



Lessons in Ecosystem and Primate Conservation in [\[Insert your site here\]](#)

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Developed by:

Partners for Red Colobus (P4RC): a United States-based organization dedicated to developing educational and awareness-raising materials and programming centered around conservation of red colobus monkeys and their habitats. P4RC is a program of the United States-based non-profit, **The Forest Collective**, whose mission is to partner with and empower experts and communities to facilitate conservation of forest ecosystems by co-producing scientific research, building capacity, and creating environmental education programs.

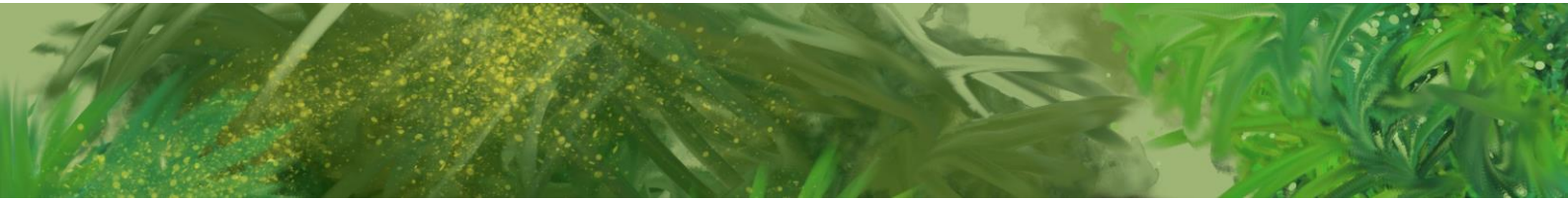
If you make additions to this document for your taxon or site you should add your team/team member names here and then write a short bio of the persons or organizations responsible for co-creating the content in this document.

Front cover, back cover and Lesson page colobus circles were adapted from illustrations by Jas Aurél. Illustrations and graphics by John Bello Oluwajuwonlo, Monica Obaga, Alana Hyman, and Suzie Collinson are also included in the manual.



Content

Lesson 1.1 Ecosystems	01
Lesson 1.2 Ecosystems and habitats	06
Lesson 1.3 Ecosystems and conservation	09
Lesson 2.1 What is a primate?	12
Lesson 2.2 Primate types	21
Lesson 2.3 Primate ecosystems	27
Lesson 2.4 Primates of the [Insert your site]	29
Lesson 3.1 Red colobus monkeys	31
Lesson 4.1 Conservation of red colobus monkeys and the [Insert your site]	34
Lesson 4.2 Why protect [Insert your site]	43



A note to the Instructor

There are four main kinds of **colobus monkeys** living in the forests of Africa, differentiated by color: red, olive, black, and black-and-white. Colobus monkeys are characterized by many interesting traits that set them apart from other primates.

Traits unique to all colobus monkeys include:

- thumbs that are greatly reduced in size.
- large, multi-chambered stomach that facilitates digestion of such foods as leaves and seeds.
- relatively long feet.

Of particular concern to conservationists are the red colobus (in the scientific genus *Piliocolobus*), which have been recognized by scientists as a high priority for conservation since the 1950s and have routinely been featured in primate conservation action plans.

In 2016, experts assessed the conservation status of each of the 17 species of red colobus and found that every species is in danger of extinction, making red colobus the most threatened group of African monkeys. Their results have been presented in the **Red List of Threatened Species**, published by the world's largest conservation organization, the **International Union for Conservation of Nature (IUCN)**.



This prompted experts to publish in 2021 the first ever **Red Colobus Conservation Action Plan**. This plan summarizes the conservation status for each kind of red colobus. It also identifies priority sites and actions across the red colobus range.

One of the priority actions to be implemented across the geographic range of all red colobus species is to raise awareness of red colobus and their habitats. Education and awareness-building have long been recognized as integral parts of wildlife conservation strategies.

Education and awareness-building:

- help to improve public support for conservation.
- engage with local (especially young) people living in areas of conservation importance to instill a conservation ethic.
- enhance the understanding of the need to protect wildlife and forests.
- establish a foundation from which to build local capacity for conservation.

In support of the Red Colobus Conservation Action Plan and recognizing the importance of conservation education, we have developed this lesson plan that can be used to teach primary school pupils and other students about red colobus, their habitats, and their conservation.



This document contains four lessons focused on ecosystems, primates, red colobus monkeys, and conservation, with emphasis on the [\[Insert your site or geographic region here\]](#). They are written as if you are talking to your students. Embedded within these lessons are descriptions of several “Activities” that are more hands-on and allow for more discussion. These activities are written at the level of primary or secondary school students but can be adapted for all community members.

Educators can use these lesson plans as they are written or can adapt each lesson to fit their teaching style and the curriculum.

If you have questions about these lessons or comments on how to improve them, you can email P4RC at:

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Lesson 1.1: Ecosystems

Ecosystems are places where living and non-living things interact.

- The living parts (also known as **biotic** parts) of an ecosystem may be, for example, plants and animals.
- The non-living parts (also known as **abiotic** parts or the physical environment) of an ecosystem may be things like rocks, soil, water, sunlight, weather (such as rain), and temperature.

The living things interact with one another and with the non-living things in their environment.

An ecosystem can come in many shapes and sizes. It can be as small as a piece of dead wood in a forest, it can be a lake, it can be a whole forest, or it can be as large as the whole Earth.

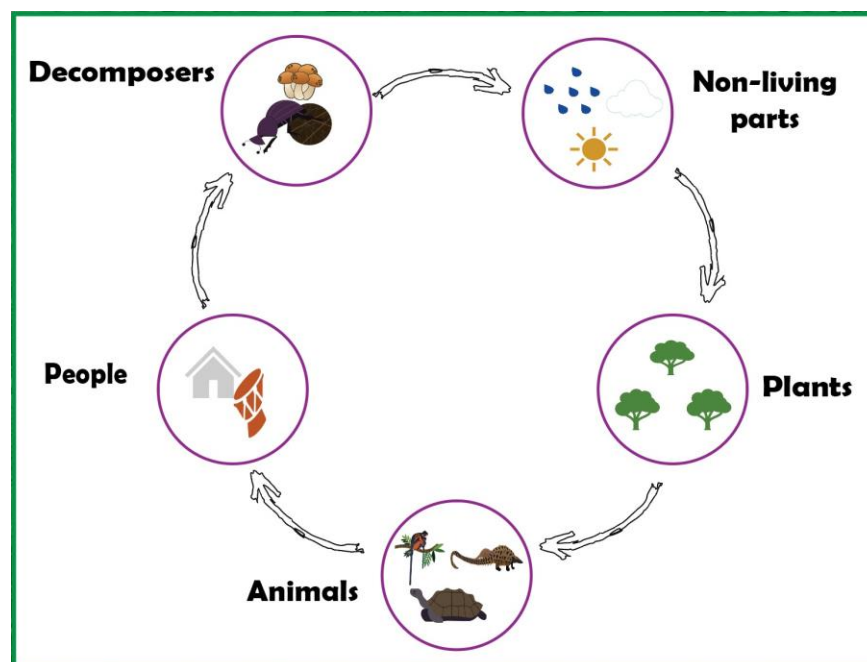
You live in the [\[Insert the name of your site here and a very brief list of the kinds of habitats it includes\]](#).

