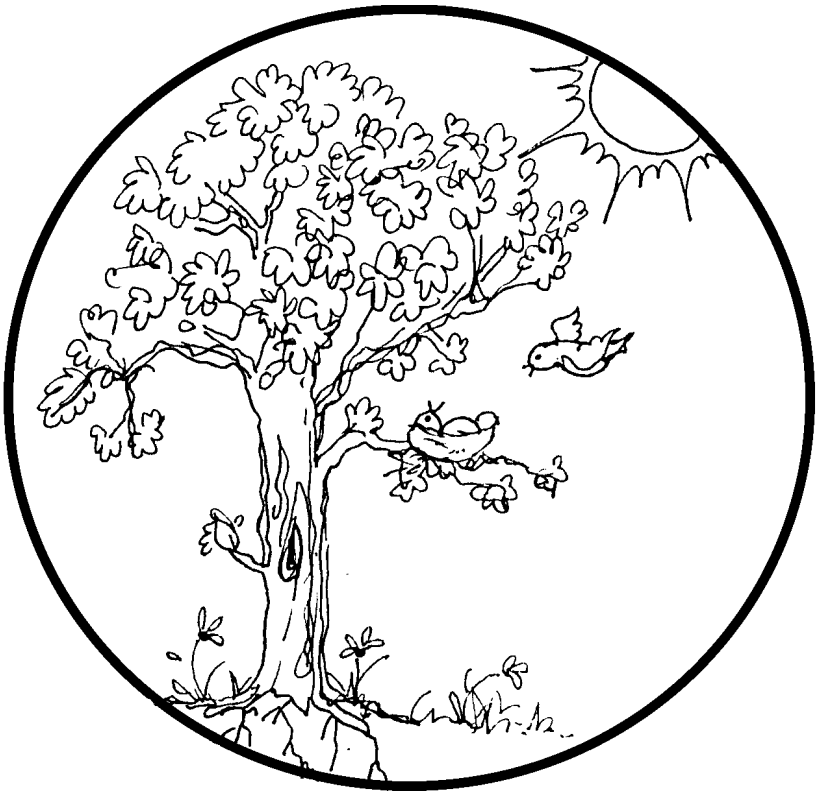
Life Cycle

Diversity in a Balance

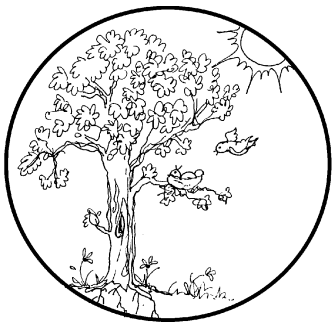
FIRST GRADE

NATURAL ENVIRONMENT



2 WEEKS
LESSON PLANS AND
ACTIVITIES

LIFE CYCLE
OVERVIEW OF FIRST GRADE



ORGANISMS

WEEK 1.
PRE: *Distinguishing non-living from living objects.*
LAB: *Discovering requirements of living objects.*
POST: *Comparing invertebrates and vertebrates.*
WEEK 2.
PRE: *Comparing animals with backbones.*
LAB: *Discovering characteristics of vertebrates.*
POST: *Exploring the uses of animals.*

HUMAN BIOLOGY

WEEK 3.
PRE: *Discovering the human senses.*
LAB: *Exploring involuntary and voluntary reactions.*
POST: *Exploring the central nervous system.*
WEEK 4.
PRE: *Comparing body systems.*
LAB: *Experimenting with blood circulation.*
POST: *Distinguishing between healthy and junk food.*

PLANT LIFE

WEEK 5.
PRE: *Comparing different types of seeds.*
LAB: *Examining a seed by finding the 3 basic parts.*
POST: *Distinguishing the parts of a flower.*
WEEK 6.
PRE: *Growing two kinds of plants from seeds.*
LAB: *Exploring stems and flowers.*
POST: *Analyzing if an item is made from a plant.*

NATURAL ENVIRONMENT

WEEK 7.
PRE: *Comparing land and water environments.*
LAB: *Distinguishing characteristics of land and water organisms.*
POST: *Discovering how organisms live.*
WEEK 8.
PRE: *Discovering how birds eat.*
LAB: *Comparing different birds.*
POST: *Exploring habitats of birds.*

LIFE CYCLE - NATURAL ENVIRONMENT (1A)

PRE LAB

Students use a globe to determine different environments.

OBJECTIVES:

1. Comparing land and water environments.
2. Describing environments where organisms live.

VOCABULARY:

environment
land
water

MATERIALS:

Inflatable Animal Globe
pictures of land and aquatic organisms
Internet

BACKGROUND:

There are many different places on Earth where organisms can live. These areas can be called an organism's environment. There are mountains, valleys, trees, snow, and water environments as well as hot and cold climate environments. Different types of organisms can live in similar environments. Animals, plants, and other organisms are adapted for living in certain areas of the world. For examples, whales have blubber so they can withstand cold temperatures and other mammals grow fur which protects them from the cold.

Different organisms have physical limits that make them more adapted to an environment. Birds fly so they have hollow bones and feathers which help them to fly. Large animals need support to walk so they have backbones and legs. It seems that all organisms have a place in this world and are adapted to fit into their own special place. Imagine a whale having legs or an animal having roots, this just doesn't happen.

