

Self-directed Tour

1st and 2nd Grade

Primates of the World Teacher Guide

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GOAL: To learn about the different primates at the Milwaukee County Zoo and that:

primates come in many sizes. Some are smaller than us and some are larger.

primates are divided into four groups: monkeys, apes, prosimians, and, of course, human beings. For this unit, we will focus on monkeys and apes while comparing their features to the primate we know best, humans. One easy way to compare monkeys to apes is by looking for a tail. Apes will not have a tail.

primates have hands that are used very much like humans. We will explore primate similarities and differences.

primates are mammals, which have hair of varied colors

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This curriculum packet has been provided by the Zoological Society of Milwaukee County and the Ladish Company Foundation.

Section One

VOCABULARY:

Primates	Tails	Gorilla	Spider monkey
Monkey	Hands	Mandrill	Orangutan
Ape	Nest	Bonobo	Colobus
Rain forest/Jungle	Diana	Siamang	Prehensile tail

Primates

This taxonomic order of mammals includes apes, monkeys, prosimians, and humans. Eyes directed forward allow binocular vision and good depth perception. There are usually five digits on each hand and foot.

Apes

Largest of the primates. They have no tails and walk on their knuckles. They include: gorillas, chimpanzees, bonobos, orangutans, and two lesser apes — siamangs and gibbons.

New World Monkeys

They are found in the Tropics of the Western Hemisphere. Some have prehensile tails. They include: monkeys, tamarins, and marmosets.

Old World Monkeys

Found in the Eastern Hemisphere. Some have cheek pouches; many have thick calluses of skin on their buttocks. These include: baboons, guenons, colobus, macaques, mangabeys, langurs, and golden monkeys, among others.

Prehensile Tail

A tail that can grasp as if it were a fifth limb.

Brachiation

Hand-over-hand movement.

Rain forest

Tropical forest with abundant year-round rain and humidity.

Tropics

Area of the world directly on either side of the Equator.

The activities in this section are intended for use before the Zoo field trip to prepare your students for their Zoo experiences.

ACTIVITY #1
Math
Hand-print Sequencing & Matching Game

Objective: Measurement and Sequencing - smallest to largest

Materials: 4 primate hand-print pictures (provided)
Drawings of the primates (provided)
Lamination materials
White paper
Black tempera paint or markers

Instructions:

1. Laminate the hand-print outlines and primate pictures, then place Velcro or tape on the back of each picture (optional).
2. Using black tempera paint, pencils or markers and the white paper, have the children make a print or tracing of their hands.
3. Have the children put the five hand prints (the four provided plus their own) in order, from smallest to largest.
4. Have the children match pictures of the animals to the handprints. Show the children the correct order from smallest to largest.

ACTIVITY #2
Language and Creative Arts Activities:
Mural

Objective: To learn that many primates live in rain forests.

Materials: Green or brown yarn
Large white butcher paper
Light green, dark green and brown tempera paint
Green construction paper leaves
The book entitled *The Great Kapok Tree*


Instructions:

1. Read the book *The Great Kapok Tree* and show pictures of rain forests from books and magazines.
2. Using white butcher paper, pre-draw some trees, leaves and bushes. Let the children paint them to make a rain forest. Children can cut out or tear construction paper to make leaves. Make vines using yarn or make paper chain links. Create plants, for example, with flowers and ferns. Add primates to the mural. After their Zoo trip, the children can add other primates and different animals that live in the rain forests, such as jaguars, frogs, butterflies, etc.

Section Two

The following activities have been created for teachers and chaperones to use with children while touring the Zoo.

ZOO SELF-DIRECTED TOUR through Apes of Africa building

 Include a small pocket-size notebook and pencil for the chaperones to write down any interesting responses from the children as they observe the animals. Back in the classroom, the parents can be involved in reviewing what the children learned or experienced at the Zoo.

