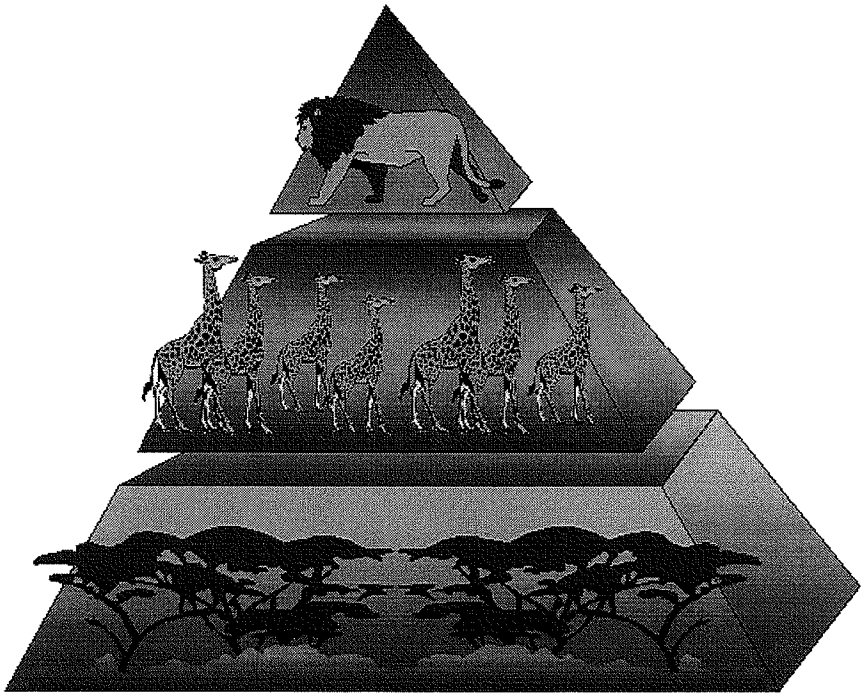
Cycle 2

SCIENCE AND TECHNOLOGY

ADAPTATIONS, FOOD CHAINS and EARTH'S BIOMES

HABITAT UNIT



Teacher: Mr. D. Strina

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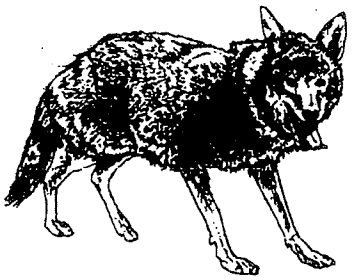


Habitats

Food Chains

Info Check p.1

Write these words in your vocabulary chart.

carnivore	secondary consumer	energy
omnivore	producer	predator
herbivore	primary consumer	insectivore

1. **Write T for true or F for false.**

_____ a) Only humans need energy to survive.

_____ b) There wouldn't be any life on Earth without plants.

_____ c) Humans get energy directly from the sun.

_____ d) All living things can trap the sun's energy.

_____ e) Plants are called primary consumers.

_____ f) Plants pass on energy through food chains.

_____ g) An owl is a secondary producer.

_____ h) Herbivores are primary consumers.

_____ i) Animals that eat herbivores are secondary consumers.

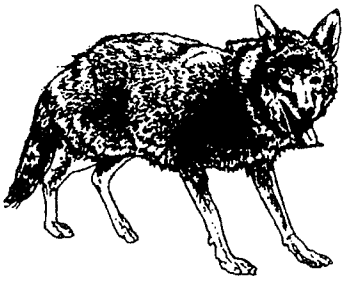
_____ j) Carnivores eat plants and animals.

