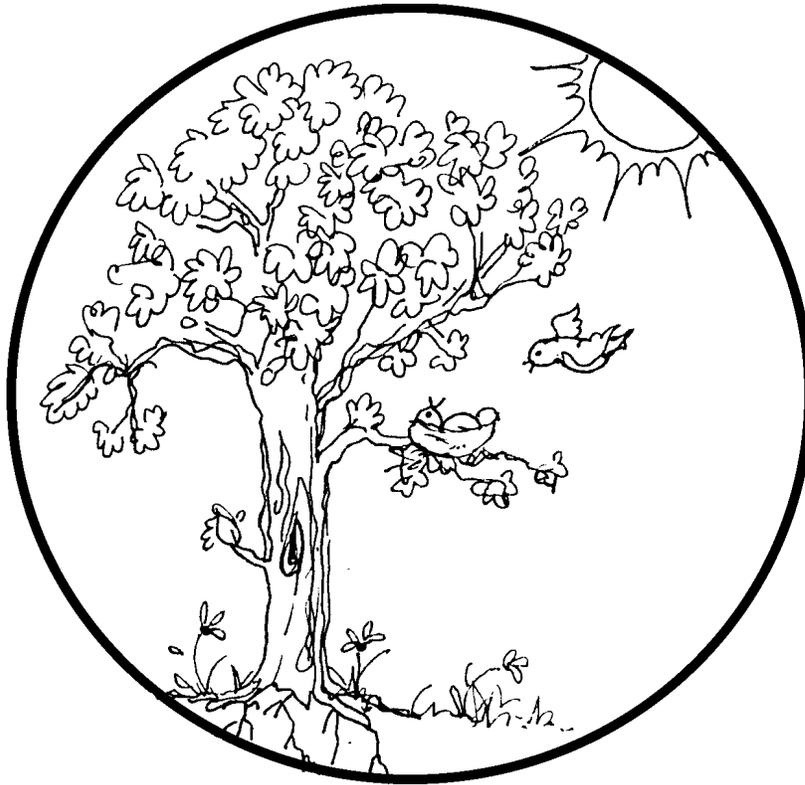


**Life Cycle**  
Diversity in a Balance



**FIRST GRADE**  
**ORGANISMS**



**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.*

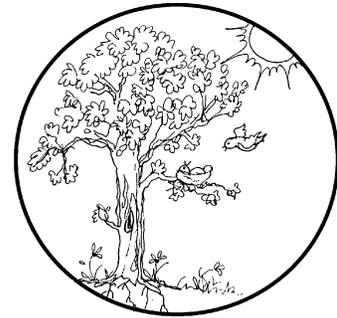
POST: *Comparing invertebrates and vertebrates.*

#### 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 - ORGANISMS (1A)

### PRE LAB

Students compare living and non-living.

### OBJECTIVES:

1. Distinguishing non-living from living objects.
2. Learning the requirements of life.

### VOCABULARY:

living  
non-living

### MATERIALS:

living and non-living envelopes  
plastic or paper bags



living



non-living

### BACKGROUND:

The following traits distinguish living things from non-living things:

1. Living things usually grow during their life cycle. Note that the word "grow" refers also to non-living things which can get larger. Examples are crystals, stalactites, and stalagmites.
2. Many living things move on their own although some, like plants, do not. Remember that motorized vehicles also move.
3. Living things need food, water, and a place to live. Almost all need air, but not all.
4. Living things reproduce. Things that are not living cannot have "babies."

### PROCEDURE:

1. List these words on a chalkboard: cat, dog, tree, boy, girl, grass, bird, rose. Ask how these things are alike. (They are all living).
2. Ask children how you can tell the difference between something that is living and something that is not living. Try to get students to think of the characteristics listed above.
3. Make envelopes of non-living and living cards by pasting a card on each individual envelope (see enclosed master). Give each child an envelope marked "living" or "non-living." Make sure that each child knows which of the two kinds of envelopes he or she has.

4. Tell the students that they will be going on a walk and will have to find one thing and put the object in the envelope that they have. No bugs allowed, and a leaf can represent an entire plant. Acorns and other seeds are good. Make sure you go over any rules of what children should not touch. Non-living objects could include a rock, piece of glass, or trash.

5. When they get back from the walk, go over what they found and help them decide whether each thing is living or not living. They should be able to explain why they classified each object as they did.

