

# *An Introduction to Primates*



## **List of Primate Features**

### Trends of Primate Development

1. Eyes that move from the side of the head to the front, permitting binocular vision. They become enclosed in bony eye sockets.
  2. Development of colour vision and diurnal lifestyle.
  3. Reduction of the muzzle or snout (reduced sense of smell).
  4. Change from wet nose like a dog to dry nose (part of reduced importance of sense of smell).
  5. Transition from claws to nails on ends of digits, to protect sensitive tactile nerve endings.
  6. Development of hands and feet from supportive to grasping hand to opposable thumb and grasping big toe.
  7. Development of hemochorial placenta – only one layer – so more oxygen gets through to nourish fetus, particularly the brain.
  8. Enlargement of brain in relation to body size.
  9. Reduced number of offspring
- spring from litter of 3 or 4 to 1 every 5 years.
10. Increased lifespan and stages of development coupled with intense long lasting maternal care.

### Features of Prosimians

1. Eyes spaced wide apart surrounded by a bar of bone, not an eye socket, often nocturnal, tapetum or reflective layer in the eye.
2. Less colour vision or none at all.
3. Retention of longer muzzle because the sense of smell is still important.
4. Wet nose skin, like a dog, to pick up scent more easily.
5. Often have scent glands to mark areas where they live (on wrist, face or circum anal area).
6. Although most have some nails, they retain some claws on hind feet to help with grooming.
7. Grasping hands but not opposable thumbs.
8. Dental comb. lower incisors pointed and sloping forward make a dental comb to aid grooming.
9. Some retain whiskers (vibrissae) to help move in the dark.
10. Some use nests to rest in during the day and to protect the infants, especially if they have more than one at a time.

### Features of New World Monkeys

1. The only nocturnal monkey.
2. A dental pattern which has 36 teeth (except for the smallest forms) with an additional premolar in each quarter of the jaw.
3. Prehensile tails in some forms.
4. Nostrils which are oriented to the side



with a wide nasal septum between them.

5. Features of the inner ear structure which are not visible from the outside.

#### Features of Old World Monkeys.

1. Narrow nasal septum
2. Reduced number of premolars - total of 32 teeth
3. Some have cheek pouches
4. Others have specialized stomachs to digest mature leaves
5. Features of Apes
  1. Specialized shoulders for arm swinging.
  2. Longer arms than legs
  3. No tail
  4. Long fingers, short thumbs

#### INTRODUCTION

This video is intended to introduce students to the wide variety of animals classified as primates. Even though they range in size from less than 100 grams to more than 200 kilograms, they share features which indicate their close relationship. These features are outlined as the ten basic trends that developed in primates as they evolved over the last 55 million

years. Explaining the features as developing trends allows us to understand that features such as forward facing eyes have particular functions which are important for primates at particular levels of development, but there was a process of change from ancestral form to more modern ones.

The prosimians, or pre-monkeys, are probably the least common and well-known animals of the order to most North Americans. They tend to be small, many are nocturnal, and many live singly or in very small groups, all of which makes them less desirable as zoo exhibits. However, these are the forms which still show the primate features as they occurred in the evolutionary past. They still have longer muzzles, wet nose skin, some claws, and eyes more to the side of the head. Thus, I have included a variety of prosimians, both lemurs and lorises, to provide a number of examples of differing sizes, features and social organizations. These are representative of the founding members of the order and the ten traits listed as characterizing prosimians are the ones most easily seen in the living animal. Tarsiers are rare in zoos but extremely important members of the order because of their combination of prosimian and anthropoid traits. They have the size and nocturnal lifestyle of prosimians,



with relative brain size and sensory systems more like anthropoids. They also have some unique adaptations, such as their huge eyes and elongated tarsal bones, which facilitate their vertical clinging and leaping type of locomotion.