2. **Write a definition for each of the following words:**

a) carnivore _____

b) omnivore _____

c) herbivore _____



Habitats

Food Chains

Info Check p.2

1. Place the following living things in the correct place in the chart.

owl	hawk	human	robin	frog
deer	worm	rabbit	anteater	grasshopper
bear	seal	moose	skunk	baboon

Herbivore	Carnivore	Omnivore	Insectivore

2. What is a 'predator'?

_____

_____

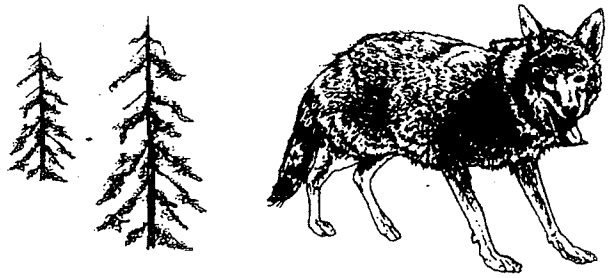
_____

3. What is 'prey'?

_____

_____

_____



Habitats

Food Chains

Info Check p.3

Fill in the blanks with these words.

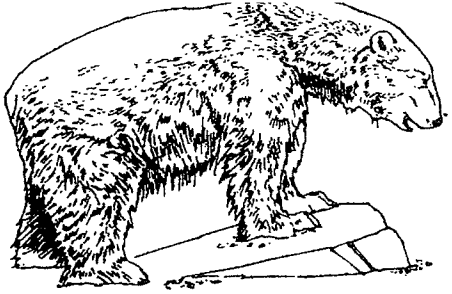
energy	producers	consumers	heat	light
sun	leaves	roots	food	
food chains	fruit	stems	seeds	

Producers and Consumers

At the beginning of every food chain is the _____. All living things need energy to survive. They obtain energy directly or indirectly from the sun. The sun provides energy in the form of _____ and _____. Without the sun, nothing could survive.

Plants need _____ from the sun to grow. Plants are called _____ because they produce materials that can be eaten by other living things. Some parts of plants that are consumed are: _____, _____, _____, _____, and _____.

All living things depend on other living things for _____. Animals and humans eat or consume plants to gain energy and are called _____. Plants, animals and humans are all part of _____.



Habitats

Adaptations

Information Card p.1

We find plants and animals living all over the world in many different types of environments. Humans would find it very difficult to live in some of the places that plants and animals are able to survive in.

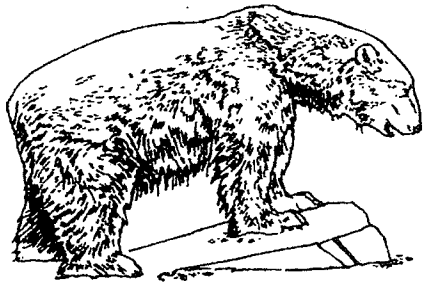
For an animal or plant to survive it must be suited to its environment. Plants and animals survive in the biomes in which they live because they have certain features or adaptations. The shape and size of an animal's body must be suited to its surroundings. Large warm-blooded animals like mammals lose heat through their bodies more slowly than smaller animals. Thus, many animals living in cold areas are often larger than their relatives in hot regions. Animals living in colder regions most often have thicker fur than animals in warmer biomes.

A polar bear would not be found living in a rainforest as it is not suited to life there. The thick layer of fat, called blubber, under the polar bear's skin, keeps the bear warm in the icy ocean water of the polar regions. The polar bear can easily shake the water out of its long fur to keep its coat from freezing. It gets food from animals living in the same environment who have also adapted to life in the polar regions.

The way an animal moves is another adaptation. A cheetah lives in the savanna of East Africa. It has long legs and is the fastest of all land animals. It has excellent eyesight and its tan coloured, spotted coat blends in with the savanna grass to camouflage it from its prey. On the African Savanna, animals must be able to move quickly to escape from their enemies on the open plains. There are few places where they can hide. Many animals of the rainforest use camouflage to blend in with the colours and shadows of the rainforest.

Many animals living in tropical rainforests must be able to hide from their enemies and their prey. Rainforest animals must also be able to move very quickly through the treetops. The monkey which is very agile and can move through the trees like an acrobat.

