LEMUR

S.C.O.U.T.

DUKE LEMUR CENTER

Patch program Packet

The Lemur S.C.O.U.T. Patch Program has been developed by the Duke Lemur Center for Girl Scouts, Y Guides, and other local youth to enrich their understanding of lemur science and conservation.

Welcome to the Lemur S.C.O.U.T. Patch Program!

As a Lemur S.C.O.U.T., you will be equipped with the educational tools to protect lemurs, our earliest primate ancestors and the world's most threatened group of mammals. The Duke Lemur Center (DLC) has been researching and preserving these living fossils since 1966. Today, roughly 250 individuals span across 70 acres at the DLC. Most of these amazing animals will be extinct in the wild in the next 50 years, but that's where you come in. By following five steps to become a Lemur S.C.O.U.T., you will help save the world's lemurs from extinction.

FIVE STEPS TO SAVE THE LEMURS – s.c.o.u.t.

Study the science of lemurs, including their evolution and ecology on the island of Madagascar.

Conserve lemurs by protecting their wild habitat in Madagascar and managing captive lemur populations.

Observe lemurs in captivity and in Madagascar, learning even more about lemur science and conservation.

Understand the best ways to protect lemurs, testing what we know about lemur science and conservation.

Teach others what you have learned about lemurs, the world's most threatened group of mammals.

You should begin the first of these five steps, **Study**, at home with your troop or family. You will continue this step during your visit to the Duke Lemur Center, where you will also **Conserve**, **Observe**, and **Understand** throughout the 2-hour Lemur S.C.O.U.T. program. By the end of the program, you will have received your Lemur S.C.O.U.T. patch and a certificate of completion.

However, you will not have completed the program just yet! We trust that within three weeks of your visit, you will use your new knowledge of and passion for lemurs to complete the final step of the program: **Teach**.

GENERAL INFORMATION and FAQ

Location	3705 Erwin Road Durham, NC 27705 *Directions can be found on our website at http://lemur.duke.edu/visit/plan-your-visit/#sthash.pOjZBEXm.dpuf.*
Hours	Mondays – Fridays 9:30 AM – 4:00 PM
Admission	$12 per S.C.O.U.T. – *patch included* $8 per chaperone

Minimum number of people: 10

Maximum number of people: 30

We suggest that it takes 10 children to look after 1 adult!

- **Who is eligible for the Lemur S.C.O.U.T. patch program?** Although the program has been designed specifically for young Girl Scouts and Y Guides, **all children ages 5+ are welcome to participate**. We recommend it for homeschool groups, summer camps, and class fieldtrips.
- **Does the program align with NC Essential Science Standards?** Yes, the program meets several K-8 life science standards. To see how we align, please review the "Lemur S.C.O.U.T. Standards" PDF on our website.
- **Do I need to call or email in advance to participate in the program?** Yes! ***All patch programs are by appointment only.*** To make a reservation for a group of 10-30 people, please contact the DLC Education Programs Manager, by phone at 919-401-7240 or by email at primate@duke.edu. If you need to drop off donations or art for the program's **Teach** component, the Lemur Landing Gift Shop is open to the general public without appointment during operating hours (9:30 AM – 4:00 PM, all year round, 7 days/week).
- **How far in advance do I need to make a reservation?** While our team will do all we can to accommodate you, we kindly request **3 weeks' notice** for Lemur S.C.O.U.T. programs.
- **What is your weather policy?** Programs happen rain or shine, with the exception of threats of lightning in the forecast. Most of the program is outdoors, so please make sure you are dressed for the weather.

- **What is your cancellation policy?** Due to the work that goes into preparing for a program, we require 48 hours of advanced notice for cancellations.
- **How long does the program last?** The program at the Center will last approximately 2 hours. This estimation does not include Part 1 of **STUDY** or the independent time spent on **teach**.
- **What steps should be completed by the day of the program?** Once you have made your reservation, you need to complete Part I of **STUDY**. This includes a discussion on primates and two activities: Stereoscopic Vision in Primates and If I Only Had a Thumb (pgs. 14-15). You then have the option of completing Part II of **STUDY** with your troop/tribe before your visit (Build-a-Lemur Craft Activity) ***or*** during the 2-hour program (Build-a-Lemur Role-Play Activity).
- **How else can troop/tribe leaders prepare for the program?** We encourage all leaders to print and read the program packet before embarking on the patch. Additionally, you will need to print the **STUDY** materials (only Part I if they plant to complete Part II at the Center). We also recommend that each S.C.O.U.T. has a personal copy of this packet. **For the steps to be completed at the DLC, all printables and materials will be provided upon your arrival.**
- **Will I get to touch a lemur at the program?** No. As huggable as the animals may appear, our lemurs are wild animals. For the safety of our animals and our guests, no visitors are allowed any physical contact with the animals. However, we do welcome flash-free photography; the lemurs can be quite photogenic.

