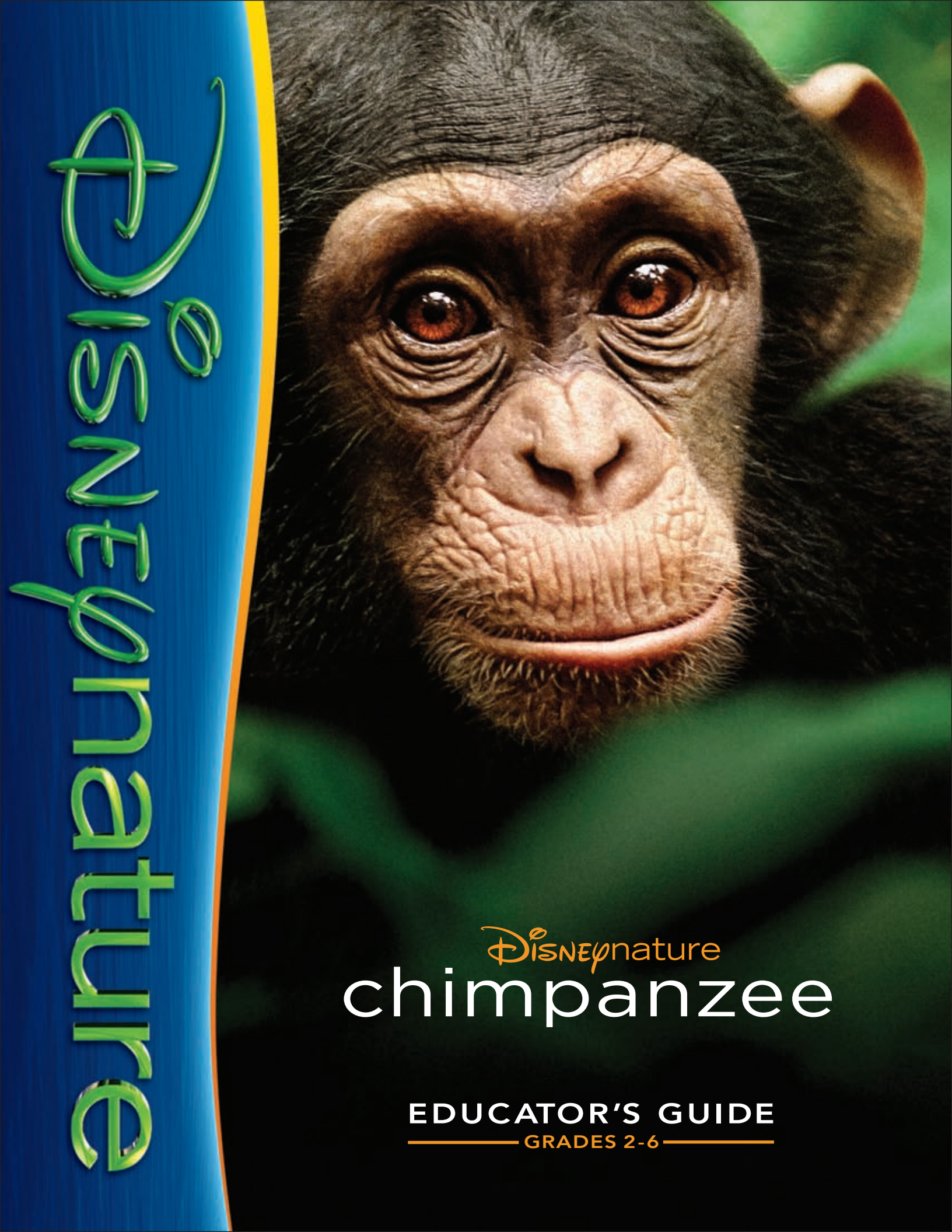



Disneynature

# chimpanzee

## EDUCATOR'S GUIDE

GRADES 2-6

# Disneynature chimpanzee

## OPENS IN THEATRES APRIL 20

## EDUCATOR'S GUIDE | GRADES 2 - 6

## Celebrate Earth Day With Oscar!

Disneynature takes moviegoers deep into the forests of Africa with **CHIMPANZEE**, a new True Life Adventure introducing a lovable young chimpanzee named Oscar in a story of family bonds and individual triumph. Oscar's playful curiosity and zest for discovery showcase the intelligence and ingenuity of some of the most extraordinary personalities in the animal kingdom.

The world is a playground for little Oscar, who'd rather make mayhem than join his parents for an afternoon nap. When Oscar's family is confronted by a rival band of chimpanzees, he is left to fend for himself until a surprising ally steps in and changes his life forever. Directed by Alastair Fothergill (AFRICAN CATS and EARTH) and Mark Linfield (EARTH), **CHIMPANZEE** swings into theatres for Earth Day, on April 20, 2012.

## Further Explore The Wonderful World Of CHIMPANZEE!

The **CHIMPANZEE** Educator's Guide includes over 100 pages of lessons and activities targeted to grades 2 through 6. The lessons are aligned to National Science Education Standards and integrate interactive elements, including ready-to-go PowerPoint presentations to help engage your class. Additional educational resources, including audio and video clips from the film, are available at disney.com/chimpanzee.

### The guide introduces students to a variety of topics, including:

- Animal Adaptations
- Habitats and Ecosystems
- Animal Behavior, Tool Use and Communication
- Studying Chimpanzees in Africa
- Protecting Chimpanzees
- Making a Positive Difference for Wildlife Worldwide

Disneynature in connection with the Jane Goodall Institute
WWW.JANEGOODALL.ORG

SEE CHIMPANZEE • SAVE CHIMPANZEES

See **CHIMPANZEE** opening week and Disneynature will make a donation in your honor to the Jane Goodall Institute to protect chimpanzees today and tomorrow. Learn more at disney.com/chimpanzee.

### Educator's Guide Objectives

- Increase students' knowledge of chimpanzees and the African rainforest habitat through interactive, interdisciplinary and inquiry-based lessons.
- Enrich students' viewing of the Disneynature film CHIMPANZEE and inspire appreciation for the wildlife and wild places featured in the film.
- Promote life-long conservation values and science-based skills through outdoor activities, nature exploration and discovery.
- Empower you and your students to create positive changes for wildlife in your school, community and world.
- Lessons Align to National Standards.

THIS FILM IS NOT YET RATED

© 2011 Disney Enterprises, Inc.

**CALL 1-888-DISNEY6 to reserve group tickets for your class!**

**Schedule your class trip early to see CHIMPANZEE so you and your class can further explore chimpanzees! Starts in Theatres April 20!**

# Table of Contents


STANDARDS ALIGNMENT CHART ..... 4–5
WELCOME TO THE WORLD OF CHIMPANZEES ..... 6
KWL CHART ACTIVITY ..... 7
TEACHER'S BACKGROUND INFORMATION ..... 8–19
LESSON 1 ..... 20
What Makes A Chimpanzee Special? (Grades 2-3)
LESSON 2 ..... 25
How Are Chimpanzees Adapted To The Rainforest? (Grades 4-6)
LESSON 3 ..... 30
Where Do Chimpanzees Live? (Grades 2-3)
LESSON 4 ..... 34
How Are Chimpanzees And The Rainforest Connected? (Grades 4-6)
LESSON 5 ..... 39
Who Are Chimpanzees' Neighbors? (Grades 2-3)
LESSON 6 ..... 43
Who Shares The Rainforest With Chimpanzees? (Grades 4-6)
LESSON 7 ..... 55
What Do Animals Eat In The African Rainforest? (Grades 2-3)
LESSON 8 ..... 60
How Is Energy Transferred Through The African Rainforest Food Web? (Grades 4-6)
LESSON 9 ..... 64
Why Do Chimpanzees Use Tools? (Grades 2-3, 4-6)
LESSON 10 ..... 67
What's In A Face? (Grades 2-3)
LESSON 11 ..... 70
How Do Chimpanzees Communicate Without Making Noise? (Grades 4-6)
LESSON 12 ..... 73
What Sounds Do Chimpanzees Make? (Grades 2-3)
LESSON 13 ..... 76
How Do Chimpanzees Use Sound To Communicate? (Grades 4-6)
LESSON 14 ..... 80
How Do Chimpanzees Spend Their Day? (Grades 2-3)
LESSON 15 ..... 85
How Do Chimpanzees Interact With Each Other? (Grades 4-6)
LESSON 16 ..... 90
HOT TOPIC – What Clues Do Chimpanzees Leave Behind? (Grades 2-3)
LESSON 17 ..... 93
HOT TOPIC – How Do Scientists Study Chimpanzees? (Grades 4-6)
LESSON 18 ..... 100
What Is The Difference Between A Monkey And An Ape? (Grades 2-3)
LESSON 19 ..... 103
How Do Scientists Classify Primates? (Grades 4-6)
LESSON 20 ..... 116
How Does Habitat Loss Affect Chimpanzees? (Grades 2-3)
LESSON 21 ..... 120
How Can Recycling Electronics Protect Chimpanzee Habitat? (Grades 4-6)
LESSON 22 ..... 123
HOT TOPIC – How Can I Help Wildlife In My Backyard? (Grades 2-3)
LESSON 23 ..... 126
HOT TOPIC – How Can People Make A Difference For Chimpanzees? (Grades 4-6)
FINAL PROJECT ..... 132
GLOSSARY ..... 133
RESOURCE GUIDE ..... 134-135



## ACKNOWLEDGEMENTS

Creating such a comprehensive Educator's Guide takes the energy, innovation, talent and hard work of many specialists.

At the Walt Disney Company, Disneynature's Paul Baribault and Catherine Stephens presented the Disney's Animal Kingdom Education Team with the opportunity to take on this exciting project. Dr. Liz Fogel brought all the right partners together in a joyful way to create a multi-disciplinary Educator's Guide that benefits classroom teachers and zoo educators.

At Disney's Animal Kingdom, Laurie Cummins developed the brilliant lessons and activity sheets with the amazing assistance of Nadine Kocanjer. Kris Whipple told the complete story of chimpanzees using interpretive language and examples through the Teacher's Background Information. Dr. Tammie Bettinger applied her years of experience working with chimpanzees both in zoos and in the field to ensure the accuracy of all information. Allyson Atkins, Dr. Jill Mellen and Kim Sams (Conservation Initiatives) reviewed and commented on the final draft to ensure a quality product.