Among the many animals living In the desert, we find the camel. The camel is well adapted to life in this hot dry, biome. The camel is adapted to living with the heat, sand, wind and a lack of water. It would not survive in some other biomes like the polar regions or the rainforest. The camel's body is adapted in several ways to



Habitats

Adaptations

Info Check p.1

Write these words in your vocabulary chart

feature	blubber	aestivation	agile
adaptation	camouflage	hibernation	
mammal	conserve	migration	

1. Match the correct word with its meaning.

_____ adaptation a. movement from one location to another

_____ hibernation b. a feature which allows a living thing to survive its environment

_____ migration c. the sleep of an animal to escape the cold

_____ aestivation d. the sleep of an animal during summer to escape the heat

2. Why are Arctic mammals usually large in size?

_____

_____

_____

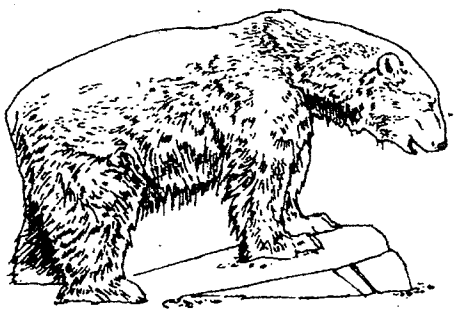
3. How is a monkey adapted to life in the rainforest?

_____

_____

4. Name three animals that use camouflage as a means of survival.

_____, _____, _____



Habitats

Adaptations

Information Card p.2

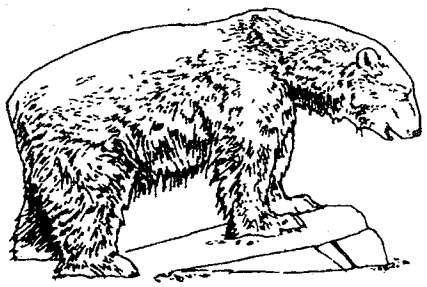
life in the desert. In blowing sand, it can close its nostrils into narrow slits and its long eyelashes protect its eyes. Thick hair grows in a camel's ears which help to keep out sand. It has wide foot pads that help it to walk on loose, moving sand without sinking in.

In extremely hot and cold biomes, certain animals cannot stand their environments all year. They escape the heat or cold by going to sleep for long periods of time. In the desert, some animals sleep during the hottest months until the rains come. This sleep during the summer is called aestivation. In colder regions, animals sleep in winter, when there is little food to be found. This sleep is called hibernation and it allows the animal to conserve energy.

Birds are able to escape their harsh environment by flying to a more suitable climate during cold winter months. This escape is called migration.

Plants cannot move to escape the environment and so they must be perfectly suited to their environment. Like animals plants need water to survive. All plants lose some water through their leaves and so when water is scarce they must find ways to keep from losing it. Cactus plants have shallow, wide-spreading roots. They are able to soak up large amounts of water and store it for long periods of time in their thick fleshy trunks and branches. They haven't any leaves and have a thick waxy coating that helps keep the water inside. Coniferous trees have needle-like leaves with a waxy coating which stop the tree from losing water. Deciduous trees drop their leaves in autumn to keep from losing water.

We can see that the shape and size of a plant or an animal's body helps it to survive in its environment. These are called adaptations. If the environment of a plant or animal slowly changes then the plant or animal must change or adapt itself to the new environment or die out. If the environment changes too quickly, plants and animals will sometimes die.



Habitats

Adaptations

Info Check p.2

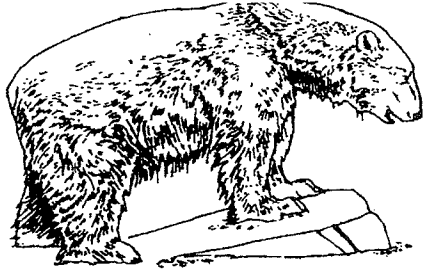
1. Explain how movement is an important adaptation of some animals. Give examples.

2. How is a camel adapted to life in the desert?

3. Explain how each of the following adapted to its environment.

a) cactus

b) maple tree



Habitats

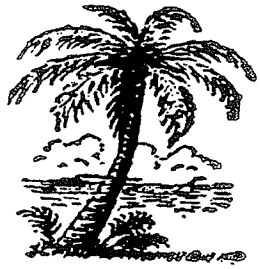
Adaptations

A Perfect Match

Complete the boxes by identifying the biome and continent in which each animal can be found and give two ways the animal is adapted to its environment.