Tour Questions:

The following are suggested questions to ask while observing the animals at each exhibit:

1. Are these primates bigger or smaller than you?
(Size of the primates compared to human beings)
2. Do these primates have tails? Why do you think monkeys need tails? OR How might tails help monkeys to move?
3. What do their hands look like? How do they use their hands?
4. What does the animal's hair look like? Why do you think they have this hair color (length, thickness, etc.)? How could this color possibly help them to survive?
5. What are the animals doing in the exhibit? Describe how they are moving. What body parts are they using to help them move? Listen for their sounds? Describe the sounds you hear.
6. Can you find any babies in the exhibit? (If observable — How are the adult animals caring for their young?)

Note: Refer to exhibit signage for additional questions or information.

SELF-DIRECTED TOUR ACTIVITIES

ACTIVITY #1 Matching Colors Of Primates

Preparation for Tour Activity: Teacher can make necklaces or badges using pieces of colored construction paper (black, brown, red, white, yellow, orange). Attach the necklaces with yarn or use a safety pin to make the badges. Put the school's name on the back for identification in case a child becomes lost.

Objective: To learn that primates can be many different colors.

Instructions: As the children view each exhibit, have the children match the color of the primates' coats of hair to the colors on the childrens' necklaces or badges.

ACTIVITY #2

Hand Comparison

Objective: To compare children's hand sizes with those of other primates.

Materials: The Primate Handprint Exhibit (five different hand prints for students to touch; located between orangutan and Diana monkey enclosures).

Instructions:

In small groups, have the children stand in front of the hand-print exhibit located near the "See if you can move like a ... *primate*" display.

1. Press each child's hand on the first block to see their own hand print.
2. Compare the child's hand to the primate hands on the other blocks of the exhibit.
3. Have each student look to see how many fingers each primate has and look at the length of the fingers, especially the thumbs.
4. Be sure to lift up the blocks and look at the picture of the primate that each hand belongs to.

ACTIVITY #3

Primate Locomotion

Objective: To have the children move like a primate (after observing real primates move).

Materials: The Primate Locomotion Exhibit

Instructions:

In small groups, have the children stand in front of the large "See if you can move like a ...*primate*" sign on the wall in the interactive area adjacent to the Diana monkeys.

1. Look for and talk about each of the primates. Are they walking on all four legs, knuckle walking, tree climbing, etc.? How do they use their arms and legs? Discuss how these animals move.
2. Use the "See if you can move like a ...*primate*" sign on the wall to encourage the children to attempt to move in a similar fashion.
3. Find areas in the buildings and/or outdoors for the children to pretend moving like different kinds of primates, such as swinging, jumping, walking, leaping, etc. (Best to do in small groups.)

Make sure your groups have observed these primates moving in their exhibits.

Section Three

Follow-up with some of these classroom activities to reinforce what the children have learned on their Zoo field trip.

ACTIVITY #1 Large Motor Skill Activities Balancing Monkeys

Objective: The children will learn that monkeys use their tails for balance and warmth, and that prehensile tails are used as extra fingers.

Materials: A floor balance beam
Pictures of various monkeys in trees and on the ground.

Instructions:

1. Show the children pictures of different kinds of monkeys and talk about how the various monkeys use their tails. Look at the different sizes: some monkeys have short tails and others have long tails. Tails can be furry and fluffy or may have short hair covering them. Monkeys can use furry and fluffy tails to wrap around themselves or their babies like scarves. Body hair and tails also help monkeys keep warm and dry during rainy or cold weather. Some monkeys have tails that can be used as an extra finger to hold on to the tree branches. These are called prehensile tails.
2. Tell the children you want them to try moving like a monkey on a tree branch (balance beam). Have them put their arms down to their sides and walk across the beam. Have them watch the children to see what happens. Most of the children will fall off the beam or will stick their arms out to balance their bodies. Monkeys use all four legs for walking and holding the tree branches; so it would be hard for them to stick an arm or leg out. Instead, they move their tails back and forth to balance their bodies.

ACTIVITY #2 Primates Climb

Objective: To learn that some primates use their arms to climb and swing through the trees.

Materials: large thick rope or monkey bars in playground.
pictures of primates in trees
white paper and pencils

Instructions:

1. Go over rules for safely using equipment.
2. Show pictures of primates in different positions in trees.

Primates climb contd.