The holistic approach to this Educator's Guide could not have happened without the special talents of the following subject matter experts: Drs. Carol Henry, John Hoge, Linda Labbo, John Olive, Michael Orey and Deborah Tippins from the University of Georgia, and Dr. Wayne Nelson from Southern Illinois University. A review team consisting of Betty Carvellas (Educator Lead for the National Academy of Sciences Teacher Advisory Board), Charlene Dindo, Steven Dracht and Michael Koehler brought their expertise and understanding of science and math to the Guide.

The specific photo images needed for the facial expressions and non-verbal communication lessons were shared with us through the support of the Jane Goodall Institute's Debby Cox and amazing photography of Andy Nelson. Chimp Haven graciously shared images and footprints of their chimpanzees.

Dr. Stephen Ross, the Chimpanzee Species Survival Chair under the auspices of The Association of Zoos and Aquariums, discussed his important research on people's knowledge, attitudes and behaviors about chimpanzees with our Disney's Animal Kingdom team.

*Kathy Lehnhardt*

Curator of Education,
Disney's Animal Kingdom




© 2011 Disney Enterprises, Inc.

# NATIONAL STANDARDS ALIGNMENT CHART PART 1

| LESSON TITLE | NATIONAL SCIENCE STANDARDS K-4 | | | | | | | | | | | | | | | NATIONAL SCIENCE STANDARDS 5-8 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Abilities to do scientific inquiry | Understandings about scientific inquiry | Properties of objects and materials | The characteristics of organisms | Life cycles of organisms | Organisms and their environment | Properties of Earth materials | Types of resources | Changes in environments | Characteristics and changes in populations | Understanding about science and technology | Abilities of technological design | Science and technology in local challenges | Science as a human endeavor | | Abilities necessary to do scientific inquiry | Understandings about scientific inquiry | Transfer of energy | The characteristics of organisms | Organisms and their environment | Diversity and adaptations of organisms | Populations and ecosystems | Reproduction and heredity | Regulation and behavior | Populations, resources and environments | Abilities of technological design | Understanding about science and technology | Science in personal and social perspectives | Science and technology in society | Natural hazards | Risks and benefits |
| What Makes A Chimpanzee Special? | ● | ● | | ● | ● | ● | | | | | | ◉ | | | | | | | | | | | | | | | | | | |
| How Are Chimpanzees Adapted To The Rainforest? | ● | ● | | ● | ● | ● | | | | | | ◉ | | | | | | | | ● | | ● | ● | | ◉ | | | | | |
| Where Do Chimpanzees Live? | | | | ● | | | | | | | | | | | | | | | | | | | | | | | | | | |
| How Are Chimpanzees And The Rainforest Connected? | | | | ● | | | | | ● | | | | | | | | | | ● | ● | | | | ◉ | | | | | | |
| Who Are Chimpanzees' Neighbors? | ● | ● | | ● | | ● | | | | | | | | | | | | | | | | | | | | | | | | |
| Who Shares The Rainforest With Chimpanzees? | | | | ● | | ● | | ● | ● | | | | | | | | | | | | ● | | | | | | | | | |
| What Do Animals Eat In The African Rainforest? | | | | ● | | ● | | | | | | | | | | | | | | | | | | | | | | | | |
| How Is Energy Transferred Through The African Rainforest Food Web? | | | | ● | | ● | | | ● | ● | | | | | | | | ● | | | ● | ● | | | | | | | | |
| Why Do Chimpanzees Use Tools? | ● | ● | ● | ● | | ● | | | | | ● | | | | | ● | ● | | | | | | | | | | | | | |
| What's In A Face? | | | | ● | | | | | | | | | | | | | | | | | | | | | | | | | | |
| How Do Chimpanzees Communicate Without Making Noise? | ● | ● | | ● | | ● | | | | | | | | | | ● | | | | | | | ● | | | | | | | |
| What Sounds Do Chimpanzees Make? | | ● | | ● | | | | | | | | | | | | | | | | | | | | | | | | | | |
| How Do Chimpanzees Use Sound To Communicate? | ● | ● | ● | ● | | ● | | | | | | | | | | ● | ● | | | | | | ● | | | | | | | |
| How Do Chimpanzees Spend Their Day? | | | | ● | | ● | | | | | | | | | | | | | | | | | | | | | | | | |
| How Do Chimpanzees Interact With Each Other? | | | | ● | ● | | | | | | | | | | | | | | | | | ● | ● | | | | | | | |
| HOT TOPIC: What Clues Do Chimpanzees Leave Behind? | ● | ● | | | | | | | | | | | ● | ● | | | | | | | | | | | | | | | | |
| HOT TOPIC: How Do Scientists Study Chimpanzees? | ● | ● | | | | ● | | | | | ● | | ● | ● | | ● | ● | | | | | | | | | ● | ◉ | ◉ | | |
| What Is The Difference Between A Monkey And An Ape? | | | | ● | | | | | | | | | | | | | | | | | | | | | | | | | | |
| How Do Scientists Classify Primates? | ● | ● | | ● | | | ◉ | | | | | | | | | | | | | | | | | | | | | | | |
| How Does Habitat Loss Affect Chimpanzees? | | | | | | ● | | | ● | ● | | | | | | | | | | | | | | | | | | | | |
| How Can Recycling Electronic Protect Chimpanzee Habitat? | | | | | | ● | ● | ● | | | | | | | | | | | | ● | | | | ● | | | | | | |
| HOT TOPIC: How Can I Help Wildlife In My Backyard? | | | | | | | | | ● | | | | ● | | | | | | | | | | | | | | | | | |
| HOT TOPIC: How Can People Make A Difference For Chimpanzees? | ● | ● | | | | ● | | | ● | | | ● | ● | | | | | | | | | | | | | | | | | ● |

◉ Indicates that the standard is met by completion of the lesson extension.

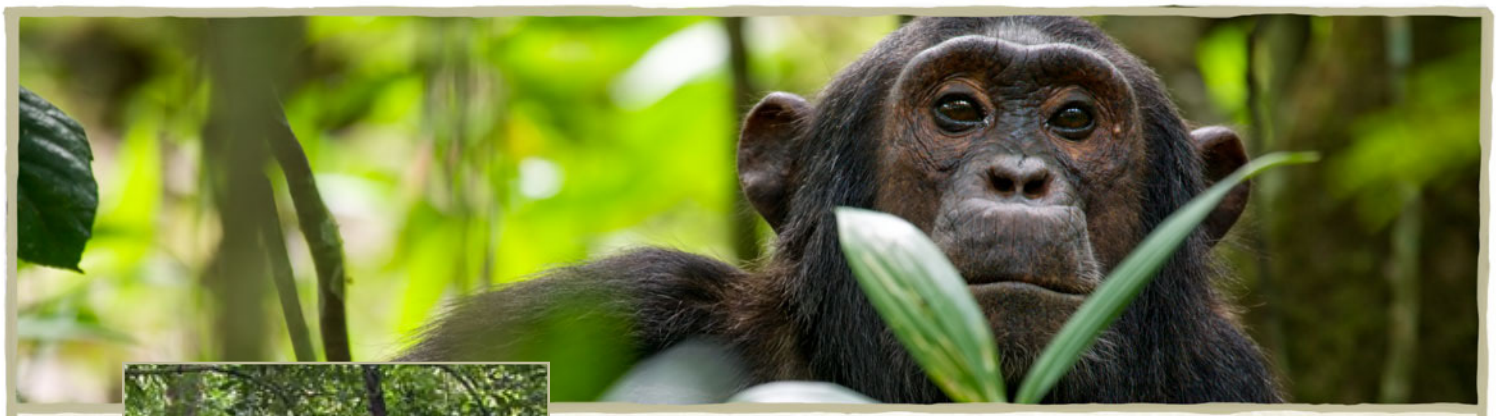
© 2011 Disney Enterprises, Inc.

# NATIONAL STANDARDS ALIGNMENT CHART PART 2

| LESSON TITLE | NATIONAL ART STANDARDS | | | | | | NATIONAL MUSIC STANDARDS | | | | | | | | NATIONAL SOCIAL STUDIES STANDARDS | | | | | COMMON CORE MATH STANDARDS | | | COMMON CORE LANGUAGE ARTS STANDARDS | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Understanding and applying media, techniques and processes | Using knowledge of structures and functions | Choosing and evaluating a range of subject matter, symbols and ideas | Reflecting upon and assessing characteristics and merits of their work and the work of others | Making connections between visual arts and other disciplines | | Singing, alone and with others, a varied repertoire of music | Performing on instruments, alone and with others, a varied repertoire of music | Improvising melodies, variations, and accompaniments | Composing and arranging music within specified guidelines | Listening to, analyzing, and describing music | Evaluating music and music performances | Understanding music in relation to history and culture | | People, places and environments | Global connections | Science, technology and society | Civic Ideals and practice | | Measure and estimate lengths in standard units | Graph points on the coordinate plane to solve real-world and mathematical problems | Represent and interpret data | | Speaking & listening | Reading informational text | Writing | Speaking |
| What Makes A Chimpanzee Special? | | | | | | | | | | | | | | | | | | | | ● | | | | | ● | | |
| How Are Chimpanzees Adapted To The Rainforest? | | | | | | | | | | | | | | | | | | | | | ● | | | ● | ● | ● | |
| Where Do Chimpanzees Live? | | | | | | | | | | | | | | | ● | | | | | | | | | | ● | | |
| How Are Chimpanzees And The Rainforest Connected? | | | | | | | | | | | | | | | ● | ● | | | | | | | | | ● | | |
| Who Are Chimpanzees' Neighbors? | ● | ● | ● | | ● | | | | | | | | | | | | | | | | | | | ● | ● | ● | |
| Who Shares The Rainforest With Chimpanzees? | | | | | | | ● | ● | | ● | | | | | | | | | | | | | | | ● | | |
| What Do Animals Eat In The African Rainforest? | | | | | | | | | | | | | | | ● | | ● | | | | | | | | ● | | |
| How Is Energy Transferred Through The African Rainforest Food Web? | | | | | | | | | | | | | | | ● | ● | ● | | | | | | | | ● | | |
| Why Do Chimpanzees Use Tools? | | | | | | | | | | | | | | | | | | | | | | | | | ● | | |
| What's In A Face? | ● | | ● | | ● | | | | | | | | | | | | | | | | | | | | ● | | |
| How Do Chimpanzees Communicate Without Making Noise? | | | | | | | | | | | | | | | | | | | | | | | | | ● | ● | |
| What Sounds Do Chimpanzees Make? | | | | | | | | ● | ● | ● | | | | | | | | | | | | | | | ● | | |
| How Do Chimpanzees Use Sound To Communicate? | | | | | | | | ● | ● | ● | ● | ● | ● | | | | | | | | | | | ● | ● | ● | |
| How Do Chimpanzees Spend Their Day? | | | | | | | | | | | | | | | | | | | | | | | | | ● | ● | ● |
| How Do Chimpanzees Interact With Each Other? | | | | | | | | | | | | | | | | | | | | | | | | | ● | ● | |
| HOT TOPIC: What Clues Do Chimpanzees Leave Behind? | | | | | | | | | | | | | | | | | | | | | | | | ● | ● | ● | |
| HOT TOPIC: How Do Scientists Study Chimpanzees? | | | | | | | | | | | | | | | | | | | | | ● | ● | | ● | ● | ● | |
| What Is The Difference Between A Monkey And An Ape? | | | | | | | | | | | | | | | | | | | | | | | | | ● | | |
| How Do Scientists Classify Primates? | | | | | | | | | | | | | | | | | | | | | | | | ● | ● | ● | |
| How Does Habitat Loss Affect Chimpanzees? | | | | | | | | | | | | | | | | | | | | | | ● | | | ● | | |
| How Can Recycling Electronic Protect Chimpanzee Habitat? | ● | | ● | ● | ● | | | | | | | | | | ● | ● | ● | ● | | | | | | | ● | | |
| HOT TOPIC: How Can I Help Wildlife In My Backyard? | ● | ● | ● | ● | ● | | | | | | | | | | | | | | | | | | | ● | ● | ● | |
| HOT TOPIC: How Can People Make A Difference For Chimpanzees? | | | | | | | | | | | | | | | ● | | | ● | | | | | | | ● | | |