Study

Yellow eyes, blue eyes, orange eyes. Bushy black tails, skinny brown tails, ringed tails. 10 pounds, 6 pounds, the weight of just three pennies. These phrases all describe different lemur **species**, or a group of lemurs that share certain traits and can interbreed to produce fertile young. From rock-climbing lemurs known for their fuzzy orange crowns to rainforest lemurs with coats like cookies and cream, there are as many as 80-100 different lemur species today. You're going to meet about 10 of these species during your visit to the Duke Lemur Center, where you'll come face-to-face with animals adapted to very special lifestyles. Some of these traits set lemurs apart from the entire animal kingdom.

Part 1: Defining a mammal, defining a Primate

Before we can understand what traits make an animal a lemur, we need to understand what kind of animal a lemur is. For starters, lemurs are **primates**, a large group of mammals that includes monkeys, apes, and humans. As a troop or tribe, discuss **6 important traits that nearly every mammal shares**:

1. **Vertebrae** – All mammals are **vertebrates,** meaning they have a series of vertebrae**,** or small bones, that form a backbone or spinal column. They share this feature with birds, reptiles, amphibians, and most fishes.
2. **Milk –** Female mammals have **mammary glands** that secrete milk to feed their babies. This trait is unique to mammals.
3. **Lungs –** All mammals have lungs to breathe air. As mammals, even whales and dolphins have to swim to the surface to breathe air through their lungs.
4. **Thermoregulation –** All mammals are "warm-blooded" and can help keep their body temperatures within certain boundaries. Unlike reptiles,

mammals don't have to be in a sunny spot to stay warm. Can you think of ways mammals use **thermoregulation**? (Ex: hair to insulate or stay warm, sweat glands to cool off)

5. **Hair** or **fur** – All mammals have hair or fur on their bodies.
6. **Live birth** – Rather than laying eggs like birds, reptiles, amphibians, and fishes, most mammals give live birth.

All of these traits could be described as **adaptations,** or physical or behavioral changes that make an animal a good "fit" for its environment. If an animal isn't well adapted, it doesn't have the best shot at surviving and having healthy babies.

What type of environment are most mammals adapted for? Think about the mammals you know; are more of them **terrestrial**, meaning they live on land, or **aquatic**, meaning they live in the water?

If you said that most mammals are terrestrial, you are correct! Millions of years ago, many animals already had vertebrae to make them more mobile to escape predators, find food, and locate mates. But for the animals that were becoming more terrestrial, gills were becoming less and less useful. Lungs then evolved as an adaptation to help terrestrial animals breathe more easily. The first mammals also evolved with hair and fur to keep them cozy throughout thermoregulation. Do you see how an animal's traits can be important adaptations?

Like the rest of the mammals, primates have several adaptations to life on land. However, primates also have adaptations for life in the trees. The world's earliest primates evolved to be **arboreal,** or tree-dwelling, and this lifestyle called for even more adaptations. As humans, we spend much more on the

time on the ground than in trees, just as mammals like whales and sea otters have evolved to be more aquatic. All the same, there are certain adaptations that unite all primates.

Adaptations in Primates

1. **Forward-facing Eyes** – Life in the trees requires good vision. This is exactly why primates often have two large, forward-facing eyes to take in a high amount of visual information.
2. **Stereoscopic Vision** – Each eye provides a different field of vision. In primates, these fields overlap to provide **depth perception,** or the ability to sense the distance of one object from another. We call this whole process **stereoscopic vision,** and without it, primates cannot judge how far away the next branch is as they move from tree to tree.
3. **Relatively Large Brain** – Primates have a relatively large brain, with the key word being *relatively.* That tells us that in relation to the rest of their bodies, primates have large brains. A whale might have a very large brain, but in relation to the rest of its body, the whale's brain is not as *relatively* large as a primate's. This places primates among the world's most intelligent animals!
4. **Prehensile Hands/feet**– Primates also have 10-fingered hands and feet adapted for seizing, grasping, and holding. When hands, feet, or tails have this ability, they are **prehensile.** (Humans like you and me have evolved to be far less arboreal and have lost the prehensile feet you see in the rest of the primates.)
5. **Fingernails and toenails** – When primates evolved prehensile hands (and prehensile feet in non-humans) for climbing and grasping, they no longer needed claws. Instead, they evolved with flat nails to protect and

support their sensitive fingers. **Some primates still possess claw-like structures, such as the grooming claw in lemurs.*

6. **Opposable Thumbs** – Most (but not all) primates have **opposable thumbs**, meaning that the thumb can rotate and move independently of the other four fingers. The later a primate evolved, the more opposable and mobile their thumbs are! Why do you think this would be important for primates? For feeding? For tool use?

