PRIMATES AT WOODLAND PARK ZOO

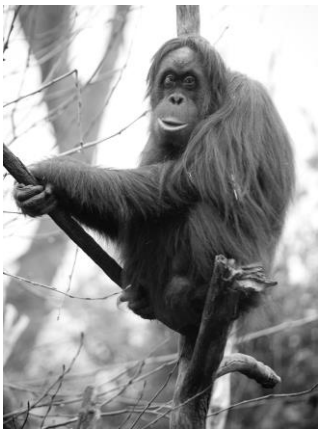
PRE-VISIT INFORMATION FOR TEACHERS

If you are planning a field trip to the zoo and wish to have your students focus on or study primates during their zoo visit, this pre-visit sheet can help them get the most out of their time at the zoo. We have put together an overview of key concepts related to primates, a list of basic vocabulary words, and a checklist of primate species at Woodland Park Zoo. Knowledge and understanding of these main ideas will enhance your students' zoo visit.

OVERVIEW:

Primates are found in approximately 92 countries around the world. Primate taxonomy varies from source to source and changes often. Recent taxonomic review has updated primate classification and put the current number of primate species at approximately 330[1].

Most species of primates live in tropical regions and the majority of them inhabit the treetops of forested areas part or all of the time. Primates are generally omnivorous, eating anything from leaves and fruit to insects and small vertebrates. Many, though not all, are social animals. Orangutans are mainly solitary, except when they come together for breeding or in the cases of mother-infant pairs. Other species, such as gorillas and colobus monkeys, are highly social and live in family groups. Species of monkeys that spend significant amounts of time on the ground, such as baboons, tend to live in larger social groups, called troops. Larger social groups are important to terrestrial primates because they provide more eyes to watch for predators.



Over time, primates developed the "all important" opposable thumb. This adaptation has made a significant difference in the ability of primates to grasp such things as branches and food, manipulate objects, and utilize tools. In almost all primates (except for humans) the first digit of the hind feet is opposable as well, thereby increasing the dexterity of these animals. Most primates are plantigrades, meaning they walk on their soles, with their heels touching the ground.

Stereoscopic vision, made possible by the forward facing eyes of primates, allows for the ability to judge distance. This is very important for primates, as many live high in forest ecosystems and need to judge distances to jump safely between trees. Primates' color vision allows the animals to select ripe fruit not only by smell but also by color. Furthermore, simply locating fruit in the dense forests is made easier when the colorful fruit can be easily distinguished from the green leafy surroundings.

[1] Groves, Colin P. *Primate Taxonomy*. Smithsonian Series in Comparative Evolutionary Biology. Washington, D.C.: Smithsonian Books, 2001.

CONCEPTS:

PRIMATE CHARACTERISTICS

Most primates share the following characteristics:

- Social animals—most live in family groups, some are solitary
- Inhabit primarily tropical regions
- Arboreal part or all of the time
- Color vision
- Omnivorous
- Forward facing eyes, therefore stereoscopic vision
- Five digits on each limb
- First digit of hands and hind feet is opposable
- Plantigrade—walk on soles, heel touches ground

PROSIMIAN CHARACTERISTICS

- Primitive primates
- Primarily nocturnal
- Includes lemurs (Madagascar), lorises (Asia), pottos (Africa), bushbabies/galagos (Africa) and tarsiers (Asia)

MONKEY CHARACTERISTICS

- Found in the Neotropics as well as Africa and southeast Asia
- Primarily diurnal
- Have some form of tail
- Fore and hind legs similar in length
- Usually live in large social groups
    - Old World: native to Africa and Asia; do not have prehensile tails; nostrils close together; toughened rump patches (ischial callosities)
    - New World: inhabit the Neotropics (new tropics) in Mexico and South and Central America; some have prehensile tails; wide, sideways facing nostrils

APE CHARACTERISTICS

- Found only in Africa and southeast Asia
- No tails
- Long arms relative to their bodies
- Usually live in small family groups
    - Lesser apes: gibbons and siamangs
    - Great apes: chimpanzees, orangutans and gorillas

VOCABULARY:

Adaptation: Any change in the structure or functioning of an organism that is favored by natural selection and makes the organism better suited to its environment.

Arboreal: Refers to organisms that climb in or live in trees.

Brachiation: Swinging by the arms in a hand over hand motion (to brachiate).

Diurnal: Organisms that are active during the daylight.