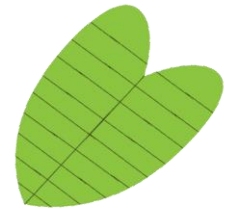
In your ecosystem, you have the plants that get their energy from the Sun. The plants grow because of the energy they get from the Sun, the water they get from the rain, rivers and lakes, and from food they get from the soil. Plants, then, provide food for animals and humans.

Animals are also a source of food for humans and other animals. In addition to the plants and animals, your ecosystem also has **decomposers** (for example fungi – like mushrooms). Decomposers break down dead plants and animals and return all of the energy and nutrients back into the Earth.

An example of interacting parts of an ecosystem:

- A **tree** in your forest grows because of the sunlight, water, and energy it gets from the healthy soil. An **insect** might feed from the leaves of the tree to get energy to live while an animal, like a **monkey**, might feed from a tree's fruit, leaves and flowers.
- Other animals, like **leopards, snakes, hawks and eagles** might eat the monkey so that they can have energy and live. When those monkeys or birds die, their bodies go back into the Earth to feed the **soil**, which can help another tree grow.





Activity 1

Connecting the Ecosystem

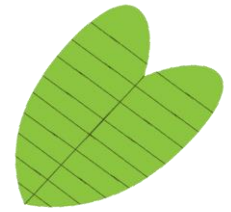
Take away lesson: You can think of an ecosystem like a web that connects all the living and non-living things – each part of the ecosystem relies on every other part. The connections between parts of the ecosystem make it work well together so that the plants and animals can live. A change in one part of the ecosystem may affect the function of another part.

Materials: Index cards or construction paper, markers, crayons, or pencils, and string.

Duration: 25 minutes.

Instructions: *Making the game cards.* Participants will need to make the game cards prior to starting this activity. You will make several cards each with a drawing and name of a different plant, animal, decomposer, or non-living part of your ecosystem. Consider having cards for: the Sun, soil, rain, a tree, a fruit, a leaf, a flower, a person, various kinds of animals - for example several herbivores, a few carnivores, and a few omnivores and a bird, a primate (make it a red colobus), a non-primate mammal, a reptile, an amphibian, and an insect. For example, one card might have the drawing of a red colobus with the name “Red Colobus” written on it.

You can do this activity in two different ways, one is simpler than the other and the simple version may be more appropriate for younger children.

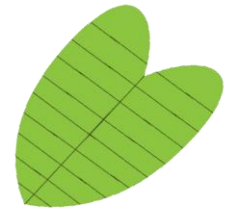


Simple version: Lay out the game cards in a circle. Explain the importance of the ecosystem and the connections within it. You can point to each game card and call on a pupil to tell you how two elements are connected. For example, say “plants” and “water” and then call on a pupil to tell you how they are connected. Have the pupil come up and place string to connect the elements. Continue until there are enough connections. Next, remind the class again about the ecosystem and how all parts are connected. Talk about how losing even one is bad for the entire system.

There are no wrong answers. You can either say some connections and let a pupil add the string or ask them to come up with a connection themselves.

Advanced version: Have the students sit or stand in a circle. Each student will hold one of the cards and pretend to be that part of the ecosystem.

Each should eventually link to another. For example, the first student will hold the ball of string and might have the card for “Sun”. That student announces, “I am the Sun”. Ask the student which part of the ecosystem the Sun might be connected to. That student might answer “Leaves” (and then they should explain how it is connected), as the Sun gives leaves energy to grow. The student then tosses the ball of string (while holding onto a piece of the string) to the student with the “Leaves” card. Continue this until everyone has had a turn catching the ball of string and the students have created a complex “web” of string.



The students should, then, move back and out until the slack in the string is taken up. Have the students jiggle the string to feel the system's "vibrations."

The next part depends on your area. For example, you can tell a story about the red colobus population being hunted or losing forest. Have the student holding the red colobus card drop the string, and then the student with the "Tree" card drops their string (because losing primates results in less seed dispersal – see lesson 1.3). Then ask which part of the ecosystem would be affected by loss of trees, which might lead to the person with the "Bird" card dropping their string, and so on.

Continue to remove cards and links which cannot survive when other links are removed. As the links are removed, discuss what might happen to the other parts of the ecosystem and how the web is a system that depends on all the links to stay healthy.

To help the students understand, you can talk about other examples of interconnected webs. What about webs of life within your school (for example, what if the teacher doesn't show up to class)? Within your community? What about economic webs of life? Cultural webs of life? The complexity will depend on the age group.

Once your students grasp how everything in nature is interconnected, they will understand that living things are connected and that changes to one element can affect the ecosystem. That makes learning about food webs and ecosystems a natural first step towards introducing lessons and activities about sustainability and species extinction.



Lesson 1.2: Ecosystems and Habitats

Habitats are places in ecosystems with all the things that plants and animals need to live.

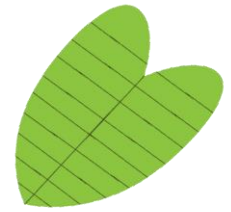
Different kinds of animals prefer to live in certain parts of an ecosystem. Examples of habitats are Grasslands, Scrublands, Deserts, and Tropical forests. These places are made up of important components that animals need to survive and reproduce.

Of all the different kinds of habitats, forests are among the most important for primates, such as monkeys (students will learn more about primates in the next lesson).

Ask class, what is a forest? Guide students to understand that:

- The important element of a forest is that it has many trees.
- You can also describe a forest by how close the trees are to one another and the heights of trees. For example, a savanna might have trees, but the trees are usually not very close together.

Red colobus monkeys need to live in forests. They cannot live for very long in grassland or shrubland. The forests provide these monkeys with all of their food, a place to sleep, and protection from predators such as hawks and eagles. Baboons are another kind of monkey. But, these monkeys like to live in the grasslands and shrublands and like to spend a lot more time on the ground. So, each kind of animal lives in a specific part of the ecosystem.



Activity 2

Everybody needs a home

Take away lesson: All organisms have a habitat and basic survival needs.

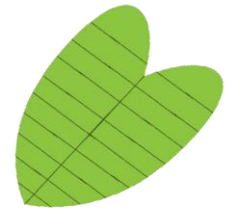
Materials: Chalkboard or poster paper and other drawing materials.

Duration: 20 minutes.

Instructions: Begin with a class discussion of the term “habitat.” What is habitat? What are the parts of a habitat that every living thing needs to survive?

The habitat is the place a plant or animal lives in, including all of the things it needs to live such as food, water (free of contaminants), shelter, and space, combined in a good arrangement for survival.

In this activity the pupils will work as a group to come up with their habitat. Draw a large square on the chalkboard, a piece of paper (large or small), or whatever you have available. Explain to the group that they will work together to construct a “dream home.”



Ask students to list everything that they would need in this home. As students list their ideas, begin to draw their items in the square outline. Include as many of the students' suggestions that you have space and time for. If the students neglect to mention critical items necessary to their survival, a kitchen for example, prompt them with questions like the following:

Do we have everything we need to live for a day...a week...a month in this house? What have we forgotten to include?

Once the students agree that the home is completed, ask the students if they could live in this dream home forever, all alone. The answer is no, we depend on our communities to meet our needs. Then, ask students for examples of how our communities help to meet our needs.