There are two very different environments on this Earth, land and water. The organisms that live in these environments have very similar requirements. Organisms that live on land need to develop a way to combat gravity. They need legs or wings if they want to move. A tree develops a way to get water to move upwards (against gravity). Organisms in water use water to support their body so they tend to be more hydrodynamically designed.

PROCEDURE:

1. Instruct students to look at the animal globe and make a list of those animals that live on land versus those that live on water. Name some of the animals and have them locate where they live. You will notice that many animals on land need to be near water.

2. Instruct the students to look again at the animals on the globe and try to see how the organisms are fundamentally different. Try to get their ideas on the board, which should resemble the table below.

LAND	WATER
* large animals have backbones	* smaller organisms
* fur and hair	* have gills
* plants with roots/leaves	* blubber
* big animals	* small plants
* legs	* streamlined
	* flippers

3. If you have pictures of different organisms or Internet access, have students look at the different organisms and determine whether they live in a land or water environment.

LIFE CYCLE - NATURAL ENVIRONMENT (1A)

LAB

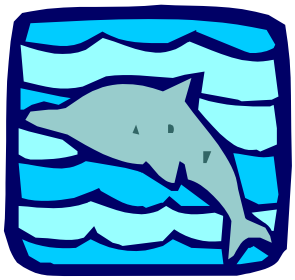
Students determine different land and ocean environments.

OBJECTIVES:

1. Comparing land and water organisms.
2. Distinguishing characteristics of land and water organisms.

VOCABULARY:

aquatic
environment
land
marine



MATERIALS:

lab sheet
Life Cycle - Natural Environment (1A)
animal Puppets or living organisms [optional]
hand lens

BACKGROUND:

Students have learned that there are different types of environments, but mainly under two big divisions land and water. An environment in which an organism lives can be described by temperature, wind, and other physical components as well as the biological components.

The aquatic or water environment has many divisions including fresh, salt (marine), and brackish (fresh and salty) water. The land environment has many subdivisions also, including air, rock, sand, and soil. Some of the land environments must include being close to a source of fresh water.

PROCEDURE:

1. Make sure you go over the words with students and discuss each of the items before and after you give students their packets. You many want to include other pictures that students can classify.

In this lab the students will look at their packets included in the module and try to determine if the organisms came from aquatic or land environments and then they will try to figure out why the organism lives in his particular environment.

2. Students should use their hand lens to observe the organisms. Instruct students

to draw a picture of the type of environment in with the item comes from. If they think it is the marine environment, have them make a picture of the ocean.

3. The following background information on each of the components can help you give clues to the students.

Branch: This is part of a tree. Trees are adapted to the land environment. They can get their nutrients and water from the soil, and then transport them through the tree.

Clams: Live in the marine environment. The shell helps protect clams from organisms that eat them and to keep them clean from mud in which they live. Clam shells also have different shapes that help them burrow more efficiently.

Moss: A land plant that needs to be wet all the time with fresh water. Notice that the roots are small.

Mammal: (Plastic Model) Has a backbone that supports its body while walking. Legs are present only on land mammals so they can walk.

Seaweed: Present in the water environment, usually with gas bubbles to help it float. There is no need for roots. Many seaweeds are green, but some are red or brown. They are all able to make their own food.

Coral: Live in the marine environment, usually in shallow water. Eat small detritus that falls on tentacles. Each hole is an individual organism.

4. Space has been left on the chart if you wish to add additional organisms for the students to examine.

LIFE CYCLE - NATURAL ENVIRONMENT (1A)

LAB

	DRAW TYPE OF ENVIRONMENT
BRANCH	
CLAMS	
MOSS	
ANIMAL	
SEAWEED	
CORAL	

LIFE CYCLE - NATURAL ENVIRONMENT (1A)

POST LAB

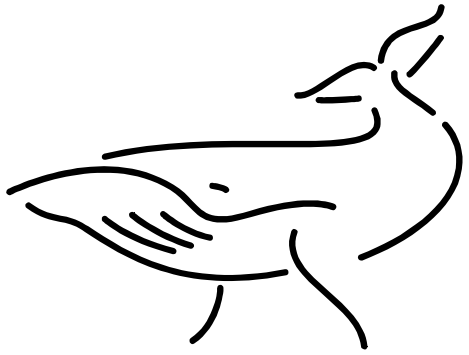
Students use a worksheet to compare how individuals live together.

OBJECTIVES:

1. Discovering how organisms live.
2. Comparing individuals, populations, communities, and ecosystems.

VOCABULARY:

community
ecosystem
individual
population



MATERIALS:

worksheet
crayons

BACKGROUND:

An individual can be defined as one plant or one organism, which is a member of a population of other like individuals. Most organisms are individuals and are distinct from other individuals in a population. The ecology of organisms is concerned with the way that individual organisms interact with their environment. However, an individual cannot live completely in isolation away from other like organisms, it is dependant upon other biological life and the surrounding physical environment.

The term environment refers to all the external factors affecting the life of an individual organism or a population of organisms. All living (plants and animals) and non-living (air, water and land) things are part of the environment. Studying the whole environment at once is an immense task, so the environment is broken into sections we call ecosystems. An ecosystem is a group or community of living things interacting with one another and with their non-living surroundings.

An ecosystem can be as large as a forest, or as small as an aquarium. It can even be your classroom.

PROCEDURE:

1. Each of your students are individuals, but interact with the rest of the student's or populations. Ask them how they interact, because individuals and populations do not live alone in nature but in association with other organisms in a natural environment.

