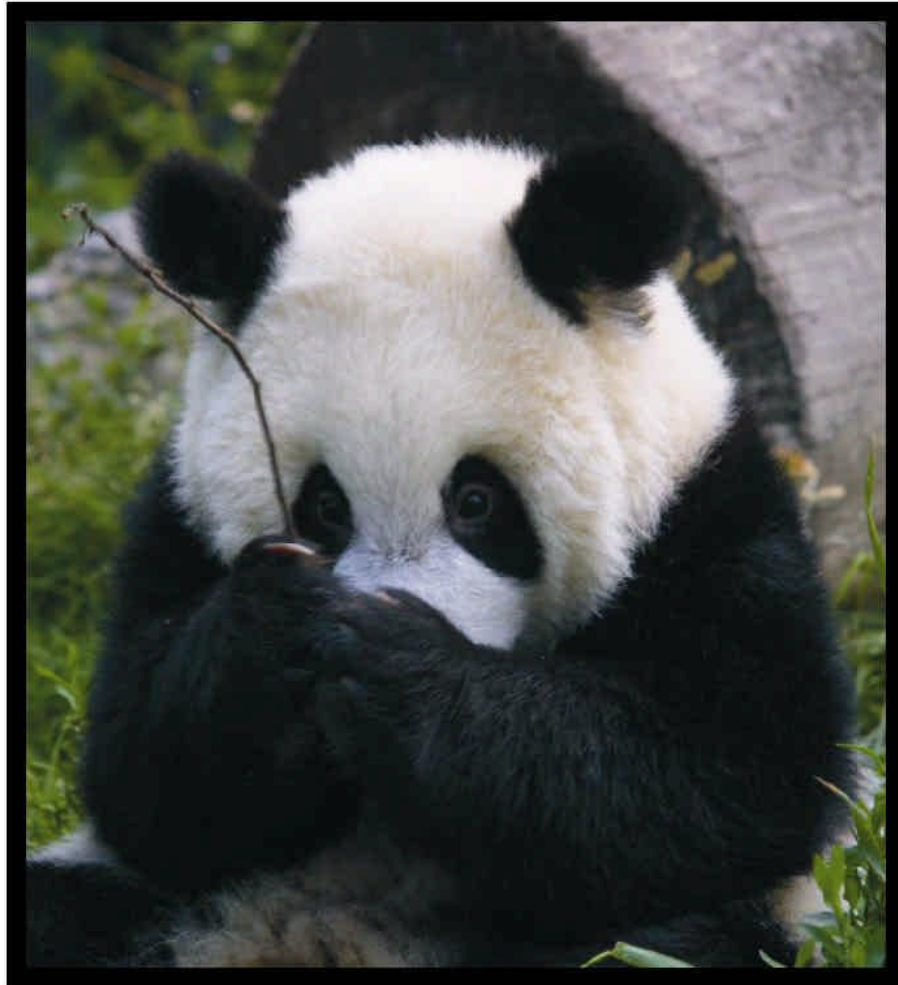


Giant Panda Teacher Packet

Kindergarten - 2nd Grade



Sponsored By
Goldsmith's

Giant Panda Teacher Packet

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Dear Teacher,

The Memphis Zoo would like you to join us on an exciting journey from Tennessee to China. On this journey you and your students will recognize the importance of conservation and research of giant pandas. Giant pandas are one of the most recognized animals in the world. And now, the Memphis Zoo is one of only four zoos in the United States with them on exhibition. This puts us in the unique position to educate our school children about this rare and wonderful animal.

We have developed an exciting new teacher packet that focuses on the giant pandas. The packet includes pre and post trip activities for you to conduct in your classroom. The pre-trip activities will help you prepare your students for their trip to see the pandas so they can maximally benefit from the experience. The post-trip activities will reinforce what they learned at the zoo. Each activity is correlated to the Tennessee State Science Curriculum Standards so you can meet your curriculum needs with these fun, engaging activities.

If you would like to expand your panda experience, we also offer panda classes at the zoo. Our educators use biofacts and animal visitors to engage your students in an up-close, personal experience. We hope the zoo can become an integral part of your curriculum.

Sincerely,

Kerry Carlin Morgan
Education Manager, PhD
Memphis Zoo

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Pre-trip Activities



Furry Friends

Goal: Students will learn some characteristics of animals.

Behavioral Objectives:

- 1) Students will be able to identify some characteristics of animals.
- 2) Students will be able to name five animals with fur.

Curriculum Standard Correlations:

Kindergarten

- Sort pictures of animals by structural features

Grade 1

- Distinguish animals by structural features

Grade 2

- Identify and compare the structural features of various animals

Time:

15 minutes

Background Information:

Animals are covered differently. Some animals are covered with fur while others have scales or even feathers. Fur serves many purposes. Fur keeps animals warm. It also provides some protection against sunburn and insects. Fur can also serve as camouflage and come in modified forms like quills on a porcupine.

Materials:

Required:

- Art supplies

Provided:

- Furry friends worksheet

Procedures:

Preparation:

- 1) Make copies of furry friends worksheet.

Introduction:

- 1) Discuss the different types of animal coverings with your students. Discuss characteristics of fur with students.

Conducting Activity:

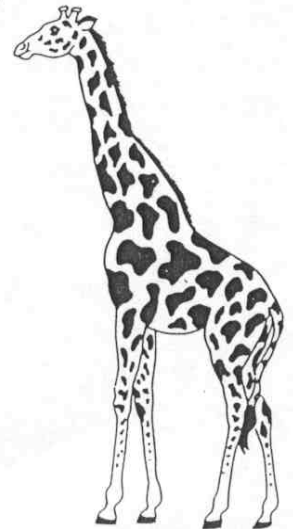
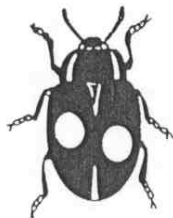
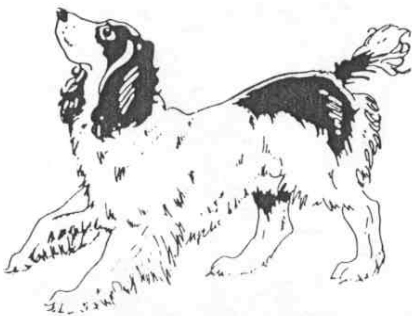
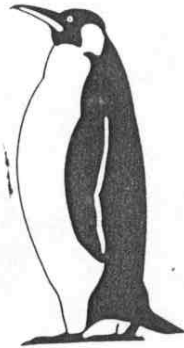
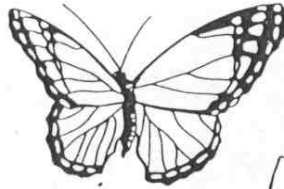
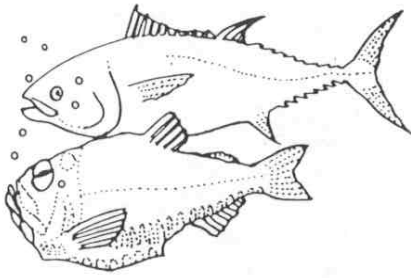
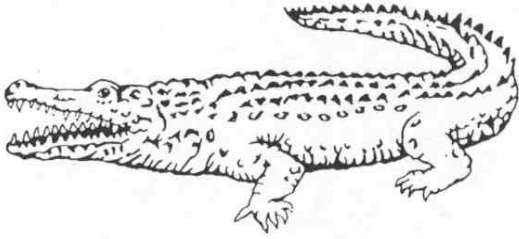
- 1) Distribute one worksheet to each student. Have students circle the animals with fur.

Extensions:

- 1) Have children list five animals with fur that are not on the worksheet.
- 2) Have students draw their favorite furry animal.
- 3) Find a picture of a porcupine or hedgehog. Explain to students that sometimes fur can come in modified forms such as quills. Ask students, what do porcupines use their quills for? Discuss with students that fur serves many purposes (camouflage, warmth, protection, warning). Give an example of each.
- 4) Discuss what coverings other animals have. How are they alike? How are they different?