Some responses might be hospitals when we are sick, seamstresses to make or mend clothes, and markets for buying food. Add their community components to the board on the outside of the "dream home".

Next, show the students a picture of an animal in your ecosystem. Let the students guess the name of the animal it represents (if a picture is not available, have the students agree on an animal in their ecosystem). Then have the students list everything that would be in this animal's "dream home," in nature, including what it needs within its own community.

Create a drawing from student answers on the chalk board (students can help with this – they can come to the board and draw it; or, you can use paper too).



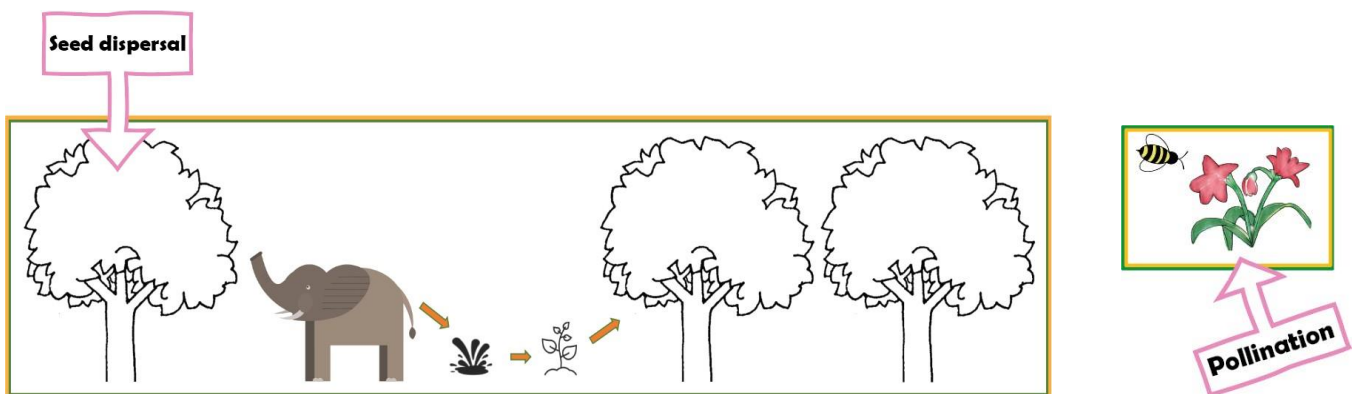
Lesson 1.3: Ecosystems and Conservation

Animals, like monkeys and birds, are very important parts of ecosystems.

One of the most important ecosystem functions that animals perform is that they help the forests to regrow.

Once a plant grows its roots in the soil, it cannot move. A tree, for example, produces seeds, which can grow into another tree of the same kind. But that seed has to find its way into the right kind of soil and away from its parent tree in order to grow and become a big tree.

A plant needs help to make its seeds and move those seeds to the right place for it to grow. This is where an animal helps the plant. There are two main ways an animal can help a plant: pollination and seed dispersal.





Pollination

- Plants use their **flowers** to make fruit and seeds, which are needed to grow a new plant. Inside a flower is **pollen**. Seeds are made when pollen from one flower moves to another flower of the same kind of plant.
- Animals help to move pollen from one flower to another. For example, a bee eats the sweet nectar from a flower. While it is on the flower eating the nectar, some of the pollen gets on the bee. When the bee flies to another flower it also moves the pollen to the other flower, which helps to create fruit and seed!
- Many other animals, like birds and monkeys, can also be **pollinators** like the bee. This process is known as **pollination** and it is extremely important to help forest to grow and stay healthy.

Seed dispersal

- When an animal eats a fruit produced by that tree, they swallow the plant's seeds buried in the fruit.
- When the seeds are not digested the animal passes them out in the droppings somewhere else in the forest away from the parent tree. Those seeds can then grow to become other trees.
- This process is known as **seed dispersal**, and it is extremely important to help forest to grow and stay healthy.

When animals disappear from a forest, that forest can have trouble regrowing. If animals no longer help with pollination or no longer disperse a tree's seeds, those seeds cannot grow to become another tree and so the forest and its animals will suffer. And, when trees disappear from a forest, that can cause problems for animals since animals rely on trees for food and shelter.



Remember, a healthy ecosystem is one where all the parts are connected. Removing one part – for example if one kind of tree disappeared from the forest, or one kind of animal disappeared from the forest – would weaken the ecosystem as a whole and may cause it to collapse and eventually disappear.

This would be bad for the plants and animals, but also for the people that rely on the resources produced by that ecosystem.

Healthy, intact ecosystems that allow all of the plants and animals to live and thrive also help humans to live and thrive. We will talk more about this in Lesson 4, but, here, let's remember that...

...healthy forests equal healthy animals and people!



Lesson 2.1: What Is a primate?

One kind of animal in your ecosystem is a primate – we’ve already mentioned two kinds of primates – red colobus and baboons. So, what’s a primate and how are they different from other animals?

Primates are a kind of mammal. Mammals are animals that:

- have hair (instead of, for example, feathers or scales).
- give birth to live young (instead of laying eggs).
- feed their young offspring with milk.

There are many kinds of mammals – for example elephants, pangolin, antelope, buffalo, giraffe, lion. Primates are also mammals because they have hair, give birth to live young, and they feed their young with milk. But how are primates different from other mammals?

Let’s learn about what makes a primate special and different from other mammals by looking at their bodies and behaviors.

Primate heads

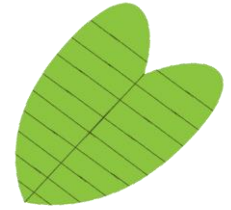
- Primates tend to have relatively large brains.
 - Even though many primates are not very large bodied, their brains are quite big for their body size.
 - Larger brains help primates to keep track of lots of friends and family members, locations of food and routes in the forest, and to avoid being eaten by predators.



- Primates rely a lot on vision.
 - Their eyes are located in front of their face rather than on the sides like zebras or giraffes.
 - This helps them to jump from branch to branch in the trees and to grab small things like insects and fruits.
 - While vision is an important sense in primates, many kinds of primate also still rely very heavily on smell to find food or communicate with their family and friends.



Monica Obaga



Activity 3

Primate eyes

Take away lesson: To show that having eyes on the front of their faces helps primates to see distances which allows them to catch their food and move through trees well.

Materials: Any throwable object the students can catch. Examples are a bean bag, rolled fabric, a small ball.

Duration: 15-20 minutes.

Instructions: Show your students pictures demonstrating what it means for primates to have eyes on the front of their faces. Explain that forward-facing eyes allow primates to judge distance.

Split students into pairs and have each pair toss an object, catching it with one hand. Have each partner toss and catch 5 times. The students should keep track of how many times they catch the object, and how many times they miss. Next, have the students cover one of their eyes and repeat. Again, record how many catches and how many misses. Gather the data from each group and discuss the results.

The students should find that it is easier to catch the objects when they use both eyes because they, like other primates, have both eyes on the fronts of their faces. When one eye is covered, they cannot tell the distance of the object the way they can when they have both eyes to work together.



Let's continue talking about what makes a primate a primate.

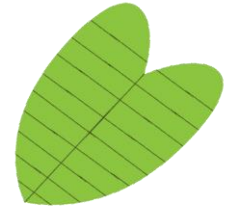
Primate arms, hands, feet and tails

- Primates have a rotating, flexible shoulder that allows them to use their arms very well when climbing.
 - [*Ask class* to move their arms around in a circle at the shoulder to see how it works].

