



Project Chimps

Activity Name: Great Apes

Learning Objectives: SKL1, SKL2, S1L1, S2L1, S5L1, S7L1, S7L4, SEC2, SEC3, MGSE2.MD.1

Grade/Age Level: Any

Estimated Time: 3-4 hours onsite w/ tour, 60-90 min. in classroom/virtual

Materials: Activity sheets, colored pencils, paper, pencil, etc.

Methods: review, discuss, write, explore, discover, compare and contrast, identify

Goal: Have students name the four groups of primates, recognize the differences between great apes and other types of primates, identify all four kinds of great apes, explain where great apes live, know the diets and behaviors of the great apes, and share information about ape conservation.

Background:

- Great apes are a type of primate. There are more than 470 species of primates in 16 different families. These primate families are divided into four categories: **Prosimians, Monkeys, Tarsiers, and Apes**. All primates have two arms and two legs. Most primates have hands with opposable thumbs and big toes, making it easy for them to grasp items and brachiate or swing from tree to tree. However, there are exceptions. For example, spider monkeys do not have any thumbs at all. Each primate has a unique fingerprint, much like humans do. Primates have color vision and advanced depth perception when it comes to sight. Most primates have brains relative to body size.
- There are five types of great apes: **Gorillas, Orangutans, Bonobos, Chimpanzees, and Humans**. There are other types of apes known as lesser apes. Unlike other primates, apes do not have tails. Great apes are more closely related to Old World monkeys than to New World monkeys. Great apes are much larger and have larger brains compared to other primates. All great ape species, besides humans, are endangered.
- **Characteristics of great apes:**
 - **Gorillas:** Largest of the apes with heavily built arms that are longer than their legs. There are eastern gorillas and western gorillas.
 - **Eastern gorillas** tend to be larger than western gorillas and they have darker hair. Eastern gorillas are found in three populations in Rwanda, Uganda, and the Democratic Republic of the Congo (DRC). There are around 4,800 left in the wild.
 - **Western gorillas** have more heavily padded nostrils and have a less defined silver back marking. Western gorillas are found west of the Congo River. There are about 100,000 left in the wild.



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- **Orangutans:** Orangutans have gray skin with long reddish hair covering their bodies. Orangutans are the only arboreal species of great apes, having adapted to living in trees. Fun fact: Orangutans are the largest arboreal mammal! There are two species of orangutans:
 - **Bornean orangutans** are a bit darker, with shorter, less dense hair. Males have cheek pads that curve forward and have a larger throat sac. They live on the island of Borneo. Borneo is divided amongst three countries: Indonesia, Malaysia, and Brunei. Approximately 104,000 are left in the wild.
 - **Sumatran orangutans** usually have lighter faces and hair. Their hair is typically longer and woolier. The males' cheek pads are flat, and they have smaller throat sacs. They live on the island of Sumatra, which is part of Indonesia. There are estimated to be 14,000 left in the wild.
- **Bonobos:** Bonobos and chimpanzees can look quite similar. Both are roughly the same height and are covered with dark hair. Until 1933, scientists thought they were the same species. However, Bonobos have a more slender build, a narrower chest, a smaller head and ears, and longer limbs compared to chimpanzees. Because they are more slender, bonobos have a better body for bipedal (or upright) posture. They are only found in the Congo Basin in the DRC. There are estimated to be between 29,500 and 50,000 left in the wild.
- **Chimpanzees:** Chimpanzees have wide heads with a low forehead and large ears. They have wide chests with arms longer than their legs. Populations are scattered across the equator of Africa and the Congo River separates bonobos and chimpanzees. There are estimated to be between 150,000 and 250,000 left in the wild.
- **Habitat:** Each of the great apes depends on forest habitats for survival. This is typically a tropical rain forest setting. Sometimes chimpanzees and bonobos will inhabit savannah - rain forest desert transition areas. Orangutans have also been found to inhabit peat swamps. This is an area with heavily waterlogged soil where leaves and dead trees cannot decompose over time, and forms thick layers of peat.
- **Diet:** While the diets of great apes mostly consist of ripe fruits and leaves, some will also eat insects and other animals, too. Great apes are truly **omnivorous**, meaning they eat a wide variety of foods including both plants and animals. Some of the foods great apes eat in the wild eat include nuts, figs, eggs, termites, small primates, flowers, leaves, and honey. A wild chimpanzee may spend up to 75% of their day foraging for food.
- **Locomotion:** Apes typically walk on all fours, quadrupedally. Chimpanzees, bonobos, and gorillas walk on the soles of their feet and support their forelimbs on their knuckles. This is called "knuckle walking." In contrast, orangutans walk on the sides of their curled fists of their hands and feet. Apes sometimes walk bipedally (on two legs) during times when they need to



