



All Thumbs

Audience

Activity designed for 4 years old and up, some adult supervision recommended.

Goal

Students will discover the use of opposable thumbs and how they help primates grasp objects

Objective

- To learn about opposable thumbs.
- To learn how lemurs and some monkeys grip without opposable thumbs.
- To understand how great apes and some monkeys use their thumbs.

Conservation Message

There are many primate populations that are endangered due to habitat loss, climate change, disease, and bushmeat hunting. Conservation of these species is imperative because many primates act as a keystone species in their ecosystems. Thankfully, there are several organizations, such as the Tulsa Zoo, that have measures in place to help endangered primate species as well as educate the public on how they can help.

Background Information

There are over 300 species of primates. Primates are an extremely diverse group of animals and cover everything from marmosets to lorises to gorillas and chimpanzees. Many people believe that all primates are monkeys, however, this is incorrect. There are many differences between primate species. Primates are broken into prosimians (lemurs, tarsius, bushbabies and lorises), monkeys (Old and New World) and apes (gibbons, orangutans, gorillas, chimpanzees, bonobos).

Lemurs

Lemurs are only found on the island Madagascar. Lemurs typically have visible tails and their arms are shorter than their legs. Lemurs do not have prehensile tails which means their tails are not able to grasp objects. Instead, their tail keeps them balanced when leaping from tree to tree.



Monkeys

Monkeys are divided into Old World Monkeys and New World Monkeys. An example of an Old World monkey, which are native to Africa and Asia, is the Diana Monkey. Diana monkeys, like most Old World monkeys, have broad noses with nostrils that point down. New World monkeys, which are native to South and Central America, have flat noses with nostrils that face sideways. A Spider Monkey is an example of a New World monkey. While both groups of monkeys have visible tails, New World monkeys have a prehensile tail. This means they grasp objects with their tail. Old World monkeys cannot grasp with their tails. Also, both groups of monkeys have arms that are shorter than their legs.

Great Apes

Great apes are native to parts of Africa and Southeast Asia and include chimpanzees, orangutans, and gorillas. Great apes do not have tails. Many great apes are very large and have arms that are longer than their legs. This adaptation helps them swing, climb and move through the trees. For example, Orangutan have arms that are 1.5 times longer than their legs; an adult male Orangutan can have arms up to 7 feet long! Orangutans are arboreal and spend most of their time in the trees. Great apes also have opposable thumbs. Great apes' thumbs can move freely and independently of the rest of their fingers; this movement allows the apes to have a better grip, especially when swinging from tree to tree or handling their food. Primates aren't the only animals with opposable thumbs. Some marsupials such as koalas and opossums also have a form of opposable thumbs. Giant pandas have a pseudo opposable thumb that helps them grasp bamboo.

Materials Needed

- Tape
- Beads
- TV remote
- Large Plastic cup

Length of Activity

30 minutes

Procedure

- Start by setting the beads, TV remote and plastic cup down on a flat surface.
- Using your hands, pay close attention to how you grab the objects using your hands and how you use your thumbs to grasp.
- Ask yourself the following questions when picking up each item: Can you pick up the item with one hand or do you have to use two? Is it easier to grasp the smaller items or the larger items?
- Place the items back down on the flat surface.
- Now tape your thumbs to the inside of your palms. Make sure you are not able to move your thumbs. See picture below (adult help recommended).



- Again, attempt to pick up each object individually.
- Ask yourself the following questions when picking up each item: Can you pick up the item with one hand or do you have to use two? Is it easier to grasp the smaller items or the larger items?

As you can see, opposable thumbs serve an important purpose for primates such as great apes. Their thumbs allow them to hold large items easily so they can grab branches and swing from trees. Their thumbs also allow them to move small items which is useful when grooming each other and using sticks as tools.