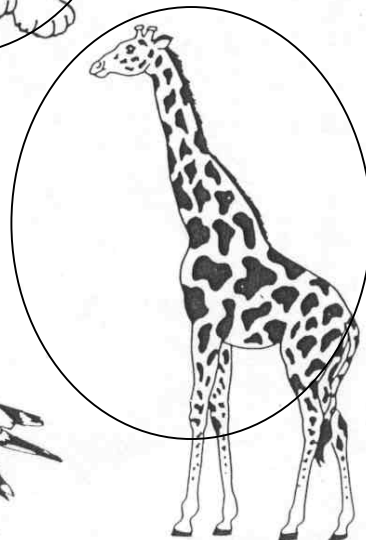
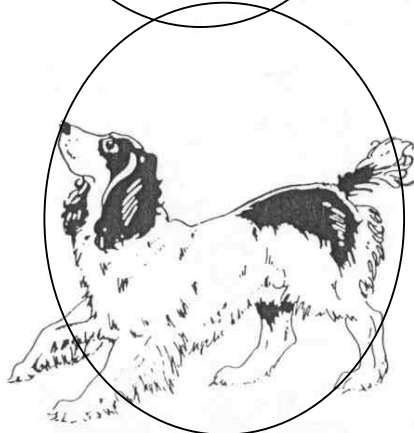
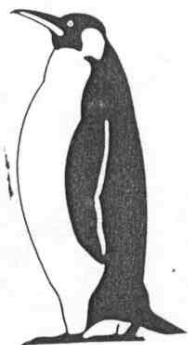
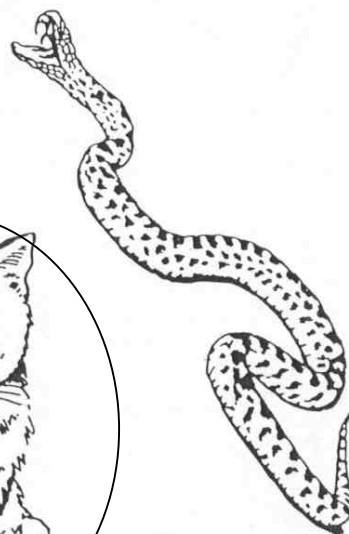
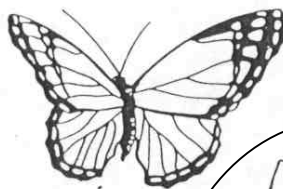
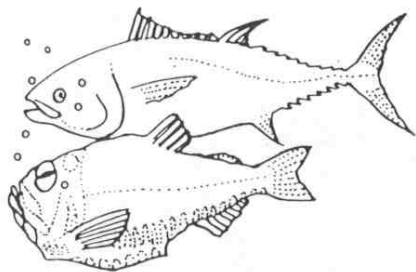
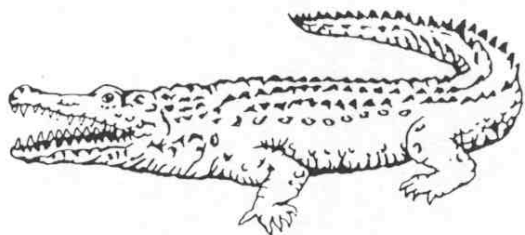
Furry Friends

Directions: Circle the animals that have fur.



Furry Friends

Directions: Circle the animals that have fur.



A Bear's Business

Goal: Students will become familiar with different bear species and their habitats.

Behavioral objectives:

- 1) Students will understand that bears live in different places throughout the world
- 2) Students will understand that bears eat a variety of foods.
- 3) Students will understand that there are different types of bears.

Curriculum Standard Correlations:

Grade 1

- Identify structures that plants and animals use to get their basic needs

Grade 2

- Identify specific animals behaviors associated with meeting the animal's needs
- Describe the features of various predators that allow them to hunt and catch prey

Time:

45 Minutes

Background Information:

- There are 8 different types of bears that live on the earth. Bears live in North America, South America, Europe, and Asia.
- The giant panda is a black and white bear that lives in China. Giant pandas live almost solely on a diet of bamboo, up to 33 pounds a day.
- The polar bear is the largest bear and lives in the arctic region. It's diet consists of ringed and bearded seals. In the summers, polar bears will dine on berries or other plant material when available.
- The sloth bear can be found in the forested areas of India, Sri Lanka, Nepal, and Bhutan. It eats mostly termites and ants and uses its specialized snout for vacuuming up these foods.
- The spectacled bear lives in the Andes Mountains of South America. It has cream-colored facial markings around its eyes that give it its name. It eats mostly plants. A group of plants called bromeliads makes up almost 50% of its diet.
- The sun bear also referred to as the "honey bear" is the world's smallest bear. Very little is known about the distribution of sun bears, except that it includes areas of Borneo, Burma, Malaysia, Sumatra, and Thailand. It has an extremely long tongue for eating small vertebrates, invertebrates, fruits, the young tips of palm trees and bees nests.
- The Asiatic black bear is also known as the moon bear. This bear is normally blackish in color with a distinct V-shaped patch of cream colored fur on its chest. It lives throughout a large part of southern Asia. It eats a large variety of foods including small mammals, birds, bee nests, and fruit. In fall, they will frequent nut-producing trees where they will eat from self-constructed leaf and branch nests or platforms.
- The brown bear or grizzly bear is one of the largest bear species. Brown bears can be found in western Canada, Alaska, Wyoming, Montana, Idaho and Washington. They have a distinguishable "hump" which is actually a mass of muscle that, coupled with long claws, provides the brown bear with great digging ability. Brown bears eat a mixed diet of nuts, grasses, fruits, bulbs and roots, insects, fish and small animals. In a few areas they are known to eat larger animals such as elk calves, caribou and moose.

- The American black bear is a forest animal and can be found in many color phases from black, chocolate brown, cinnamon, pale blue to white. American black bears are found in North America, Canada, and northern Mexico. They are not great hunters and eat foods such as berries, acorns, roots, herbs, and insects (especially ants).

Materials:

Required:

- art supplies
- paper
- pictures of different bears
- world map

Procedure:

Introduction:

- 1) Discuss the different types of bears with your students. Use pictures to help students become familiar with the different types of bears. Then on a map locate where the different bears live. You can even discuss geography with students by pointing out the different continents. It might help students if you tack bear pictures on the map where they live. Then discuss what the different bears eat what and maybe some of their favorite foods.

Conducting Activity:

- 2) Give each child a piece of paper and have them draw their favorite bear. Have each student write the name of the bear at the top of the page. Then have students draw food that their bear would eat in the wild.

Extensions:

- 1) Have the students share their pictures with the class.
- 2) Have students research the different types of bears. Have them research other animals that might live where bears live. Have students draw some of the animals that could be found in their bear's habitat.

It's all in Black and White

Goal: Students will understand how an animal's fur can help it blend in with its environment.

Behavioral objectives:

- 1) Students will identify giant pandas' fur color as black and white.
- 2) Students will identify that the color of giant pandas' fur helps them blend in with their environment.

Curriculum Standard Correlations:

Kindergarten

- Describe animals as living things
- Sort pictures of animals by structural features

Grade 1

- Distinguish animals by structural features

Grade 2

- Illustrate how adaptations of animals increase their chance of avoiding predators

Time:

45 Minutes

Background Information:

Giant pandas' fur is black and white. The color of some animals' fur helps them blend in with their environment. This is called camouflage. Patterns of color on skin, shells, fur, or feathers that conceal an animal in their environment can help protect it from predators. The giant pandas unique colors help break up the outline of the animals and therefore help it hide in its environment. Its colors also help it blend in with the snow that covers the mountains where they live. The following are examples of animal camouflage.

- White polar bears blend in with their snowy surroundings. When a polar bear hunts, it covers its black nose with one paw so that it appears entirely white.
- Giraffes look brightly colored to us, with their yellow, brown, and tan bodies. But against a background of similarly colored leafy trees, giraffes blend right in.
- Black panthers blend in with shadows in the jungle.
- Many animals living in cold regions change their coats in the winter to blend in with the snow. An example is an arctic fox.
- Green algae grows on a sloth's fur helping the sloth to blend in with the leaves on trees.
- Lions have golden fur that is a similar color to the grasses where they live.

Materials:

Required:

- crayons (black, green, yellow, white)
- scissors
- glue

Provided:

- panda pattern

Procedures:

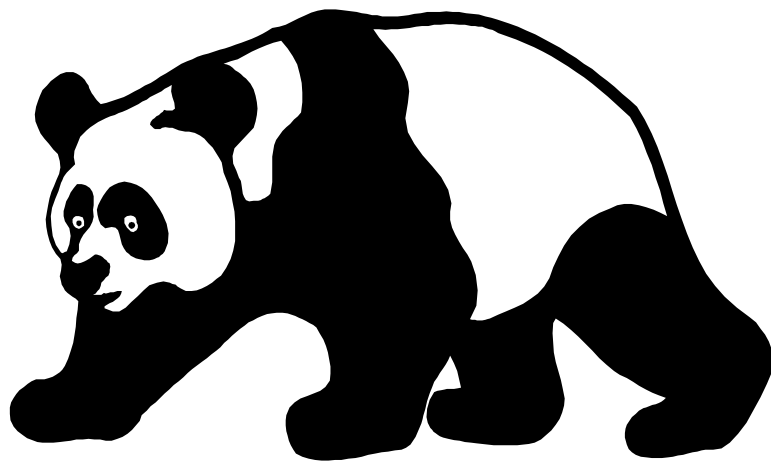
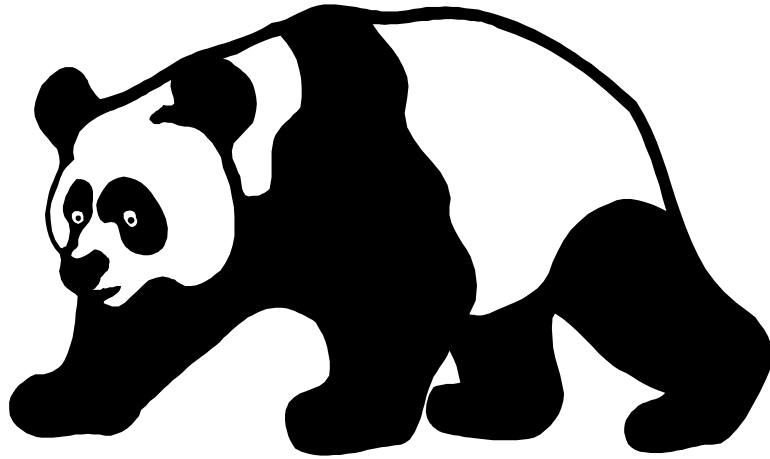
- 1) Have students draw two mountains on a sheet of paper.
- 2) Use white crayons to draw snow on one of the mountains.
- 3) Use black crayons to draw some rocks on the snowy mountain.
- 4) Use yellow and green crayons to draw grass on the other mountain.
- 5) Cut out the “panda pattern” and glue one pattern to each mountain.
- 6) Answer the following questions:
 - A. Which mountain does the giant panda blend best with?
 - B. Why does the panda blend in better with that mountain?
 - C. Does this illustrate camouflage?