**LIFE CYCLE - ORGANISMS (1A)**

**PRE**

**LIVING**

**NON-LIVING**

**LIVING**

**NON-LIVING**

## LIFE CYCLE - ORGANISMS (1A)

### LAB

Students determine the nature of objects.

### OBJECTIVES:

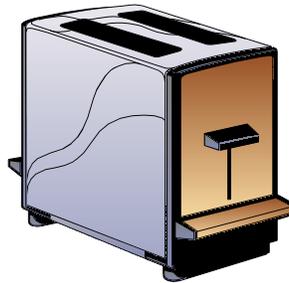
1. Discovering requirements of living objects.
2. Comparing living and non-living objects.

### VOCABULARY:

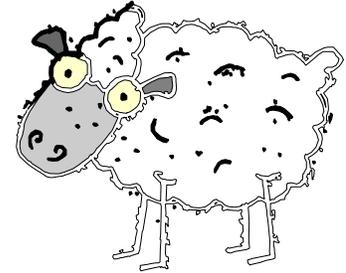
characteristic  
living  
non-living

### MATERIALS:

living and non-living objects



Non-living



Living

### BACKGROUND:

Living things are sensitive to their environment. Non-living objects are not. For example, let us suppose that a grain of sand and a seed lie side by side in the ground. Let's now suppose that the earth becomes warmed by the Sun and moistened by the rain. The seed will respond by sprouting and in time will become a plant or a tree. The grain of sand however, remains the same. It may have moved a bit by wind or rain, but it hasn't changed in appearance in any way. The seed, unlike the grain of sand has reacted to the environment by growing.

Living things also respond to internal changes. For example, you quickly pull your hand away from a hot iron because of an impulse or feeling.

Living things are able to reproduce. People, snakes, insects, fish, or any other organisms have young which in time develop into adults. Trees produce seeds which will grow into an adult tree. Non-living things do not have this ability. Viruses cannot reproduce on their own and therefore are not living organisms.

### PROCEDURE:

1. Discuss with students that all objects have characteristics. Characteristics refer to descriptions of a particular object, whether it be living or non-living. Characteristics also help us to distinguish the differences between objects, like a bird and fish. Each of these animals belong to their own group that have similar characteristics.

2. In this lab, set out stations around the room (you may want to use the materials that the children found on the pre lab activities). Make sure you have inanimate objects like puppets or artificial flowers.

3. Have the students look at the objects and determine whether they are living or non-living. Guide their answers by telling them to figure out if the objects are living if they can answer "yes" to the following questions. Does it move? Does it need food? Can it have babies? Give students living and non-living cards (use pre lab master) and have them vote at each station.

4. Count the votes at each station and then discuss why most children voted the way they did. Determine if they were right or wrong. Remember to distinguish that even though an item like paper, was living at one time, it does not qualify as a living object today.

## LIFE CYCLE - ORGANISMS (1A)

### POST LAB

Students compare vertebrates with invertebrates.

### OBJECTIVES:

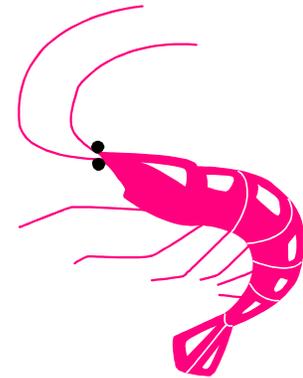
1. Describing different types of organisms.
2. Comparing invertebrates and vertebrates.

### VOCABULARY:

backbone  
invertebrate  
vertebrate

### MATERIAL:

worksheets



Invertebrate

### BACKGROUND:

There is a great diversity of living organisms on this Earth. There are natural groupings of organisms as they live together. Humans however have developed ways to connect similar organisms that do not live near each other. For instance, there are two places where elephants live, India and Africa. They are both considered elephants because they have similar characteristics, but they do not live together.

Humans have constructed a "Tree of Life" to try and develop a pattern of similar characteristics and group them into Kingdoms (very large groups), Phylums (large groups), Families (smaller groups) and then genus and species, which identifies organisms that can reproduce amongst themselves. Presently there are 6 kingdoms. Believe it or not, we do not understand all organisms yet, so even the kingdom level can change. In ancient Greek there was only two Kingdoms, Plant and Animal. Children will learn about the kingdoms in later grades, but the kingdom they are most familiar with is the "Kingdom Animalia."