● Indicates that the standard is met by completion of the lesson extension.

© 2011 Disney Enterprises, Inc.



The African rainforests are home to a diverse array of wildlife, including chimpanzees.

# WELCOME TO THE WORLD OF CHIMPANZEES

This Disneynature **CHIMPANZEE** Educator's Guide introduces you and your students to the extraordinary world of chimpanzees, their unique habitat, remarkable behaviors and complex social world. You will learn that chimpanzees are endangered, that they face many challenges in the wild, and that scientists and others are making great strides to help these amazing creatures survive. Most importantly, you will discover fun and engaging ways that you and your students can take action to create a more positive future for chimpanzees as well as wildlife in your own backyard, schoolyard and community.

The goals of this Guide are to:

- **Promote** life-long conservation values through outdoor activities that encourage nature exploration and discovery
- **Provide** fun, creative environmental activities that encourage your students to help people, wildlife and the planet
- **Inspire** you and your students to create positive changes for chimpanzees and other wildlife species in your school, community and world

## HOW TO USE THIS GUIDE

This Chimpanzee Educator's Guide introduces key concepts from the Disneynature film **CHIMPANZEE** through an exciting series of engaging, standards-based activities for students in grades 2-6. Lessons can be completed chronologically or independently. Each activity incorporates a variety of learning styles and subject areas and sets the stage for additional learning.

The activities in this guide include:

- Detailed lesson plans and student materials
- Correlations to National Science, Social Studies, Music and Art Standards
- Correlations to Common Core English/Language Arts and Math Standards
- Optional extensions that provide additional learning opportunities
- Additional resources for teachers and students
- Outdoor options that promote nature exploration and discovery
- "Connect with Nature" student activities and action steps that support wildlife and connect students to nature in their backyard, schoolyard or community

## SAFETY OUTDOORS

Connecting children to nature means taking them outdoors into the beauty of nature. In order to ensure a safe experience, we suggest you walk the outdoor area the day before to look for any potential safety hazards. Be aware of any plants that might cause skin irritation such as poison ivy. The goal is to have a fun, immersive, safe experience outdoors.



© 2011 Disney Enterprises, Inc.

# KNOW, WANT TO KNOW, LEARNED (KWL) ASSESSMENT TOOL

## OBJECTIVES

The assessment tool is designed to help you, the educator, conduct a modified Know, Want to Know, Learned (KWL) assessment with students so that you will be able to:

- Determine the students' knowledge, attitudes and behaviors about chimpanzees before viewing the film and participating in the provided lessons.
- Adapt teaching styles and content to address the gaps in students' knowledge, attitudes and behaviors about chimpanzees.
- Assess the change in the students' knowledge, attitudes and behaviors about chimpanzees after viewing the film and participating in the provided lessons.

**The Final Project and its accompanying rubric is another form of assessment included in this curriculum. Find it on page 127.**

## PROCEDURES

1. **Before conducting any of the provided lessons,** lead a class discussion about chimpanzees using the following questions:
   - What do you know about chimpanzees?
   - What questions do you have about chimpanzees?
   - How do you feel about chimpanzees?
   - What can you do to protect chimpanzees?
2. You may choose to have the students answer these questions individually in a KWL chart, in small groups, or as a class using a flipchart or whiteboard.
3. Save students' responses to the questions for use after completing the lessons.
4. **After conducting the lessons** from the Educator's Guide and viewing the film, lead another class discussion using the same questions as in the formative assessment.
   - What do you know about chimpanzees?
   - What questions do you have about chimpanzees and can you answer the questions posed in the pre-assessment?
   - How do you feel about chimpanzees?
   - What can you do to protect chimpanzees?
   - What did you learn about chimpanzees?

Compare the students' responses before and after the lessons. Teachers should expect to see an increase in the students' depth of understanding of chimpanzees reflected in a larger vocabulary, more detailed information and clear actions that they can take to protect chimpanzees. Attitude and behavior changes are always more difficult to achieve, but hopefully if the film and the lessons inspire students, they may feel and act differently afterwards.



© 2011 Disney Enterprises, Inc.

# TEACHER'S BACKGROUND INFORMATION

## Why Are Chimpanzees Important?

**Chimpanzees are a lot like us:** It's easy to see why people are fascinated by these highly social and intelligent creatures. They live in communities. They feel and express a variety of emotions like sadness, excitement, anger and happiness. They create close bonds with family and friends…in short they're a lot like us!

**Chimpanzees are amazing:** They use simple tools and display distinct cultural differences – characteristics that were once thought to be limited to humans. They use medicinal plants to treat illness and injuries. And despite their smaller stature, a full grown chimpanzee is six times stronger than a human!

**Chimpanzees are endangered:** Just 100 years ago, roughly 1 million chimpanzees lived in the lush rainforests of equatorial Africa. Today, only 1/10 remain, primarily due to habitat loss and illegal hunting. Current trends indicate that African ape populations will decline by an additional 80% in the next 30 to 40 years.

**You can help:** Simple activities like recycling cell phones and purchasing sustainable products can help create a more positive future for chimpanzees.

### CLASSIFYING CHIMPANZEES: FROM KINGDOM TO SPECIES

Supports Lessons:

- What Is The Difference Between A Monkey And An Ape? (Grades 2-3)
- How Do Scientists Classify Primates? (Grades 4-6)

Taxonomy is the science of categorizing and identifying living things based on natural relationships. The Linnaean taxonomic system groups organisms into a specific kingdom, phylum, class, order, family, genus, and species based on similarities in ancestry, form and bone structure.

#### How Do Scientists Classify Chimpanzees?

**Kingdom** .....*Animalia*
**Phylum** .....*Chordata*
**Class** .....*Mammalia*
**Order** .....*Primata*
**Family** .....*Hominidae*
**Genus**.....*Pan*
**Species** .....*troglodytes (common chimpanzee)*

Chimpanzees belong to the order *Primata*, which includes prosimians, monkeys and apes. While diverse, all primates share some traits like color vision, increased brain development, hands that can grasp, opposable thumbs and forward facing eyes.

#### Prosimians, Monkeys And Apes… What's The Difference?

Prosimians include tarsiers, lemurs, lorises and bushbabies. They are the most primitive of the living primates and therefore can look quite different from monkeys and apes. Prosimians are primarily tree dwellers with strong hind legs, shorter arms and hands designed for leaping and clinging to vertical branches. They are typically active at night and usually have large eyes. Prosimians have long snouts with a well developed sense of smell.

Apes differ from monkeys in several ways. Monkeys have tails. Apes do not. Monkeys are usually smaller than apes, walk on all fours with palms down and have relatively smaller brains. Due to their different skeletal structure, apes have a more upright posture. Since their arms are longer than their legs, apes walk on the knuckles of their hands. Apes also have larger and more developed brains than monkeys. Chimpanzees are classified as great apes in the family Homindae along with gorillas, bonobos and orangutans.

Because chimpanzees and bonobos share some physical and behavioral traits that are different from other great apes they are both classified in the genus *Pan*. Finally the genus is broken down into species. The most common


© 2011 Disney Enterprises, Inc.

way to list the scientific or taxonomic name of an organism is to list the genus and species. The scientific name for the chimpanzee is *Pan troglodytes*.

### Bonobo: The Other Chimpanzee

Before 1926 scientists thought the bonobo, *Pan paniscus*, was just a smaller version of the chimpanzee *Pan troglodytes*. Today, they are considered two separate species due to their physical and behavioral differences. Bonobos are more slender than chimpanzees. They also have a smaller head, broader nose and hair on the head that parts down the middle.

## WELCOME TO THE AFRICAN RAINFOREST: HOME OF THE CHIMPANZEE

**Supports Lessons:**

- Where Do Chimpanzees Live? (Grades 2-3)
- How Are Chimpanzees And The Rainforest Connected? (Grades 4-6)
- Who Are Chimpanzees' Neighbors? (Grades 2-3)
- Who Shares The Rainforest With Chimpanzees? (Grades 4-6)
- What Do Animals Eat In The African Rainforest? (Grades 2-3)
- How Is Energy Transferred Through The African Rainforest Food Web? (Grades 4-6)

Africa's rainforests are magical places – hot, humid and humming with life. Colorful birds and bats rest high in the trees. Crocodiles hide in dark pools. Tiny antelope, pygmy hippos and even elephants wander though the dimly lit understory. This is the remarkable home of the chimpanzee.

### Africa: Big And Diverse

Chimpanzees are only found in Africa – the world's second largest continent. This immense land mass covers 11,668,545 square miles; that's over three times larger than the continental United States! Africa is made up of 53 countries. Some are well known like South Africa, Egypt and Kenya. Others are less familiar like Djibouti, Eritrea, Togo and Guinea-Bissau. Due to its immense size, location and diverse geography, Africa's environments range from deserts, vast savannas and mountain peaks, to the tropical rainforests that chimpanzees call home.