Extensions/Going Further:

- 1) Have the class name some other animals whose colors help them blend in with their environment. Also you can demonstrate camouflage by using different colored toothpicks making sure you have green colored toothpicks. Teachers should scatter the different colored toothpicks in the grass. Ask the children to find the toothpicks in the grass. Which toothpicks were the easiest to find? Which were the hardest to find? This activity illustrates camouflage. The green toothpicks should have been the hardest to find because they blend in with the color of the grass.

- 2) Discuss with the class that some animals are colorblind. For example, the snow leopard is colorblind. Colorblind means that they only see in black and white. The snow leopard is one of the giant pandas predators. Do you think the giant pandas colors help protect if from predators like the snow leopard? If snow leopards could see in color, what colors might the giant panda want to be.

Panda Pattern



Paper Plate Panda Mask

Goal: To understand the physical make-up of the giant panda's face.

Behavioral Objectives:

1. To recall what a Giant Panda's fur looks like- color, etc.
2. To identify the parts of the Giant Pandas face

Curriculum Standard Correlations:

Kindergarten

- Identify the functions of the sense organs

Grade 1

- Distinguish animals by structural features

Grade 2

- Illustrate how adaptations of animals increase their chance of avoiding predators

Time: 1 hour

Background Information:

Giant pandas have very unique fur colors. Their fur is white with black sections around the ears, eyes, and legs. The color of their fur helps the giant panda blend into the thick bamboo forests where they live in China. It snows in the giant pandas habitat. The white sections of the giant pandas fur help them to blend into the snow.

The giant panda has some very interesting adaptations. An adaptation is a behavior, physical features, or other characteristics that helps an animal or plant to survive and make the most of its habitat. One adaptation is the black fur around the giant panda eyes. By having the black fur around the eyes, it makes their eyes look bigger to predators. The large "eyes" would scare the predator away. Giant Pandas depend on the use of their five senses to survive in the wild. Four of the five sense organs are located on the giant panda's face. The first sense is sight. Giant pandas need two eyes to see and locate food, other pandas, and predators. The second sense is hearing. Giant pandas use their two ears to listen for other pandas and for predators. The sense of smell is the third sense. The nose is used for smelling and locating food and other pandas. The fourth sense is the sense of taste. Giant pandas use their mouth to eat and taste food and to also make calls to other pandas. They will also use their calls to scare away predators. The fifth sense organ is not located on the face. The last sense is the sense of touch. Giant pandas use their legs for holding their food and to touch and feel things.

Materials:

Required:

- Large white paper plates
- Black crayons
- Black construction paper
- Scissors
- Hole punch
- Yarn
- A quarter
- Picture of a giant panda

Provided:

- Paper plate panda mask template

Procedures:**Preparation:**

- 1) Pre-cut, for each child, the two holes for the eyes. Also, pre-cut two black ears and one black nose for each child.
- 2) With a hole punch, punch one hole on each side of the paper plate.
- 3) Pre-cut yarn into 12 inch pieces. Each child will need two pieces.

Introduction:

- 1) Discuss with the children the colors of the panda's fur and their purpose. Also, talk about the giant pandas adaptation- the fur around the eyes. Lastly, discuss the parts of the giant pandas face and how they are used.

Conducting Activity:

- 1) Give each student a paper plate and a black crayon.
- 2) Have them glue the ears to the top of the paper plate and the nose to the middle of the plate.
- 3) Have the children color black fur around the eyeholes and draw on a mouth.
- 4) Once each child has finished their mask, take the pre-cut pieces of yarn and tie one piece to each side of the mask.
- 5) Have each child come to you and tie the mask on for him or her. Make sure that the mask is easy to take on and off.

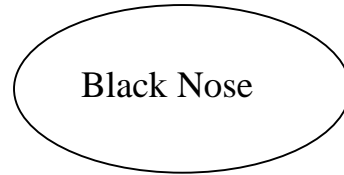
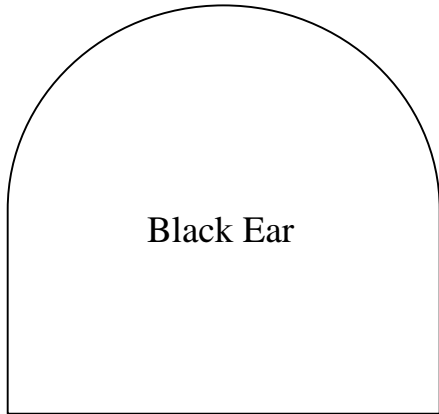
Discussion:

- 1) While the children are gluing on the ears and nose of the panda, talk about how the giant pandas uses these sense organs in the wild. Once the children begin coloring the black fur around the eyes, remind them that the fur makes their eyes look big and scary to predators. Once the mask is complete, talk about all five of the senses and how they are important.

Extensions/Going Further:

- 1) In your dramatic play area, place black and white fur vests or large pieces of black and white fabric with arms holes cut out for the children to dress up in and pretend that they are giant pandas. The children may also wear their panda masks as they are playing.

Paper Plate Panda Mask Template



China Map

Goal: To develop map skills

Behavioral Objectives:

1. To recall that Giant Pandas live in China
2. To recall that Giant Pandas live in a few small areas in China

Curriculum Standard Correlations:

Grade 2

- Research what happens to organisms when there is a change in their Environment.
- Illustrate what happens when there is a population change in an ecosystem.

Time: 30 minutes

Background Information:

Giant panda's have lived in China for hundreds of years. Originally, the number of Giant Panda's ranged in the thousands and they occupied much of southern and eastern China. Today, the number of giant pandas has dwindled to around one thousand and they live in only a few small areas in southern China. Giant pandas live in three provinces in China; Sichuan, the Shaanxi, and Gansu. Giant pandas make their homes in the Qionglaihan, Xiangling, and Liangshan Mountains of Sichuan, the Qinling Mountains in Shaanxi, and the Minshan Mountains in Gansu. These mountain ranges are cool, snowy, and full of bamboo forests. These bamboo forests are very important because the giant panda mainly eats bamboo. China has the largest population of any country in the world, around 1 billion. Because so many people live in China, more homes and food are needed to sustain the growing population. As a result, homes and farms were built where the giant pandas lived.

During the 1980's, the Chinese government began to see how population growth had affected the pandas. They decided that the giant pandas must be protected. In 1988, under the Chinese Wildlife Conservation Law, the giant panda was classified as a level one species. All level one species get the highest protection from the government. Along with passing laws to protect the pandas, the Chinese government established thirteen giant panda reserves. The panda reserves are large pieces of land that have been set aside to provide the giant pandas with a place to live, bamboo to eat, and protection from population growth. Three of these reserves are government run, which are the Wolong Reserve in Sichuan, the Baishuijiang Reserve in Gansu, and the Foping Reserve in Shaanxi. The ten other giant panda reserves are provincially run. There are also large tracks of land around the reserves where giant pandas also live. The Chinese government protects the pandas that live in these areas as well.

These reserves also benefit humans. Scientists study the giant pandas that live on the reserves to learn about their social behaviors, how they eat, breeding rituals, and many other things. By finding out all we can about the giant panda, the better equipped we are in trying to save them.

Materials:

Required:

- Pencils or crayons

Provided:

- China map worksheet

Procedures:**Preparation:**

- 1) Before beginning this activity, photocopy enough maps for each child to have his or her own.

Introduction:

- 1) Discuss with the children where giant pandas used to live and where they live now. Also briefly talk about the pandas habitat in China.

Conducting Activity:

- 1) To begin this activity, pass out the map of China to each child in the class. Also, pass out the pencils or crayons making sure each child has one.
- 2) Have the children locate the key in the bottom left-hand corner. Tell the children the star represents the capital of China, the mountains represent mountain ranges, and the circle represents the panda habitat. Have the children chose a color and color in the circle in the key. Next, have the children color in the other circles on the map. Remind the children that these circles represent where giant pandas are found today.
- 3) If desired, you may let the children color the rest of the map with a different color crayon.