- Primates also have hands and feet that are designed to grasp things.
 - Primates have thumbs and big toes that help them to grab things like tree branches and handle small objects like insects and fruit.
 - You can use a pencil because you have hands like this. But humans no longer are able to grab things well with their feet like most other primates.

- Primates also have fingerprints on the tips of their fingers and toes. Why?
 - Because it helps them to hold on to things like branches when they are moving in the trees.

- Like many other mammals, most primates (but not all! More on that later...) have tails.
 - Tails can help them balance in trees and hang from branches.



Activity 4

All thumbs or no thumbs

Take away lesson: To learn how opposable thumbs help primates access certain foods.

Materials: Strings and fruit

Duration: 15 minutes.

Instructions: Have students tie a small string around their hand to secure their thumb to the rest of their hand (but not too tight as to cause harm). Ask students to peel some fruit with and without the use of their thumbs to understand how opposable thumbs help primates, including people, access certain foods.



Primate friends and family

Primates are also extremely social.

Most primates live in groups with many individuals, so that in a group they have many relatives and friends.

[Ask class: Why do you think it is important to live with family and friends in a group?]

Why live in a group?

- Primate friends and family groom each other a lot – it is the most common friendly behavior they do. Grooming helps to remove dirt and insects from the skin and hair of a friend. But it also helps to keep everyone relaxed and happy because it feels good to be groomed!
- Other primates in a group can also help to look out for potential predators. You do not always have to be worried about being eaten by an eagle or snake because there are others in your group who can spot the predator before it attacks.
- Living in a group means you grow up with lots of friends and family who can play with you and help you find food and defend you if you get into a fight.

In addition to living in groups with other members of the same kind (or, **species**), some primate species also spend time living and moving with other kinds of primates (or, species).

For example, you might see a red colobus group eating alongside different kinds of monkeys [\[Insert here the names of a couple of different species of monkeys in your ecosystem – e.g., baboon, mangabey\]](#).



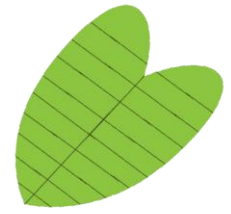
[Ask class: Why do you think animals of different types might live together?]

Why live and interact with other primate species?

- both species can help spot predators better – maybe [Insert here kind of monkey species in your ecosystem – for example a mangabey] can see predators coming on the ground (like leopards, lions and snakes) while red colobus can see predators attacking from the air (like eagles).
- one species of primate can help the other species find food.

Primates are also special because after they are born, the young primate needs a lot of help from its mother. A young primate is mostly carried by the mother and spends a lot of time learning how to move around its environment, how to avoid predators, how to find and eat food, and how to make friends.

So, primates spend a lot more time being a child than do other animals.



Activity 5

Primate Social Lives

Take away lesson: To show students the similarities between human and non-human primate social groups.

Materials: Paper and pencil

Duration: 30 minutes.

Instructions: Many primates live in groups. Some live with multiple males and multiple females, and sometimes it is either the males or the females that lead the groups. It depends on which type of primate it is. Others live in groups with one male, some females and their young. Then there are some that may live alone but in small neighborhoods where they can still interact with each other. Members of these social groups coordinate activities, communicate, and interact in positive and negative ways, often forming strong social bonds with a number of individuals in a group. Typically, there are a variety of social interactions and they form social bonds.

Have students either write a short paragraph describing their social groups, for instance a family, groups of friends, or community or you can discuss it as a group. Finally, discuss similarities and differences between primate and human social groups.



Even though primates share many characteristics, they are also very diverse – that means they do lots of different things.

- What primates eat can range from leaves to fruits to seeds to insects to small animals.
- Primates can move around on the ground or in the trees and they can jump, climb, or swing.
- Primates can live in many different kinds of environments – but no matter where they are, nearly all primates need to live in places with trees and good tree cover. Most of the primates can only live well in forests with lots of trees. That is the best ecosystem that they need to live.

Think about all the ways you just learned about what makes a primate a primate. Does it all sound familiar?

It should, because you are also a primate!

Ask class: What are some ways in which you have features of primates that we just discussed?

You have grasping hands, you have fingerprints, you have a big brain, you are very social, and you spend a long-time developing skills during your childhood.

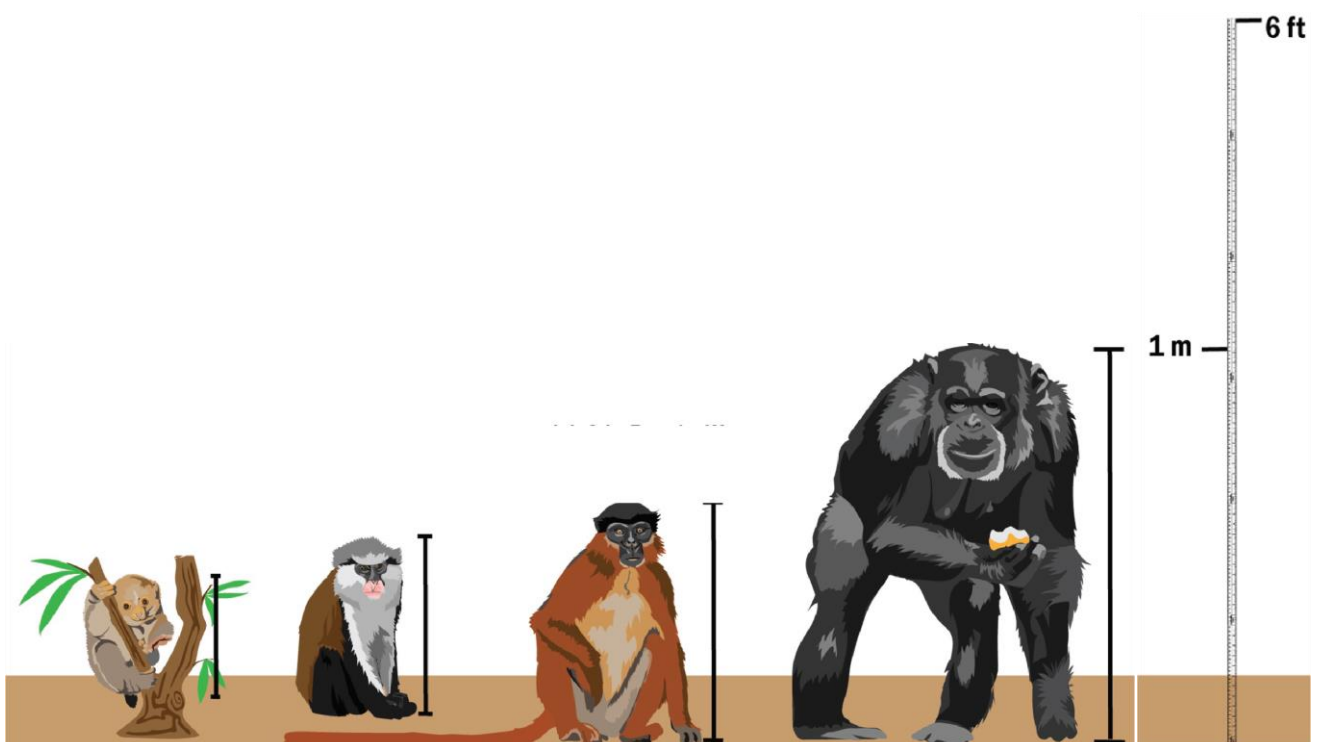


Lesson 2.2: Primate types

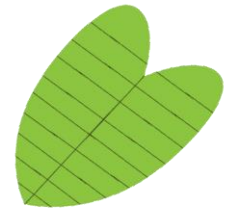
Now that you know what a primate is, we can learn about the many different kinds of primates in the world and the kinds of primates we have here [\[Insert name of your site and/or the geographic region\]](#).