Now that you've learned what makes an animal a primate, it's time to put your knowledge to the test. **Alongside fellow Lemur S.C.O.U.T.s, complete the two activities found on pages 14-15.** Stereoscopic Vision in Primates and If I Only Had a Thumb. As you strip away two of the adaptations that make you a primate, think about how different life would be without them.

Part II: Defining a prosimian, defining a Lemur

However, lemurs are not just any primates. They are a type of primates, but they are not monkeys or apes. Lemurs belong to a separate group of primates called **prosimian**. ***Pro*** means "before," while ***simian*** means "monkey. Prosimians are quite literally pre-monkey. They were the very earliest of primates to evolve, and scientists believe this was happening between 60 and 65 million years ago—that's right around the extinction of the dinosaurs!
In the past, prosimian primates could be found all over the globe, including sites in North America, Europe, Asia, and Africa. Today there are just three types of prosimians: ***lemurs, lorises,*** and ***bush babies.***

What sets them each apart is where they live. Not too long after the first prosimians evolved in Arica, lemurs arrived to an island called Madagascar, lorises made their way to Asia, and bush babies settled throughout Africa.

This means that for millions and millions of years, each type of prosimian was geographically isolated, or all alone in one location and adapting to a unique environment.

Today, lemurs are endemic to Madagascar, **which means they can't be found naturally anywhere else in the world.** Although lemurs have adaptations we can find in all primates, they also have adaptations that are completely unique to them. It's time to learn exactly how lemurs are adapted to this rather large island!

You now have two options to complete Part II of **STUDY**:

- **Build-a-Lemur Craft Activity *before the DLC***: If you're feeling crafty, stay home with your troop or tribe and complete the craft activity on pgs. 16-19. Each Lemur S.C.O.U.T. should have scissors and a printed copy of all pages, as well coloring utensils (markers, crayons, colored pencils). This activity is better suited to younger age groups.
- **Build-a-Lemur Role-Play Activity *at the DLC***: If you feel more comfortable learning about lemur adaptations here at the Duke Lemur Center, or if your group is disinterested in the craft, complete Part II during your visit! One volunteer participant will be dressed as Maky the ring-tailed lemur. As he or she dons one adaptation at a time, your guide will explain how each item helps Maky survive. This is compatible with all age groups.

Conserve *(at the dlc)*

Despite being specially adapted to life on the island of Madagascar, **lemurs are the most threatened group of mammals on the planet.** If we want to save the lemurs from extinction, first need to pinpoint their biggest threats in the wild. Join your guide at the DLC for a tour of roughly 10 different species of lemur, learning more and more about each of their lives in Madagascar and what is being done to protect them. As you meet each lemur, see if you can locate the adaptations that make lemurs like Maky so special!

Remember: We couldn't fund conservation projects without programs like this.

Observe *(at the dlc)*

How can you protect an animal if you do not take the time to watch its behaviors, population sizes, and favorite habitats? This is why observations are some of the biggest parts of studying and conserving lemurs. Now that you have met several different lemur species, observe lemurs like a real scientist.

Activities for Younger Participants: Daisies, Brownies, 1st – 3rd Year Y Guide Tribes, K-3 students

- **COMPLETE a Biodiversity survey with field sketches.**
  Biodiversity is the number of different types of plants and animals that live together in an **ecosystem**, or a community of animals and plants that interact with each other and their physical environment. You are a scientist observing the biodiversity of lemurs along the DLC tour path. On your worksheet, be sure to draw pictures of each species you see.

While you're at it, jot down the name of the species, its physical description, and how many of that same species you see.

Activities for Older Participants: Juniors, Cadettes, Y Guide Trailblazers, 4th grade and up students

- **COMPLETE AN Ethology survey.** **Ethology** is the science of animal behavior, while an **ethogram** is a table that scientists use to organize different behaviors so they can easily see patterns in an animal. Using a stopwatch, an ethogram, and your own set of eyes, build your own lemur ethogram for feeding, grooming, snoozing, and more.

**All survey worksheets will be distributed at the Duke Lemur Center and have been simplified for each age group. They have been enclosed at the end of this packet for review.*

Understand *(at the dlc)*

Now that you have learned to **Study**, **Conserve**, and **Understand** lemurs, it is important that all of this new knowledge sinks in. Head back to the Getty Building with your guide and complete the following activities.