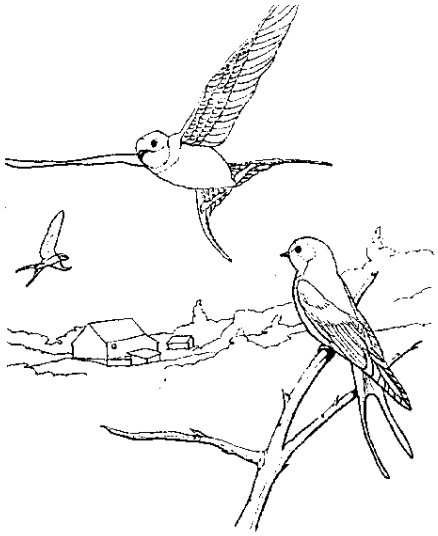
2. On the worksheet have the students identify whether the picture is an individual,

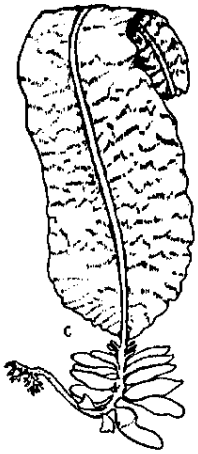
a population, a community, or an ecosystem. If you have coloring books on different animal or plant communities and individuals you may want each child to do a different picture and have them hang then up under a sign that says Individuals, Populations, Community, and Ecosystems.

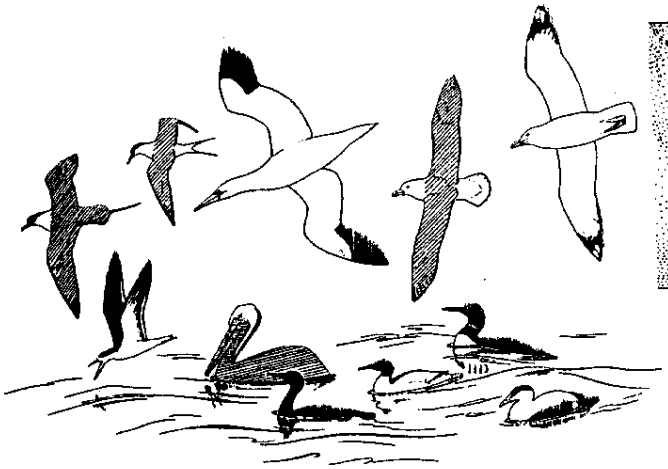
3. We suggest that the students number a sheet of blank paper and list the answers, so you can re-use the sheet. The answers are: Individuals (1,3); Populations (2,7); Community (4,5); Ecosystems (6).

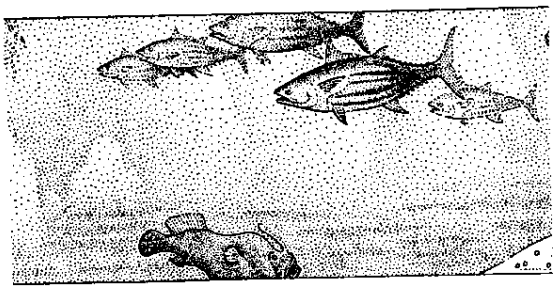
LIFE CYCLE - NATURAL ENVIRONMENT (1A)

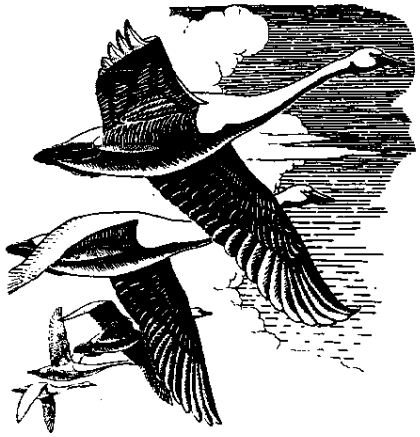
POST











LIFE CYCLE - NATURAL ENVIRONMENT (1B)

PRE LAB

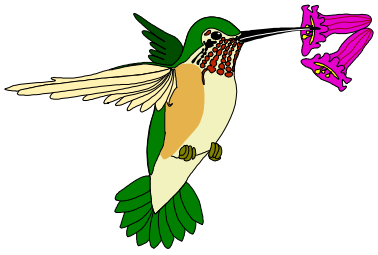
Students use a worksheet to learn how birds eat.

OBJECTIVES:

1. Discovering how birds eat.
2. Comparing bird's beaks and feet.

VOCABULARY:

carnivore
filter feeder
food chain
habitat
herbivore
omnivore
prey



MATERIALS:

worksheet

BACKGROUND:

Most of the birds that students see are wild. They are one of the few wild organisms that children can identify in the country and in the city. All children know what is meant by "to be free as a bird".

Birds have no teeth and their jaws have a hard covering called the beak or bill. The bill is adapted to the ways in which birds eat and to what they eat. Some birds can be a carnivore or meat eaters. A bird that eats worms is a carnivore. A filter feeder uses its bill to filter water for its food. Many water birds are filter feeders. A herbivore eats plants. A hummingbird eats nectar and is considered a herbivore. An omnivore can eat plants and meat. A bird that eats worms and seeds are considered an omnivore.

Birds feet can also help in determining how they live. Feet that are webbed means that the bird lives in water.