Chimpanzees can be found in 24 countries within tropical Africa – a region that runs along the equator (an imaginary line dividing the northern and southern hemispheres) and 23.5 degrees latitude to the north and to the south. The Tropic of Cancer and Tropic of Capricorn are latitude lines (imaginary lines that run from East to West) that mark the northern and southern boundaries of the tropics. The consistently warm temperatures, intense sunlight, heavy rainfall (at least 100 inches per year) and 12-hour days found in this region provide the conditions that rainforests need to grow.

### Chimpanzees: At Home In The Rainforest

Like humans, every animal needs a habitat or home where they can find food, water, cover and a place to raise young. While humans can live in a variety of habitats, animals are usually designed to live in a specific habitat. Chimpanzees are well designed for rainforest living. In turn, the rainforest provides them with all that they need.

To a chimpanzee, the rainforest is like one big grocery store! Shrubs, ferns, grasses and trees provide tasty fruits, nuts, seeds and flowers. Insects and small animals roam the rainforest floor or reside in the trees ready to be captured and eaten. At night, trees become "bedrooms" providing a secure place to sleep that is well out of a predator's reach.

When a chimpanzee is sick, the rainforest serves as its pharmacy. Wildlife researchers (scientists who study wildlife) have observed chimpanzees swallowing "leaf pills" to treat illnesses. The rainforest even serves as their "hardware store" providing them with sticks, rocks, branches and leaves needed to fish for ants, probe for termites, crack nuts or scoop water from streams.

### Chimpanzee Neighbors: Living Life Among The Layers

Chimpanzees share their home with a variety of "neighbors" – other animal species that live among the four levels of the rainforest:

- The rainforest floor is humid and so shady that few plants grow. However, the rainforest floor teems with life. Insects like ants, beetles and termites, along with millipedes, lizards, snakes and scorpions live among the leaf litter or hide in huge buttress


© 2011 Disney Enterprises, Inc.

roots. Larger animals like pygmy hippo, rainforest elephant, bongo, honey badger, duiker and leopard roam the open floor in search of food.

- The understory consists of shrubs and trees that grow about 10–30 meters (about 30–100 feet) above the ground. The dim light keeps trees from growing too thickly and flowers rarely bloom. Ferns and woody vines called "lianas" thrive here, along with animals like fishing owls, tree hyraxes, mangabeys and tree pangolins. Chimpanzees climb the understory by day in search of fruit and at night to sleep.
- The canopy layer rises like a giant green roof forming a thick layer of leaves and branches 30 meters (100 feet) over the rainforest floor. This layer receives a lot of sunlight that helps leaves, fruit and seeds grow. More animals live here than anywhere else in the rainforest, including fruit bats, hornbills, colobus and Diana monkeys. These canopy dwellers are so well suited to life above the rainforest floor that some never come down to the ground!
- Emergents are giant trees that grow through the canopy layer. At 40 meters or more (130 to 200+ feet) these towering trees are well adapted to sun and wind, with small leaves, umbrella shaped crowns, tall, slender trunks and buttress roots up to 10 meters (30 feet) wide! Animals like eagles, insects, birds and butterflies climb to this level to find food and sun or to escape predators.

### A Delicate Balance: Everything In The Rainforest Is Connected

All living and non-living things within the rainforest, including plants, animals, rocks and soil, make up the rainforest ecosystem. Plants (producers) change sunlight and nutrients from the soil into food for herbivores (animals that eat plants). Herbivores become prey for carnivores (meat eaters) and omnivores (animals that eat both plants and animals). When animals die, their bodies decompose and replenish the soil so new plants can grow.

### Sharing The Rainforest: Working Together To Keep The Rainforest Healthy

Every plant and animal in the rainforest has a niche (role) that keeps the rainforest in balance. Decomposers like dung beetles, termites, ants and millipedes break down dead plants and animals. This nourishes the soil and keeps the rainforest floor clean. Butterflies and bees spread pollen, helping plants grow. Herbivores like bongo and red river hogs fertilize the rainforest with their waste. They, along with insects, become prey (food) for large and small predators (animals that eat other animals) like snakes, tree pangolins, crowned eagles, fishing owls, African golden cats and leopards. Predators keep animal populations from growing too large and exceeding the rainforest's carrying capacity – the maximum number of animals an ecosystem can support.

Chimpanzees and other fruit-eaters like fruit bats, duiker and putty-nosed monkeys help the rainforest grow by dropping fruit and seeds as they eat or dispersing the seeds in their dung (scat) as they travel through the rainforest. This ensures a constant food supply for themselves and other plant-eating species. Without them, these plants and animals and ultimately the rainforest itself, would disappear.

## CHIMPANZEE ADAPTATIONS: BUILT FOR LIFE IN THE RAINFOREST

**Supports Lessons:**

- What Makes A Chimpanzee Special? (Grades 2-3)
- How Are Chimpanzees Adapted To The Rainforest? (Grades 4-6)
- Why Do Chimpanzees Use Tools? (Grades 2-3 and 4-6)

Heat, humidity, insects and predators…life in a tropical rainforest isn't easy! Fortunately, chimpanzees have a variety of physical and behavioral adaptations that help them thrive in their rainforest home.

**Size and Weight:** Chimpanzees have sturdy bodies with strong bones and powerful muscles. Like other apes, they lack a tail. An adult male stands about 100 centimeters (40 inches) tall and weighs 35–65 kilograms (80–145 pounds). Females are slightly smaller, standing around 91 centimeters (36 inches) tall and weighing 32–50 kilograms (70–110 pounds). Despite their smaller stature, a full grown chimpanzee is six times stronger than a human!


© 2011 Disney Enterprises, Inc.

**Eyes, Ears and Nose:** A chimpanzee's ability to see, smell and hear is similar to ours. Forward facing eyes give them stereoscopic (3-D) vision and the ability to judge depth as they climb through the trees. Color vision helps them find favorite foods like fruits and flowers. A chimpanzee's nose is small and flat. Their large human-like ears stick out from the sides of their head, making it easier to hear distant sounds.
**Teeth:** Humans and chimpanzees have 32 teeth, designed for eating both plants and meat. A chimpanzee's teeth are slightly larger than ours. Male chimpanzees have extra-long canines for fighting off predators and other males.

**Hair and Skin:** A chimpanzee's body is covered in black hair that, like protective clothing, shields them from rain, heat and biting insects. This hair often thins or turns gray as they age just like ours! Except for some hairs on their chin, a chimpanzee's face, ears, fingers, palms, soles and toes are covered with bare skin that changes from pink to black as they grow from infant to adult.

**Arms and Legs:** A chimpanzee's arms are typically one and a half times longer than their body length. These long, strong arms are one of a chimpanzee's most distinguishing features. The length and strength of their arms, the flexibility of their shoulder joints, elbows and wrists and shape of their hands help chimpanzees brachiate (swing from branch to branch) with ease. Short, powerful legs aid in climbing and help them travel long distances across the ground.

**Hands and Feet:** Chimpanzees have hands that are very much like ours with sensitive fingertips, nails rather than claws, fingerprints, and four fingers plus an opposable thumb. Opposable thumbs allow chimpanzees to pick up and hold objects. A chimpanzee's hands and fingers are longer but their thumbs are shorter than ours. These modifications assist with brachiation. Chimpanzees have feet that are shaped like our hands, with an opposable big toe that acts like a thumb. This allows chimpanzees to grip branches with both their hands and feet as they climb.

### Chimpanzee Locomotion: Getting Around By Land And By Tree

Chimpanzees are built to move both on the ground and through the trees. Over ground they typically knuckle walk, or walk on the flat soles of their feet and the knuckles of their hands with fingers curved under. Occasionally, chimpanzees will stand or walk short distances bipedally on two legs, like we do. This type of locomotion is useful when they want to see over tall grass and carry objects. In the trees, chimpanzees travel by walking on top of limbs or brachiating.

### Behavioral Adaptations: Using Tools And Cultural Traits To Survive

Chimpanzees have a highly developed nervous system and large brain. Their capacity for learning and ability to problem-solve, display emotion, manipulate their surroundings and demonstrate complex social behaviors show a level of intelligence that is more like ours than any other species. Chimpanzees use tools and demonstrate cultural diversity – traits that scientists once thought were limited to humans. Using tools like sticks to fish insects from nests, crumpled leaves to soak up drinking water and leafy twigs to brush away flies has allowed chimpanzees to fully use their environment in a way that is second only to humans.

Scientists have also discovered that chimpanzees living in different parts of Africa have distinct customs or cultural traits that are passed along from one generation to the next by learning rather than instinct. For example, chimpanzees in West Africa use stones as hammers to crack open nuts – a behavior that has not been observed among chimpanzees in Central or East Africa. Researchers have discovered almost 40 of these group specific behaviors relating to tool use, communication, grooming rituals and diet preferences.

## CHIMPANZEE COMMUNICATION: CONNECTING THROUGH GESTURES, EXPRESSIONS AND SOUNDS

**Supports Lessons:**

- What's In A Face? (Grades 2-3)
- How Do Chimpanzees Communicate Without Making Noise? (Grades 4-6)
- What Sounds Do Chimpanzees Make? (Grades 2-3)
- How Do Chimpanzees Use Sound To Communicate? (Grades 4-6)

Like humans, chimpanzees use a variety of gestures, body postures, facial expressions and sounds to convey information, establish social bonds and express emotion.


© 2011 Disney Enterprises, Inc.

## Non-Verbal Communication: Speaking Without Words

Did you know that most of our communication takes place without speaking? Whether smiling, slouching or shaking hands, non-verbal communication like facial expressions, body postures and hand gestures allow both humans and chimpanzees to express emotion, strengthen family and community bonds and communicate messages.

Some chimpanzee gestures and expressions resemble ours. Frightened chimpanzees reach out to touch or hug each other. Members of a chimpanzee community will greet long-lost friends with hugs, kisses or a bout of play. However, some chimpanzee expressions are quite different and therefore more difficult for us to read. Lip smacking may indicate a tasty snack to us but to a chimpanzee is a sign of eagerness or intent. The big toothy grin that signals happiness to humans indicates intense fear in chimpanzees. Social grooming (removing dirt, dried skin and debris from the hair of another chimpanzee) may look strange to us, but is an important bonding activity within chimpanzee families and communities.