3. If possible, set up a rope in the classroom or a gym (above children's heads but low enough for them to grab the rope). Talk about how the hands and feet of many primates look very much like our hands. (Look more closely at the differences between human hands and other primates later.) However, since most primates (prosimians and monkeys) find food in the trees, they need to be able to move quickly and smoothly through the trees. Some move by holding on to the vines or branches to swing, or **brachiate**, through the

trees. Demonstrate the movement for the children on the rope. Have the children do this one at a time. Note: Primate thumbs are usually much shorter than their fingers. Monkeys that swing in the trees need to keep their thumbs out of the way so that they can swing from branch to branch. Primates use their thumbs in different ways depending upon their form of locomotion.

4. Tell the children that at recess they will have a chance to climb like monkeys on the climbing structure outside (unless you happen to have one indoors). Metal monkey bars work best for this activity.

Activity #3 Dramatic Play Primate Nest

Objective: To learn that some primates make sleeping nests each night.

Materials: shredded strips of newspaper,
large bed sheet,
25 construction paper leaves
a few branches.

Instructions: The children should have an active part in this construction. Begin by laying a sheet on the floor and have each child add the materials. The children could sit in this nest when they are looking at or reading a book about primates. You may have to limit the number of children in the nest. Another idea for constructing the nest is to have the children add a piece of material such as a leaf for every book they read.

Section Four



BOOK LIST



1. ***All Sizes and Shapes of Monkeys and Apes*** by Richard Armour
2. ***Chimpanzee Family Book*** by Jane Goodall
3. ***A Closer Look at Jungles*** by Joyce Pope
4. ***Ecology Watch Rainforests*** by Rodney Aldis
5. ***Explore the World of Exotic Rainforests*** by Anita Ganeri
6. ***Gorilla*** by Anthony Browne (fiction)
7. ***Gorilla*** by Paul Hermann Burgel
8. ***Little Gorilla*** by Ruth Borstein (fiction)
9. ***Monkeys*** by Tess Lemmon
10. ***Monkeys and Apes of the World*** by Rita Golden Gelman
11. ***Orangutan*** by Caroline Aenold
12. ***Our Wildlife World*** by Bill Ivy
13. ***With Love From Koko*** by Faith McNulty
14. ***A Day in the Jungle*** by Pat Petterson.

TEACHER RESOURCES

for

pictures, animal information, and activities about rain forests

1. ***Animals and Their Environment, Tropical Rain Forests*** by Wendy Weir
Published and distributed by Carson-Dellosa Publishing Company, Inc.
2. ***Ranger Rick's Naturescope Rainforests: Tropical Treasures volume***
Published by National Wildlife Federation, 1400 16th St., NW , Washington, DC
20036-2266
3. ***The Great Kapok Tree, A Tale of the Amazon Rain Forest*** by Lynne Cherry
4. ***Welcome to the Green House*** by Jane Yolen

ANIMAL INFORMATION FOR
PRIMATES AT THE MILWAUKEE COUNTY ZOO
(in tour sequence)

Stearns Family Apes Of Africa building

1. Western lowland gorilla - (*Gorilla gorilla gorilla*)
2. Bonobo or pygmy chimpanzee - (*Pan paniscus*)

Primates of the World building

3. Mandrill - (*Papio sphinx*)
4. Golden lion tamarin - (*Leontopithecus rosalia*)
5. Black-handed spider monkey - (*Ateles geoffroyi*)
6. Orangutan - (*Pongo pygmaeus*)
7. Black and white colobus - (*Colobus guereza*)
8. Diana monkey - (*Cercopithecus diana*)
9. Siamang - (*Hylobates syndactylus*)

Small Mammals Building

10. Ring-tailed lemur - (*Lemur catta*)
11. Ruffed lemur - (*Lemur variegata*)
12. Cotton top tamarin (*Saguinus oedipus*)
13. Golden lion tamarin (*Leontopithecus rosalia*)
14. Golden-headed lion tamarin (*Leontopithecus chrysomelas*)

Nocturnal side of Small Mammals Building

15. Fat-tailed dwarf lemur - (*Cheirogaleus medius*)
16. Douroucouli, or night monkey - (*Aotus trivirgatus*)
17. Galago, or bushbaby - (*Galago senegalensis*)

Macaque Island

18. Japanese macaque - (*Macaca fuscata*)

CLASSIFICATION FOR PRIMATES AT THE MILWAUKEE COUNTY ZOO

The primates are a taxonomic order of mammals that includes apes, monkeys, prosimians, and humans. Primates have large brains and eye sockets that are surrounded by a bony ridge. Most primates have an opposable thumb. Spider and colobus monkeys have only rudimentary thumbs. Most primates live in tropical regions of the world, which are located on either side of the equator.