Introduce the term "animal" as being an organism that grows, has babies, and eats to grow and to nourish the body. Animals can move or remain in one place; they may have a backbone (point to your backbone) or may not have a backbone (i.e., snails, worms). Animals are divided into animals with backbones called vertebrates and animals without backbones called invertebrates.

Animals are divided into two major groups, vertebrates and invertebrates. Children are usually familiar with vertebrates including mammals, fish, birds, reptiles, and amphibians, but sometimes don't realize that insects and snails also belong to the Animalia Kingdom.

## PROCEDURE:

1. Ask students to divide the animals that they are familiar with. Ask them to think about dividing them into animals with backbones and those without backbones. You may have to emphasize that just having a skeleton is not enough to have a backbone. If you have a backbone from a recent chicken dinner, bring it so they can see what backbones consist of. You also may want everyone to touch their own backbone. The reason for a backbone is to help large animals to move.

2. Develop the following type of diagram on the board to illustrate the difference. Have students give examples. You may have to help them with the first few examples.

<b>with backbones</b>	<b>without backbones</b>
dog	bug
humans	worm

3. Go over the sheets with the students. They may color the word for each group. One of the sheets lists the groups of vertebrates, which actually refer to the correct phylum names. The other sheets list common types of invertebrates into its common name, each one representing a larger group. Since these names are not common we have used an example of each phylum instead of the phylum name. Sponges represent the phylum Porifera; jellyfish represent Cnidaria; worms represent Annelida; insect represents Arthropoda; clams represent Mollusca; and seastars represents Echinoderms. If you have examples of these animals show them to your students.

LIFE CYCLE - ORGANISMS (1A) POST LAB

VERTEBRATES

**AMPHIBIAN**



**REPTILE**



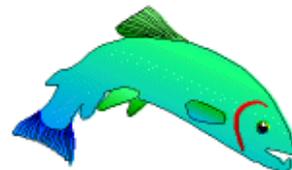
**MAMMAL**



**BIRD**



**FISH**



LIFE CYCLE - ORGANISMS (1A) POST LAB

**CLAM**



**WORM**



**INSECT**



**JELLYFISH**



**STARFISH**



## LIFE CYCLE - ORGANISMS (1B)

### PRE LAB

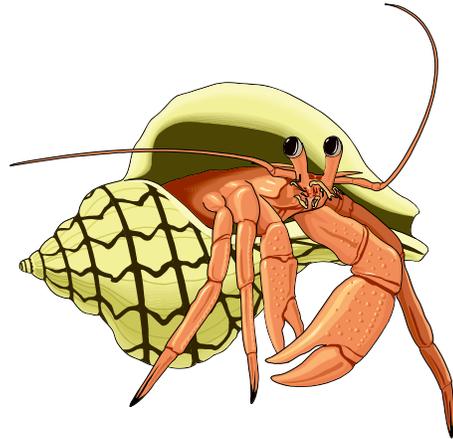
Students use puppets to compare different organisms.

### OBJECTIVES:

1. Comparing animals with and without backbones.
2. Discovering animal habitats.

### VOCABULARY:

amphibian  
bird  
fish  
invertebrate  
mammal  
reptile  
vertebrate



### MATERIALS:

animal puppets  
Animal Globe

### BACKGROUND:

This unit emphasizes different types of animals which, can easily become a week long project. Children like to talk about animals, and the more information you give them, the more they want. In this series of animal activities, introduce your students to the different puppets that they will use in lab. This is background information on some of the puppets.

**PENGUIN** - This is an emperor penguin the largest and most colorful of all the penguins. The emperor penguin which stands nearly four feet high, is the giant of all present-day penguins. The female lays her egg and then abandons her egg to her partner. The male incubates a single egg by carrying it on its large feet. The female returns after the egg hatches and takes care of the chick. A penguin's body is streamlined and this helps it to swim with remarkable skill. Penguins hunt while swimming, catching fish and other small sea creatures. They can obtain a height of 1.35 m (4 ft) and weight up to 22 to 45 kg (50-100 lbs).

**BLUE WHALE** - The blue whale is the largest and heaviest animal of all time. It can weight up to 508,000 lbs and reach a length of 110 feet. It is a strong mammal that can travel at 25 hours per hour. At birth it can weight 6,600 lbs and be 7 meters (25 feet) in length. The blue whale is a filter feeder, meaning that it has "baleen" filters in its mouth

where plankton (small floating organisms) are trapped. The sound of a blue whale is awesome, a high pitched sound can be heard 530 miles away.