There are over 500 different kinds (or, species) of primates in the world. In our country there are about [{X} \[Insert here the number of primate species in your country\]](#). At the field site of [{XXXX} \[Insert the name of your site here\]](#) there are [{X}](#) different kinds of primates.

Primates can be as small as a mouse or as large as a gorilla!



Graphic Partners for Red Colobus



Activity 6

What size primate are you?

Take away lesson: To show students the variation in primate sizes.

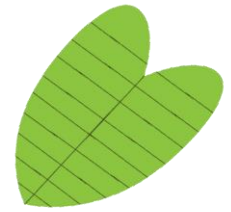
Materials: A ruler and something to mark the wall, either tape or a pencil work well.

Duration: 30-40 minutes.

Instructions, part 1: Below is a list of four primate species with estimates of their heights. [\[If you prefer, you can use four primate species at your site instead of the list below\]](#). Mark the wall with tape or a pencil with the name and height of each of the primates below. Then, ask students to go up to the wall and compare their height to that of the other primates. Discuss the results.

The average height of each is:

- Kenya lesser galago = 20 cm
- Red colobus = 50 cm
- Yellow baboon = 72 cm
- Gorilla = 160 cm



Instructions, part 2: Students should also think about the weight of each primate. This can be tricky, so we have converted them to the number of something more familiar, mangoes [If mangoes are not commonly eaten in your area, replace it with a fruit that everyone knows, indicate its weight, and note the weight of each primate below with the number of that fruit]. Have students guess how many mangoes each kind of primate below weighs and how many mangoes they weigh.

1 mango = 520 grams (0.52 kg)

- Kenya lesser galago (110-300 grams) = half of a mango
- Red colobus (9 kg) = 18 mangoes
- Yellow baboon (12-22 kg) = 24-44 mangoes
- Gorilla (90-160 kg) = 175-308 mangoes



We can group all primates into five major groups.

1. Lemurs
2. Lorises, pottos, and galagos
3. Tarsiers
4. Monkeys
5. Apes

Lemurs

Lemurs are primates that are only found on the island of Madagascar off the eastern coast of Africa. There are over 100 different kinds (or, species) of lemur.

One of the world's smallest primates is a lemur – called the mouse lemur – it can sit in the palm of your hand.

Many lemurs are **nocturnal** – that means they are awake and active during the night and asleep during the day.

Lemurs rely a lot on their strong sense of smell to communicate with other members of their group.

Lorises, pottos, and galagos

These are small-bodied primates that are mostly nocturnal and have a strong sense of smell.

Lorises and pottos move very slowly through the trees looking for insects to eat.

Galagos – also known as bushbabies – jump quickly through the trees, also looking to eat insects. They have large and shiny eyes when pointing a torch at them at night.

Lorises are found in Asian forests, while pottos and galagos are found in many African forests.



Tarsiers

These small-bodied primates are only found in Asia.

They have very large eyes (each eye is the size of its brain!) to help them see and move around at night.

Similar to galagos, they quickly jump from tree to tree looking to eat insects and also small lizards.

Monkeys

Nearly all monkeys are **diurnal** – they are awake during the day and sleep at night (the opposite of nocturnal).

Monkeys are found in South America, Asia, and Africa. Some of the monkeys in South America can use their tail to hang from branches (examples- spider monkey, howler monkey).

There are many different kinds of monkeys in Africa – some that spend most of their time high up in the trees (like red colobus) and others that spend most of their time moving and feeding on the ground (like baboons).

Some monkeys eat a lot of fruit, some monkeys eat a lot of insects, and some monkeys eat a lot of leaves.



Apes

These are larger-bodied than any of the other kinds of primates and are well known for being very intelligent.

There are smaller apes (like gibbons) and larger apes (also called Great Apes) including orangutans, gorillas, chimpanzees, and bonobos. Gorillas are the largest of all primates.

And, while all of the other kinds of primates have tails, apes do not have tails.

Some apes (like gibbons and orangutans) are found in Asia and some apes (like gorillas, chimpanzees, and bonobos) are found in Africa.

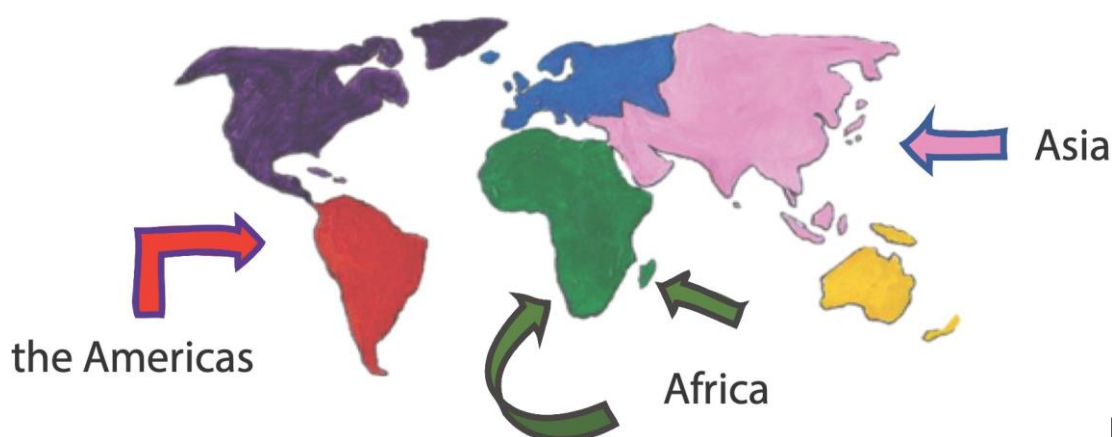
Great apes make a nest from leaves and branches every night to sleep in.



Lesson 2.3: Primate ecosystems

As I have mentioned, primates are found in many different kinds of ecosystems. Some primates are found in places that have very cold and snowy winters, like Japan and China. Some primates are found at very high altitude on top of mountains (like the mountain gorilla). But most primates are found in the tropics, near the Equator.

The tropics are known for having a very hot and humid climate with periods of a lot of rain. In the tropics, some primates, like baboons, can be found in savanna and grassland ecosystems, which tend to have long periods of very little rain, so they are very dry. However, most kinds of primates are found in tropical forests.



Where do we find primates?



Some characteristics of tropical forests:

- Tropical forests have more rain than savanna and grasslands. Because they have so much rain, they also have many very tall trees that are growing very close together.
- Some tropical forests are found along rivers and in swampy and flooded areas. These forests are supported by the water seepage from the river or swamps or floods. As you move further away from the river or swamps, the environment gets drier with fewer trees.
- There are many, many different kinds of plants in a tropical forest, producing many different kinds of foods for primates and other animals.
- Because there are so many different kinds of plants, a tropical forest can be home to many different kinds of animals.