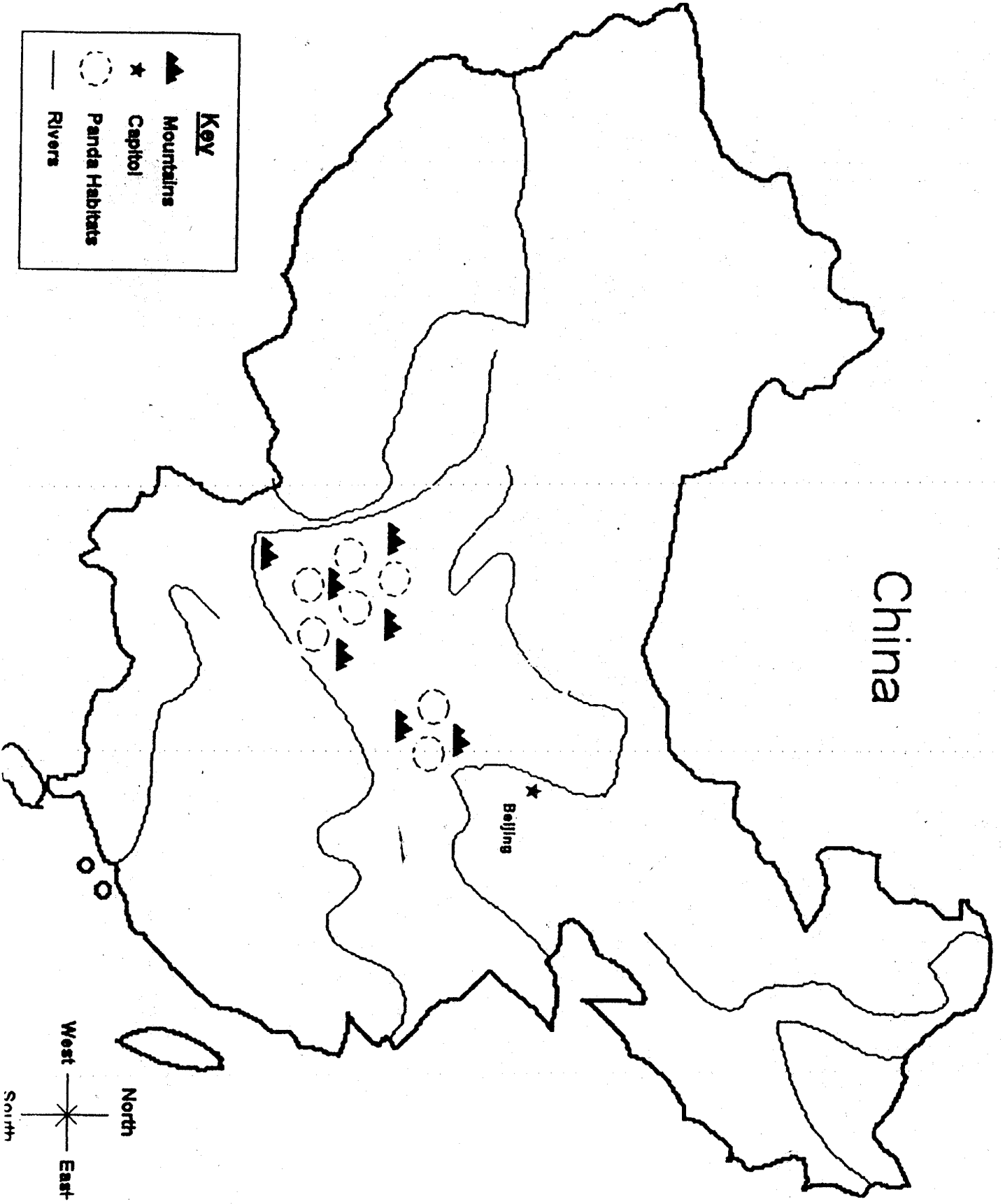
Discussion:

- 1) While the children are coloring, talk about where the pandas now live.

Extensions/Going Further:

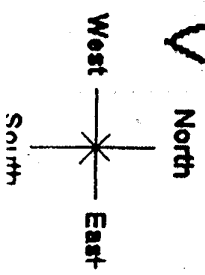
- 1) Display a world map or a globe for the class to see. Locate China on the map or globe. Point out some of China's physical features like mountains, rivers, lakes, and deserts. Also, show the children all the different provinces in China. Explain to the class that China's provinces are like states here in America. Lastly, try to locate where the giant panda reserves are. This activity will help reinforce map skills.

China



Key

- ▲ Mountains
- ★ Capitol
- Panda Habitats
- Rivers



Post-trip Activities



Bear Tracks

Goal: Students will understand that different types of bears have different types of pawprints.

Behavioral objectives:

- 1) Students will be able to identify the pawprint of a polar bear, black bear, grizzly bear and a panda bear.**

Curriculum Standard Correlations:

Grade K

- Sort pictures of animals by structural features

Grade 1

- Distinguish animals by structural features

Grade 2

- Identify specific animal's behaviors associated with meeting the animal's needs.
- Identify and compare the structural features of various animals.

Time:

30 minutes

Background Information:

Bears walk flat-footed like people to support their weight. Some other animals do not. Some walk on just the front part of their feet like dogs and cats so that they can walk without making too much noise. Some even walk on their tiptoes like horses and deer which helps them to run fast. The bear's foot is called its paw and its footprint is referred to as a bear track. An animal track is a something that you can see that lets you know that an animal has been in the area where you are looking.

In addition to identifying the type of bear, bear tracks can help us learn more about the bear that made the tracks. The size of the track can help us to determine not only the type of bear but also the age of the bear and if the bear was a male or a female.

Materials:

Required:

- pencils
- posterboard
- different types of shoes that the children can recognize just by seeing an impression of the sole. Some examples would be a businessman's shoe, a lady's high heel shoe, a soccer cleat, a cowboy boot, a child's tennis shoe, a child's dress shoe, etc.
- washable paint
- paintbrush

Provided:

- Bear Tracks worksheet that can be photocopied

Procedures:

Preparation:

- 1) Before class make imprints of different types of shoes on a posterboard by applying washable paint to the bottom of each shoe and pressing it down onto the posterboard. Allow the prints to dry.

Introduction:

- 1) Show the children the posterboard with the different footprints and go over each one and see if they can guess what type of shoe made the print. As you go over each footprint ask who might wear each shoe.
- 2) Ask the children if they have ever seen a footprint made by an animal. Ask them what type of animal made the footprint.
- 3) Using the animals that the children said, ask them if they think every dog (for example) has the same footprint. Ask them if a chihuahua's footprint would be different from a german shepard's footprint? Tell them that we can learn about an animal by looking at its footprint. An animal's footprint is also referred to as an animal track and just like we can look at different footprints made by people and determine what type of person made the footprint, we can look at animal tracks and determine what type of animal made the animal track. Today we are going to look at bear tracks and try to determine what type of bear made each set of tracks.

Conducting Activity:

- 1) Hand out copies of the "Bear Tracks Worksheet" and tell the students that you are going to read to them about the four bears listed on the page. Tell them that they need to listen for clues to determine the name of each bear and to determine which set of tracks matches each bear. When they determine the name of each bear, they should write its name below the picture. They will also need to decide which tracks belong to each bear from the clues given in each bear's description. They should then draw a line from the tracks to the bear that they belong to. For kindergarten and 1st grade you may want to help them identify the name of each bear before you begin reading the descriptions.
- 2) Read each of the following descriptions to the students.
 - a) Grizzly bears have long, sharp claws on their paws. The grizzly bear uses these long claws to dig. One reason the grizzly bear digs is to make a home. They usually dig out dirt from underneath some trees roots and use that hole as a place to live when it gets cold outside. The grizzly bear can be recognized by its round face and large shoulder muscles.

**Clues for identification of the grizzly bear are the long claws, round face and large shoulder muscles.
 - b) Some people mistake black bears for grizzly bears. One way to tell the difference is that the black bear's back is not rounded like the grizzly bear's back. The black bear's paws are shaped similar to the grizzly bear but they are smaller. The black bear's claws are also shorter than the grizzly bear's claws. The shorter claws make it easy for the black bear to climb trees. They do not need long claws for digging a home because they like to make their homes inside hollow logs. They are the smallest bears found in the United States and Canada. If you have or ever do visit the Smoky Mountains in Gatlinburg, Tennessee, you may be able to see some of

these bears. You will know that it is a black bear because the black bear is the only type of bear that lives in Tennessee. Black bears in east Tennessee will usually have black fur like the one on our worksheet, with a brown snout, but they can also have dark brown, light brown, dark gray or white fur with a brown snout. They were named black bears because they were first discovered in the eastern part of North America where most of the bears have the black fur.

**Clues for identification of the black bear are the paws are similar to the grizzly bear's paws but smaller with shorter claws, the black bear's back is not rounded and the one on our worksheet is black.

- c) Polar bears have thick fur covering their paws so that they can walk on ice. The fur helps protect their feet. The bottom of their paws is very furry so their bear tracks are harder to see than other bear tracks. The claws are usually not visible in the track and the fur on its paws is usually outlined in its track when it is walking in the snow. Besides its yellowish white color, a polar bear can be recognized by its long neck, small head and large back leg muscles.

**Clues for identification of the polar bear are that you usually cannot see their claws in their bear tracks, the fur on its paws is usually outlined in its track when walking in the snow, it has a long neck, small head and large back leg muscles.

- d) The giant panda can be identified by its black and white fur pattern. It has black fur around its eyes, on its ears, across its chest, across its shoulders and on each leg. Everywhere else, the panda usually has white fur. A giant panda's paw has an enlarged and extended wrist bone on the inside of it that can be used to hold onto bamboo. Some people refer to this extended wrist bone as an "extra toe" that they are able to use like we use our thumb. This "extra toe" on the inside of its paw is close to the other five toes and is connected to the front pad of its paw. They do not wrap this "thumblike toe" around the bamboo like we would do with our thumb if we were to hold some bamboo. Instead, the panda wraps its five toes around one side of the bamboo stalk and pushes the extra "thumblike toe" forward to hold the bamboo against the other five toes while it enjoys its meal. (see the attached picture to see how this "thumb" works).

**Clues for identification of the panda bear are its black and white fur pattern and the "extra toe" or enlarged and extended wrist bone on the inside of its paw attached to its front pad.