ANIMAL	BIOME	ADAPTATIONS
wolf		
polar bear		
giraffe		
mountain goat		
orangutan		
owl		
beaver		
jaguar		
caribou		

Skill: Describing the structural adaptations of plants and animals that demonstrate a response of the living things to their environment



Habitats

The Earth's Biomes

Information Card p.1

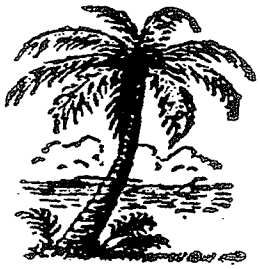
Ecologists divide our planet into large areas that have the same type of vegetation and climate. We describe the climate of a region by its temperature, rainfall, wind and the amount of light it receives. The vegetation is the plant life that we find growing in the region. We call these large regions of the earth - biomes. Biomes can be compared to very large ecosystems. Scientists sometimes disagree on the number of biomes on the earth but there are more than thirty. You should be familiar with only the major biomes of the earth. They are the forests, grasslands, deserts, mountains, tundra, polar regions and the three water biomes of the planet.

Only plants and animals that are suited to a region will grow and live there. Where there is a hot, dry, climate we have deserts. For example, in the desert, only plants and animals that can live with the heat and lack of rainfall can survive. There are many kinds of deserts. Deserts get very little precipitation and are hot all year.

Forests form another major biome of our planet. There are many types of forests. Each has its own climate, plants and animals. Near the equator where it is always very hot and rainy, we find areas of thick tropical forests called rainforests. Rainforests develop where the temperature is always above 18° C (66° F) and the rainfall is around 200 cm.(70 in) These areas are very hot and humid because of the great amounts of water in the air. The temperature doesn't change much and in some rainforests, it rains everyday. Rainforests have very thick vegetation and most of the trees have broad leaves.

Most of the forests which cover North America, Europe and Asia are coniferous and deciduous forests. In a coniferous forest, conifers (trees with needles) are most common. These trees get their name from the fact that they grow cones which are filled with seeds. Many animals of a coniferous forest feed on these cones. There are many different types of coniferous forests throughout the world. The type of trees growing in each forest depends on the climate of the region. Deciduous forests have trees with broad leaves that fall in autumn. Examples of deciduous trees are maple, oak, birch and poplar.

Some of the earth's large biomes are grasslands. These are large, flat or gently rolling large areas covered with grass. There are many types of grasslands around the world, all with their own kinds of weather. The grasslands in the cool



Habitats

The Earth's Biomes

Info Check p.1

Write these words in your vocabulary chart

biome	coniferous	pampas	tundra	temperature
vegetation	deciduous	prairies	altitude	precipitation
tropical	rainforest	plains	wetland	humid
polar	savanna	steppe		

1. What is a biome? _____

_____

2. List four things that are used to determine the climate of an area.

a) _____ b) _____ c) _____ d) _____

3. Two words that can be used instead of the word 'vegetation" are

_____ _____

4. In what type of forest would you find a pine tree? _____

5. The deciduous forest contains mostly trees with _____ _____.

6. How much precipitation does a forest have to receive to be called a rainforest?

_____

7. Two kinds of precipitation are _____ and _____.

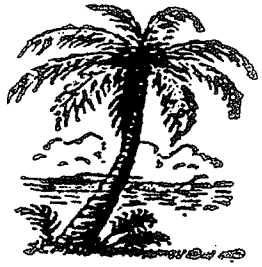
8. What do we call the grasslands found in Canada? _____

United States? _____

Africa? _____

South America? _____

Eurasia? _____



Habitats

The Earth's Biomes

Information Card p.2

regions of the world are called Temperate Grasslands. Temperate grasslands have few trees because there is not enough rain. They receive 25-50 cm (10-20 in.) per year. In North America they are called prairies or plains. The grasslands in the middle of Eurasia are called steppes. In the middle of the large southern continents, where it is very hot, the grasslands are called savannas or Tropical Grasslands. The savanna is covered in bushes and tough grasses. There are few trees because most of the year there is little rain. The grassland area of South America is called the pampas. It receives very little rainfall and is very dry due to its cold, dry winds.

