

Name: \_\_\_\_\_

Period: \_\_\_\_\_

## Biomes-design an animal

**Objective:** Your task is to design an animal that is best suited to its environment.

**Description:** In order for you to design an animal best suited to its environment, you need to learn about different types of environments that exist on our planet known as **biomes** and investigate the various factors, both living and non-living that influence these different regions. In the following activities you will be able to learn how **biotic** (living) and **abiotic** (non-living) factors in a given biome relate to physical adaptations of an animal, which lead to its survival in the wild.

### Activity 1: Biotic and Abiotic

In order for you to properly design an animal that is best suited to its environment, you will need to learn how living and non living factors affect a given area known as an ecosystem. A system is a group of things that interact with one another. The organisms that make up the living part of an ecosystem are called **biotic factors**. An organism depends on other biotic factors for food, shelter, protection, and reproduction. Nonliving things that we find in an ecosystem are called **abiotic factors**. Abiotic factors have an effect on the type and number of organisms living in an ecosystem. Some abiotic factors include soil, water, temperature, and sunlight.

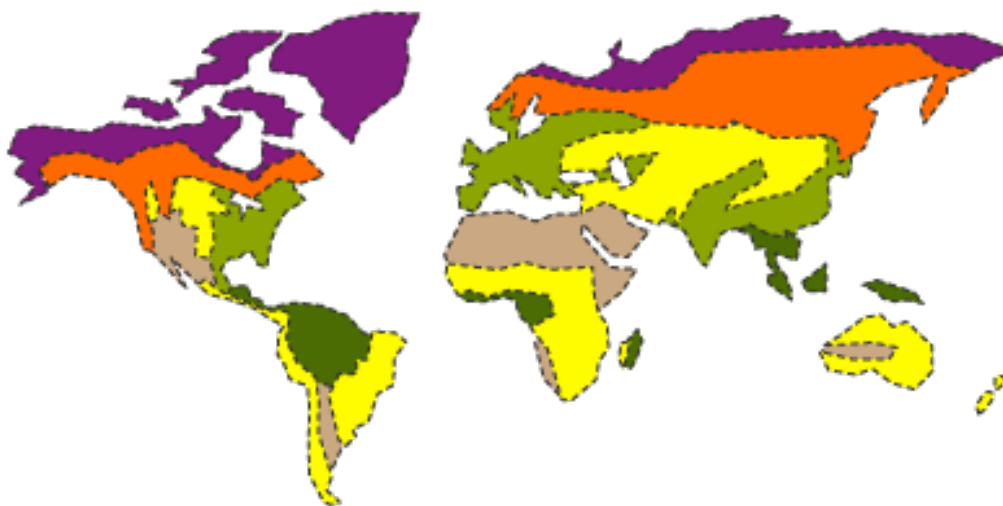
### Activity 2: Biomes

You will also need to learn about the different characteristics of various regions of the world known as **biomes**. Biomes are distinguished by the abiotic and biotic factors that belong to them.

What are biomes? Learn about the different characteristics of the different biomes using the websites below! You will be completing the two tables on the next page.

<http://earthobservatory.nasa.gov/Experiments/Biome>

<http://kids.nceas.ucsb.edu/biomes/>



	TUNDRA		DESERT
	TAIGA		TEMPERATE FOREST
	GRASSLAND		TROPICAL RAIN FOREST

## Abiotic and Biotic Factors of Different Biomes

**Chart 1: Biotic factors of three different biomes**

Biotic Characteristics	Hot and Dry Desert	Temperate (deciduous) forest	Tundra
Identify Producers (Plants)			
Animals			

**Chart 2: Abiotic factors of three different biomes**

Abiotic characteristics	Hot and Dry Desert	Temperate (deciduous) Forest	Tundra
Temperature ranges			
Precipitation amounts			
Soil types			

### Activity 3: Putting it all together

Having learned about the biotic and abiotic factors of the three different biomes, you are now ready to investigate how they interact with each other in an environment. You will now make **inferences** about animal **adaptations**. An **adaptation** is a characteristic that helps an animal or plant survive in its environment. You can **infer** some things about the environment of an animal or a plant just by looking at it. Look at the images of an owl and a polar bear below. What do their different body parts tell you about the animal?

#### Examples:

**Body part:** Talons

Inference:

Justification: (why?)

**Body part:** Big eyes

Inference:

Justification: (why?)

**Physical attribute:** thick fur

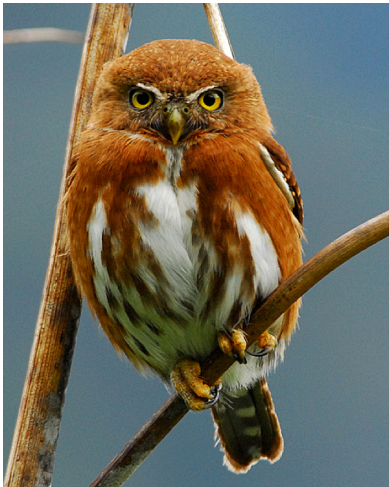
Inference:

Justification: (why?)

**Physical attribute:** white fur

Inference:

Justification: (why?)



Animals live everywhere on Earth. Some places on Earth are very hot and some are very cold. Some places on Earth have a lot of water and plants, and other places have very little water and few plants. Animals can live in many different places in the world because they have special adaptations to the area they live in. A **structural adaptation** is a physical features of an organism that helps it to survive and succeed in its environment. Structural adaptations can affect the way the animal moves, eats, reproduces or protects itself. By looking at the different physical aspects of the animals we can infer such things as where it lives, whether it is a carnivore (eats animals) or an herbivore (eats plants).

### Activity 4 - Your Turn!

1. Choose one of the world's biomes.
2. Create an animal by selecting specific body parts from the list below that would be most suitable considering the abiotic and biotic factors in your biome.  
\*\*\*Remember you are creating the **most suitable animal** for this given environment.
3. Draw a picture of your animal.
4. Now that you created your animal, you will have to justify your choices. In the chart "criteria for judgment", list the abiotic and biotic factors that influence your choice of body parts. In the last column be sure to justify your choice of animal adaptation (body parts).

IF YOU ARE HAVING DIFFICULTY: Visit the following website to learn more about animal adaptations in order to properly choose the various body parts.

<http://studyjams.scholastic.com/studyjams/jams/science/animals/animal-adaptations.htm>

<b>Feet:</b> Hooves Webbed Talons	<b>Legs:</b> Long Short No legs Webbed Talons
<b>Teeth:</b> Sharp Blunt No teeth	<b>Covering:</b> Thick fur No fur Thin fur
<b>Coloring:</b> Pattern Solid Dark White Brown	<b>Body shape:</b> Thin Round Streamline
<b>Ears:</b> Large Small Medium	<b>Eyes:</b> Large Medium Small

### Criteria for judgment

Abiotic factors	Biotic factors	Animal adaptation	Justification