Extensions/Going Further:

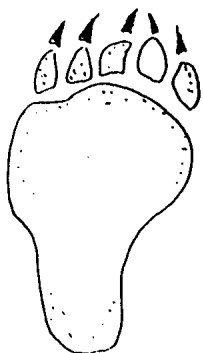
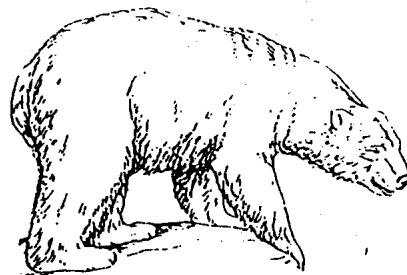
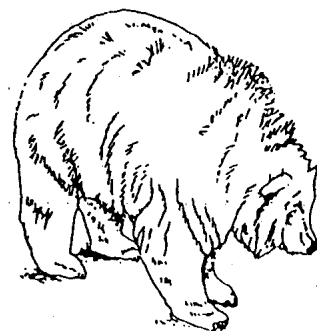
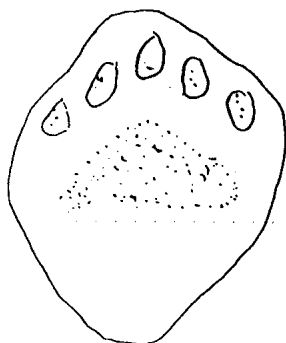
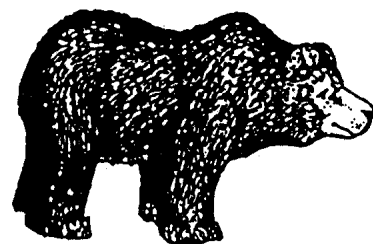
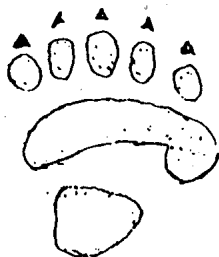
- 1) Have the children try to walk like a bear. Have them get on all fours and tell them to move their right hand and left foot at the same time and then have them move their left hand and right foot at the same time. Chant the pattern "right hand, left foot.....left hand right foot....." slowly at first and then a little faster.
- 2) Make prints of the children's feet and have them see how they compare to the bear tracks as well as to each other.

Name _____

BEAR TRACKS

left back paw

left front paw



grizzly black polar panda

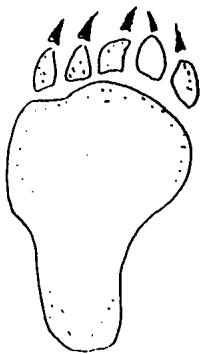
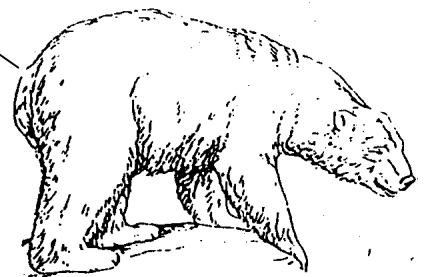
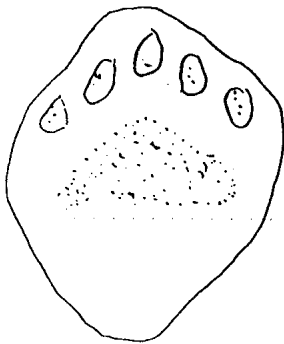
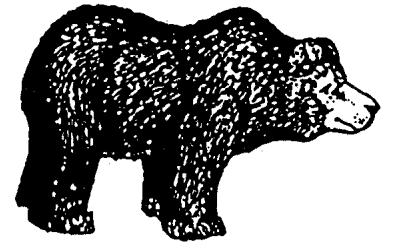
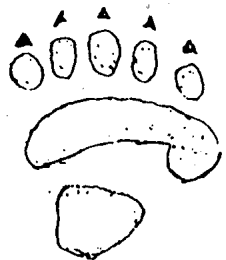
Directions: Draw a line from each set of bear tracks to the bear that they belong to and identify each bear as one of the four listed above.

Name _____

BEAR TRACKS

left back paw

left front paw



grizzly black polar panda

Directions: Draw a line from each set of bear tracks to the bear that they belong to and identify each bear as one of the four listed above.

Bottom view of a giant panda's front right paw

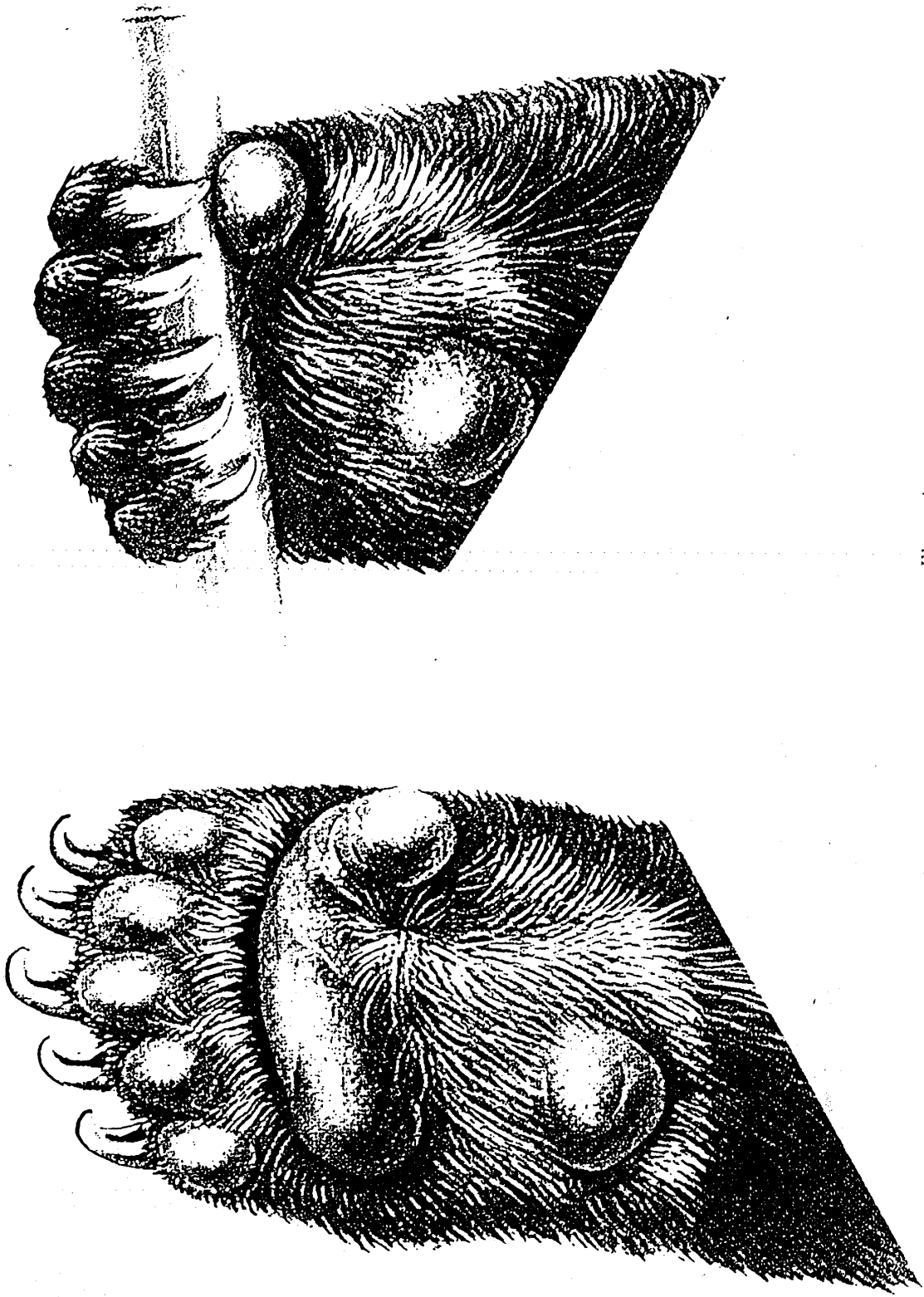


Illustration provided by Zoobooks and Wildlife Education, Ltd.

My Baby Panda Book

Goal: Children will become familiar with the development of a panda cub.

Behavioral objectives:

- 1) Children will be able to identify a giant panda cub in its early developmental stages.

Curriculum Standard Correlations:

Grade K

- Describe animals as living things
- Identify and explain the basic needs of animals

Grade 1

- Distinguish animals by structural features
- Compare the stages of the life cycles of selected organisms (resemblance to parents)

Grade 2

- Identify and compare the structural features of various animals (number of legs and body parts, size of eyes, body coverings)
- Identify given stages in a life cycle

Time:

1 hour

Background Information:

Newborn bears and newborn giant pandas are very tiny compared to their parents. A newborn panda cub usually weighs about as much as a 3 Musketeer bar (3-5 ounces) and a full-grown giant panda mother weighs about 200 lbs. In order to get the same ratio a human mother that had a 7 lb baby would have to weigh as much as 15 men or about 2,800 lbs.

A newborn panda is pink and covered with very fine white hairs. At about 10 days old, the skin where the black hair will eventually grow turns gray. The panda will have a patch of black hair around each eye, black hair on each ear and each leg. The black fur on its front legs extends in a band that covers its chest and meets at the shoulders. Its tail is white. The black hair will grow into each gray area, one area at a time, within a month. The panda's nose and lips start to turn from pink to black when it is 2-3 months old.

Pandas are born with their eyes closed and they do not open until they are 1 ½ to 2 months old. It is also during this same timeframe that the cub gets its first baby teeth. Panda cubs shed their baby teeth and usually start getting their permanent adult teeth by the time they are 1 year old. About 3-6 months later, the panda cub will leave its mother to find its own home and begin its solitary life in the wild.

Materials:

Required:

- construction paper (2 sheets pink for girls and 2 sheets blue for boys and 3 sheets of black for each student)
- yarn: blue and pink
- hole puncher
- white cotton balls

- black fleece or black cotton balls
- glue
- scissors
- bubble eyes 2 per student
- crayons: pink, gray and black

Provided:

- four pictures of a panda cub at different stages of development that can be photocopied.