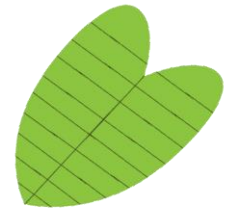


Lesson 2.4: Primates of the [Insert name of your site/geographic region]

[For this paragraph insert the name of your site. Indicate how many of the primate groups are represented at your site and how many species. Below we have included an example from Tana River, Kenya.]

“The Lower Tana River ecosystem has 8 primate species, including three kinds of galagos and five kinds of monkeys.

1. **Kenya Coast galago** – only found in Kenya and Tanzania.
2. **Northern lesser galago** – found throughout much of tropical Africa.
3. **Garnett’s greater galago** – only found in East Africa.
4. **Lowland Sykes’ monkey (Pousargues’s monkey)** – only found in eastern Kenya and southern Somalia.
5. **Vervet monkey** – found throughout much of eastern and southern Africa.
6. **Yellow baboon** – found throughout much of eastern Africa.
7. **Tana River mangabey** –found only in the Lower Tana River ecosystem and nowhere else in the world.
8. **Tana River red colobus** –found only in the Lower Tana River ecosystem and nowhere else in the world.”



Activity 7

Primates of [Insert name of your site]

Take away lesson: Learn the diversity of the primates of the [Insert here the name of your site] ecosystem.

Materials: None required.

Duration: 10-15 minutes.

Instructions, part 1: Discuss with students the different kinds of primates they may have seen or heard in the [Insert here the name of your site] ecosystem. Ask them what they know about those primates – maybe about where they live, what they eat, how they behave, and if the students have ever learned stories about any of the primates.



Lesson 3.1: Red colobus monkeys

As you have learned, red colobus are one of the kinds of primates found in the [\[Insert here the name of your site\]](#) ecosystem. They are very special primates so let us learn more about them.

Red colobus are a kind of medium-sized monkey found only in Africa.

There are 17 different species of red colobus, found in 18 countries from Senegal and the Gambia in West Africa to Kenya, Tanzania, and Zanzibar in East Africa.

Each species differs from one another in hair color and patterns, but they always have some red on them (sometimes on the top of their head, sometimes on their arms or back, sometimes all over their body).

Where are red colobus found?

The ecosystem that red colobus need to live is forest. They can live in lots of different kinds of forest, but they need many tall trees to find food and shelter, move around in, and spend time with friends and family.



Most red colobus spend their time high in the trees. When they want to move from one tree to another, they do not usually come to the ground and walk to the next tree. Instead, they take these very daring leaps from the top of one tree to the top of another. So, they require an intact, connected forest to easily move across their habitat.

You can often find a red colobus in the forest by listening to them crash through the trees!

Remember I told you that primates have grasping hands, with thumbs that allow them to grab onto things? Well, red colobus actually have very, very small thumbs.

When they take these big leaps, they use the rest of their fingers like hooks, that hook onto branches when they land in the next tree.

What is it like to be a red colobus?

In the trees, red colobus love to eat leaves, fruits, and seeds. But, eating leaves is not easy because leaves can be hard to digest. So, they have a special stomach (similar to that of a cow) that helps them to break down leaves so they can then more easily get energy from those leaves.

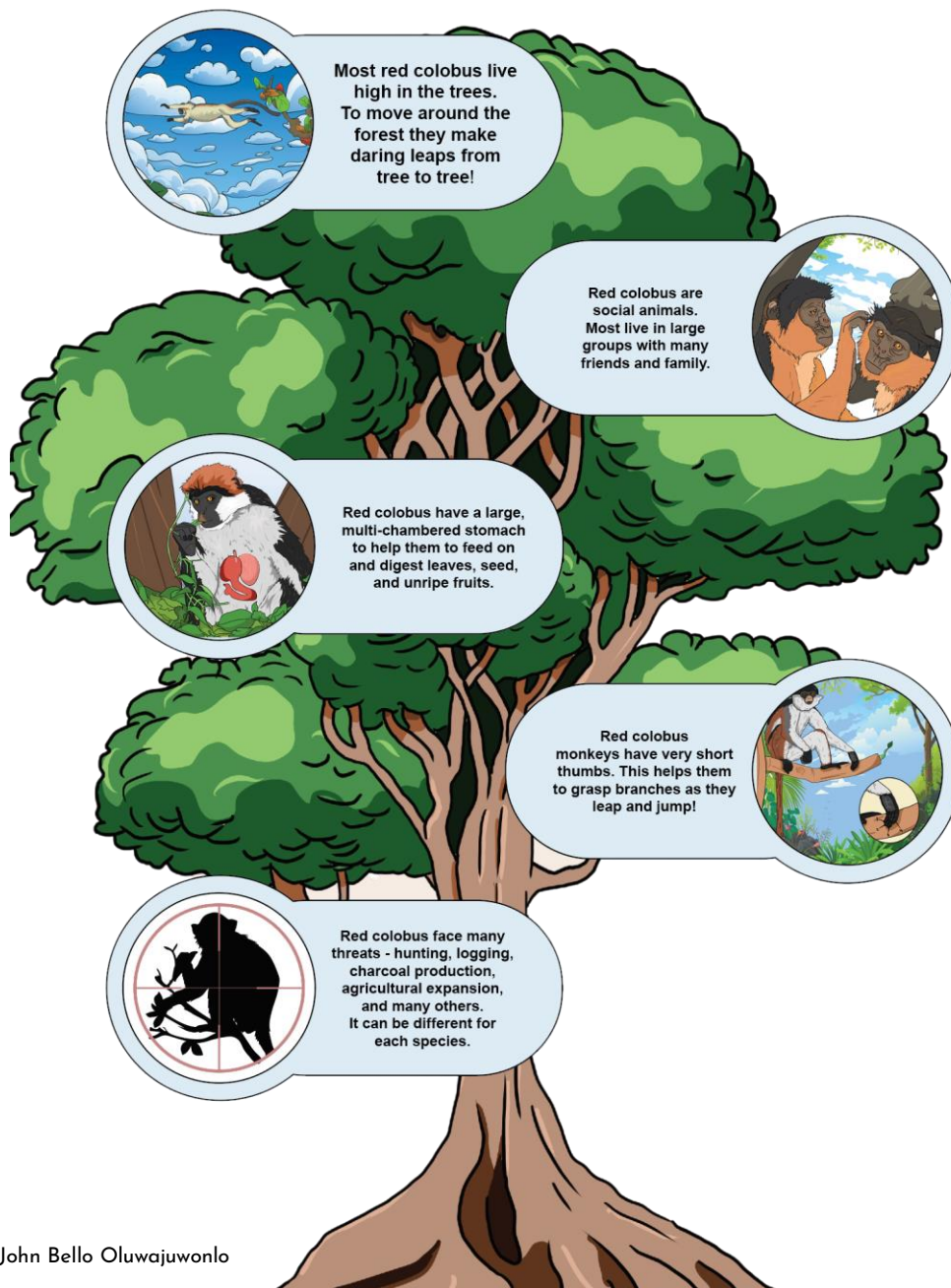
[**Ask class** about the kinds of foods the students eat. Are there any similarities to the diet of a red colobus? Do humans have a special stomach like a cow? **Answer: No**, but we can break down leaves and seeds using cooking and tools.]