PROCEDURE:

1. Give students the bird worksheet. Students will color the different types of beaks that show how different birds eat. They will use this sheet during lab, so make sure that they don't throw their sheets away. Also on the coloring sheet are ways to identify the type of bird's feet and observation of the feet can yield clues to the use of a particular bird's feet in his particular habitat.

2. Point out to the students that the size of the pictures do not represent the true proportions. They are to look at the overall shape for identification. Identifying birds can be a rewarding experience for children. However, you must give them clues to observe.

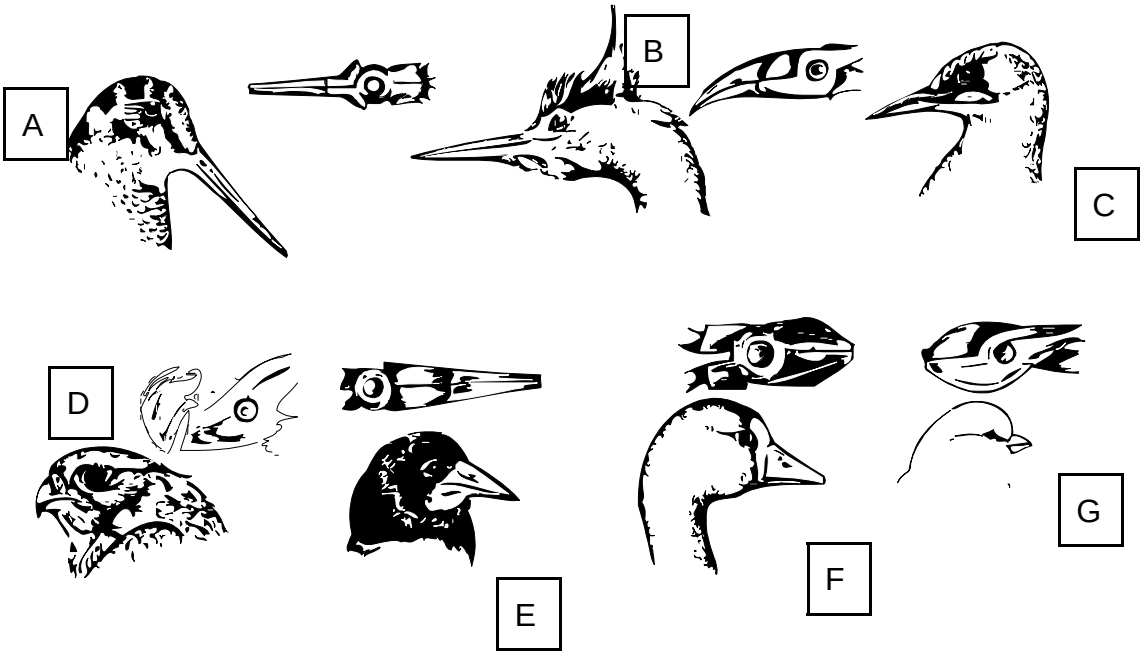
3. The worksheet shows the difference between bird beaks that are carnivores and herbivores. Discuss with students that the shape of the bill (long and broad--usually water) or beak (short--usually land birds) is important, not only for identification, but also to find out how the animal eats. Also, note the picture of the "tools" that explain how the beak works. The bird's feet also give clues to whether a bird is a predator or not.

4. The worksheet shows the difference between predators, insect eaters, seed crushing, filter feeders, and fish eaters. The feet also illustrate the differences between swimming, catching prey, climbing, perching, and wading.

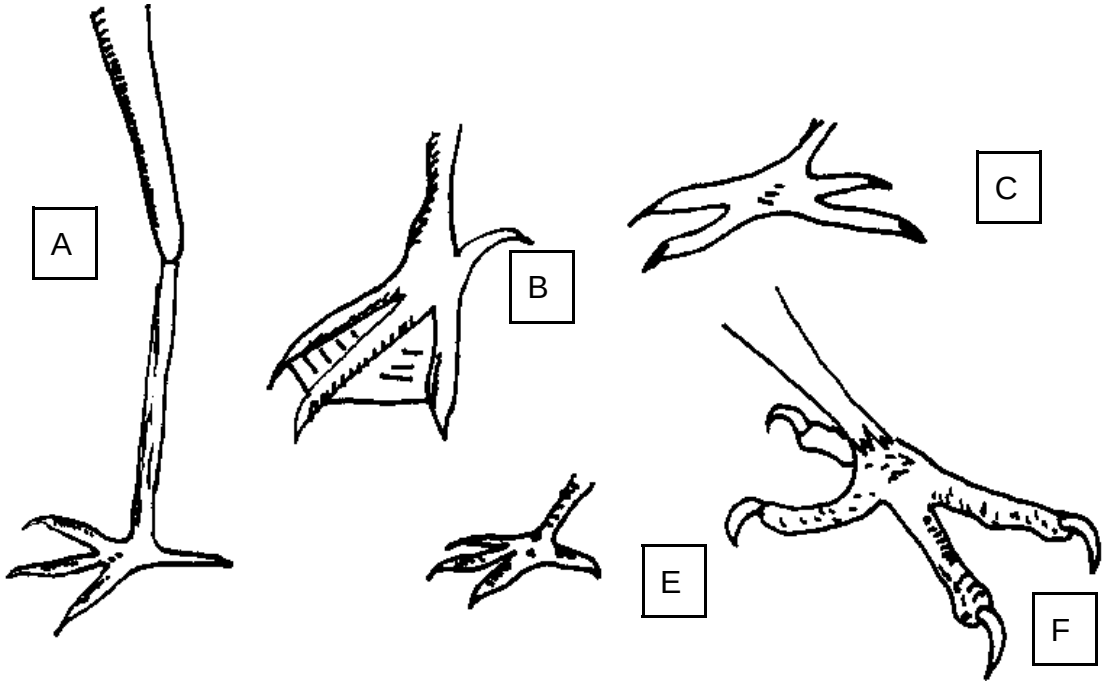
5. You may want to use books in your library or the Internet to show students a variety of birds.

