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Let's Connect!

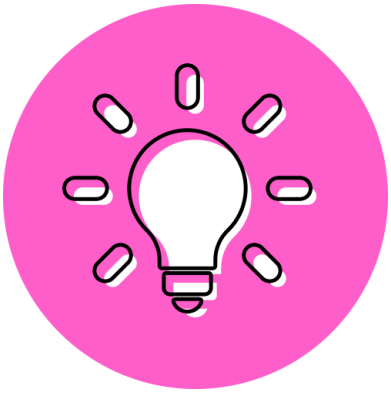












Teacher's Guide

Biome Survivor Challenge

Students will:

- analyze biome data to identify biotic and abiotic factors.
- design an organism adapted to a specific biome.
- predict how environmental changes affect survival and population size.

This resource includes:

- Teacher's Guide
- Student Background Information
- 8 Biome Info Cards
- 16 Scenario Cards
- Student Recording Sheet

Directions:

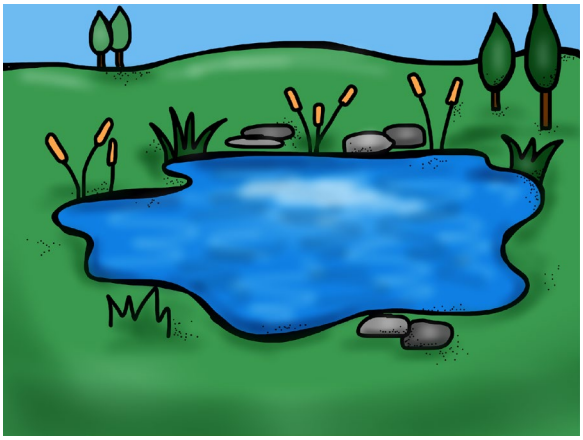
1. You can give students the background information sheet if desired.
2. Allow each student to select a biome to investigate and then distribute the corresponding Biome Info Card.
3. Students complete the Biome Analysis section to identify important biotic and abiotic factors and possible limiting factors.
4. Students design and draw an original organism adapted to their chosen biome. They explain how each adaptation helps their organism survive using evidence from the biome data and make predictions about their organism's survival and population size based on the biome's conditions.
5. For the extension, randomly distribute a Scenario Card to each student. Students predict how the environmental change will affect their organism, the biome, and population size using evidence from the data.

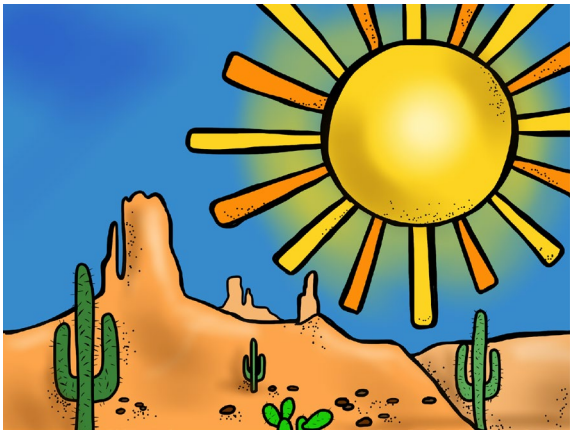
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Components of a Biome

What is a biome?

- A biome is a large area characterized by a specific climate, vegetation, and animal life.
- Different biomes have different temperatures, amounts of water, sunlight levels, and soil conditions. These factors affect which organisms can survive there.





What are ecosystems?

- An ecosystem is a community of organisms that interact together and with their environment.
- The population includes all members of the same species living in an area.

Abiotic Factors (Nonliving Parts of an Ecosystem)

- Abiotic factors are the physical conditions that affect living things.
- Examples: temperature, water availability, sunlight, soil quality, precipitation

Biotic Factors (Living Parts of an Ecosystem)

- Biotic factors are the living organisms that interact within an ecosystem.
- Examples: plants, animals, predators, prey, competitors, food sources

Limiting Factors

- A limiting factor restricts the growth, survival, or size of a population. These can be biotic or abiotic.
- Examples: lack of water, extreme temperatures, limited food supply, too many predators



How Do Organisms Survive?

Organisms have adaptations that help them survive in their environment.

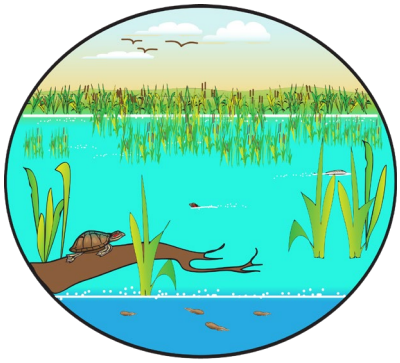
- Structural Adaptations: Physical features that help an organism survive.
    - Examples: thick fur, long roots, sharp claws, large ears
- Behavioral Adaptations: Actions that help an organism survive.
    - Examples: migration, hibernation, burrowing, hunting at night

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Name _____

Date _____

Biome Survivor Challenge



Choose one biome that you would like to further investigate.

- ☐ Freshwater
- ☐ Marine
- ☐ Temperate Forest
- ☐ Rainforest
- ☐ Grassland
- ☐ Desert
- ☐ Taiga
- ☐ Tundra

Biome Analysis: Use the Biome Card provided by your teacher and what you already know to answer the following questions.

1. What is the temperature like in your biome?

2. How much water is available?

3. How much sunlight does the biome receive?

4. What is the soil like?

5. What organisms already live there?

6. Which abiotic factors appear to stay mostly constant over time in this biome?

7. What abiotic factor could limit an organism's ability to survive?

8. What biotic factors could affect an organism's survival?

9. What do you think is the biggest limiting factor in this biome? Explain your reasoning.

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Design a Biome Survivor!
Create an original organism that is specially adapted to survive in your chosen biome. Draw your new organism and complete the adaptations table below.

Your organism must have:
✓ 2 structural (physical) adaptations
✓ 1 behavioral adaptation
✓ 1 feeding or defense adaptation

Organism's Name

_____

Briefly describe your organism including its diet.

Adaptation	How Does It Help Survival?

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Explain how your organism's adaptations help it survive in this biome. Use at least THREE pieces of evidence from the biome data table provided by your teacher.

Think about your organism living in this biome for many years.
Predict the population size. Why do you think this population size would occur?

- ☐ Large Population
- ☐ Moderate Population
- ☐ Small Population

Extension: Use the Scenario Card from your teacher to complete the following.

1. Describe the scenario. Is the factor biotic or abiotic?

2. How would this change affect your biome? Make sure to include all THREE predictions from your scenario card. Explain your prediction using evidence.

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3. Which adaptation would help your organism survive this change? Justify your response.

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