Like other primates, red colobus are very social.



They live in large groups usually with many females and many males, but also sometimes just with one or two males and many females.

Young red colobus grow up surrounded by friends and family. When they're old enough, often female red colobus will leave their group and find another group to join and sometimes males will do this also. Within the group, red colobus monkeys will groom each other to help maintain close friendships.



Graphics by John Bello Oluwajuwonlo



Lesson 4.1: Conservation of Red colobus monkeys and the [Insert name of your site here]

There are many human activities that threaten red colobus – they make red colobus numbers go down.

In many parts of tropical Africa, primates and other large-bodied animals are hunted for food, medicine, money, and cultural reasons. But, in many forests these animals are **overhunted** – they are hunted so much that their numbers decline until there are very few individuals left in the forest. Gun hunting has caused red colobus numbers to decline a lot. Red colobus are very vulnerable to hunting because they live in large, noisy groups making them easy to find and they do not always run away when they see a hunter. Red colobus are often one of the first large animals to disappear when there is a lot of hunting.

Red colobus are also losing the forests in which they need to live. Not only are their forests disappearing, but they are also becoming smaller and more fragmented.

Forest fragmentation occurs when one large forest is being broken up into many smaller forests. Those smaller forests can, again, be broken up into even smaller pieces of forest.

Fragmentation is not good because, as you've learned, animals need large forests to find food and to find friends and family. In a small forest that is not connected to any other forest, a red



colobus might not have enough food or may not be able to find many friends and family to groom with and to protect it from predators.

Another problem is that forests are becoming **degraded** – that means that the forest is losing those connections that make a healthy ecosystem. The forest is becoming weaker and is not able to do all the things it normally does because parts of its ecosystem are disappearing.

There are many human activities in the [\[Insert here the name of your site\]](#) ecosystem that lead to forest loss, forest fragmentation, and forest degradation and that cause wildlife, such as red colobus, to decline.

[Ask class what are some human activities that damage the forest and cause wildlife to decline]

- Hunting
- Artisanal and industrial logging
- Subsistence and cash crop agriculture
- Industrial agricultural
- Fuelwood collection and charcoal production
- Artisanal and industrial mining
- Livestock farming
- Infrastructure development – roads, pipelines, canals, towns

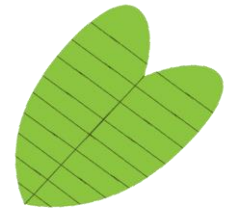
[Ask class what are some reasons why people cut down trees in our ecosystem?]



[You can revise this list, describing why trees are cut down, according to the causes of forest loss at your site]

1. Trees are cut down for building materials, making canoes, and mat and basketry making.
2. Trees are cut down to use for firewood, palm wine harvesting, and to make charcoal to cook with.
3. Forests are cleared to provide more land for growing villages, towns, farms, and livestock.

As a result of these activities, the [Insert here the name of your site] ecosystem has lost much of its forest. The animals have lost a lot of their home.



Activity 8

Habitat Connect

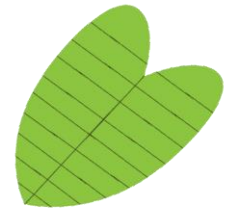
Take away lesson: To show that forest fragmentation is a major threat that affects many different animals. Forest fragmentation can make it harder for animals to find food and leads to competition for resources.

Materials: String and “tokens.” The tokens represent any small objects that the students can consider or identify as food resources. They could be small circles of paper or whatever you have on hand.

Duration: 20 minutes.

Instructions, part 1: First, prepare a space to play the game, whether in an open area outside, or a classroom. Scatter “tokens” across the playing field, each token represents food. If at any point during the game a student cannot find a token, they are out of the game. They should sit off the field with the food (tokens) they have collected. This represents the habitat not having enough food for animals to survive. Students should spread out on the field. Each student must find one token per round. Once they have one, they can stop looking.

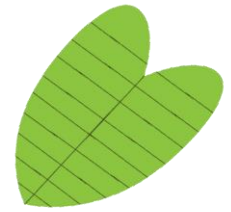
After the first round, use a piece of string or another marker to divide the space in half. This represents, for example, a road that divides the forest into separate habitats because of forest fragmentation.



Repeat the initial token search, but this time, students are restricted to only their side of the field. Repeat this division several times to further illustrate the effects of forest fragmentation.

Once there is no more food, begin the second phase of the game. This phase will represent conservation efforts to reconnect habitats. Those who were in the game at the end remain on the field. Those who were removed from the game will gradually be reintroduced to the habitat.

Example of Round One. Remove one of the fragmentation barriers on the playing field and bring back in a couple of students to the game. Take the tokens they had originally collected and re-scatter them on the playing field. Repeat the process until the habitat is back to its original state and all players are in the game.



Activity 9

Deforestation Musical Chairs

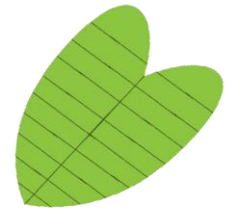
Take away lesson: To show that animals cannot survive without the forest.

Materials: Chairs (however, if none are available you can use placemats, or pieces of paper cut into the shape of treetops), a speaker or way to play music (such as from a phone), and tape.

Duration: 30-45 minutes.

Instructions: This is a play on the musical chairs game. First, choose music to play. Musical chairs is played by walking around chairs (or the placemats) to music. When the music is turned off the players find a chair to sit down on. You want music that has a good beat for walking. Using upbeat music will create a festive environment encouraging the students to have fun. Choose a few songs because the game may last more than one song if you have lots of players. You need to have one person be in control of the music for each round of musical chairs that you play. This person will be responsible for starting and stopping the music.

Now, find a space to play. Musical chairs is a game that needs a lot of space in order to play it. Make sure you have a wide-open space in a room or outside to easily play the game. You need enough space to have chairs or place mats set up in a circle and room for the players to walk around the outside of them.

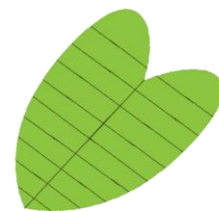


To play musical chairs, you need to have chairs or seats set up in a circle. You should start with one less chair than the number of players playing. So, for example, if there are 5 people playing, you should have 4 chairs in a circle. If you are using chairs, set up the chairs with the seat of the chair facing the outside of the circle (or just place the mats on the ground).

Walk around the chairs when the music starts. As soon as the music starts playing, the players walk in a circle around the chairs. You can choose whether to go clockwise or counterclockwise, but all players should go the same direction following the person in front of them. Players should walk at a comfortable pace around the chairs without slowing down.

When the music stops the players should find a chair to sit on or a placemat to stand in front of. Players leave the game if they are left without a chair or placemat. The player that did not find a chair to sit on is out of the game. They can help run the music, or just watch the fun and wait to see who ends up as the winner. After the person who did not find a chair leaves the game, you need to remove one chair to play another round.

Start another round by playing the music and having the players walk around the chairs or mats again. Continue playing rounds until there is one person left. After each round of musical chairs, remove a chair, keeping 1 less chair than the players in the circle. The last round will be 2 players and one chair. The player who sits in the chair this round is the winner.



We recommend playing this game with a lesson on deforestation and conservation. To adapt the game to this topic, cut paper and color it in so that it looks like the top of a tree and tape these to the chairs. If you do not have these resources, just describe to the students that each chair or placemat represents a tree.