**SHARK** - You can use this puppet to describe the Great White Shark or the Sand Shark, depending on whether you want to describe a monster or benign member of a very primitive fish family. The sand shark is found in the Atlantic Ocean. This shark is not normally dangerous to humans. It eats fish and mollusca. The babies are born from the mother. They can weigh up to 170 kg or 375 lbs and can be up to 3.2 m or 10.5 feet in length. The Great White Shark is a very large fish with a terrifying mouth. These saw-toothed edged teeth are as sharp as razor blades. The shark inhabits all the world's seas. The Great White tends to attack everything that looks like food. It eats absolutely everything and the stomach of many Great Whites include dustbins, tins of jam, and thousands of metal objects. The adult length is up to 10 meters or 33 feet.

**STINGRAY** - The rays are primitive fish related to sharks. Their skeletons are made of cartilage, not bone. There are about 90 species of stingrays which range in size from one to seven feet across. They live on the bottom of the sea floor.

**HERMIT CRAB** - Hermits crabs are related to crabs and lobsters. Most live in tidal areas or deeper in the ocean. A few are even land dwellers. A Hermit crab has two large pincers and two pairs of walking legs. When threatened, it pulls entirely into its shell.

**SCALLOP** - There are over 300 species of scallop that live throughout the marine world. The scallop can "swim" in the water, by using a propelling motion as they open and close their shells. Scallops have tiny bright blue eyes all along the edge of the shells. These eyes are highly sensitive to light and dark.

**DUNGENESS CRAB** - The Dungeness crab ranges from Alaska to California. It lives in sandy areas from the low tide line to 300 feet deep. The dungeness crab can live eight years and be 10 inches across. To grow the crab sheds its shell or molts, before the new shell hardens. The Dungeness crab has 10 legs, the front pair are modified into piners with which it catches small fish and shellfish.

**OCTOPUS** - There are over 150 species of octopus which belong to the mollusk family. They are found throughout the world's oceans, most commonly in warm seas. Octopuses range in size from two inches to a giant 32 feet across the arms of the Pacific species. Octopuses are masters of camouflage. They can change color, shape and skin texture. The octopus' well-developed eyes enable it to see all around itself.

**DOLPHIN** - This is a mammal, although there is a fish by the same name. They live in the open ocean, but visit the coastal areas as well. They tend to live in warmer waters.

**LOBSTER** - Lobsters belong to the invertebrates grouping of animals. They are related to crabs and other jointed critters, like insects. They have two well developed

pinchers which they use to eat and defend themselves.

The following vertebrates listed below may be included in your set. Remember, if you have puppets, you may want to include them.

<b>invertebrate</b>	<b>FISH vertebrate</b>	<b>MAMMAL vertebrate</b>	<b>BIRD vertebrate</b>
lobster	shark	blue whale	penguin
octopus	stingray	dolphin	
scallop			
hermit crab			
dungeness crab			

### **PROCEDURE:**

1. Enclosed are several coloring exercises which may help you illustrate the lifestyle of the various puppets. You may also want to use various storybooks to read to your students. The recommended books are only a few of the many available.

2. In lab you will ask the children to pick a puppet and relate a story about that animal. You may want to give a "homework" assignment that allows the student to bring a puppet or stuffed animal from home and then to tell the class a little something about how that animal lives. This way you will get the parents involved. Suggest going to the library, or just asking people about animal stories. Below is model information on the some of the puppets.

3. If your set is different refer to reference books for more information. The type of puppet is probably different than your set, because each year this manufacturer replaces puppets with new models. The puppet set also includes invertebrates which are not needed for this activity. For this activity only, show students the puppets they will use in the "Lab."

4. Use the Inflatable Animal Globe to show students where the different vertebrates live. You may want to mention that zoo animals are not necessarily found together. For instance, a polar bear and penguin are usually near each other in a zoo because they require cool climates. In the wild however, the polar bear is found only in the Arctic and penguins are found in the Antarctica.