Non-verbal communication allows chimpanzees to establish their social status without the need to fight and risk injury. A male chimpanzee may charge, scowl, hand slap, stomp, drag branches and hurl rocks to intimidate other males and proclaim dominance. Subordinates will approach with submissive signals such as crouching, bobbing, bowing, extending their hand to a dominant chimpanzee's mouth, and showing their back to show they are not a threat. The dominant male will then allow them to move closer and gently touch their backs, arms or hands. These gestures calm a stressful situation by showing that everyone clearly understands the established social structure.

## Making Faces

With their large eyes and flexible lips, chimpanzees, like humans, reveal many feelings and moods through facial expressions. These range from puckered lips that indicate worry to a relaxed smile that signals contentment. Chimpanzees are sensitive to the facial expressions of others in their group and constantly monitor faces, including eye movement to determine their moods and intentions. Common expressions include:

- **Play:** A mouth slightly open with the top lip over teeth and in a relaxed position means all is calm, let's go play!
- **Fear:** The open "fear grin" displayed by a frightened or nervous chimpanzee is similar to the nervous smiles given by humans in a tense or stressful situation.
- **Anger:** A clenched mouth and compressed lips signal hostility. The display face is a hostile expression showing teeth in a wide open mouth with facial hairs erect and is used during attacks or displays of aggression.

## Verbal Communication: Speaking With Hoots, Grunts And Screams

Like your dog or cat (or even you!) chimpanzees use different sounds or vocalizations to communicate. Intra-party calls are used within a group, while distance calls are used to communicate between groups when they are separated in the rainforest. These long distance calls are used to indicate danger or food and can be heard up to two miles away! While a chimpanzee's unique voice box does not allow them to actually speak, some sounds like screaming and laughing closely resemble ours. Others like the pant hoot are exclusive to chimpanzees. Each chimpanzee has their own pant hoot that loudly and distinctively identifies one individual from another. This allows other chimpanzees to recognize who is making the call. Pant hoots indicate excitement and may be used in a variety of situations such as finding fruit trees, responding to other distant pant hoots or during joyous times like reunions. The pant hoot is just one of 32 different calls used by chimpanzees to communicate feelings such as anger (waa bark), puzzlement (huu) and distress (a scream, whimper or hoo).

## Buttress Drumming: Using Roots To Touch Base In The Rainforest

While foraging through the rainforest for food, male chimpanzees sometimes keep in contact by banging their hands and feet on large buttress roots of trees. This drumming produces a bass drum sound that can be heard for almost 1 kilometer (a little over a half a mile). By knowing where the males are located, the community can meet in the evening to build their sleeping nests together.


© 2011 Disney Enterprises, Inc.

## CHIMPANZEE BEHAVIOR: A LOOK INTO THEIR UNIQUE LIVES

**Supports Lessons:**

- How Do Chimpanzees Spend Their Day? (Grades 2-3)
- How Do Chimpanzees Interact With Each Other? (Grades 4-6)

Chimpanzees reside in communities. They use tools. They engage in local politics, play with their friends and occasionally fight with the neighbors. Sound familiar? In some ways, chimpanzees behave a lot like us!

### Chimpanzee Society: Fluid And Complex

Chimpanzee populations live in communities of 15 to 120 individuals. Each community consists of males and females of varying ages that share a territory. A territory can range from 6–95 square kilometers (4–120 square miles), depending on the amount of food available within its borders. Male chimpanzees stay in one community their entire lives. However, females will sometimes leave their mothers and join new communities when they reach adulthood. Although chimpanzees are highly social, males in particular are very protective of their territory. Groups of related males, including fathers, brothers and cousins will patrol borders, spy on and even wage war with neighboring communities!

A chimpanzee community is known as a fission-fusion society. This means that the larger community continually breaks into smaller groups that change in size and composition. Individuals in each group may vary in age and gender. Some groups form temporarily around a common purpose such as finding food, while others are long lasting and based on strong relationships. The most common group is a mother and her dependant offspring who are together constantly. Sometimes two or more females and offspring will meet, eat, rest and play together. Occasionally individuals will leave the community for several days and return. Adult males will sometimes forage alone or join other males to hunt or patrol. At nightfall, groups will often gather in the same area to sleep.

### Social Dominance: Jostling For The Top Of The Social Ladder

In chimpanzee societies, there is a definite hierarchy, especially among males. The highest ranking male is the alpha male. Alpha males may maintain their status for 3 to 10 years and only a few reach this top rung of the social ladder. Alpha status is gained by intimidating others through dramatic dominance displays that may feature stamping, slapping, charging, bristling hair (called pilo-erection), throwing objects, dragging branches and other threatening gestures. Subordinate males let the alpha know they are not a threat through submissive behaviors like bowing, crouching and whimpering. These obvious gestures keep actual attacks to a minimum. But there is more to being an alpha male than just power. In fact, some alpha males are not necessarily the largest and strongest in the community. Some males employ teamwork rather than muscle to reach the top by using complex political scheming and forming alliances to gain alpha status. The alpha male keeps the peace in the community by settling disputes, controlling access to females and maintaining the social order. Although females rank lower in social status than males there is a social hierarchy among them as well. Rather than intimidation, females depend on personality, age and respect from lower ranking females to achieve alpha female status. Unlike males, females can also inherit their status from their mothers.

### From Fruit To Nuts: Finding Food In The Rainforest

Chimpanzees are omnivores like us, meaning they eat both plants and animals. Fruit makes up about 60% of their diet and young, tender leaves are a favorite afternoon snack. However they also eat a wide variety of seeds, flowers, nuts, stems, tree resin, honey and bark. Menus vary with the season and can include as many as 20 different types of plants in a single day or up to 300 varieties in a year!

Chimpanzees spend spend 6 to 8 hours daily foraging for food. Every morning, feeding parties disperse throughout their territory in search of fruiting trees. When they come across a tree laden with fruit they announce their discovery with a loud pant hoot that attracts other community members to share in the feast.

Along with plants, chimpanzees enjoy dining on insects like termites and ants. Within some communities, individuals use


© 2011 Disney Enterprises, Inc.

sticks or long blades of grass to probe or "fish" for these tiny snacks from their nests and mounds. Just like your family may pass along favorite recipes, chimpanzees will pass favorite feeding strategies like probing for insects or cracking nuts with rocks from one generation to the next. Occasionally, groups of males will also hunt small mammals like bushpigs, birds, small antelope or monkeys. These hunts are usually well coordinated with hunting groups organized somewhat like a football team. Some chimpanzees block the prey's escape while others chase it into an ambush. If successful, the hunters will usually share some of the meat with other group members. Meat, including insects, makes up about 5% of a chimpanzee's diet.

### Keeping Clean, Calm And Connected Through Social Grooming

Grooming is a very important social behavior. Individuals use their fingers, lips, or teeth to clean dirt, flaking skin, burs, seeds, insects and parasites from their own hair or from the hair of others in their community. Grooming helps keep skin healthy and strengthens relationships between family and community members. In fact, many researchers believe that when it comes to chimpanzees, group or "social grooming" is the most important social behavior there is!

Social grooming is the chimpanzee equivalent of chatting with family or friends. Chimpanzees will use grooming to calm each other, make up after a quarrel, get something they want, make friends or to simply show their affection. When the dust settles after a chimpanzee reunion, they will often sit down and groom each other. Grooming sessions can include as many as 10 individuals of varying ages and will often include a mother and her offspring, ranging from infants to adults. Adult males of all ranks will take turns grooming each other as well. This interaction strengthens the alliances needed to protect territory and gain social status. A grooming session can last a few seconds, minutes or even hours!

### Nest Building: Building Beds In The Trees

While you may prefer that your bed be placed firmly on the floor, chimpanzees build nests and sleep in trees! From this treetop vantage point chimpanzees can see potential predators in time to react. Nests are built by bending large branches and breaking and interweaving smaller ones to create a soft, round tangle of branches, twigs and leaves. Chimpanzees usually build fresh nests in the trees each night and occasionally build day nests on the ground. Mothers and their offspring are the only individuals that share a nest.

### Growing Up Chimpanzee

Female chimpanzees give birth to a single infant (twins are rare) every 5 to 6 years. A newborn chimpanzee weighs 1.3–1.8 kilograms (3–4 pounds) and is born helpless. Within a few days it is able to travel by clinging to its mother's stomach and by 5 to 7 months old it is strong enough to ride on her back. By the time a young chimpanzee reaches 4 years of age, it will travel mostly by walking. A young chimpanzee will continue to sleep in their mother's nest and nurse until they are 4 to 5 years old – about the time another sibling comes along. A young chimpanzee requires maternal care until they are 8 or 9 years old but will stay closely bonded with their mother throughout its life. Because of this extended childhood, most chimpanzee mothers raise only 3 or 4 offspring during their lifetime.

### Childhood: A Time For Learning

Chimpanzees have such a long childhood because, like human children, they have a lot to learn! Unlike most species that rely on instinct, chimpanzees must learn all of the behaviors and skills they will need to survive as adults. That means that every day is a school day for young chimpanzees! Chimpanzee youngsters learn the same way that human children learn – by observing and imitating their mothers, siblings and other adults through trial and error and through instruction. Chimpanzees are one of the few non-human species that have been observed deliberately teaching skills to their young. Through these methods, young chimpanzees learn the rules of chimpanzee society, how to behave and interact with other chimpanzees, and basic skills like nest building, finding food and making tools.

### Preparing For Life Through Play

Like human children, young chimpanzees spend much of their day playing. They chase each other around trees, tickle, wrestle, fight, run, spin and play hide-and-seek.


© 2011 Disney Enterprises, Inc.

Sometimes they play by themselves, making up activities and using branches, leaves or rocks as toys. While it all looks like fun and games, they are also learning important behaviors and skills they will need later in life. Through play, young chimpanzees become strong and agile and learn how to navigate quickly through the rainforest. They discover how to get along with others and how to interpret and react appropriately to certain expressions and body postures. Sometimes adult chimpanzees play too, either with youngsters or with other adults. When play becomes especially boisterous, chimpanzees even laugh!

## THREATS TO CHIMPANZEES

**Supports Lessons:**

- How Does Habitat Loss Affect Chimpanzees? (Grades 2-3)
- How Can Recycling Electronics Protect Chimpanzee Habitat? (Grades 4-6)

Chimpanzees are in danger! Just 100 years ago, roughly 1 million chimpanzees lived in the lush rainforests of equatorial Africa. Today. only 1/10 remain. This decline is primarily due to habitat loss and illegal hunting.