LIFE CYCLE - NATURAL ENVIRONMENT (1B)

PRE



How do these birds use their beaks?



How do you think birds would use their “feet”?

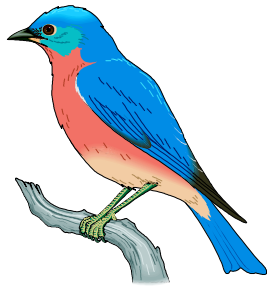
LIFE CYCLE - NATURAL ENVIRONMENT (1B)

LAB

Students determine what birds eat by looking at a bird's beak.

OBJECTIVES:

1. Comparing different birds.
2. Exploring the eating habits of individual birds.



VOCABULARY:

beak
bill
bird
predatory

MATERIALS:

set of simple machines (i.e. nutcrackers, tweezers, etc)
bag of seeds and beans
lab sheets

BACKGROUND:

Different birds require different types of food, water, and shelter in order to live. There are many different types of habitats for individual bird populations. For example a forest will have several types of birds, but the coastal ocean will have a totally different type of bird population. An area that has abundant water, like rivers or ponds tends to have many species of birds because birds must drink water. Birds also gather where food is locally abundant and which includes fruiting or flowering plants, garbage dumps, or short grasses.

The shape of a bird's beak is very important to how that bird eats. The design of the beak will determine what that bird can eat.

PROCEDURE:

1. There are many different ways in which birds eat. Give the students some simple machines including nutcrackers, tweezers, and sets of pliers. Instruct the students to try and pick up the seed or bean and try to open it just with a "beak" (or the tip of the simple machine.) This is difficult because it takes a lot of power to break a seed. The pliers are the most accurate analog to a beak.

2. Students have made their worksheets from the pre lab which they will now compare with the bird pictures provided. Students have to determine what type of diet that particular bird has by comparing beaks. Instruct students to write on their lab sheet what

the bird eats. If you have pictures around the room of birds, have the students guess what they would eat.

Below is a summary of the birds:

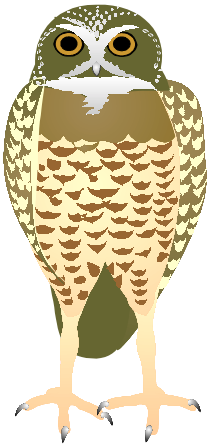
Sparrow - seeds and insects
Blue Jay - eats insects, worms
Mallard Duck - omnivore, filter feeder
Burrowing Owl - small mammal (carnivore)
Hairy Woodpecker - insect
Quail - seed
Eagle - small mammal, small birds (carnivore)
Brown Pelican - fish
Emperor Penguin - fish
Crow - omnivore, seed and scavenger

LIFE CYCLE - NATURAL ENVIRONMENT (1B)

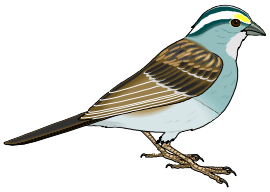
LAB

Blue Jay

Crow

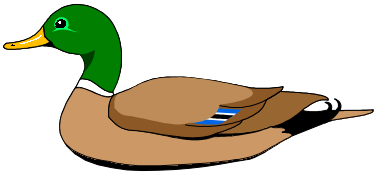


Burrowing Owl



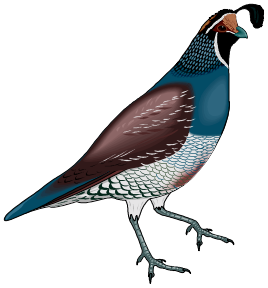
Sparrow

Eagle

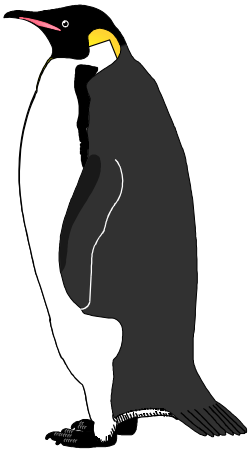


Mallard Duck

Woodpecker



Quail



Emperor Penguin

USE THE BIRD PICTURES AND DETERMINE WHAT THE BIRDS BELOW EAT (INSECT, FISH, SEEDS, SMALL MAMMALS, OTHER BIRDS)

	EATS
BLUE JAY	
CROW	
BURROWING OWL	
MALLARD DUCK	
EAGLE	
SPARROW	
WOODPECKER	
QUAIL	
EMPEROR PENGUIN	

LIFE CYCLE - NATURAL ENVIRONMENT (1B)

POST LAB

Students use worksheets to learn about birds' habitats.

OBJECTIVES:

1. Exploring habitats of birds.
2. Discovering why birds are important.

VOCABULARY:

birds
habitat

MATERIALS:

worksheets

BACKGROUND:

Water Birds include birds that can dive with ease and can swim underwater but are nearly helpless on land. These include loons, grebes, herons, egrets, cormorants, and pelicans.