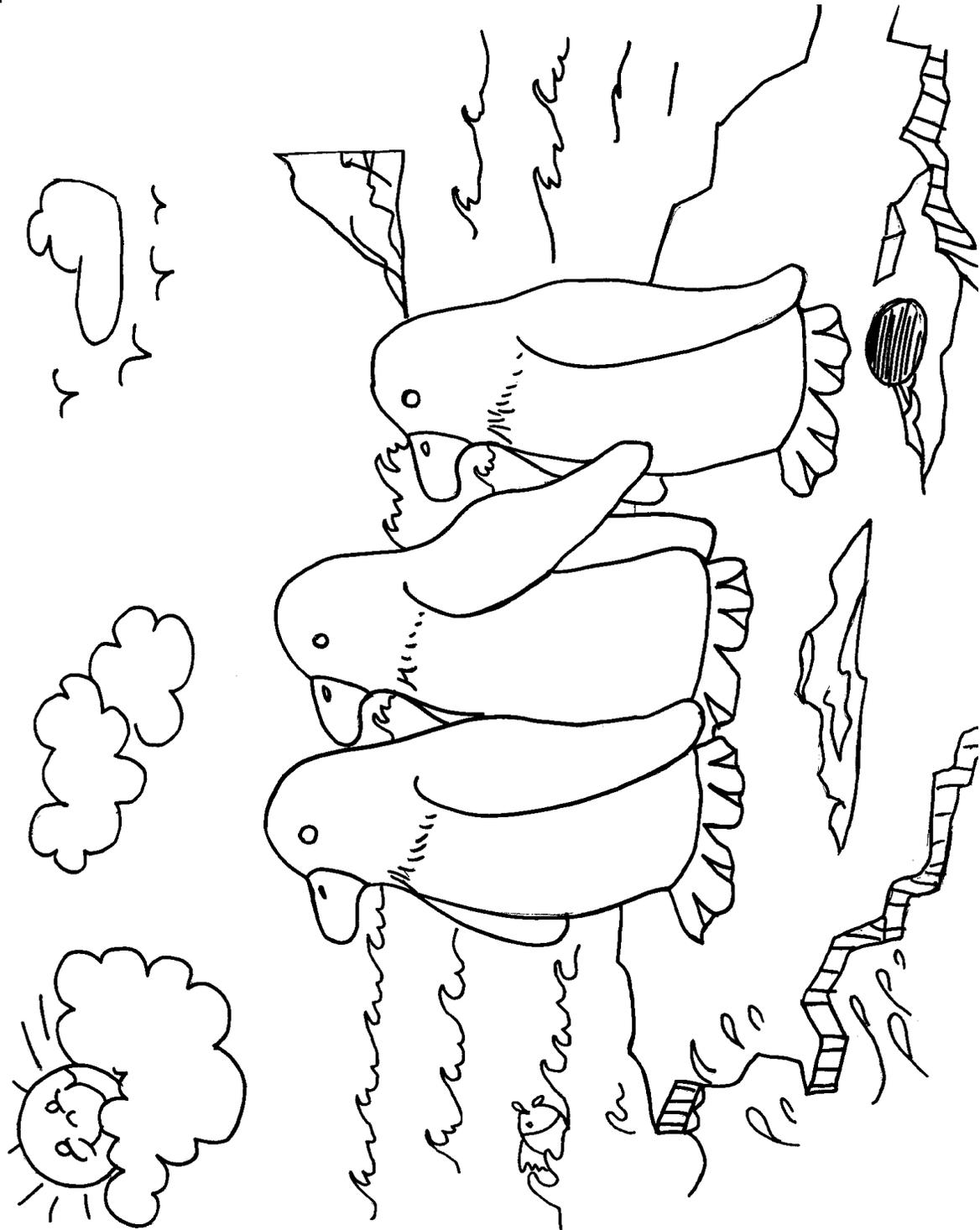
LIFE CYCLE - ORGANISMS (1B)

PRE LAB



LIFE CYCLE - ORGANISMS (1B)

PRE



## LIFE CYCLE - ORGANISMS (1B)

### LAB

Students use puppets to learn more about organisms.

### OBJECTIVES:

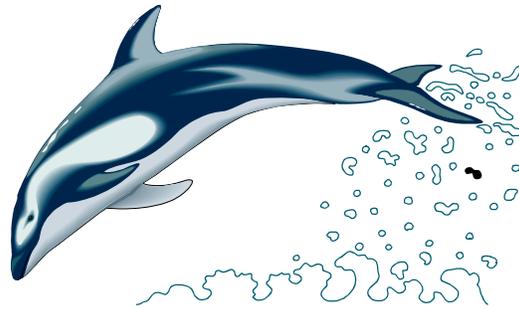
1. Discovering characteristics of animals.
2. Communicating stories about different organisms.