- **Create a web of life.** Your guide will lead you through this interactive activity, using a ball of yarn to depict how each of Madagascar's animals, humans, and plants is connected in an intricate web of life.
- **Delve into the learning process.** Alongside your troop members or parents, discuss this quote by Baba Dioum, a Senegalese poet:

  "In the end, we conserve only what we love. We will love only what we understand. We will understand only what we are taught."

How have you observed this process during your growth as a Lemur S.C.O.U.T.? What is the coolest thing you have learned? What unique gifts do you have to teach others about lemurs, inspiring in them an understanding and love of these amazing animals?

- **RECEIVE YOUR LEMUR S.C.O.U.T. PATCH AND CERTIFICATE OF COMPLETION!** *Remember that you still have one final step in your journey to becoming a Lemur S.C.O.U.T.*, but be proud of everything you have learned so far.

Teach

Education and awareness are essential to save the world's lemurs from extinction. Now YOU will be become the educator. From public speaking to behind-the-scenes artwork, there are many ways for each of us to teach**. Read through the following activities and select *one* to complete as a follow-up to your visit to the Duke Lemur Center.** The activity you select could help you improve a current skill set or develop a new one. Remember that spreading your passion and knowledge to others is a necessary step to save the world's lemurs from extinction!

- **ENRICHMENT for the lemurs.** Did you know that the average cost to house, feed, and care for one lemur is about $7,400 per year? ENRICHMENT helps lower this cost while also putting your planning and public speaking skills to the test. All items can be dropped off at the Lemur Landing Gift Shop.
  - **Enrichment Toy Drive:** Lemurs need to stay happy, healthy, and busy just like kids! Hold an enrichment toy drive in your school or community, collecting donations or common household items like

fleece blankets, brown paper bags, plastic laundry baskets, and more! For more information, visit http://lemur.duke.edu/wordpress/wp-content/uploads/2013/11/Enrichment-Drive.jpg.

Please contact the Education Staff at primate@duke.edu for more details!

- **Design a thank-you card for DLC partners, donors, and sponsors.** The Duke Lemur Center can never have too much art to feature on thank-you cards for our supporters. Draw or paint your own lemur art with a message on conservation, and ***your*** design could become our next card! Please drop off all art at the Lemur Landing Gift Shop or scan and email it to primate@duke.edu. Make sure to include your first name and last initial, and age.
- **Create and present a poster on any lemur topic.** Build a poster to teach your troop, tribe, or class about lemurs, learning more about your topic along the way. Your topic could be as specific as "Seed Dispersal in Fruit-loving Ruffed Lemurs" or as broad as "Fun Facts on Ring-tailed Lemurs." To grip your audience, don't be afraid to bring on the glitter, puffy paint, and beyond.
- **Pen an original short story or poem about lemurs.** Let your imagination run as wild as our free-ranging lemurs as you concoct your own lemur adventure. If nonfiction suits you better than fiction, write an essay or poem about a lemur topic that fascinates or motivates you. Once you've wrapped up your writing, hold a reading in a public forum—whether this is for your troop, tribe, family or classmates, family. Learn the power of words as you evoke interest in lemur science and conservation.

Congratulations!

You have now completed all 5 steps of the lemur s.c.o.u.t. Patch program: STUDY, CONSERVE, OBSERVE, UNDERSTAND, TEACH. The lemurs thank you for taking the time to learn why their Protection is so important.

Please visit them soon at the duke lemur center*!*

Remember: The learning process does not end with these five steps! By continuing to study, conserve, observe, understand, and teach, you never stop growing as a Lemur S.C.O.U.T.

LEMUR S.C.O.U.T.
DUKE LEMUR CENTER

patch program printables

Printable instructions and worksheets have been enclosed for the following activities:

Stereoscopic Vision in Primates

If I Only Had a Thumb

Build-a-Lemur Craft

Lemur Biodiversity Survey

Lemur Ethology Survey

ACTIVITY 1: STEREOSCOPIC VISION IN PRIMATES

materials

1 CUP FOR EVERY 2 SCOUTS (10 SCOUTS = 5 CUPS)

2-4 COINS FOR EVERY 2 SCOUTS

Estimated duration: 15-20 minutes

PROCEDURE

1. Work with a partner to try this experiment. One person is team member A, the other team member B. You'll need a cup and some coins or POG chips.
2. Place a small cup in the middle of a desk.
3. Person A stands several meters away from the cup. Person B stands close to the cup, holding a coin in hand.
4. Keeping eyes at cup level, person A closes one eye and directs the other student to align the coin just above the cup. When person A thinks the coin is directly above the cup, s/he gives person B the command to drop it into the cup.
5. Repeat this step five times. Record the number of hits and misses.
6. Repeat the activity using both eyes. Do you observe any difference in the outcome? Explain.