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use both hands. Bonobos walk bipedally more than the other species of great ape. Young apes tend to walk bipedally when they play. Gorillas and chimpanzees will sometimes walk upright in display of aggression or dominance.

- **Nesting:** All great apes make and use nesting materials for sleeping. Many build their nests on the ground, but others can build their nests in trees. Nesting materials include various leaves, branches, and twigs that they assemble into a platform to rest on. Most of the time, the nests are only used for one night. Apes may travel to other locations, or if they use an old one, they will reinforce it with new leaves and branches. Researchers can estimate how many of a great ape species is left in the wild by counting the nesting sites.
- **Societies:**
 - **Chimpanzees:** During the day, members of a chimpanzee party may separate and fission out from the rest of the group while fusing back together during the evening. This is called a fission-fusion society. The entirety of a chimpanzee community rarely comes together as a large group. Smaller parties are formed and dissolve regularly. Chimpanzee communities are male-dominated societies, with a hierarchy based on the alliances of males in the party. For chimpanzees, aggression plays an important role in forming and maintaining the hierarchy structures. Chimpanzees have groups of all-male parties patrolling the borders of the community to defend against other chimpanzee intruders. Chimpanzee communities are known to have aggressive and violent tendencies.
 - **Bonobos:** Like chimpanzees, bonobos also live in fission-fusion societies, but they differ greatly. Members typically come together daily, and the entire community may travel and forage as a group although they may split into smaller traveling parties during the day. With bonobos, the relationship between the mother and son remains strong throughout their lives, which in turn, will influence the bonobo's status within the community. The females rule the bonobo world, with the highest-ranking adult female and her grown sons at the center. While chimpanzees handle many disagreements with aggression, bonobos establish and maintain social relationships through socio-sexual behaviors. This behavior helps maintain social order by encouraging cooperation without much aggression. In addition, bonobos are not particularly aggressive toward members of neighboring bonobo communities.
 - **Gorillas:** Gorilla groups that live together are called troops. Troop sizes range from 5-30 gorillas led by a strong, experienced male silverback. He leads a troop of females and their offspring. Typically, there is only one older silverback male unless the more mature males decide to stay in the troop. When the silverback leader dies, a younger silverback may take over the troop, or the females may join other troops.