Ducks, swans, and geese are also part of the waterfowl, but are usually found in marshlands. They are usually sociable and migrate in flocks.

Shorebirds include plovers, sandpipers, gulls, and terns. Most of these birds are found feeding at the water's edge or in fields.

Birds of prey are nature's hunters which include the vultures, hawks falcons, owls and osprey.

Land birds refers to birds that live on the ground with stout bills and strong legs. Their short, rounded wings carry them on brief bursts of flight to escape danger. Included in this groups are grouse, quails, pheasants and turkeys. Pigeons, doves, cuckoos are also part of this group.

Songbirds are considered perching birds. This is a large grouping of birds that includes ravens, mockingbirds, and most of the common birds. You can almost call this group wire or fencepost sitters.

Birds of a forest spend much of their time feeding in the forest, utilizing the trees for food, protection, and nesting.

Birds are important to humans for many reasons. The common chicken is a bird which is used for eggs and meat. Other birds are used for meat also. Many small birds help plants to pollinate. Predators like the owl are great rodent control. And birds are pleasing to the ear as well as sight. Imagine a world without birds!

PROCEDURE:

1. By this time, your students should have become quite interested in birds. Use the difference pictures of birds to have the students guess what each of the birds have in common. You can either make copies of the worksheets or project them for the entire class to discuss.

2. For each of the pictures you should discuss the following:

Birds of the Seashore: All the birds have long bills and wading feet to help them eat and walk along the shore. Most of the birds have long legs that helps them keep stable in the muddy shores.

Fencepost, Birds of the Forest, and Group Wire: All the birds have perching feet, but otherwise they can vary significantly.

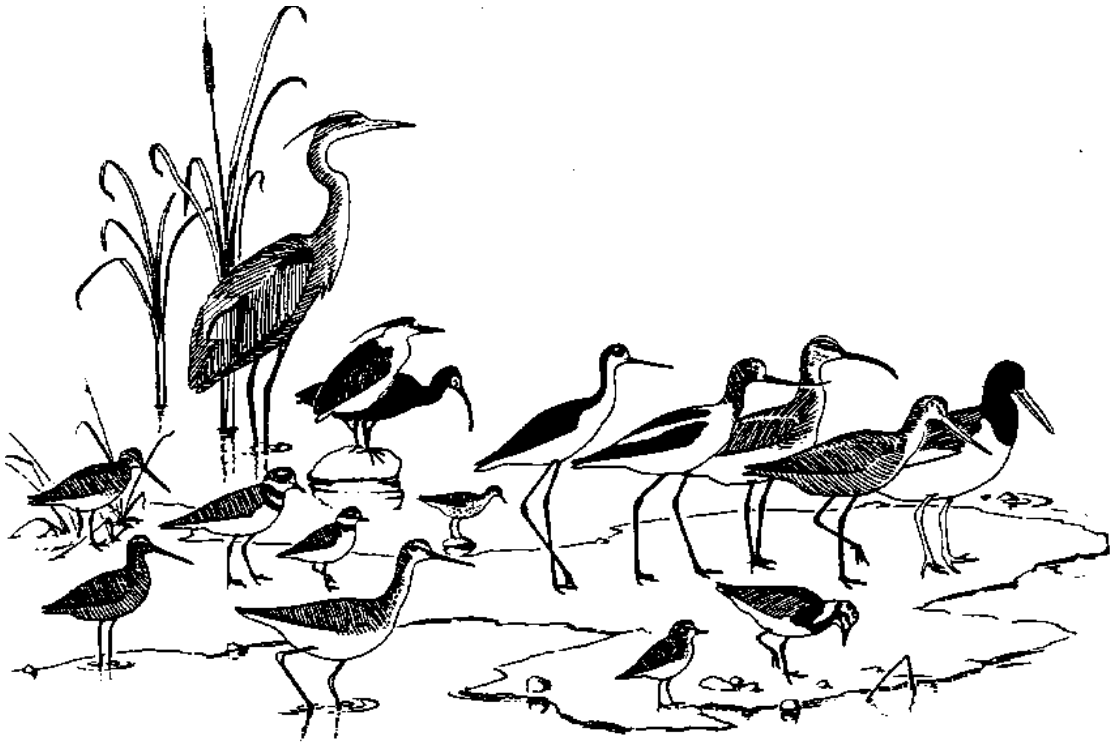
Birds of the Marsh are similar to birds of a seashore with respect to their feet. Some birds do have perching feet, that would sit in the marsh plants. However, they have varied bills because there are several food sources in a marsh that you cannot find along the shore.

Birds of the Ocean: These birds have webbed swimming feet. They usually have bills that help them filter feed the small organisms that live in the water.