QUESTIONS

1. Was your judgment more accurate with one or both eyes open? Explain.
2. What's the evolutionary advantage of stereoscopic vision?

3. How does primate vision compare with that of other species?
4. How might better vision enable the use of tools? Why do you need stereoscopic vision to see the "Magic Eye" and other 3-D pictures?

ANSWERS

1. Both. Two eyes increase depth perception (stereoscopic vision).
2. With greater depth perception, primates can move better in treetops.
3. Eyes of higher primates are larger, face forward and see colors. Depth perception is increased. Vision replaces smell as the primary sense.

ACTIVITY 2: IF I ONLY HAD A THUMB

Materials

1 package of toothpicks
1-2 rolls of masking tape
1 stopwatch for every 2 scouts

Estimated duration: 15-20 minutes

PROCEDURE

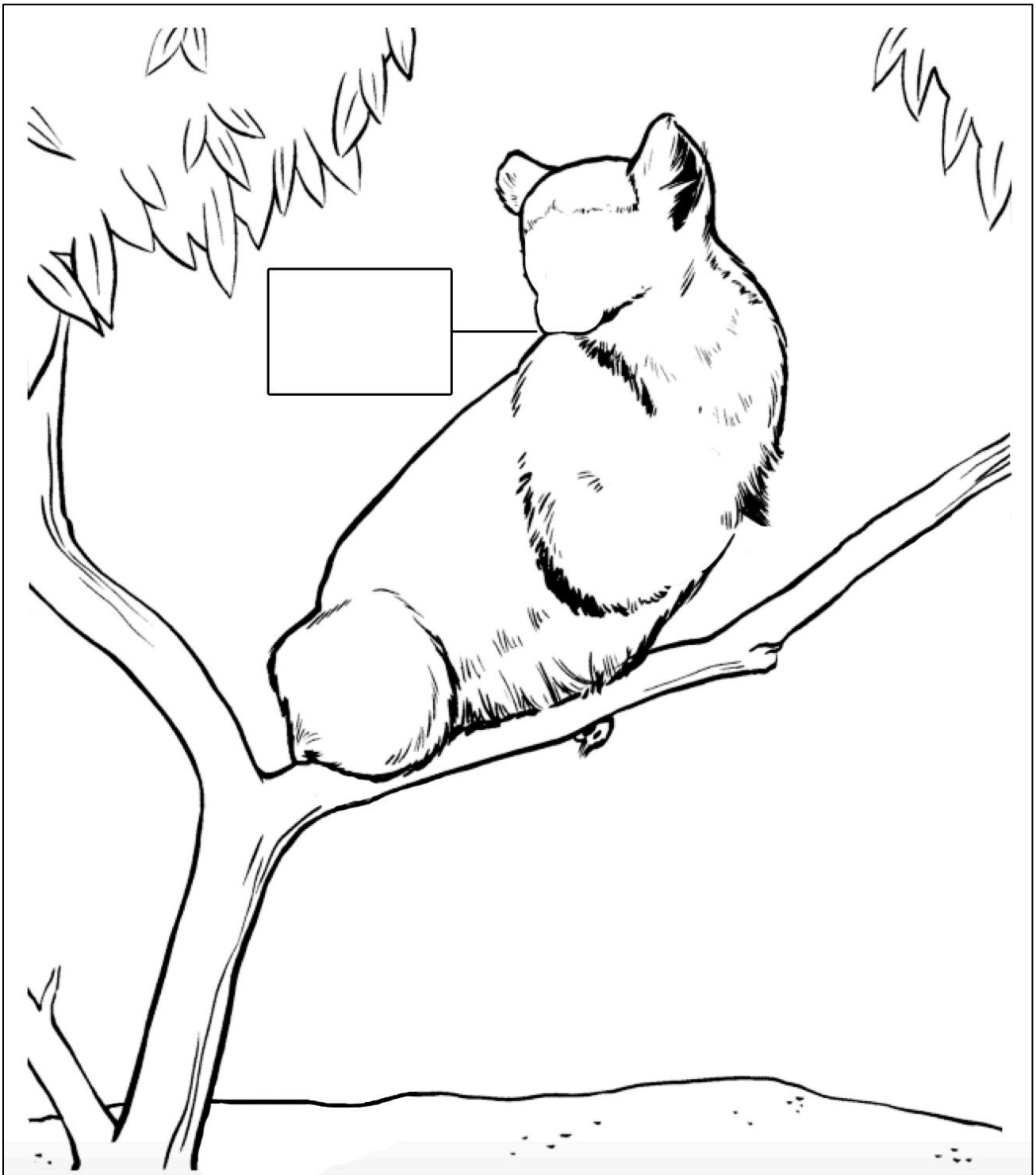
1. Working with a partner, spread out several dozen toothpicks on a table or flat surface.
2. Time how long it takes for each person to pick up the toothpicks. Repeat the activity, picking up the toothpicks three times. Record and average the results.
3. Tape the thumb and index finger of one partner together. Repeat Steps 1 and 2.
4. Exchange roles and repeat the activity.