### Habitat Destruction: Chimpanzees Homes Are Shrinking Fast

In Africa, rainforests are logged for timber, mined for minerals and cleared for crops and grazing land. As their rainforest homes disappear, chimpanzees and other species are forced to live in smaller areas that no longer provide the space and food they need to survive. The rainforests that remain are often surrounded by communities and farms. The close proximity makes it easier for chimpanzees to raid farmers' crops, increasing conflicts with people. Increased human contact also exposes chimpanzees to life-threatening diseases like pneumonia, polio, chicken pox and influenza. Even the common cold can be deadly to chimpanzees.

Africa's human population is growing fast. As the number of humans increases, the competition between people and chimpanzees for living space and rainforest resources continues to grow.

### Commercial Logging: Selling The Rainforest For Timber And Fuel

Commercial logging has opened vast areas of remote tropical rainforests to clear cutting. This erodes soil, damages streams and can turn lush rainforests into deserts. In addition, because desirable trees are dispersed throughout the rainforest, logging companies are constantly making new roads. These roads separate large portions of the rainforest and can lead to wide-scale habitat destruction.

In addition to cutting down trees, loggers will often hunt chimpanzees and other forest animals to feed themselves and their families. Roads built to transport logs also provide illegal hunters with easy access into the rainforest. These commercial hunters supply urban restaurants and international markets with chimpanzee, gorilla and antelope meat, which are considered delicacies in some areas and can be sold for a high price at market. Logging trucks make it easy to transport this meat into larger cities.

### Commercial Mining: Chimpanzee Habitat Is Losing Ground

Like logging, mining for coltan (a metal used in cell phones and other electronic devices) and other rare minerals has had a tremendous impact on chimpanzees and other rainforest species. About 80% of the world's coltan reserves are located in the Democratic Republic of Congo – which is also home to chimpanzees, bonobos, gorillas and many other rare species.

Mining destroys rainforests and streams, threatening both wildlife and indigenous people. It opens previously inaccessible rainforests to tens of thousands of miners who set-up camps, hunt animals for food and profit, and illegally sell orphaned apes.

### The Bushmeat Trade: Hunting Chimpanzees Into Extinction

For centuries, the indigenous people of Africa's rainforests hunted chimpanzees and other wildlife species for food, taking only what they needed to survive. However, due to increased urban populations, demand from urban restaurants and international markets, the opening up of rainforests by logging companies, and increased access to guns, hunting for bushmeat (meat from wildlife species)


© 2011 Disney Enterprises, Inc.

has gone from a subsistence practice to large scale commercial trade. While laws exist in many areas, they are difficult to enforce. Chimpanzees are now being hunted at an unsustainable rate and many experts believe it is currently the greatest threat to chimpanzees and other rainforest species.

The bushmeat crisis has a human toll as well. The unprecedented loss of wildlife threatens indigenous and rural populations who depend on wildlife for their livelihood and for food. Bushmeat hunting also exposes people to diseases that can travel between humans and chimpanzees like ebola and polio.

### Snare Injuries And The Pet Trade: By-Products Of Bushmeat

Even when chimpanzees are not targeted by hunters, they can be injured or killed by wire snares set for other species. A snare trap is a simple noose that tightens over part of an animal's body as it tries to pass through. Because snare traps catch anything that passes, chimpanzees are accidentally caught in these traps. Those that survive often suffer permanent injuries to their hands and feet, making it difficult for the chimpanzee to find food, climb trees, carry their babies and escape predators. In some areas, up to 50% of the chimpanzee population suffers from permanent snare injuries.

Orphaned chimpanzees are another by-product of the bushmeat trade. When hunters kill adult chimpanzees, their young are often captured and sold illegally. It is estimated that 9 out of 10 of these infants die before reaching their final destination. The luckiest of the survivors may end up at one of the 19 Pan African Sanctuary Alliance (PASA) sanctuaries within or nearby their country of origin. In the future, these orphans may be reintroduced to their rainforest home.

### The Plight Of Chimpanzees In The United States

#### Private pet ownership: The harsh realities of chimpanzees as pets

Surprising as it may seem, owning a chimpanzee is currently legal throughout most of the United States. While most would-be pet owners have the best of intentions, they quickly discover that chimpanzees, like other wild animals do not make good pets. Once purchased, owners often find they do not have the space, finances or time to properly care for them. Cute infants quickly become large, powerful, unpredictable adults capable of inflicting deadly injuries. Pet owners are then faced with the nearly impossible task of finding an appropriate home for an unmanageable chimpanzee that may live to be 50 to 60 years old. Although zoos may try to take them into their care, chimpanzees raised by humans often lack the appropriate social behaviors and communication skills needed to live with other chimpanzees, making the transition into a group of chimpanzees difficult.

#### Medical research: Using chimpanzees to benefit human health

In the past, due to their physiological, genetic and behavioral similarities with humans, many chimpanzees were used in biomedical research. These studies have contributed to our understanding of certain diseases such as AIDS, and to the development of treatments and vaccines for diseases like yellow fever, polio and hepatitis. Recently, though, the United States government decided to reduce the number of chimpanzees used in biomedical research. In 2000, Congress established the creation of a national sanctuary system for chimpanzees formerly used in biomedical research. Here they can live out their lives with other chimpanzees in spacious natural surroundings.

### PROTECTING CHIMPANZEES: SAVING CHIMPANZEES THROUGH SCIENTIFIC STUDY, COMMUNITY INVOLVEMENT AND EDUCATION

**Supports Lessons:**

- What Clues Do Chimpanzees Leave Behind? (Grades 2-3)
- How Do Scientists Study Chimpanzees? (Grades 4-6)
- How Can I Help Wildlife In My Backyard? (Grades 2-3)
- How Can People Make A Difference For Chimpanzees? (Grades 4-6)

Chimpanzees are endangered due to habitat loss, bushmeat and human encroachment. Although the threats facing chimpanzees may seem daunting, people from around the world are working together to save them.


© 2011 Disney Enterprises, Inc.

## Saving Chimpanzees Starts With Science: Studying Wild Chimpanzees And Habitats

Protecting chimpanzees starts with studying them in the wild. Understanding their behaviors and habitat needs help scientists make more effective conservation decisions.

Much of what we know about the life of chimpanzees living in the rainforest has been learned through scientific observation in the wild. Occasionally, wild chimpanzees allow researchers to observe them up-close. More often, chimpanzees have to be tracked and observed from a distance. Despite their noisy nature, finding chimpanzees in lush rainforests can be difficult. Luckily, they leave a lot of clues behind like knuckle prints, wadges (chewed food remains), simple tools, dung and sleeping nests. These clues help us track chimpanzees and provide insight into their daily lives.

### Research Tools Of The Trade

Scientists once used little more than binoculars, pencils and notebooks to study animals in the field. Today they are equipped with a wide array of technological tools:

- **Global Position System (GPS) units** and **Geographic Information Systems (GIS)** software allows conservationists to accurately map chimpanzee populations, travel patterns and human activities like logging.
- **Satellite imagery** helps researchers monitor habitat changes and human activities. Because the images are taken from the air, satellites are especially helpful in monitoring remote areas.
- **Analyzing hormones and DNA in urine and dung samples** provides information about a chimpanzee's health and reproductive status.

### Chimpanzee Research And Discoveries

Two scientists that served as technical advisors on the filming of **CHIMPANZEE** are Dr. Jane Goodall and Dr. Christophe Boesch. Most of what we know about chimpanzees today is due to the work of these eminent primatologists.

As one of the most famous primatologists in the world, Dr. Jane Goodall has spent decades studying chimpanzees in Tanzania. She was the first to discover that chimpanzees hunt animals, eat meat and use tools like sticks and leaves. She opened our eyes to the complexities of

## Helping Chimpanzees In The United States

### Accredited Zoos: Providing Care While Raising Awareness

Currently 269 chimpanzees live in 34 United States zoos that are accredited with the Association of Zoos and Aquariums (AZA). These facilities are dedicated to excellence in animal care, conservation, education and science and meet the highest standards in animal health, husbandry and welfare. Chimpanzees within these facilities serve as animal ambassadors for their wild counterparts by raising awareness and appreciation and inspiring conservation action. Many AZA-accredited facilities participate in conservation projects that protect wild chimpanzees and their African habitats.

Chimpanzees living at accredited zoos are cooperatively managed as part of the Chimpanzee Species Survival Plan (SSP). Together, SSP Coordinators, zoos and field professionals work to provide the best possible environment for these amazing animals. Although the SSP program is primarily involved with chimpanzees in accredited facilities, they are ultimately interested in the health and well-being of all chimpanzees, including those living outside accredited zoos and in the wild.

### Accredited Sanctuaries: Providing Permanent Care For Retired And Unwanted Chimpanzees

Here in the United States, some unwanted chimpanzee pets are fortunate to find homes in accredited sanctuaries. North American Primate Sanctuary Alliance (NAPSA) facilities provide permanent care and housing for nearly 470 chimpanzees that have been retired from medical research and the entertainment industry or are no longer wanted as pets. These facilities have the space, resources and knowledge to provide their primate residents with the special care and environments that they need.



© 2011 Disney Enterprises, Inc.

chimpanzee communication, emotions, social behaviors and relationships.

Today, Dr. Goodall spends most of her time promoting chimpanzee conservation. The Jane Goodall Institute (JGI) continues her research in Tanzania and is a global leader in chimpanzee conservation. "Roots & Shoots" is JGI's global environmental and humanitarian youth network.

Primatologist Christophe Boesch (Technical Advisor for **CHIMPANZEE**) is the Director of the Department of Primatology at the Max Planck Institute for Evolutionary Anthropology. For over 20 years, Christophe Boesch has studied chimpanzees living in the Taï National Park of the Ivory Coast (where parts of **CHIMPANZEE** were filmed). His research, publications and documentaries have expanded our knowledge about chimpanzee culture, inter-community relationships and behavior. Christophe Boesch's work prompted him to establish the Wild Chimpanzee Foundation, a conservation organization that protects wild chimpanzees and their habitats.

## Creative Solutions: Creating A Brighter Future For Chimpanzees

Conservation issues are complex and must be addressed using scientific study, creative problem solving, education and local community involvement. Conservationists know that to be effective, programs must support and balance the needs of local people as well as wildlife.