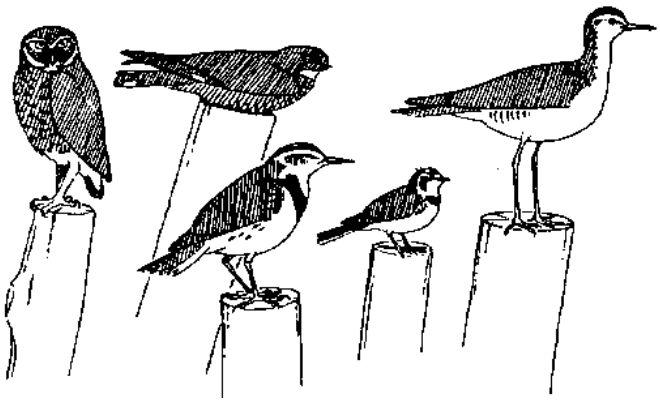
LIFE CYCLE - NATURAL ENVIRONMENT (1B)

POST

Birds of the Seashore

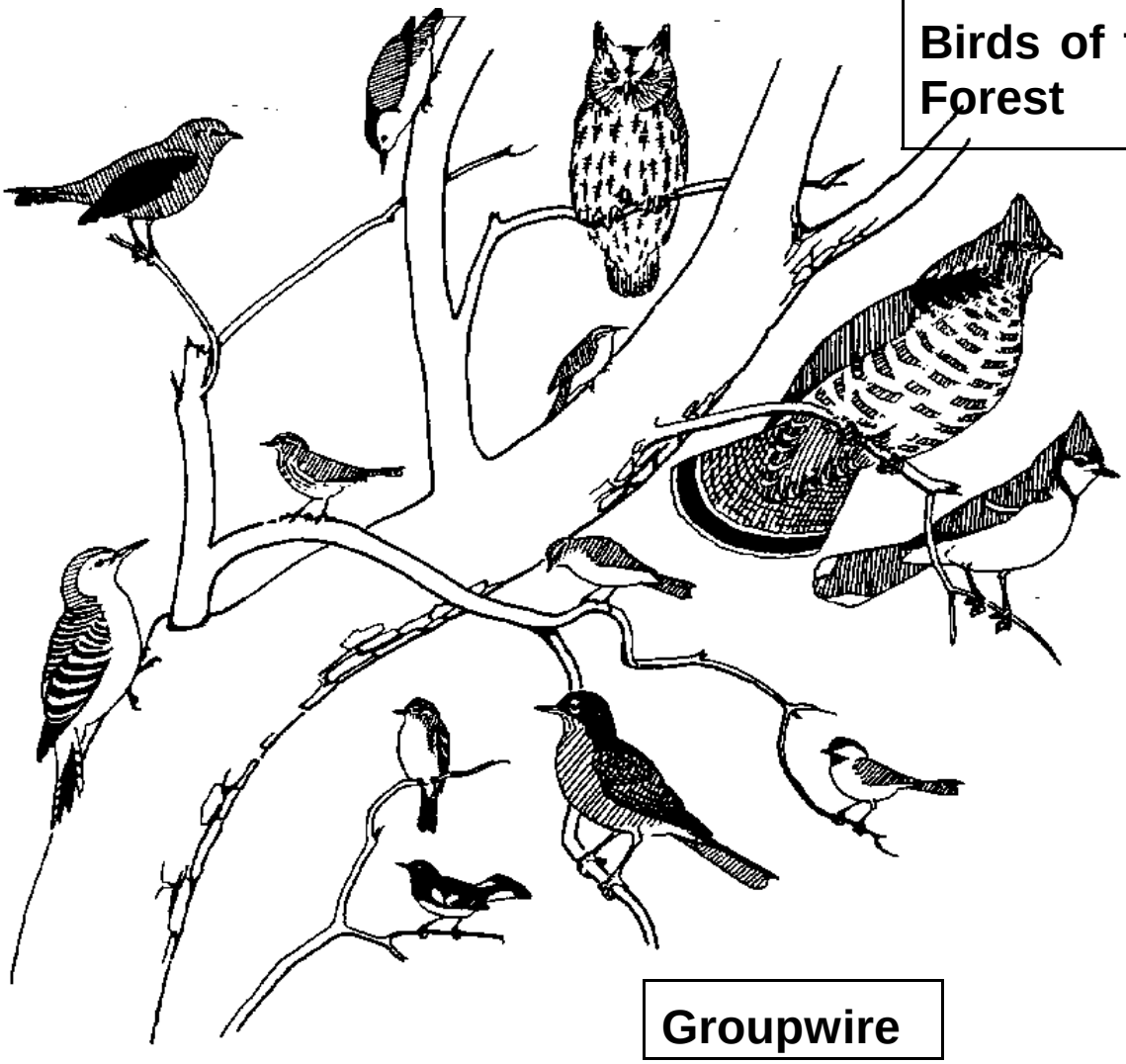


Fencepost

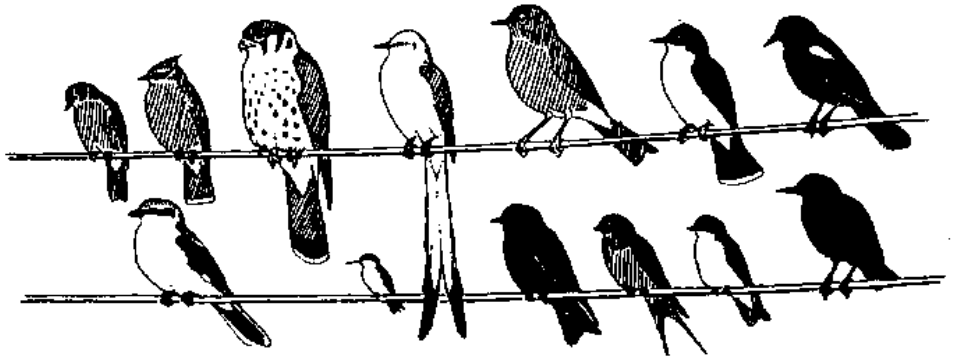


LIFE CYCLE - NATURAL ENVIRONMENT (1B)