QUESTIONS

1. What was the average time for picking up the toothpicks with an unobstructed thumb?
2. What was the average time for picking up toothpicks with a taped thumb?
3. How can you account for the difference in times? (Answer: The fully opposable thumb increases grasping ability.)
4. Why do you think tree-dwelling primates evolved an opposable thumb? How does the primate hand structure compare to that of other animal species?

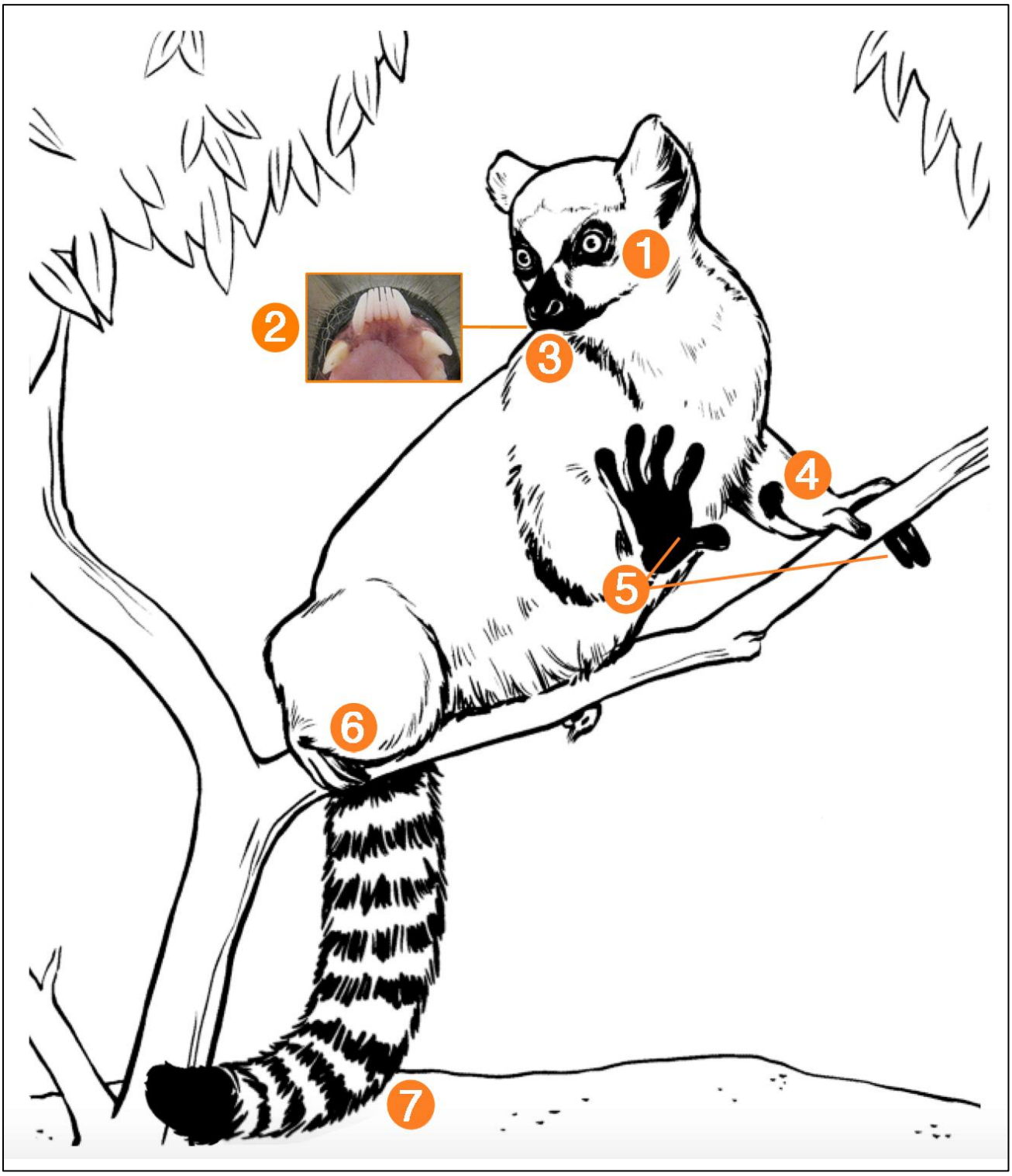
Build-a-lemur craft activity

Maky the ring-tailed lemur needs your help! He is missing six important body parts: his eyes, nose, teeth, hands, feet, and tail. All six parts are **adapted** to make Maky a good fit for his environment in Madagascar. Help him survive by putting him back together, learning more about lemur adaptations as you go.



›Build-a-lemur craft activity

To help save Maky, review the adaptations on pg. 18 with your group and locate each trait in the picture below. What would life be like for Maky without these adaptations? What would be his chances at survival?



Build-a-lemur craft activity

Maky's Missing Parts and Their Adaptations

1. **Eyes**: Like the rest of the primates, Maky has forward-facing eyes with stereoscopic vision.
2. **Teeth**: Maky is missing his **toothcomb**, a dental structure made up of his bottom six teeth (four incisors and two canines). Spaced apart like a comb you'd pull through your hair and jutting straight out rather than up like our teeth, the toothcomb is important for grooming. This is a trait shared by all prosimians, including lemurs (the aye aye is an exception).
3. **Nose**: Unlike the simians monkeys, apes, and humans—Maky does not have a flat face and a poorer sense of smell. His long, pointed snout and wet nose help with **olfactory communication**. That's talking with one's nose! He used his amazing sense of smell to communicate with fellow lemurs.
4. **Scent glands**: To help with olfactory communication, Maky has **scent glands** all over his body. These glands do exactly what they sound like; they secrete scents, usually pheromones, to send messages about territory and mating. Each lemur species has them all throughout their bodies, but as a male ring-tailed lemur, Maky has them on the insides of his wrists (4), by his shoulders, and under his tail.
5. **Hands**: Like all lemurs, Maky has prehensile hands instead of paws, fingernails instead of claws, and pseudo-opposable thumbs. (Because lemurs evolved so early, their thumbs don't have the advanced mobility and opposability of monkeys and apes.)
6. **Feet**: Unlike humans, Maky also has prehensile feet to grasp branches as he climbs.
7. **Tail**: Unlike the monkeys, Maky does ***NOT*** have a prehensile tail. He may not be able to grasp with or hang by his nonprehensile tail, but he definitely needs it for balance as he leaps from branch to branch.