The top and bottom of the world where there is always snow and ice are called the polar regions. The climate here is always icy cold and there is no vegetation. The animals living here depend mostly on ocean plants and other animals for their food.

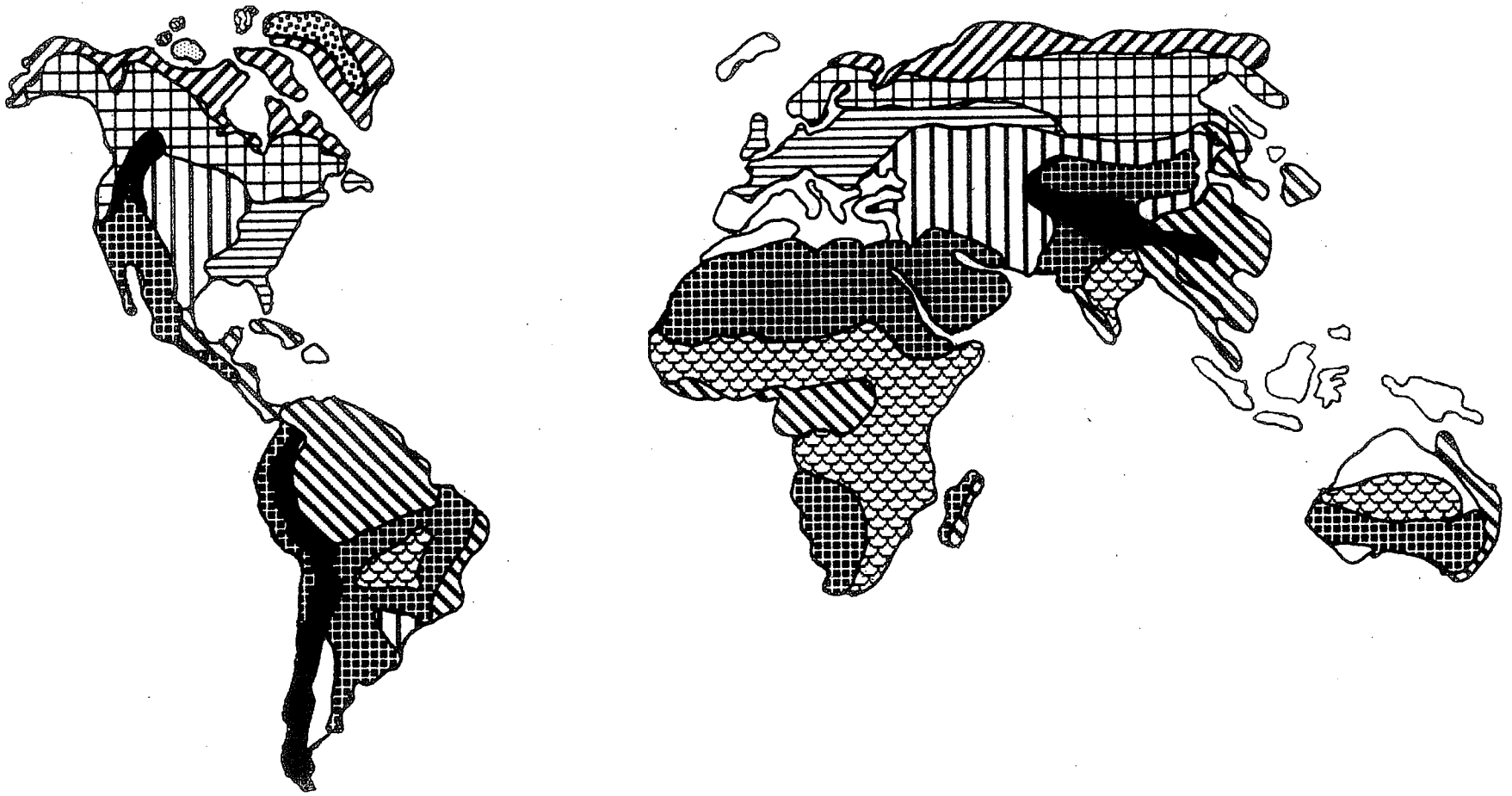
Just below the polar regions is the tundra. The tundra is a huge treeless plain which reaches from the Arctic Ocean to to the northern forests. Most of the year it is windy and freezing cold. The water and land are frozen. Trees will not grow in this area of the world because the earth is permanently frozen. Only when the land thaws a little in the summer can grasses and small shrubs grow. During the summer season, a thin layer of the frozen soil is melted and some plant life begins to grow. Plants such as mosses, lichens, and grasses grow and provide food for much of the tundra wildlife.