APES

Great Apes

Gorilla
Bonobo
Orangutan

Lesser Apes

Siamang

MONKEYS

Old World

Colobus monkey
Diana monkey
Mandrill
Japanese macaque

New World

Spider monkey
Golden lion tamarin
Cotton top tamarin
Pygmy marmoset
Night monkey

PROSIMIANS

Ruffed lemur
Ring-tailed lemur
Dwarf lemur
Galago bushbabies

WESTERN LOWLAND GORILLA

HABITAT: Western Equatorial Africa. Tropical rain forest.

WEIGHT: Male - 350 - 450 pounds
Female - 150 - 250 pounds

HEIGHT: Male - 5 - 6 feet
Female - 4 1/2 - 5 feet

DIET: Fruits, leaves, stems, and shoots

LONGEVITY: Approximately 30 - 40 years. Oldest in captivity: 54 years.

FACTS: The largest of all the primates. "Gorilla" is derived from a word that means "hairy person." There are three types of gorillas: eastern lowland, western lowland, and mountain, but they are all members of one species.

Gorillas live in troops of 3 - 30. Every gorilla has a special place in the family. Most adult males are called "silverbacks" because of the gray hair on their backs.

Gorillas build nests (usually on the ground) each night out of whatever materials are available, including leaves. (This is the reason there are no plants in the gorilla exhibit at the Zoo that can be touched by them. They would eat them or use them for nests. Straw and burlap are used for bedding here at the Zoo and a healthful diet is prepared for the animals by the zookeepers.)

Gorillas are gentle giants. The troop spends the day slowly wandering from place to place, eating as they go. They are considered to be knuckle walkers. They curl their fingers under their hands and support their upper bodies by placing their knuckles on the ground as they walk.

Gorillas are an endangered species. They are hunted for food and shot because they damage farm crops. Gorilla body parts are used in traditional rituals and sold on the black market as trophies and souvenirs.

BONOBO/PYGMY CHIMPANZEE

HABITAT: Africa - rain forests of the Democratic Republic of Congo (formerly Zaire)

WEIGHT: Males - 78 - 85 pounds
Females - 65 - 70 pounds

DIET: Fruit, leaves, stems, and vines, also insects and small vertebrates

PHYSICAL CHARACTERISTICS: In comparison to the common chimpanzee, bonobos have blacker hair, darker facial pigmentation, a more spherical head, a slenderer build, longer arms, and narrower shoulders and hips.

LONGEVITY: Unknown. The oldest in captivity is more than 50 years.

FACTS: Rarest of the Great Apes. Rarest of the two types of chimpanzees. Along with chimpanzees, bonobos are most closely related to humans genetically, with the DNA similarity >98%. They are highly endangered. There are about 140 in captivity, with the largest group at the Milwaukee County Zoo (17 as of 2002). The Zoological Society of Milwaukee's conservation coordinator is head of the Species Survival Plan for bonobos.

Bonobo males do not show aggressive behavior common to chimpanzees. Bonobos are also more arboreal, or tree dwelling, than chimps. On the ground, bonobos are knuckle walkers like gorillas. Bonobos are social animals that spend hours grooming each other.

MANDRILL

HABITAT: Africa, southern Cameroon and Gabon rain forest.

WEIGHT: Male about 110 pounds

HEIGHT: Male 2 – 2 1/2 feet

DIET: Fruit, seeds, insects, fungi, and small vertebrates

PHYSICAL CHARACTERISTICS: The facial coloring is considered the most spectacular among mammals. The bridge and front part of the nose is scarlet while the furrowed parts of the cheeks are bright, cobalt blue. The remaining hair is dark, grayish-brown with greenish tints. The males' hindquarters are also brightly colored. Females and juveniles are similarly colored but in duller tones.