Build-a-lemur craft activity

It’s time to put Maky together again! Each Lemur S.C.O.U.T. should have a pair of scissors and a glue stick to cut the adaptations below and paste them on Maky (pg. 16). You also need draw your very own toothcomb in the blank box to the left of Maky’s snout. Once you’ve built your lemur, don’t forget to give him a splash of color with markers, colored pencils, or crayons.

1

3

4

5

6

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Biodiversity Survey Worksheet

Recommended for Ages 5-8

Vocabulary

Biodiversity describes the number of different types of plants and animals that live together in an **ecosystem**, or a community of animals and plants that interact with each other and their physical environment.

You are a scientist observing the biodiversity of lemurs on the Duke Lemur Center’s tour path! On your worksheet, note the important facts for each species. Field sketches are also important tools when making scientific observations. To the left of each set of facts, create a scientific illustration for your species.

Researcher: _____

Scientific Illustration

Lemur Species: _____

Physical Description: _____

_____

Population Count: _____

Troop Members: _____

_____

Other Observations: _____

_____

Scientific Illustration

Lemur Species: _____

Physical Description: _____

_____

Population Count: _____

Troop Members: _____

_____

Other Observations: _____

_____

Biology Survey Worksheet

Recommended for Ages 9+

Vocabulary

Ethology is the science of animal behavior. An **ethogram** is a table of all the different kinds of behaviors a scientist is observing in an animal. These charts easily organize observations as they are being recorded, and they are helpful tools to identify patterns in behavior.

You are a scientist building an ethogram for lemurs along the Duke Lemur Center's tour path. Select two individuals to observe for the following behaviors:

(SG) Self-grooming: use of tongue, teeth, or fingers to pick through one's own hair/skin

(AG) Allo-grooming: use of tongue, teeth or fingers to pick through the hair/skin of another individual

(R) Rest: animal is motionless; lying down or sitting with eyes open or closed

(L) Locomotion: moving from point A to point B

(SM) Scent-marking: transfer of scent from any scent gland onto substrate or individual

(E) Eating: ingestion of food

(SP) Social play: two or more individuals interacting in a non-aggressive chase or wrestle

(A) Aggression: action meant to harm or intimidate

(OOV) Out of view: the animal (or its behavior) is not visible

Once you have a clear understanding of how each of these behaviors will appear in your lemurs, complete the ethogram on the next page to learn more about them.