From the foundation laid by an examination of the prosimians, it becomes easier to see how the monkeys have developed. Although still very generalized, and able to make a living in a wide variety of ways, there are certain traits shared, first by all anthropoids (monkeys, apes and humans) and then by all monkeys. The level of organization called monkeys is actually made up of two large groupings of animals who were separated from each other more than 30 million years ago because the ancestors of one group managed to reach South America and were then cut off from any genetic contact with the Old World forms. Thus, the two sets of monkeys evolved independently but along parallel lines. This is why there are some deep, underlying differences between New World and Old World forms, as well as many similarities of appearance and activity. Since primates are basically social, all monkeys live in groups, although some are only made up of the mated pair and offspring while others have several hundred animals. There are a number of basic



features distinguishing New World monkeys from Old World ones but I have focused on a few key indicators which are relatively easy to recognize visually (as well as trying to indicate that there are others). I have included representatives of many types of New World forms but there are quite a few other types, some of which are hard to video. I concentrated on portraying New World monkeys in captive habitats because I could get much closer to these highly arboreal forms in situations where they are well habituated to people. For the Old World forms, I had the opportunity to spend more time in acquiring some footage in the field, as was particularly pleased to get the Zanzibar Red Colobus material from Zanzibar, since those monkeys are basically unavailable elsewhere. As macaques are my specialty, I included a variety of the approximately 19 species living in various areas from Gibraltar to Japan. The lists of primate features were becoming cumbersome so I incorporated basic remarks about the definitive structural features of Old World Monkeys, Lesser Apes and Great Apes into the text of the narration. These are animals which many people have had more opportunity to see and thus I focused more on behaviours than on physical features, although I indicated the various visible distinguishing





characteristics to aid students in recognizing the taxonomic differences.

In making this video, I avoided using taxonomic terminology in any formal sense but instead referred to all the animals by their common names. Since this is an introduction, I felt that too many polysyllabic, strange terms would overwhelm the interest that the live footage was intended to develop. I spent over twenty years gathering this material from around the world, with the intent of making a film of this nature. Many people learn much more easily by visual input and I have attempted to organize this material in such a way that it could be used in segments, or all together. It could easily be shown initially as an introduction and then again as units on prosimians, various groupings of monkeys and the apes, possibly followed by a repeat viewing of the entire video.

The choices of animals were based on a combination of attempts to cover a representative range of types and an attempt to show species which are extremely rare. At least ten of the 40 species covered are highly or critically endangered, or mainly occur in very restricted areas. The pygmy slow loris, slender loris, potto, large galago, lesser bamboo lemur, and

aye-aye are all very seldom available on video. In terms of New World monkeys, the cotton-topped tamarins are now even rarer than the golden lion forms and are very seldom seen in captivity. In choosing the Old World Cercopithecines, I wanted to show the variability within groups as well as between them. Thus, there are four types of guenon (two of which are very rarely seen in captivity, the Wolf's guenon and Allen's swamp monkey), three types of baboon and four species of macaques. There are many other types such as mangabeys or patas which I could have includ-

ed but felt that the within group comparisons might help to foster discussion of niche differentiation between smaller and larger forms. The Guinea baboon and the Drill are two species which are very seldom seen in captivity or in video. In terms of the Colobinae, I had the opportunity to get the rare Zanzibar colobus, which is endemic to the island of Zanzibar, and the Angolan colobus material from captive sources. The Chinese golden sub-nosed langur, while not extremely rare, is very seldom seen outside of China, while the Douc langur is facing critical population pressure. Thus, eight of the total of 15 Old World Monkey species are ones which many people have probably never seen. The Great Apes are much more common in captivity but their complex behav-



our and closer relationship to humans makes it important to emphasize the differences between them and monkeys, and I have included all four types. Thus, 16 of the 40 species videotaped will probably be new to students, while the tarsier is so rare that I was not even able to find one to film and had to settle for a picture.

I hope that the value of this video is not only in demonstrating the categorization of primates by their various features but to allow students to see species which they may have never seen before. The realization that many primate species are highly endangered may prompt some interest in the issue of conservation.





## Film Credits

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## Study Guide Credits

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