POST

Birds of the Forest



Groupwire

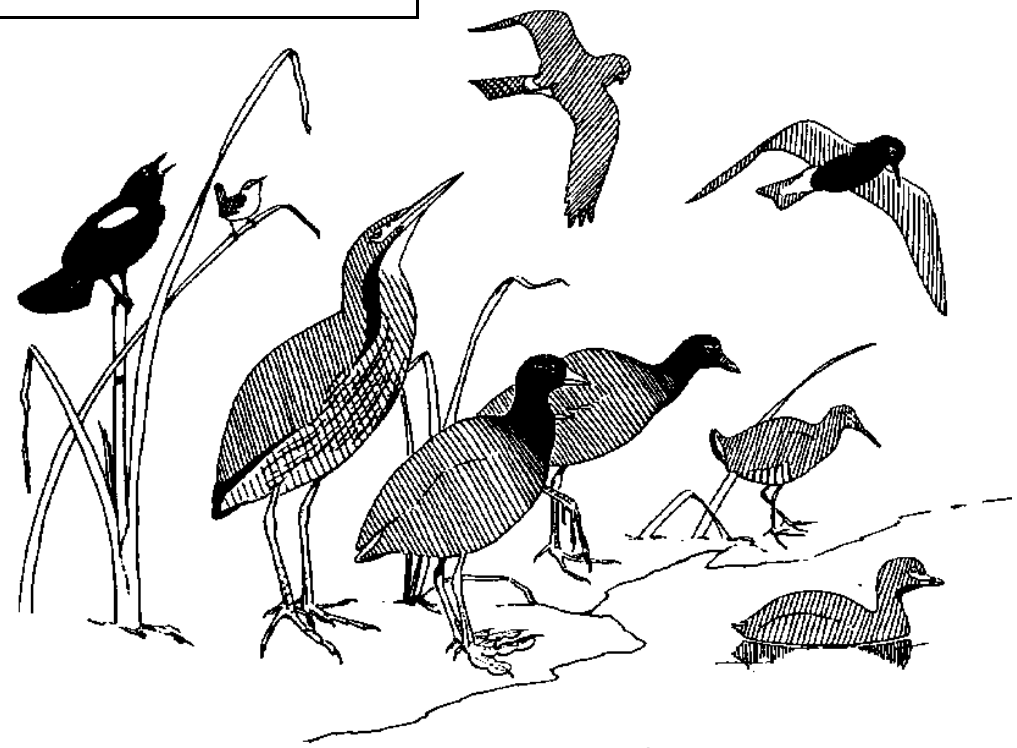


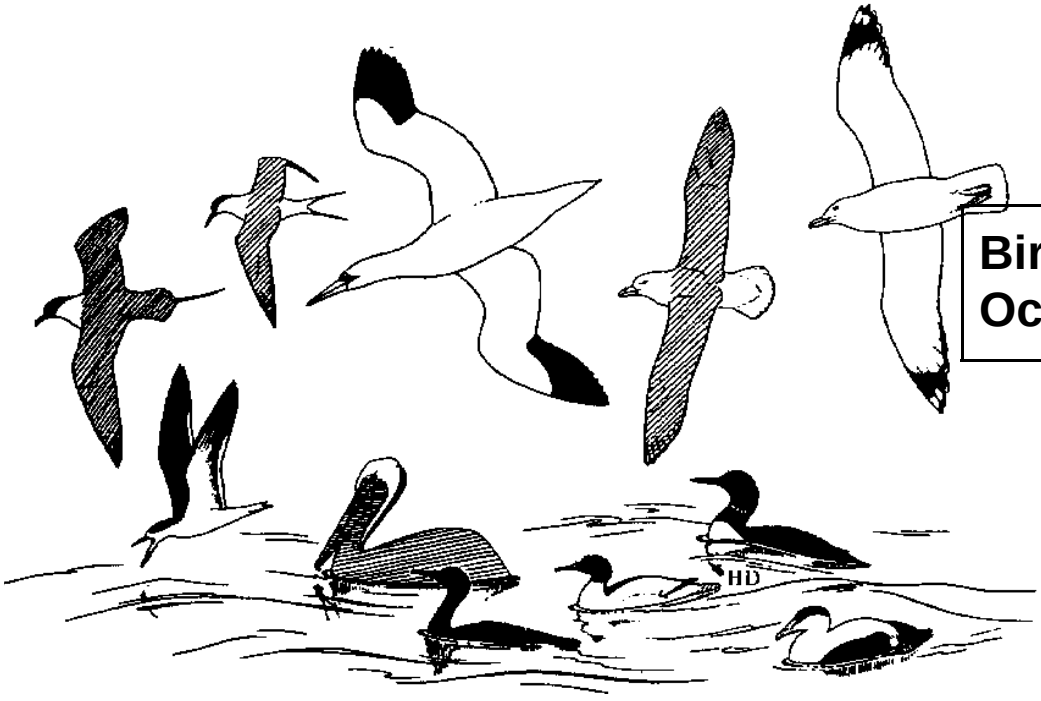
LIFE

CYCLE - NATURAL ENVIRONMENT (1B)

POST

Birds of the Marsh





Birds of the Oceans