Ethology Survey Worksheet

Begin work on your ethogram by writing the names and species of your two individuals (Lemur A and Lemur B) at the top of your chart. You must then do your best to closely follow your lemurs, making a "tic" mark in the correct box each time you observe a behavior. After you have observed your lemurs for 10 minutes, calculate the total number of tic marks for each behavior.

BEHAVIOR	LEMUR A Name: Species:	LEMUR B Name: Species:
Self-groom	Total: ____	Total: ____
Allo-groom	Total: ____	Total: ____
Rest	Total: ____	Total: ____
Locomotion	Total: ____	Total: ____
Scent-marking	Total: ____	Total: ____
Eating	Total: ____	Total: ____
Social play	Total: ____	Total: ____
Aggression	Total: ____	Total: ____
Out of View	Total: ____	Total: ____

Lemur s.c.o.u.t. Vocabulary

Adaptation: a physical or behavioral change in a plant or animal that makes it a good fit for an environment (good fit = survival!)

Aquatic: describes a plant or animal adapted to live in the water

Arboreal: describes a plant or an animal adapted to live in the trees

Biodiversity: the number of different types of plants and animals that live together in an ecosystem

Conservation: the careful use, management, and protection of something to keep it from being lost or wasted *(Ex: the conservation of lemurs and their habitat to save lemurs from extinction)*

Depth perception: the ability to sense the distance of one object from another

Duke Lemur Center: a sanctuary for roughly 250 prosimian primates that works to conserve, research, and educate

Ecosystem: a community of animals and plants that interact with each other and their physical environment

Endemic: a plant or animal that is **native** to a region and can't be found naturally anywhere else in the world *(Ex: Lemurs are **endemic** to Madagascar.)*

Ethogram: a table of all the different kinds of behaviors a scientist is observing in an animal; helps organize observations as they are being recorded

Ethology: the science of animal behavior

Extinct: a species of plant an animal that has no living species; can sometimes happen only in the wild *(Ex: The black soft-shell turtle has been **extinct** in the wild since 2002, but a small number live in captivity.)*

Lemur: prosimian primates endemic to Madagascar; most threatened group of mammals in the world

Madagascar: the fourth largest island in the world, a biodiversity hot spot, and the native home of all lemurs

Mammal: group of animals united by their vertebrae, mammary glands, lungs, thermoregulation, hair/fur, and live birth

Non-prehensile: ***not*** adapted for seizing, grasping, or holding, such as the non-prehensile tails of lemurs

Prehensile: adapted for seizing, grasping, or holding, such as the hands and feet of primates

Observation: information collected and often recorded by carefully watching and listening to an animal, person, etc.

Olfactory communication: talking with one's nose and scents; using a sense of smell to send messages to other animals, often of the same species

Opposable thumb: a thumb that can rotate and move independently of the other four fingers

Prehensile: an adaptation of hands, feet, or tails for seizing, grasping, and holding, as seen in the prehensile hands and feet of primates

Primate: a large group of mammals united by forward-facing eyes, stereoscopic vision, relatively large brains, prehensile hands/feet, fingernails/toenails, and mobile thumbs

Prosimian: "pre-monkeys" that were the earliest of primates to evolve 60-65 million years ago; group of primates made up of lemurs, lorises, and bushbabies

Scent glands: secrete scents, usually pheromones, to send messages to other animals about territory and mating

Specialized: designed for a specific purpose in an animal's habitat or environment (e.g.: A lemur's bottom six teeth, or toothcomb, is ***specialized*** for grooming.)

Species: group of lemurs that share certain traits and can interbreed to produce fertile young

Stereoscopic vision: when one eye in an animal captures a slightly different image than a second eye, with the two images combining to provide depth perception; helps primates judge the distance of the next branch as they move from tree to tree

Terrestrial: describes a plant or animal adapted to live on land

Thermoregulation: the ability of a mammal to keep its body temperature within certain boundaries (e.g.: hair to insulate or stay warm, sweat glands to cool off); what makes mammals "warm-blooded"

Toothcomb: dental structure in prosimians made up of the bottom six teeth (four incisors and two canines) and adapted for grooming; teeth jut straight out rather than up and are spaced apart like the teeth of a comb