Procedures:

Preparation:

- 1) Cut out pieces of black fleece to cover the black portions of the panda cubs on pictures 3 (one month old) and 4 (two months old) or dye white cotton balls with black Rit dye the day before and let them dry overnight.
- 2) If you are working with children in kindergarten, write each child's name on one of the blue construction paper for the boys or pink construction paper for the girls followed by the words Baby Panda Book. For example, Amy's Baby Panda Book.
- 3) Photocopy the four pictures of the panda cub for each student.

Introduction:

- 1) Tell the children that they are going to be learning about baby pandas today by making a book about a baby panda and then talking about how it grows. Tell them that a baby panda and other baby bears are called cubs.

Conducting Activity:

- 1) Begin the activity by telling the kids to look at the baby panda that is about 4 days old and to color it pink.
- 2) Next they will take a glue stick and rub it over the side that they just colored.
- 3) Give each student ½ of a white cotton ball and tell them to pull it apart into small pieces and place it on the pink baby panda. Tell them that this is what a newborn panda looks like.
- 4) Now look at the baby panda that is about 10 days old and tell them to color the legs, eyes, ears, and area across its shoulder in gray.
- 5) The other areas of the 10-day-old panda should be colored in pink.
- 6) Next they will take a glue stick and rub it over the side that they just colored.
- 7) Give each student one white cotton ball and tell them to pull it apart into small pieces and place it on the pink and gray areas of the panda. Tell them this is what a 10-day-old panda looks like.
- 8) Now look at the panda that is about one month old and tell them to color the nose pink.
- 9) Tell them to rub the glue stick all over the panda.
- 10) Give each student a handful of the black cotton balls or a piece of black fleece and have them tear or cut off little pieces for the eyes and ears and attach them. Then place pieces of the stretched black cotton balls or pieces of black fleece out to cover the legs and shoulder area. Then attach the white cotton balls to the remaining parts of the panda by stretching them out or attaching them as is. Tell them this is what a one-month-old panda looks like. Its eyes are still closed.
- 11) Now look at the panda that is about two months old and attach the black and white cotton balls or black pieces of fleece as described in step 10 and below the black eye patches glue a bubble eye underneath each one. And tell them that the panda's eyes open by the time it is 2 months old.

- 12) Now cut out the picture of the newborn, ten day old and one month old pandas and glue each one to a separate sheet of black construction paper. Leave the sheet with the two-month-old panda as it is. Also cut out the description notes for each picture and have the kids glue that on the page next to the picture of the panda.
- 13) Take a sheet of the pink or blue construction paper and have the kids write their name and then baby panda book. For example: Amy's Baby Panda Book
- 14) Put all the sheets together with one pink or blue sheet in front and one pink or blue sheet in the back and punch one hole on each side of the booklet at the top and then tie the sheets together through each hole with a piece of yarn.

Discussion:

- 1) Is the baby panda living or non-living? How can we tell? Let's look at each page of our baby panda books and see if we can come up with an answer. What is happening to the baby panda?
Answer: The baby is growing and becoming more like its parents. All living things grow.
- 2) What do you think the baby panda needs to grow? What do we need to grow?
Answer: Air, food, water and something to protect it.
- 3) How does the baby panda get these things? How do we get these things?
Answer: Its food, water and protection come from its mother while it is very young. It gets air by breathing.
- 4) If you went to a zoo how would you know which animal was a panda?
Answer: It would have black fur around its eye, on its ears, on all 4 legs, across its chest, and across its shoulders. The other fur would be white.
- 5) Does a baby panda look like its parents when it is born? *No.* Do we look like our parents when we are born? *No.* Does a baby panda look just like its parents when it grows up? *Yes.* Do we look just like our parents when we grow up? *No.*

Extensions/Going Further:

- 1) Read through the Baby Panda Book together as a group once all the books have been completed.

Notes to attach to each picture.

Picture 1 (newborn, 4 days old)

- When a panda is born it weighs about as much as a half of a can of soda and is about the length of a stick of butter.
- a baby panda stays inside its mother for 3-5 months
- a mother panda will give birth to one or two babies at a time
- a baby panda can make noises when it is born.
- a panda baby is usually born inside a hollow tree or cave.

Picture 2 (ten day old cub)

-When a panda is about 10 days old the skin where the black hair will eventually grow turns gray.

Picture 3 (one month old)

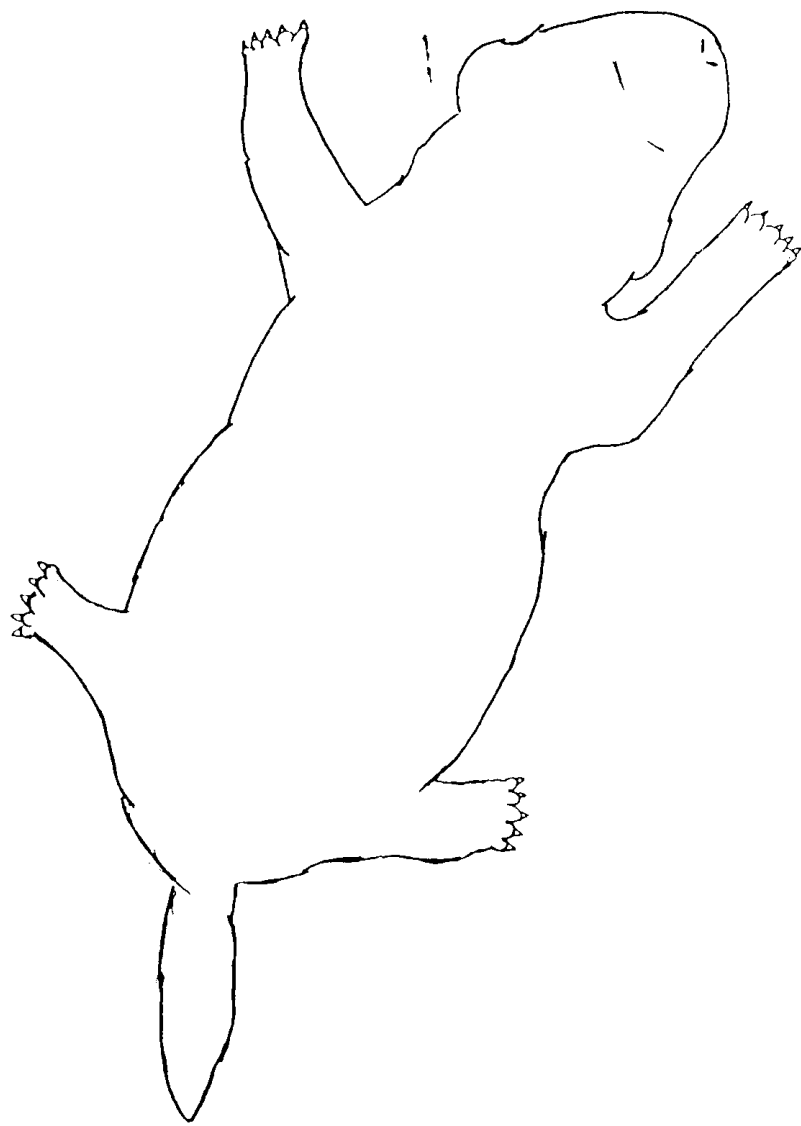
-By the time a panda is one month old, its white hairs are replaced by black hairs where their skin is shaded gray.

-its eyes are still closed.

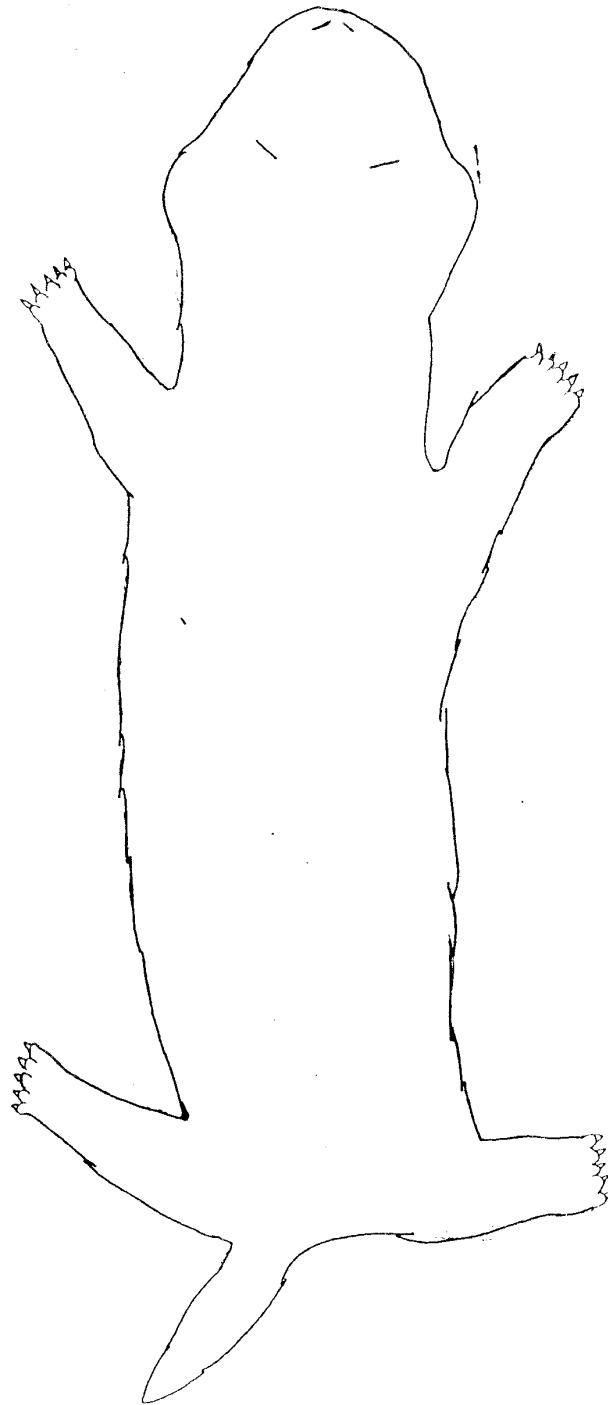
Picture 4 (two months old)

-a baby panda open its eyes when it is about 1 ½ months to 2 months old

-when the panda baby is 1 ½ to 2 months old, it gets its first baby teeth, by the time it is 1 yr old it has started to get its adult teeth.