### VOCABULARY:

invertebrates  
vertebrates

### MATERIALS:

Animal puppets



### BACKGROUND:

Animals in the classroom can be a frustrating experience, especially if an animal dies. Puppets can help provide an easy and safe way to introduce vertebrates and invertebrates to your class. Using the puppets with books can help you design a presentation and they will not only entertain your students but teach them the essential zoological information of animals.

### PROCEDURE:

1. Since you have introduced the different types of invertebrates and vertebrates that live in the sea to your students, have them take some of this information and make a story about them.
2. Tell each child they have 1 or 2 minutes to use a puppet and tell a story to the rest of the class. The story can be a fable or a true story. Give the children time to play with the puppets to learn how to use each one. You may want students to bring in puppets from home, but to tell a story about animals.
3. This exercise can take several days, but the children will enjoy every minute of it. If a student is having trouble with the presentation try to calm the student so he or she can gain confidence to speak in front of the class.

## LIFE CYCLE - ORGANISMS (1B)

### POST LAB

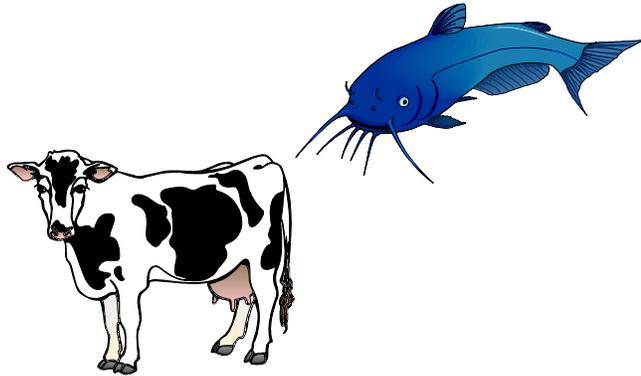
Students discuss products from animals.

### OBJECTIVES:

1. Exploring the uses of animals.
2. Comparing animal uses.

### VOCABULARY:

organism  
reproduce  
respire



### MATERIALS:

wool  
silk  
pictures of foods (milk, cheese, meats, eggs)  
leather  
alligator skin purse  
snake skin decoration  
feathered decorations  
bone meal  
organic fertilizer  
pictures of draft animals, or any other items made from animals

### BACKGROUND:

Animals are very useful to humans. Students are familiar with their pets, and that meat, milk, cheese, eggs, honey and some other animals products are used as food, but they many not have thought about other uses. Most have never seen a horse or ox drawn wagons and plows but they probably know about horse racing and riding for fun. Some cowboys still use horses, as do some park rangers and police. They many not have thought about leather, violin bows (made with horsehair) and strings (some made with sheep gut), silk, wool, alligator shoes and purses, snake skin hat bands, fur coats, pearls, glue and gelatin (made from cartilage and bones) fertilizer, or truffle-hunting pigs or the cormorants that some Chinese use for fishing.

Students were born a little late to see elephants raise a circus tent, and on the wrong continent to see them do other heavy work. It might be worthwhile to mention biological controls, such as mosquito fish that eat mosquito larvae around a marshy area and ladybugs that eat aphids and scales.

## PROCEDURE:

1. Pass out to students one item at a time, and have them guess what part of the animal it may have come from. You may want to use the following examples:

a. Feather: Feathers come from birds. They are used in pillows (down from geese), sometimes hats, and other decorations.

b. Leather Belt: Leather comes from the hide of a cow. It is processed and then made into different articles of clothing. It is very durable.

c. Shoes: Leather from different types of animals from cows to snakes.

d. Milk container: Milk comes from cows and goats.

2. Discuss other animal uses. However, you might want to bring up the idea of us eating animals carefully. Some children have never thought about it and may be a little repulsed from the idea.

3. . Review which meats come from which animal (pork from pig, beef from cow, etc). Even invertebrate animals like lobsters, crabs, and sea urchins are used as food.

4. Review which animals are used for transportation in underdeveloped countries today and in previous centuries. Include elephants (Africa, India), camels (Africa), horses, oxen, donkeys, and mules.

5. Wool is used to make sweaters, pants, rugs, and many other clothes items. Silk comes from silk worms.