

## **Manual Dexterity: Hands and Doing**

Primates grasp things with their hands and feet, something most other mammals cannot do with their paws, hooves, and flippers. Hands are useful for preparing food, exploring and manipulating the environment, and engaging in social contact. Primate hands rely for their skills on good visual and motor coordination. Manual dexterity would not be possible without the mobility inherent in primate forelimbs. Here we investigate some of the activities in which hands are employed, not only to satisfy an animal's curiosity but also to improve its chances of survival.

Look closely at each activity depicted in the illustration as it is discussed below.

Primate hands are used in various ways in their movement through the forest. The long flexible fingers and toes of the tarsier encircle a slender vertical support. Gibbons hand and swing by their hands and long arms as they swish through the air. Monkeys like the langur need all four limbs to walk along the tops of branches or on the ground, and their hands assist in bearing the weight of their bodies.

At birth and for its first few months, a baby primate must cling fast to its mother's hair as she moves along. To let go might mean death by falling or exposure. Even human babies are born with a strong grasping reflex, and baby primates' hands and feet have relatively more muscle than those of adults.

Primates differ from most other mammals in the use of their hands for feeding. They bring food to their mouths rather than taking their mouths to the food, as bobcats and beavers do. Hand feeding is not as simple as it looks. It entails multiple separate tasks: finding, reaching, plucking, picking, seizing, and holding. Forearm mobility and good visual and motor coordination are required. When feeding, primates typically sit in a stable vertical posture, so that their hands are freed from support activities.

Primates are by nature curious creatures, constantly taking in stimuli from the environment, often exploring and searching for food that is not immediately visible. This search may require moving leaves or rocks aside, as the baboon is doing, to expose lizards or luscious insect snacks. Digging deeper may also bring up hidden treasures: corms for baboons or earthworms for chimpanzees.

We humans are not alone in washing our vegetables before eating them. Some years ago, a young Japanese macaque called Imo was observed taking her sandy sweet potato down to the ocean to wash it off. This seemed such a good idea that others in her play group began imitating this behavior too. Next, the mother began washing their sweet potatoes, and finally, the adult males did it too. In this way, Imo's social behavior initiated a tradition that is still carried on by these monkeys today.

The primate manual skills and coordination shown in foraging can also be turned to using tools, as illustrated here by the human hand with the pencil. Capuchin monkeys and chimpanzees are also adept at tool use. Chimpanzees modify and put to use a variety of materials.

Hands play an important role in social communication between members of a primate group. Bodily contact is frequent. Newborns instinctively cling to their mothers, and her touches are the very first social messages the babies receive. Older individuals hold, touch and groom each other. Grooming can be an expression of friendship, a prelude to mating, or an indication of social rank, as higher status attracts more activity. Grooming also seems to relieve tensions, as when competing males groom rather than fight with each other. There is also the practical aspect of grooming, as the process removes dead skin, dirt, and parasites and may help clean wounds.

Humans are not the only primates that use gestures for social messages. Chimpanzees may hold out a hand, palm up, to beg for food or pat a troubled friend on the back for reassurance. Manual dexterity, expressed in many ways, is a vital component of the primate evolutionary heritage and a distinguishing characteristic of the primate adaptation.

# HANDS AND DOING

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HANGING AND SWINGING<sub>b</sub>  
WEIGHT BEARING<sub>c</sub>  
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