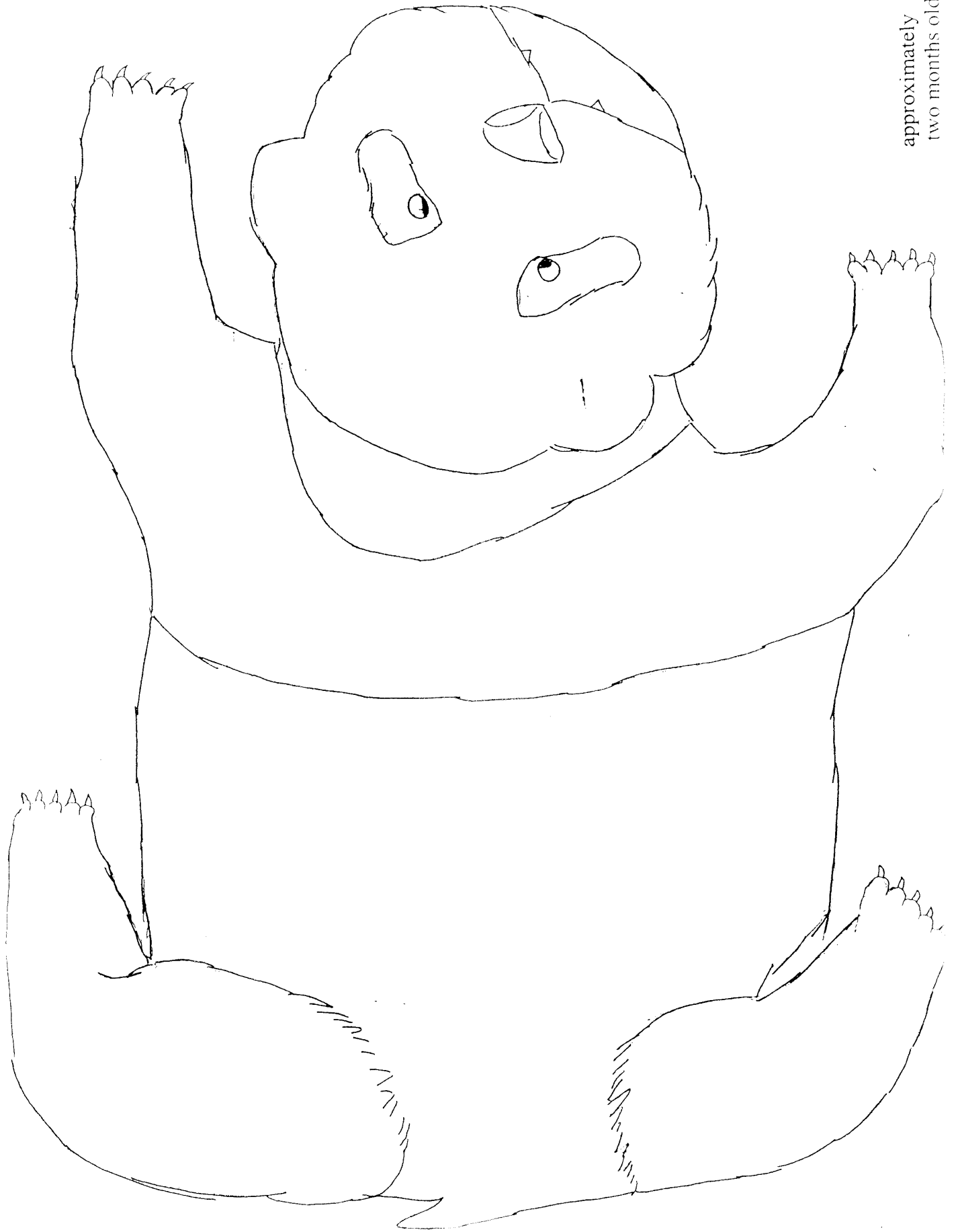
approximately four days old



approximately ten days old



approximately one month old



approximately
two months old

Me and Panda Baby

Goal: Children will become familiar with the development of a panda cub.

Behavioral objectives:

- 1) Children will be able to compare the developmental stages of a panda cub to their own.

Curriculum Standard Correlations:

Grade K

- Identify and explain the basic needs of animals

Grade 1

- Compare the stages of the life cycles of selected organisms (resemblance to parents)

Time:

30 minutes

Background information:

Newborn bears and newborn giant pandas are very tiny compared to their parents. A newborn panda cub usually weighs about as much as a 3 Musketeer bar (3-5 ounces) and a full-grown giant panda mother weighs about 200 lbs. In order to get the same ratio a human mother that had a 7 lb baby would have to weigh as much as 15 men or about 2,800 lbs.

A newborn panda is pink and covered with very fine white hairs. At about 10 days old, the skin where the black hair will eventually grow turns gray. The panda will have a patch of black hair around each eye, black hair on each ear and each leg. The black fur on its front legs extends in a band that covers its chest and meets at the shoulders. Its tail is white. The black hair will grow into each gray area, one area at a time, within a month. The panda's nose and lips start to turn from pink to black when it is 2-3 months old.

Pandas are born with their eyes closed and they do not open until they are 1 ½ to 2 months old. It is also during this same timeframe that the cub gets its first baby teeth. Panda cubs shed their baby teeth and usually start getting their permanent adult teeth by the time they are 1 year old. About 3-6 months later, the panda cub will leave its mother to find its own home and begin its solitary life in the wild.

Materials:

Required:

- pencils

Provided:

- Me and Baby Panda worksheet that can be photocopied

Procedures:

Preparation:

- 1) Make photocopies of the Me and Baby Panda worksheets for each of the students.
- 2) Have the students take the worksheet home and go over the questions and fill in the information about themselves with their parents.

Introduction:

- 1) Tell the students that we have some things in common with the giant panda bear. Ask them if they can think of any. Some of the answers could be that we both have hair on the outside of our bodies, we both have four limbs (or say two arms and two legs), we both have ears that can be seen, etc.
- 2) Tell the children that we are going to compare how they grew after they were born to how a newborn baby panda grows after it is born and see if their growth was similar to or different from a baby panda.

Conducting the Activity:

- 1) Read aloud each question included in the discussion section below and let a few students answer each question from their worksheet.
- 2) Ask the same question about a baby panda and let a few other students try to answer that question.
- 3) If they get the answer right let them know and then read the information listed below each question.
- 4) If the students can write, have them write in the answer for the baby panda in the column labeled baby panda.

Discussion:

- 1) How much did you weigh when you were born?

When you were born you probably weighed about as much as a small bag of dog food (or name something else that weighs about 6-9 lbs.) When a panda is born it weighs the same as a half a can of soda and is about the length of a stick of butter. So when you were born you were a lot bigger than a newborn panda.

- 2) How much do you think you weighed when you were 1 year old?

You probably weighed about 20-30 lbs but by the time pandas are 1 year old they weigh about 75 lbs, so they have become a lot bigger than you.

- 3) How long do you think you stayed inside your mother?

You probably stayed inside your mother for about 9 months and a baby panda stays inside its mother for 3-5 months.

- 4) Did you make noises when you were born?

You probably did make noises when you were born. A baby panda can make noises too when it is born. It makes a loud squawking noise when it wants or needs something.

5) Where were you born?

You were probably born inside a hospital and a panda baby is usually born inside a hollow tree on the ground or in a cave.

6) When you were a little over a week old did any of your skin change color?

No, your skin probably stayed the same color all over. When a panda is about 10 days old the skin where the black hair will eventually grow turns from pink to gray.

7) Is your hair the same color as it was when you were born?

Your hair may or may not be a different color. By the time a panda is one month old, its white hairs are replaced by black hairs where their skin is shaded gray.

8) What is the average lifespan of people?

The average person lives for about 75 years. It is said that a man in Japan lived to be 120 years old. The oldest known panda on record lived to be 37 years old. In the forest, scientists estimate that pandas usually live about 25-30 years.

9) When you were born, when did you open your eyes?

You were born with your eyes open and a baby panda doesn't open its eyes until it is about 1 ½ months to 2 months old.

10) When did you start to crawl?

You probably started crawling around when you were between 6-10 months old. Baby pandas start to crawl around when they are about 3 months old.

11) When did you start to walk?

You probably started walking when you were between 9-18 months old. Baby pandas usually start to walk well when they are about 5-6 months old.

12) When do you think you stopped drinking milk made for babies?

You probably stopped drinking milk made for babies at about 9 months of age although you may have been a little older or a little younger. Panda babies stop drinking milk made for panda babies about the same time (9 months of age) and then they depend totally on bamboo and other plants and animals for their food.

13) When do you think you started eating solid food?

You probably started eating solid food when you were about 4-6 months old. Baby pandas start eating solid food when they are 5 to 6 months old. (just the bamboo leaves...they start eating the stalks when they are about 1 yr. old

14) When do you plan on moving away from home?

