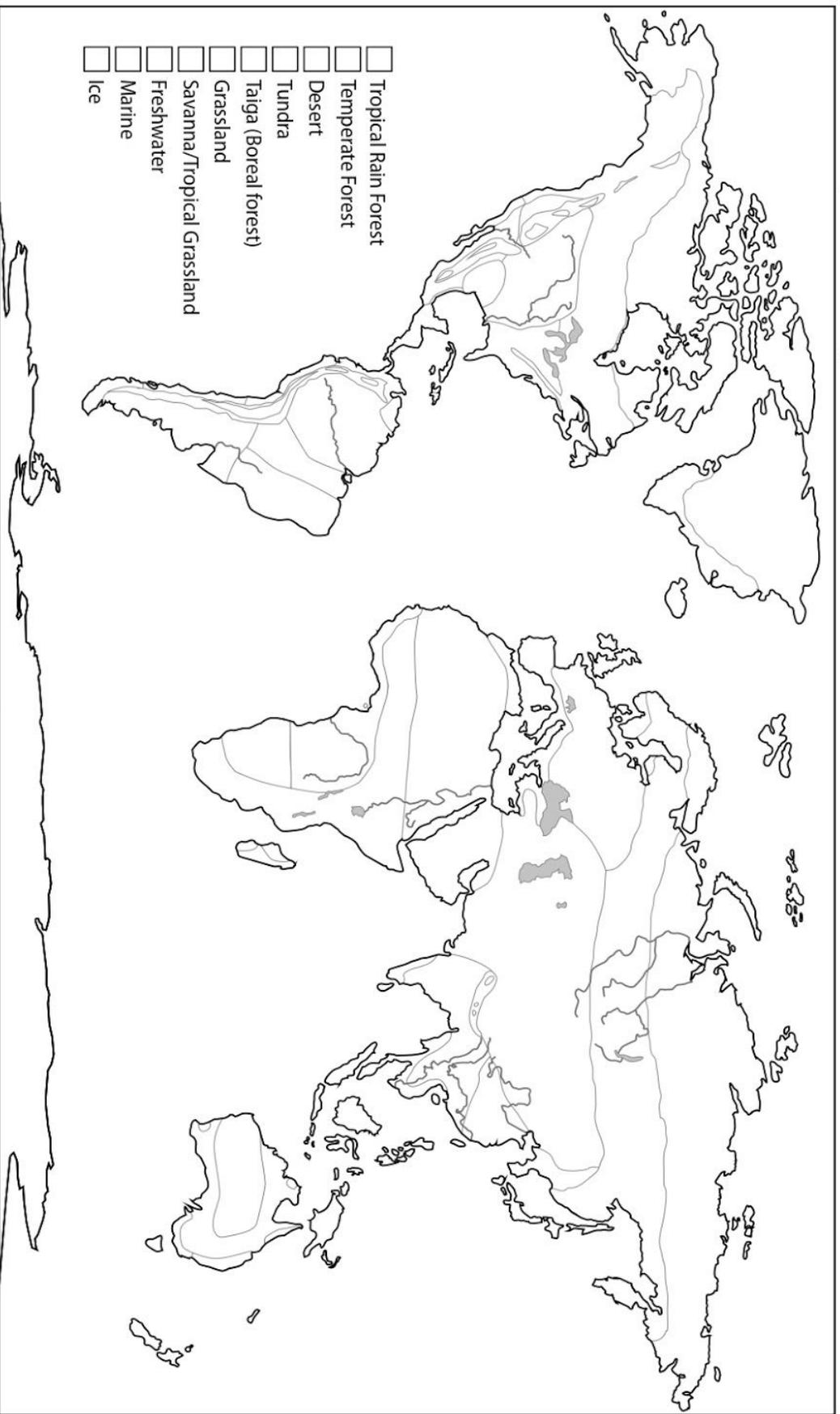
Author's Purpose

- Persuade
 - Inform
 - Entertain
 - Explain
 - Describe
- _____

Text Structure

- Description
 - Problem & Solution
 - Order & Sequence
 - Cause & Effect
 - Compare & Contrast
- _____

Biome Map Coloring Worksheet



Often biologists group the different natural areas on Earth into categories based on plant and animal life and how they are able to survive in that part of the world. These are called biomes. Grouping organisms into biomes help us to better understand the complexity of life on Earth.

Go to this web page [askabiologist.asu.edu/explore/biomes] and start learning where the different biomes are located in the world. As you explore, you can color the different regions based on the type of biome.

Name _____

READING COMPREHENSION: **Abiotic and Biotic Factors**

In general, ecosystems can be divided into two types of factors, abiotic factors and biotic factors. Both types contribute to the type and number of organisms (living things), which can inhabit an ecosystem. But what is the difference between them? The term **biotic** means living or having lived. Biotic factors are basically organisms and the remains of organisms. Examples of biotic factors would include a frog, a leaf, a dead tree, or a piece of wood. The term **abiotic** means non-living, or never having lived; abiotic factors are non-living, non-cellular, and inorganic materials which contribute to an environment. Examples of abiotic factors would include gold, rock, bicycle, brick, and cement.



Both types of factors affect the types of organisms that exist in an environment. For instance, in the desert, the lack of water (an abiotic factor) prevents the existence of most trees, which need steady rainfall. On the other hand, the numerous rodents, (mice, etc) which live in the desert (a biotic factor) enable a population of predatory coyotes to survive in this harsh climate.

Comprehension Questions

1. According to the text, what is an abiotic factor? _____

2. According to the text, what is a biotic factor? _____

3. Based on the definitions above, identify each of the following as biotic (B) or abiotic (A).
_____ The sand in a desert _____ Pollen from a plant
_____ The bacteria in a lake _____ Pollution from an oil refinery
4. Explain why a dead tree would still be a biotic factor, even though it is no longer alive. _____

5. **Predict:** One ecosystem that has been studied a great deal in recent years is a **coral reef**, an undersea ecosystem rich in marine animals living in or around tropical corals. Name one abiotic and one biotic factor present in coral reefs (hint: look at the picture above). _____

Biomes

Directions: Choose activities from the menu below after finishing your Reading Comprehension and worksheets for the week. You should have a total of 100 points.

25 POINTS

Week 7: Biomes - Describe the relationships between the biotic and abiotic factors in a biome abiotic factors in a biome

- Write 3 truths and a fib about products, reactants, or the Law of Conservation of Matter.
- Define products, reactants, or the Law of Conservation of Matter in writing.

50 POINTS

Week 7: Biomes - Describe the relationships between the biotic and abiotic factors in a biome abiotic factors in a biome

- Make a coloring book of the biotic and abiotic factors in a biome abiotic factors in a biome
- Write a 4 paragraph report about biotic and abiotic factors in a biome abiotic factors in a biome and how they can affect an ecosystem when they are threatened

75 POINTS

Week 7: Biomes - Describe the relationships between the biotic and abiotic factors in a biome abiotic factors in a biome

- Make a booklet/list about five rules that promotes a healthy ecosystem and 5 rules for biome
- Write a letter to our governor explaining what should be done to protect a lake ecosystem and way

Ecosystems Menu Work -Create a one pager. For each box not used color it in