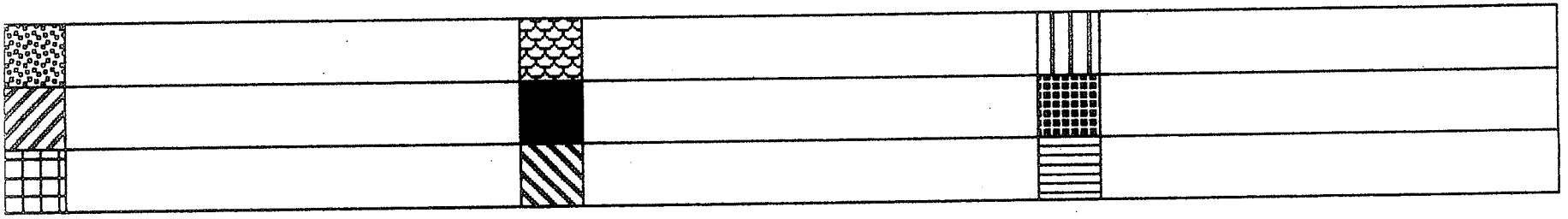
The mountain regions of the world contain a variety of plant life and vegetation because of the differing altitudes at the bottoms and tops of the mountains. At lower altitudes there may be tropical forests and plants. As the altitude increases up the mountain the plant and animal life changes sometimes from deciduous to coniferous to mosses and lichens. Travelling up a mountain is like travelling through many different biomes.

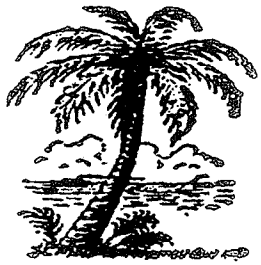
Ecologists also divide the waters of the earth into three biomes. These are the oceans which are salty and the fresh waters like lakes, rivers, streams and ponds which are not salty. Bogs, swamps and marshes are called wetland biomes. In these areas the soil contains a great deal of water. Freshwater biomes are found all over the world and provide habitats for many plants and animals.

Habitats

The Earth's Biomes







Habitats

The Earth's Biomes

Info Check p.2

1. Choose the group of words that best describe the vegetation of each biome.

mosses and lichens

treeless

evergreens

maples, oaks, poplars etc

tough grasses, few trees

thick plant growth

cacti or palms

Tropical Grassland	
Desert	
Coniferous Forest	
Tundra	
Polar Region	
Rainforest	
Deciduous Forest	

2. Three water biomes are _____, _____, and _____.

3. Fill in the chart with names of trees.

Coniferous Trees	Deciduous Trees

Habitats

The Earth's Biomes

Mapping Activity

You will need a copy of the map titled "the Earth's Biomes" for this activity.

1. Complete the legend on the map by studying the map and using an atlas or other reference materials. Books about ecology often have maps of the biomes of the world. The following is a list of the nine biomes you should use in your legend.

   1) Polar Regions
   2) Tundra
   3) Tropical Forest
   4) Tropical Grasslands
   5) Temperate Grasslands
   6) Desert and Semi-Desert
   7) Mountains
   8) Coniferous Forest
   9) Deciduous Forest

2. The two biomes which make up most of the continent of Africa are _____ _____ and _____.

3. The biome which covers most of the country in which I live is _____.

4. The largest biome of the earth, not shown in the legend is _____.

5. The two largest biomes of Australia are _____ and _____.

6. The tundra biomes are located only in the _____ Hemisphere.

7. Tropical forests are located near the _____.

8. Most of Central America is a _____ biome.

9. The temperate grassland biomes are found on the continents of _____ and _____.