LONGEVITY: over 30 years in captivity

FACTS: Females and young are most often found in the trees while males spend much of the day on the ground. Mandrills walk on the soles of their feet and the palm side of the fingers, excluding the thumbs.

GOLDEN LION TAMARIN

HABITAT: South America, Brazilian coastal Rain Forest

WEIGHT: 13 - 24 ounces

HEIGHT: 8 - 16 inches

DIET: Fruit, insects, lizards, frogs, and snakes

PHYSICAL CHARACTERISTICS: Coat golden yellow

LONGEVITY: 7 - 16 years

FACTS: An intensive effort has been made by the Milwaukee County Zoo, the Zoological Society, and other zoos to re-establish golden lion tamarins in the wild. Tamarins once were raised in the Small Mammals Building for the purpose of reintroduction to the wild. To date, over 90 have been released and over half have survived. Many have mixed with wild tamarins and produced offspring.

SPIDER MONKEY

HABITAT: Southern Mexico, Central America, Colombia, Venezuela, Guyanas, and the Amazon River Basin. Mostly tropical and subtropical rain forest.

WEIGHT: 12 - 17 pounds

HEIGHT: 14 - 26 inches

DIET: Primarily fruit, insects, some leaves

GESTATION: 4.5 - 8 months

PHYSICAL CHARACTERISTICS: Spider monkeys are large, lanky, and rather pot-bellied animals with disproportionately long, slender arms. Their coats are long and shaggy, with the hair around their heads forming a peak above their eyes. They have prehensile tails.

LONGEVITY: 12 - 25 years

ORANGUTAN

HABITAT: Southeast Asia: northern Sumatra and Borneo. Lowlands and hilly tropical rain forests

WEIGHT: Male 99 - 220 pounds
Female 66 - 110 pounds

HEIGHT: 2 1/2 - 4 feet

DIET: Primarily fruit, insects, honey, some leaves and bark in monsoon season

PHYSICAL CHARACTERISTICS: Sparse, long, coarse red hair, ranging from bright orange in young to maroon or dark chocolate in some adults.

LONGEVITY: About 35 years (up to 50 years in captivity)

FACTS: Orangutans are great apes. They are the only true tree-dwelling apes. Orangutans live quietly in the trees of the rain forest of Borneo and Sumatra. They live a solitary life. Sometimes, however, a couple will live together with their young for a while.

Orangutan hands and feet are adapted for holding and grasping branches. Their powerful arms help them swing and climb. Their feet are like hands, which help in gripping and climbing.

Orangutans are considered the quietest of the great apes, but when disturbed, they will make an assortment of grunts, smacks, and occasional roars.

COLOBUS MONKEY

HABITAT: Central Africa from Senegal and Angola to Ethiopia and Tanzania

WEIGHT: 9 - 31 pounds

HEIGHT: 19 - 29 inches

DIET: Leaves, twigs, shoots, fruits and berries

GESTATION: 5 - 9 months

PHYSICAL CHARACTERISTICS: Short, white hair around face. A long white mantle is continuous along the back. The long tail is white and flowing.

LONGEVITY: About 20 years (up to 29 years in captivity)

DIANA MONKEY

HABITAT: Western Africa. Forest areas from Gambia to Liberia

WEIGHT: 13 - 19 pounds

HEIGHT: adults about 21 inches

DIET: Fruits, seeds, nuts, young shoots and buds, also insects and small vertebrates

PHYSICAL CHARACTERISTICS: Snowy white hair extends from the chin to the chest as well as white stripes on the flanks. The body coloring is otherwise dark gray. The face is black and surrounded by a white ruff and beard.