Herbivore: An organism feeding on producers such as plants, algae or lichens.

Insectivore: An organism that obtains nutrition by feeding on insects.

Ischial callosities: The patches of toughened skin found on an animal's rump.

Niche: The position of a species or population in its ecosystem. A shorthand definition of niche is how and where an organism makes a living.

Nocturnal: Organisms that are active at night.

Omnivore: An organism that obtains nutrition by feeding on plant and animal matter.

Opposable: Capable of being placed against (opposite), e.g. an opposable thumb can be placed against the other fingers on the hand.

Plantigrade: Walking on the sole of the foot with the heel on the ground.

Prehensile: The ability to grasp objects by wrapping around.

Terrestrial: Organisms that are ground-dwelling.

PRE- AND POST- ASSESSMENT:

The following activity will provide you with an understanding of your students' current knowledge of the differences between apes and monkeys. In order to encourage their creativity and expression, remind your students that this exercise is not a test, but is a way of seeing what they already know and what they haven't yet learned. After your students have participated in their zoo field trip focusing on primates, repeat the activity and compare student work from before and after.

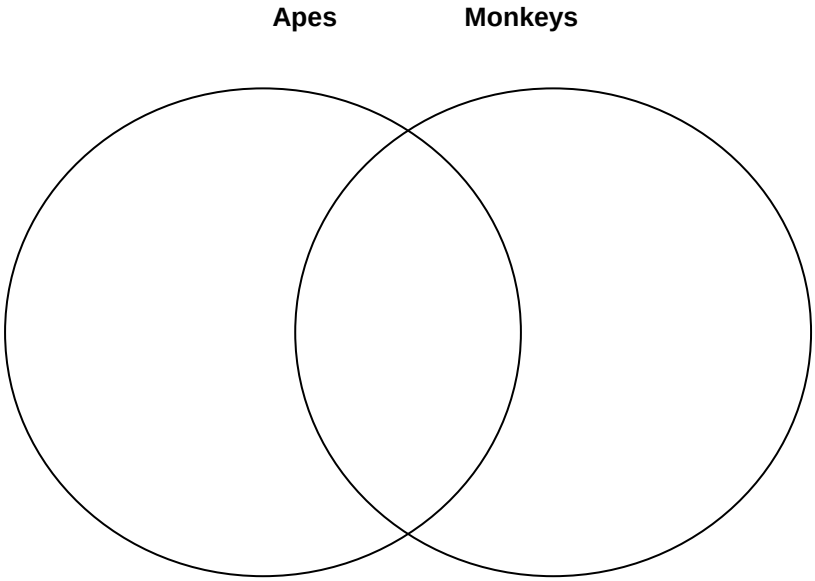
PRIMATE VENN DIAGRAM

Materials: chalkboard and chalk (or poster paper and pens)

- Discuss with your students the idea that closely related animals, such as monkeys and apes, can have many similarities as well as many differences.
- On the chalkboard or poster paper, draw a Venn diagram.
- As a class, make a list of characteristics common to both monkeys and apes in the area where the two circles overlap. Depending on the level of your students, you can provide a list, students can brainstorm or students can research primates using books and/or the Internet. Include both physical and behavioral characteristics.
- In addition to the list of common characteristics, compile a list of characteristics that differentiate apes from monkeys.

Note: If you're studying prosimians as well, you can make a Venn diagram with three circles overlapping. You could also use a Venn diagram to compare and contrast Old World and New World monkeys.

Venn Diagram



PRIMATES OF WOODLAND PARK ZOO

African Savanna

- Patas monkey (Old World monkey, Africa)

Tropical Asia - Trail of Vines

- Orangutan (great ape, Asia)
- Siamang (lesser ape, Asia)
- Lion-tailed macaque (Old World monkey, Asia)

Tropical Rain Forest - Tropical Rain Forest Building

- Golden lion tamarin
  (New World monkey, South America)

Tropical Rain Forest—African primate exhibits

- Red ruffed lemur (prosimian, Africa)
- Ring-tailed lemur (prosimian, Africa)
- Black and white colobus
  (Old World monkey, Africa)
- Western lowland gorilla (great ape, Africa)

This list is current as of September 2015. The zoo's collection is subject to change.

Questions about this information or your zoo visit? Please call 206-548-2500 or visit the zoo website at www.zoo.org.
For more information and activities focusing on apes and other primates, an Apes teacher packet is available for download at www.zoo.org.