In Africa, some wildlife organizations are helping people and chimpanzees by seeking ways to reduce the competition between chimpanzees and local farmers. When rainforests are cut, mined and farmed they can no longer provide enough food for chimpanzees, driving them to eat crops grown along the rainforest's edge. Like humans, chimpanzees find some crops like sugar cane and cacao especially appealing and will take these foods from farmers. As a result, farmers will sometimes injure or even kill chimpanzees to protect their food and their livelihood. Helping farmers grow crops that are less appealing to chimpanzees like peppers and tea, encouraging farmers to grow crops away from the rainforest's edge, and planting "green corridors" of native trees to re-connect rainforests are some of the ways conservationists are helping chimpanzees and farmers co-exist.

Conservationists are also training farmers in sustainable farming practices. Techniques like mixing crops with shade trees, rotating crops, and using natural fertilizers help to reduce erosion and replenish nutrient-poor soils. This prevents farmers from having to regularly cut down rainforest trees to create new crop fields. Conservation groups are also helping local communities establish sustainable livelihoods like ecotourism that promote rainforest preservation.

Here are a few examples of conservation projects that are protecting chimpanzees, while helping local people:

- **Disney Worldwide Conservation Fund** (DWCF) is an annual awards program focused on the study and protection of the world's wildlife and ecosystems. Since 1998, it has supported a variety of conservation programs focused on protecting chimpanzees while helping local communities. Here are two sponsored projects:
  - **Kibale Community Fuel Wood Project:** Kibale National Park in Western Uganda is home to the densest primate population in Africa. Tragically the park is being cut down for firewood. This project helps people living on the park's borders grow native trees for fuel and build fuel efficient cooking stoves that use 32% less fuel. Because they produce less smoke, these stoves are also healthier to use.
  - **Village Enterprise Fund – Budongo Forest Project:** helps people living along the edges of Uganda's Budongo Forest which is home to over 600 chimpanzees. This project helps local communities develop sustainable livelihoods like raising livestock instead of selling bushmeat, while reducing their dependency on rainforest resources.
- **The Jane Goodall Institute** (JGI) supports chimpanzee research, community conservation and education efforts that protect chimpanzees and their habitats.
- **The Disneynature Tchimpounga Natural Reserve Project in Congo**. In honor of every moviegoer who sees **CHIMPANZEE** opening week, Disneynature will make a donation to the Jane Goodall Institute to protect chimpanzees today and tomorrow.


© 2011 Disney Enterprises, Inc.

- This donation will allow JGI to set up a management plan for key conservation areas in the newly expanded Tchimpounga Natural Reserve and allow the hiring of additional park rangers and supplies and signs needed to protect this newlysecured area.
- JGI will also expand its education program to increase the awareness of school-aged children in Pointe Noire and villages adjacent to Tchimpounga about the plight of chimpanzees in Congo. The rainforest will become a living classroom, and these programs will inspire students to appreciate and care for their local rainforests and their chimpanzee residents.
- The Disneynature program will also provide food and medicine for chimpanzees at JGI's Tchimpounga Chimpanzee Rehabilitation Center, which is the largest chimpanzee sanctuary in Africa. Originally designed to provide sanctuary for 30 chimpanzees, JGI is currently caring for more than 150 chimps that rely on JGI for food, medicine, and care.

- **The Wild Chimpanzee Foundation** (WCF) enhances the survival of chimpanzees and their habitats through education, conservation and research. The **Educating Communities Through Interactive Theater** project attempts to reduce poaching and human-chimpanzee conflict through interactive theater performed by professional groups and school children. The *Ymako Teatri* (*Our Cousins of the Forest*) production showcases the striking resemblance between humans and chimpanzees and the challenges of sharing the rainforest.

### African Sanctuaries

The Pan African Sanctuary Alliance (PASA) has developed 19 sanctuaries across the continent to care for the growing numbers of orphaned chimpanzees, bonobos, gorillas and other endangered primates. Here, rescued orphans live in natural social groups and learn survival skills within a safe, semi-wild setting. In some cases, when suitable habitat is available, they may even be reintroduced back into the wild.

TAKING ACTION!

## What You Can Do To Help Protect Chimpanzees

**Chimpanzees need your help too! Here are some ways you can make a difference for chimpanzees as well as the wildlife in your own backyard.**

- See **CHIMPANZEE** opening week and Disneynature will make a donation in your honor to the Jane Goodall Institute to protect chimpanzees today and tomorrow.
- Recycle old cell phones, batteries, computers and electronics. Tell others how recycling these items helps protect chimpanzees and their habitats.
- Research the products that you buy to ensure they do not harm chimpanzees or their habitats. Seek out products that are sustainably grown or made from recycled materials.
- Contribute to wildlife organizations that protect chimpanzees. Organize a bake sale, raffle or environmental festival to raise money and awareness about conservation issues facing chimpanzees.
- Visit your local AZA-accredited zoo. Find out what they are doing to help the animals under their care.
- Tell your friends and family about the value of chimpanzees, the threats they are facing and what they can do to help.
- Learn more about chimpanzees and their habitat needs. See Disneynature **CHIMPANZEE** in theaters, read books, and check out the websites listed in this guide. Subscribe to wildlife conservation magazines and watch nature shows on television and in theaters!
- Create habitats for local wildlife too! Plant a native tree, grow a butterfly garden, hang a bird house, add a birdbath or construct a pond to make a difference for wildlife in your backyard or schoolyard. Visit: http://www.nwf.org/Get-Outside/Outdoor-Activities/Garden-for-Wildlife/Schoolyard-Habitats.aspx to learn more.

© 2011 Disney Enterprises, Inc.

# LESSON 1 | What Makes A Chimpanzee Special?

Grade Level: **2-3** | Subject Areas: **Science, Math** | Time Frame: **1 hour**
Background Information: **Chimpanzee Adaptations: Built for Life in the Rainforest (pages 10-11)**

**VOCABULARY:**

***Adaptation, arm span***

**STUDENTS WILL BE ABLE TO…**

- Define the term adaptation
- Describe why adaptations are important for an organism's survival
- Give at least three examples of chimpanzee adaptations and explain how these adaptations help chimpanzees survive in the rainforest
- Use simple measurements to make comparisons between adaptations of chimpanzees and people

**WHAT YOU NEED**

- Movie trailer from www.disney.com/chimpanzee
- *Amazing Apes!* PowerPoint
- Activity Sheet 1A: *Comparing Hands*
- Activity Sheet 1B: *Comparing Feet*
- Activity Sheet 1C: *How Do You Measure Up To A Chimpanzee?*
- Measuring tape, rulers or yard sticks for students

## LEARNING ACTIVITIES

1. Preview the film **CHIMPANZEE** using the movie trailer on www.disney.com/chimpanzee. Ask students for their observations after watching the trailer: Where do chimpanzees live? What do chimpanzees look like? How might the chimpanzees spend their day?
2. Introduce the term adaptation. Show the class a picture of a chimpanzee or watch the movie trailer again. Ask students to identify what body parts might help a chimpanzee survive in the rainforest. Review these adaptations with the class using the *Amazing Apes!* PowerPoint.
3. Discuss the form and function of a chimpanzee's hands and feet. Have students compare their own handprint and footprint to a chimpanzee's using activity sheets 1A and 1B.
4. To further investigate chimpanzee adaptations, gather students into small groups and distribute rulers or measuring tape to each group. Students should work together to take measurements of their arms, legs, hands and height and record these measurements using activity sheet 1C. Have students compare their measurements to other students' measurements. Discuss reasons for similarities and differences.

## WRAP UP

5. Follow-up your class discussion with these questions:
   - Define the term adaptation in your own words and explain why an adaptation is important for an organism's survival. *An adaptation is a trait that allows an animal to survive in its environment. Without adaptations, organisms would have difficulty finding food, water and shelter, may not be able to escape predators or defend themselves. Ultimately, without adaptations, an organism may not be able to survive in its environment.*
   - Provide three examples of chimpanzee adaptations and describe how these adaptations help a chimpanzee survive. *Chimpanzees have many amazing adaptations. Students should list at least three examples from the adaptations provided on pages 10 and 11 of the background information and connect these adaptations to their purpose (for example, chimpanzees have strong, muscular arms for climbing and moving through trees).*
   - Explain what would happen if a chimpanzee was placed in a different ecosystem, such as the ocean, desert or arctic tundra. *Chimpanzees are adapted to the rainforest and would not be able to survive in most other ecosystems. For example, chimpanzees would not be able to withstand the extreme climates of the desert or arctic. Similarly,*


© 2011 Disney Enterprises, Inc.

# LOOKING AT CHIMPANZEES

## What Makes A Chimpanzee Special? *(2 of 2)*

*chimpanzees have long arms for climbing but they also prohibit swimming. This would make living in the ocean impossible.*

- Describe any similarities between the physical adaptations of chimpanzees and people. *Chimpanzees and people have the ability to walk upright, have color and 3D vision, a good sense of hearing and smell, large brains, hair covering their body, opposable thumbs and fingernails.*
- Which is greater, a chimpanzee's height or arm span? Compare this to your measurements and explain any differences. *A chimpanzee's arm span is about one and a half times its height while people have an arm span that is about equal to their height. This difference is the result of adaptations! Chimpanzees use their long arms to climb and swing through trees. Chimpanzees also "knuckle-walk" on all fours with their fingers curled under and their knuckles supporting their weight.*
- How do a chimpanzee's handprint and footprint compare to yours? Using your knowledge of chimpanzee adaptations, explain any differences. *A chimpanzee's handprint and footprint are much larger in size! Also, the fingers are longer and the thumb is shorter. Long fingers and a short thumb allow chimpanzees to grab branches while moving through the treetops.*

### EXTENDING THE LESSON: SCIENCE

**Option 1:** Use the interactive cards from Lesson 6 to discuss different types of rainforest animal adaptations. Identify what body structures help each of these animals survive in the rainforest and create a chart to compare these adaptations. Encourage students to use some of these adaptations to draw or build their own imaginary rainforest animal. Each student should present their animal to the class and explain where the animal spends its time, how it moves, communicates, catches food and avoids predators.

### CONNECT WITH NATURE

Take a class trip to a local AZA-accredited zoo or aquarium to learn more about animal adaptations. Instruct students to choose their favorite animal to observe. Students should take a picture of their animal and record any adaptations their animal has using a data sheet or journal. Upon returning to the classroom, use students' pictures and field notes to compare the types of adaptations they observed. Engage students in a class discussion to connect an organism's adaptations with its environment.