LONGEVITY: About 20 - 30 years

SIAMANG

HABITAT: Southeast Asia: rain forests of Sumatra and the Malay Peninsula

WEIGHT: 15 - 28 pounds

HEIGHT: 30 - 33 inches

DIET: Fruits, leaves, flowers, buds, and insects. Also insects and small vertebrates

PHYSICAL CHARACTERISTICS: Largest of the gibbon family. Hair is long, smooth and black. A hairless air sac that lies beneath the chin allows it to make loud, shrill calls. You can hear them through the Zoo.

LONGEVITY: About 30 - 40 years

RING-TAILED LEMUR

HABITAT: Madagascar, deciduous forest

WEIGHT: 4 - 8 pounds

HEIGHT: 12 - 18 inches

DIET: Fruit, leaves, and flowers

LONGEVITY: 18 + years

PHYSICAL CHARACTERISTICS: Coat is black and gray. Rings about eyes and muzzle are black. Tail is banded black and white.

FACTS: Largely arboreal. "Stink fights" occur by waving scent-smear tail.

RUFFED LEMUR

HABITAT: Forests of Madagascar

WEIGHT: 4 _ to 5 _ pounds

HEIGHT: 12 - 22 inches

DIET: Fruit and leaves

GESTATION: 130 - 136 days

PHYSICAL CHARACTERISTICS: Black with large white areas on the limbs, back, tail, belly, and head; dense fur around neck.

LONGEVITY: Unknown in the wild (up to 19 years in captivity).

FACTS: Largest of the lemurs. Lives in groups of three to five.

COTTON TOP TAMARINS

HABITAT: South America, Colombian Rain Forest

WEIGHT: 9 - 32 ounces

HEIGHT: 7 - 17 inches

DIET: Fruit, insects, lizards, frogs, and snakes

PHYSICAL CHARACTERISTICS: Prominent crest of white hairs extending from forehead back over the neck.

LONGEVITY: 7 - 16 years

FAT-TAILED DWARF LEMUR

HABITAT: Madagascar

WEIGHT: 4.2 - 12.25 ounces

LENGTH: 7.49 inches

DIET: Fruit, flowers, nectar, and insects

PHYSICAL CHARACTERISTICS: Gray or reddish brown coat with white under parts. Large eyes.

LONGEVITY: Oldest in captivity is 18 years

FACTS: Nocturnal. Builds globular nests in trees. Stores fat in tail as an energy reserve. Usually solitary.

DOUROCOULI, or NIGHT MONKEY

HABITAT: South American forests, Panama south to Argentina

WEIGHT: 1.76 - 2.37 pounds

HEIGHT: 9.4 - 18.72 inches

DIET: Fruit, insects, nectar, leaves, frogs, and eggs

PHYSICAL CHARACTERISTICS: Brown, gray, or reddish on back; underside buff to white

LONGEVITY: 12 - 25 years

FACTS: Only truly nocturnal monkey. Can leap 3 - 5 meters. Calls only when the moon is full. Color vision.

GALAGO, or BUSHBABY

HABITAT: African rain forest

WEIGHT: 2 _ to 3 _ pounds

HEIGHT: 9.06 inches

DIET: Small prey, fruit, and gums

PHYSICAL CHARACTERISTICS: Nails on all but two digits. Large eyes. Long tail.

LONGEVITY: 14 years

FACTS: Nocturnal. Lives 5 - 50 meters above ground. Leaps from branch to branch

JAPANESE MACAQUE

HABITAT: Forests of Japanese islands

WEIGHT: 18.30 - 39.7 pounds

HEIGHT: 18.52 - 23.64 inches

DIET: Fruit, insects, crops, and small animals

PHYSICAL CHARACTERISTICS: Coat brown to gray. Face and rump skin red in adult.