As each of the rounds progress, trees continue to be taken away. Each time a chair is removed, the teacher, assistant or session leader can give a short anecdote about why the tree is being removed (agricultural expansion, development, logging). By the end of the game only one animal will remain. The session leader can explain that animals rely on forests to survive.



Now that you have learned about the negative impacts of hunting and deforestation on wildlife, you can more easily understand why red colobus are in trouble. Some kinds of red colobus are only found in very small forest areas and nowhere else. If they disappear from these areas, they disappear from the whole world – in other words, they go **extinct**. They will no longer exist on this planet.

All 17 kinds of red colobus are threatened species - **threatened with extinction**. In fact, most primate species are threatened with extinction.

In our ecosystem, we have the [Insert species name of your red colobus] red colobus. They are found in [list names of countries – see Red Colobus Conservation Action Plan]. In our ecosystem, red colobus are only found in [Describe here where red colobus around found at your site] and fewer than [if estimates are available, you can insert here how many red colobus are at your site or the number that remain of your red colobus species] red colobus monkeys remain.

Here is an example from Tana River region in Kenya of how you might describe the status of red colobus at your site:

“Tana River red colobus are only found in Kenya. In Kenya, the Tana River red colobus are only found in some of the remaining forest areas in the Tana River region and fewer than 1000 red colobus monkeys remain.

There used to be more than 5000 red colobus and mangabeys around the Tana River. But, too many people have taken too many trees out of the forest and have cleared too much forest to create farms and to feed livestock.”



Lesson 4.2: Why protect the [Insert name of your ecosystem he here]

This section (Lesson 4.2) will be very specific to each site. We give you an example of how this section might look using the Tana River ecosystem in Kenya as an example. You can adapt this information for your own site.

Why Protect the Tana River Ecosystem?

The Lower Tana River ecosystem is important not just for the plants and animals it holds, but also because it provides extremely important **ecosystem services** to people living in and around this ecosystem. That means that the people living along the Tana River benefit from a healthy ecosystem.

Discuss with students how they and their families use the Lower Tana River ecosystem and what might happen if those parts of the ecosystem they rely on were to disappear. **Try to guide** students to talk about how, for example:

- we use wood from the forest for cooking, and materials to build houses among other things.
- Other resources that humans are dependent on also come from the environment, such as clean water, food, soil for farming, oxygen for breathing, and medicine.



- ◆ Forests provide shade from the Sun and help to keep the area cooler.
- ◆ Forests also help to produce rain, which provides water for drinking and for crops on farmland.

So, a healthy Tana River ecosystem where people use, but do not over-use, parts of the ecosystem can provide food (e.g., fish), energy, water for farmland, clean water for drinking and washing, fuelwood and building materials, ingredients for traditional medicines, protection against erosion (weakening of the soil and land), and shade and rainfall.

The Tana River is one of the world's, and one of Africa's, most amazing and important ecosystems...important for plants, animals, and humans. But, as you've learned, your ecosystem is becoming less healthy.

What can be done and how can you help?

[**Discuss with students** what they think can be done to prevent the loss of wildlife, plants, and a healthy ecosystem and write some of the answers on a chalkboard or poster paper.]

Working to protect healthy ecosystems for plants, animals, and humans is a main goal of the field of **conservation**. There are many ways to “do” conservation. Let's talk about some of them:

- ◆ protected areas and community conservancies
- ◆ improving livelihoods
- ◆ reforestation
- ◆ research



- ♦ education and awareness raising
- ♦ creating and enforcing good laws to protect our ecosystem
- ♦ involving local communities in conservation
- ♦ respecting our culture on ecosystem conservation

One important conservation activity is to create areas that are **protected** from overuse. These kinds of protected areas can be created and managed by the government or led by local people in the form of a community conservancy. Protected areas have rules about what can be used in the ecosystem and how much of it can be used.

Community conservancies work to improve the **livelihoods** of local people, in part, by protecting the local ecosystems.

These conservancies recognize that a healthy ecosystem is very important for improving the lives of those who use the ecosystem.

You have learned that local communities depend on the land for food, water, money, and health. If that land is degraded, if forests and animals are lost, then people will suffer because they will not have enough food and water, and this will lead to people fighting with one another.

Working to keep the ecosystem healthy will benefit the health and livelihoods of local people.

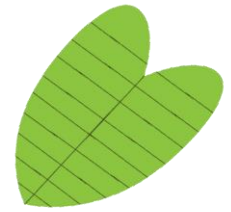
One way to help the forest regrow is to plant native trees that are used by animals for food or used by humans (for food, medicine, fuelwood, charcoal, building materials), in an activity called **reforestation**.



Although it takes a long time (many years) for a young tree to become an adult tree, this activity is critical if fragments of forest are to be reconnected and if degraded forests are to be restored to health.

So, if an area is, first, protected from use, then that area can be replanted with young trees and left alone for those trees to grow.

Eventually, those trees can be used by animals and by people and become an important part of rebuilding a healthy ecosystem.



Activity 10

Restore the [Insert name of your site] ecosystem

Take away lesson: Learn how to plant and grow native tree species, an important first step in reforesting your ecosystem.

Materials: Seeds or seedlings of a tree species native to your ecosystem; Bags or cups of soil/dirt in which to plant seeds.

Duration: 20-30 minutes.

Instructions: Prior to this activity, the instructor will, first, need to obtain many seeds or seedlings of a tree species native to the ecosystem. Each student will be given several seeds or one seedling to plant in bags or cups filled with soil/dirt. Each bag/cup should be labeled with the species or common/local name of the tree species planted. Seeds should be placed approximately 1 inch below the surface of the soil and some water should be added after planting.



Understanding the needs of plants and animals (for example, where they can live, what they need to eat) and how people use plants and animals is very important for doing conservation.

This involves **research**, where you go into the forest to measure plants or watch animals.

For example, a researcher might visit forest fragments and count red colobus monkeys to know how many there are and where they live. Or you visit villages and talk to people who use plants and animals from the forest. This kind of research can then help you to develop solutions to problems that cause animals to disappear and forests to shrink and become fragmented.

Learning about the importance of a healthy ecosystem and the human activities that are causing forests and animals to decline is another very important part of doing conservation. In fact, it is one of the very first things for anyone to do if conservation of forests and animals is to be successful.

Education and raising awareness of conservation issues can take place in a classroom, a church, or in a meeting place in a village. Having discussions with people of all ages about conservation issues, especially about why it's important to protect and restore local ecosystems, can help to develop solutions that work for forests, animals, and people. It can also inspire people to get involved in conservation and become active in protecting and restoring their own ecosystem!



There are many different kinds of people who work to protect the [\[insert name of your site\]](#) and other areas of conservation importance.

- Ranger – someone who helps to enforce the rules of a conservation area.
- Researcher – someone who studies the plants and animals or who works with the local people to understand how they use or protect their ecosystem.
- Educator – someone, like your teacher, who teaches others about conservation.
- Farmer – someone who grows food on the land in a way that does not cut down more forest or who protects the remaining forest on their land.
- Government worker – someone who helps to develop environmental laws.

Discuss with the group what they want to do when they grow older. It does not have to be in the context of the environment, but of course it can be. And, as they have just learned, there are many jobs that help to support our futures! This should be a fun activity to finish the lessons.