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- **Orangutans:** Typically, orangutans are solitary and forage and live alone. Their social groups may be because of their diet of ripe fruits. These fruits are often scattered over a wide area and the orangutans must spread out so they can get enough food. The mother orangutan and one offspring are the usual group size one can see in the wild.
- **Ape Infants:** Newborn apes are called infants. The infants require long periods of parental care. They will nurse for several years depending on the species. Great apes have a long childhood compared to other mammals, staying with their mother for at least the first seven years of life in the wild.
- **Conservation:**
 - All great apes are listed as endangered. The Sumatran orangutans, western gorilla and eastern mountain gorilla are listed as critically endangered. Some threats all great apes face include: bushmeat trade, disease, logging, and climate change. It was thought that three different strains of Ebola virus killed 95% of certain gorilla populations.
 - The pet trade in apes is illegal. All habitat countries have laws prohibiting the hunting and capture of great apes. Unfortunately, there is a lack of enforcement of the law in various countries. Trade in baby apes still often occurs in Africa and in Asia. When baby chimps are captured for illegal pet trade, that often means that older chimpanzees are killed in the process. Zoos that are members of the American Zoological Association (AZA) do not acquire apes from illegal trade. There are several conservation groups that are dedicated to conservation programs for great apes. Some of these groups include:
 - TRAFFIC- dedicated to reducing the pressure of illegal and unsustainable trade on biodiversity by working with national and international governments, enforcement agencies, private sector companies, and consumers.
 - IUCN Primate Specialist Group- a group of scientists and conservationists that evaluate the conservation status of great apes and other primates. They promote research on primate ecology and conservation.
 - Jane Goodall Institute- based on the vision and work of Dr. Jane Goodall, it focuses on a community- centered approach to chimpanzee conservation while finding practical ways to make the greatest lasting impacts for people, animals, and the environment.
 - Ape Action Africa- a group in Cameroon dedicated to saving primates from the illegal bushmeat and pet trades in Africa.

Procedures:

1. **Discuss.** Have a discussion on the main differences between each of the four great ape species and how they relate to one another.
2. **Tour.** If onsite, take a tour!



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3. **Activities.** Complete 1 or more of the activities below. All lesson plans can be shared to complete more activities in the classroom post field trip.

Activities:

1. **Identify.** (k-6) Think about the diet of the different Great Ape species and identify foods that chimpanzees eat on this [Great Apes diet activity](#).
2. **Art.** (k-6) Complete this [“A Day in the Life of a Great Ape”](#) activity by answering the questions and coloring each of the great apes.
3. **Fun Facts.** (k-8) Create a fact sheet for a friend or family member to show your knowledge of Great Apes. Include the name of the Great Ape you chose and five fun facts you learned. Then draw a picture of your Great Ape using this [Great Apes Friendly Fact Sheet](#).
4. **Math.** (k-8) Look at the value of each food item and use math skills to determine the right combination of foods for each great ape in this [Great Apes Math Activity](#).
5. **Compare and Contrast.** (all) Think about some of the main similarities and differences between monkeys and great apes. Complete the [Monkey or Ape](#) Venn diagram worksheet.
6. **Write.** (6-12) Write a short story about either a chimpanzee society or a bonobo society. Include information on how disagreements are settled depending on the type of great ape you are discussing. What sparked the disagreement among the community members? Depending on what species you chose, how was the argument resolved?

Assessment.

Discuss the assessment questions below.

1. What do you think countries can do more of to protect the great ape species in the wild against threats?
2. Why do you think chimpanzee and bonobo species were thought to be the same at one point, and knowing what you now know about the two species, would you be able to tell them apart?
3. Why do you think that orangutans typically travel alone?
4. How have disease and pandemics impacted the gorilla population?

Conclusion:

All four species of great apes, besides humans, are endangered and conservation efforts must be conducted to protect the remaining wild populations in Africa and Asia. Encourage others to continue learning about the great ape species and what can be done to help them. Make sure that you are buying products that are not harming great ape habitats such as only buying wood certified by the [Forest Stewardship Council](#). Leave out the palm oil and keep up with who is being sustainable with



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the [Roundtable on Sustainable Palm Oil](#). Learn more about the efforts of various conservation groups around the globe. Working together we can all make a difference!

Notes to Instructor:

- [Great Apes Assessment Questions](#)
- Please use your judgement to adapt this lesson to different age groups.
- All lesson plans are available to any teachers who would like to access them.
- Thank you for being a part of our community! By visiting us on field trips, participating in our lessons virtually and spreading the word about the need for Project Chimps, you and your students are helping in the process to get all research chimps to sanctuary.