A baby panda will leave its mother when it is about 1 ½ years old. When you were 1 ½ years old you still needed your mother very much and we usually never stop needing our mothers but we usually leave our parents home and start living on our own when we are between 20 and 30 years old...sometimes earlier and sometimes later.

15) When did you start getting your baby teeth?

You probably got your first baby teeth when you were about 5-7 months old and will start getting some of your adult teeth this year (6 or 7 years old) or some of you may have already started getting some of your adult teeth. When the panda baby is 1 ½ to 2 months old, it gets its first baby teeth and by the time it is 1 year old it has started to get its adult teeth.

Extensions/Going Further:

- 1) Have the students go back through each question and indicate with “S” or “D” in the last column to indicate which things are similar between them and the baby panda and which things are different.

	ME AND BABY PANDA WORKSHEET		
	Me and Baby Panda	me	baby panda
			Similar or Different?
1.)	Weight when you were born		
2.)	Your weight at 1 year old		
3.)	Time you spent growing inside Your Mother		
4.)	Noises you made as a baby		
5.)	Where you were delivered as a baby		
6.)	Color of your skin when you were 1 1/2 weeks old		
7.)	Your hair color when you were born and your hair color now		
8.)	Average lifespan of people		
9.)	Were your eyes open or closed at birth		
10.)	When you started to crawl		
11.)	When you started to walk		
12.)	When you stopped drinking milk for babies		
13.)	When you started eating solid food		
14.)	When you plan on moving away from home		
15.)	When you got your first tooth		

Panda Puppet

Goal: To become familiar with the giant pandas body parts and body covering.

Behavioral Objectives:

- 1) To identify the parts of a Giant Pandas body.
- 2) To recall the colors of the Giant Pandas fur.

Curriculum Standard Correlations:

Kindergarten

- Classify plants and animals by their homes (habitats)
- Identify the functions of the sense organs

Grade 1

- Distinguish animals by structural features

Grade 2

- Illustrate how adaptations of animals increase their chance of avoiding predators

Time: 1 hour

Background Information:

Giant Pandas live in five small areas in China. These areas are located in the mountains where it is cool, snowy, and lots of bamboo grows. Giant pandas have unique fur colors compared to other bears. Their fur is white with black sections around the eyes, ears, and legs. The fur colors help the giant panda blend into the bamboo forests and snow. The giant panda has two types of fur. The short fur, which is closest to the panda's skin, helps insulate the panda from the cold. The long fur on the top is long and oily. The oil waterproofs the fur. Giant pandas have many interesting adaptations. An adaptation is a behavior, physical feature, or other characteristics that helps an animal or plant survive in its habitat. One adaptation that the Giant panda has is the black fur around the eyes. The black fur around the eyes makes their eyes look bigger to predators. The large "eyes" would scare the predator away. Giant pandas rely on their five senses everyday. Giant pandas use their sense of sight to see and locate food, other pandas, and predators. They use their sense of hearing to listen for other pandas and for predators. Giant pandas use their sense of smell to smell their food and identify other pandas. Giant Pandas use their sense of taste while eating bamboo. Lastly, Giant Pandas use their sense of touch by using their paws to hold their food and to touch and feeling things.

Materials:

Required:

- White paper lunch sacks- one for each child
- Black construction paper
- White construction paper
- Scissors
- Glue
- Black crayons
- Pictures of giant pandas

Provided:

- Panda Puppet template

Procedures:**Preparation:**

- 1) Using the template provided, trace two black legs, two black eyes, two black ears, one black nose, and two white pupils for each child.
- 2) Collect and display giant panda pictures for the children to see

Introduction:

- 1) Discuss with the children where giant pandas live, the colors and importance of their fur, and how giant pandas use the five senses. Point out these features using the giant panda pictures.

Conducting Activity:

- 1) Give each child one white paper sack. Make sure that the bottom of the paper sack is facing the child. Pass out the glue and black crayons.
- 2) Pass out to each child two black legs, two black eyes, two black ears, one black nose, and two white pupils.
- 3) Have the children glue the ears onto the top of the bag and glue the black eyes and nose onto the bottom part of the sack for the face. Next, glue the white pupils onto the center of the black eyes. Lastly, glue the arms onto the sides of the sack.
- 4) With a black crayon, have the children color two black circles onto the white pupils.
- 5) Let dry completely.

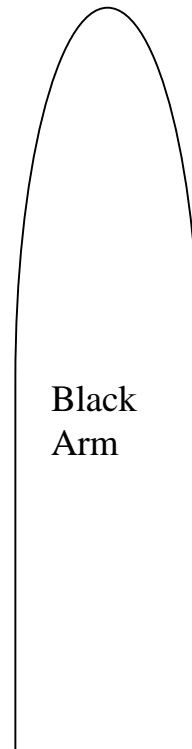
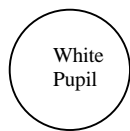
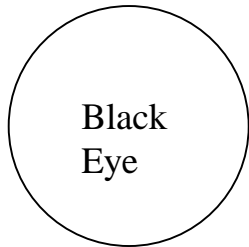
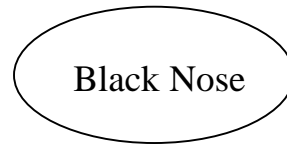
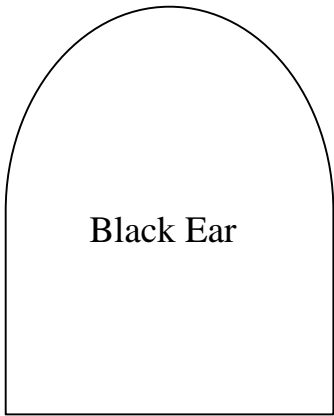
Discussion:

- 1) As the children are gluing on each part of the pandas body, take about how the giant panda uses that part to help it to survive in the wild. Also, as they are gluing on each body part, have the children tell what color that part is.

Extensions/Going Further:

After completing the panda puppet activity, gather the children around and read the story Little Panda by Joanne Ryder. As you are reading the story, let the children act out the story using their puppets. After reading the story, set up a puppet stage and let the children put on their own puppet shows.

Panda Puppet Template



Panda Pals

Goal: To foster a love for giant pandas

Behavioral Objectives:

- 1) To identify the colors of the giant panda's fur
- 2) To be able to name one of the giant pandas senses and how they use it
- 3) To be able to name the country where giant panda's live

Curriculum Standard Correlations:

Kindergarten

- Classify plants and animals by their homes
- Identify the functions of the sense organs

Grade 1

- Distinguish animals by structural features

Time: 2 days

Background Information:

Giant pandas live in the cool, snowy mountainous bamboo forests of China. A giant pandas body covering is fur. A giant pandas fur is very oily and thick. Fur helps the giant panda stay warm in the cool mountains and the oil on the fur helps the panda to stay dry when it rains. A giant panda's fur is white with black around the eyes, ears, arms, and legs. The color of giant pandas' fur helps them blend into the bamboo forests and the snow. By blending in, this helps the giant panda hide from predators. Giant pandas also use their senses like humans do. Giant pandas use their sense of touch by using their paws for feeling their food or other pandas. Giant pandas use their sense of sight for locating food, other pandas, and watching for predators. They use their sense of smell for smelling food and other pandas. Giant pandas also use their sense of hearing to listen for other pandas and predators. Lastly, giant panda's use their sense of taste to taste their food.

Materials:

Required:

- Large pillowcase or pillowcases
- Batting
- Black paint
- Paintbrushes
- Pencil
- Needle
- Thread
- Black and white pieces of fur
- Pictures of giant pandas
- Assortment of giant panda Books

Procedures:**Preparation:**

- 1) Stuff the pillowcase with batting and sew the top of the pillowcase shut.
- 2) Collect several pictures of giant pandas.
- 3) Pre-cut pieces of white and black fur.
- 4) Draw the ears, eyes, legs, and nose onto the pillowcase with a pencil.

Introduction:

- 1) Discuss with the children where giant pandas live, how their fur helps them in their habitat, and how giant pandas use the five senses.

Conducting Activity:

- 1) Have the children sit in a half circle around the teacher.
- 2) Show the children the pictures of the giant pandas and point out the pandas fur color.
- 3) Have the children take turns painting the black sections. Leave the pictures of the giant pandas out so the children can refer to them.
- 4) Once the panda is finished, let dry.
- 5) Once dry, let the children take turns gluing on patches of black and white fur onto the panda. Let dry.

Discussion:

- 1) After you have shown the children the pictures of the giant pandas, ask them what color they are? Next, ask them what parts of the panda's body are black. As the children name the parts of the pandas body that are black, point to each part and talk about how the giant panda uses that part to help them in the wild.
- 2) As the children are taking turns painting the black sections of the panda and while they are gluing on the white and black patches of fur, talk about why the giant pandas fur is important.

Extensions/Going Further:

While the giant panda is drying, place a selection of books about giant pandas in your reading area. When the pandas is dry, place it in your reading area for the children to cuddle up with while they are reading giant panda books. This way the children can become more familiar with and knowledgeable of giant pandas. Two recommended books are Three Pandas by Jan Wahl and Little Panda by Joanne Ryder.

Web Sites For Additional Panda Information

www.memphiszoo.org

www.giantpandaonline.org/

www.sandiegozoo.org/special/pandas/index.html

www.panda.org

www.giantpandabear.com

www.nationalgeographic.com

www.first-school.ws

www.giant-panda.com

www.fedex.com/cgi-bin/pandas_track.cgi

www.kidsplanet.org/factsheets/giant_panda.html

www.zoomschool.com/subjects/mammals/panda/

www.bearbiology.com/specdesc.html (site with information on all bear species)