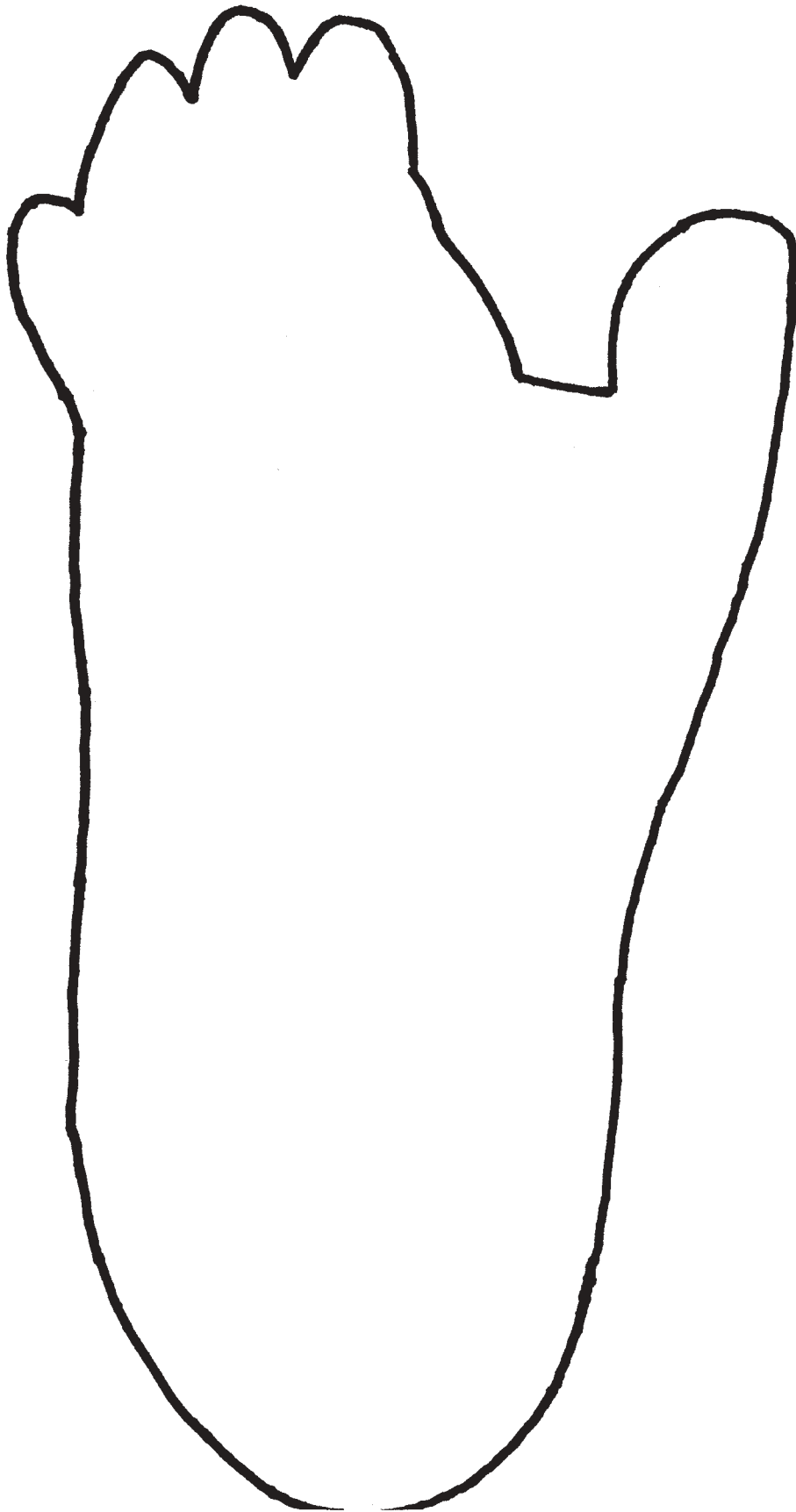
LONGEVITY: 20 - 30 years

FACTS: Live on the Japanese islands of Honshu, Shikoku, Kyushu, and Yakushima in temperate climate, which is unusual for most primates.

This group came to the U.S. and the Milwaukee County Zoo as part of a larger group that had invaded a Japanese suburb in the 1970s. The five original females were born in 1977.







Gorilla



Orangutan



Tamarin



Aye-aye



Things to remember when visiting the Milwaukee County Zoo

1. One chaperone is required for every 10 students.
2. Teachers and chaperones must accompany their students at all times and monitor their behavior.
3. The animals are on special diets to promote good health and prevent disease. Please do not feed them.
4. Please do not enter restricted areas.
5. Treat the animals with respect. Don't harass or mistreat them.