Prominent ears, forward facing eyes, a flattened nose and a large, flexible mouth are all adaptations that help a chimpanzee survive in the rainforest.

Like people, chimpanzees enjoy playing together. Play is an important behavioral adaptation.



© 2011 Disney Enterprises, Inc.

# LOOKING AT CHIMPANZEES

## What Makes A Chimpanzee Special?

## Comparing Hands

Trace your hand next to this life-sized drawing of an adult chimpanzee's hand!

How do they compare?

© 2011 Disney Enterprises, Inc.

# LOOKING AT CHIMPANZEES

**What Makes A Chimpanzee Special?**

## Comparing Feet

Trace your foot next to this life-sized drawing of an adult chimpanzee's foot!

How do they compare?

© 2011 Disney Enterprises, Inc.

# LOOKING AT CHIMPANZEES

**What Makes A Chimpanzee Special?**

## How Do You Measure Up To A Chimpanzee?

Chimpanzees have special *adaptations* that make them built for the life in the rainforest. Use a ruler or measuring tape to compare yourself to this adult female chimpanzee.

1

Long arms help a chimpanzee climb, swing and move through the trees. A chimpanzee's arms are longer than its legs.

Measure your arms and legs in centimeters.

How do they compare?

Arms:_____ Legs: _____

Which is longer? _____

2

A large arm span helps a chimpanzee reach between branches. A female chimpanzee's arm span is about 136 centimeters.

How big is your arm span in centimeters?

_____

3

Chimpanzees have large palms, long fingers and short thumbs to grasp branches. A chimpanzee's hand is about 23 centimeters long from the wrist to the finger tips.

How long is your hand in centimeters?

_____

4

Chimpanzees usually walk with their knuckles on the ground. But standing, an adult chimpanzee is about 100 centimeters tall.

How tall are you in centimeters?

_____

Visit a local AZA zoo to learn more about animal adaptations. Compare chimpanzee adaptations with the adaptations of your favorite animal!

Disney nature chimpanzee

© 2011 Disney Enterprises, Inc.

# LESSON 2 | How Are Chimpanzees Adapted To The Rainforest?

Grade Level: **4-6** | Subject Areas: **Science, Math** | Time Frame: **1 hour**
Background Information: **Chimpanzee Adaptations: Built for Life in the Rainforest (pages 10-11)**

**VOCABULARY:**
***Adaptation, ape, arm span, brachiation, monkey, primate***

**STUDENTS WILL BE ABLE TO…**
- Define the term adaptation and list at least three examples of chimpanzee adaptations
- Describe the concept and purpose of brachiation in chimpanzees
- Explain how chimpanzee adaptations make them specially designed for life in the rainforest

**WHAT YOU NEED**
- Movie trailer from www.disney.com/chimpanzee
- *Amazing Apes!* PowerPoint Presentation
- Brachiation video clip
- Activity sheet 2A: *How Are Chimpanzees Adapted To The Rainforest?*
- Activity sheet 2B: *Help The Chimpanzee Brachiate Through The Rainforest!*
- One ruler with metric units and one protractor for each student

## LEARNING ACTIVITIES

1. Preview the film **CHIMPANZEE** using the movie trailer from www.disney.com/chimpanzee. Ask students for their observations after watching the trailer: What type of ecosystem is home to chimpanzees? Describe a chimpanzee's physical appearance. List at least three different things you see the chimpanzees doing throughout the day.
2. Introduce the term adaptation. Ask students to identify the adaptations they think would be most useful for a chimpanzee living in the rainforest.
3. Share the *Amazing Apes!* PowerPoint presentation with the class. Review the terms primate, ape, monkey, arm span and brachiation.
4. Have students use information from the PowerPoint presentation to complete activity sheet 2A. As a class, compare the chimpanzee adaptations featured in the PowerPoint presentation and activity sheet to the students' initial predictions. Were their predictions supported?
5. Show students the provided clips of chimpanzee brachiation. Discuss why brachiation is an important adaptation for life in the rainforest. Distribute activity sheet 2B and instruct students to use a ruler and protractor to help the chimpanzee brachiate through the rainforest.

## WRAP UP

6. To end the lesson, bring the class together and lead a discussion using the following questions:
   - Define the term adaptation in your own words and provide at least three examples of chimpanzee adaptations. *An adaptation is a trait that allows an animal to survive in its environment. Chimpanzees have many amazing adaptations. Students should list examples from the adaptations provided on activity sheet 2A.*
   - Explain the term brachiation and how it helps chimpanzees move through the rainforest. *Brachiation occurs when an animal uses its arms to swing from one point to another. Since chimpanzees spend a large amount of time in the trees, brachiation helps them move among the treetops by swinging from branch to branch.*
   - Predict what would happen if a chimpanzee was placed into a different ecosystem. What would happen if an animal adapted to a desert or tundra ecosystem was placed into the tropical rainforest? *Chimpanzees are adapted to life in the rainforest, so they would not survive in another ecosystem. Similarly, an animal adapted to an ecosystem like the desert or tundra would not survive in a warm, humid environment like the tropical rainforest.*


© 2011 Disney Enterprises, Inc.

# CHIMPANZEES' ADAPTATIONS

## How Are Chimpanzees Adapted To The Rainforest? *(2 of 2)*

- How did the distance and angle measurements you made using activity sheet 2B compare to the measurements taken by other students in your class? Explain why there might be differences. What could be done to improve the overall accuracy of these measurements? *Variability always exists when people take measurements or conduct experiments. Since no two people are alike, they may measure the same distance slightly differently. Precise measuring tools (such as rulers in millimeters) and the use of a consistent, pre-decided measuring technique (agreeing to measure to the nearest millimeter, using a ruler to mark a straight line, not working too quickly, etc.) are two ways to improve accuracy.*

### EXTENDING THE LESSON: PHYSICAL EDUCATION, MATH, SCIENCE AND LANGUAGE ARTS

**Option 1:** Each student should measure their arm span and record this on a data sheet. Then, take the class outdoors to a playground with monkey bars. Have students test their brachiating abilities! Use a stopwatch to time how long it takes to travel from one side of the monkey bars to the other (students could also try skipping bars to see how this impacts travel time). Create a class graph comparing arm spans to the amount of time measured to cross the bars. Compare students' findings to the brachiating ability of chimpanzees. Discuss how adaptations impact these results.

**Option 2:** All apes have the ability to brachiate, but only gibbons are considered true brachiators because they are able to fully rotate their shoulders, similar to the propeller on an airplane. Have students research the adaptations of gibbon species and compare these adaptations to chimpanzees.

**Option 3:** People are learning to use plant and animal adaptations to make products we use every day. For example, scientists have copied the structure of burrs to make Velcro and shark skin to make swimsuits for competitive swimmers! This field of study is called biomimicry. Encourage students to learn more about the topic of biomimicry and explore how animal and plant adaptations might be useful in human life. Working in pairs or small groups, have students create and present a proposal for a new invention that incorporates one plant or animal adaptation.

### CONNECT WITH NATURE

Take a class trip to a local AZA-accredited zoo or aquarium to learn more about animal adaptations. Instruct students to choose their favorite animal to observe. Students should take a picture of their animal and record their animal's adaptations using a data sheet or journal. Upon returning to the classroom, use students' pictures and field notes to discuss the types of adaptations they observed.

### LESSON RESOURCES

**For Students**

- Biomimicry Institute. *What could nature teach us?* 19 July 2011. http://www.biomimicryinstitute.org/case_studies.php

**For Teachers**

- Animal Simulation Laboratory. *Brachiation Simulation.* The University of Manchester. 19 July 2011. http://homepage.mac.com/wis/ASL/Projects/Brachiation/index.html

ANSWER KEY: Activity Sheet 2B

< ABC = obtuse, ~ 103 degrees
< BCF = obtuse, ~ 125 degrees
< CFG = actue, ~ 80 degrees
< FGH = obtuse, ~ 142 degrees
< GHJ = obtuse, ~ 115 degrees
< HJL = obtuse, ~ 129 degrees
< JLM = obtuse, ~ 137 degrees

1.5 meters = 3 centimeters.

Which angle is greatest?
< FGH

Which angle is smallest?
< CFG



© 2011 Disney Enterprises, Inc.

# CHIMPANZEES ADAPTATIONS

**How Are Chimpanzees Adapted To The Rainforest?**

## How Are Chimpanzees Adapted to the Rainforest?

Chimpanzees are built for life in the rainforest. Fill in the blanks to describe how each adaptation helps a chimpanzee survive in its rainforest environment.

### EARS
- Large Ears: _____

### EYES
- Color Vision: _____
- Forward Facing Eyes: _____

### ARMS
- Long, Strong Arms: _____
- Brachiation: _____

### NOSE
- Good Sense of Smell: _____

### CHEST
- Broad, Muscular Chest: _____

### HANDS
- Large Palm, Long Fingers & Short Thumb: _____
- Nails: _____

### FEET
- Grasping Feet: _____

Visit a local AZA zoo to learn more about animal adaptations. Compare chimpanzee adaptations with the adaptations of your favorite animal!

Disney nature chimpanzee

© 2011 Disney Enterprises, Inc.

# How Are Chimpanzees Adapted to the Rainforest?

## ANSWER KEY

### EARS

- **Large Ears:** Provide a great sense of hearing. A chimpanzee can hear sounds over long distances.

### ARMS

- **Long, Strong Arms:** These help a chimpanzee climb and move through the trees.
- **Brachiation:** Allows a chimpanzee to swing between tree branches using their arms.

### HANDS

- **Large Palm, Long Fingers & Short Thumb:** These allow a chimpanzee to wrap their hands fully around a branch, giving them a better grip when moving through the trees.
- **Nails:** Fingernails and toenails protect the tips of the fingers and toes. They also increase the sense of touch. Fingernails help a chimpanzee pick up small objects and feel details like texture.

### EYES

- **Color Vision:** Helps a chimpanzee find food, especially fruit, and notice small details in their environment.
- **Forward Facing Eyes:** This creates binocular vision. Binocular vision helps a chimpanzee accurately judge distance.

### NOSE

- **Good Sense of Smell:** By using their sense of smell, a chimpanzee can find food, connect with others and gain information about its habitat.

### CHEST

- **Broad, Muscular Chest:** A broad, muscular chest gives a chimpanzee the strength to swing and climb.

### FEET

- **Grasping Feet:** These act almost as a second set of hands. A chimpanzee's flexible toes and an opposable big toe help it pick up and hold objects.



© 2011 Disney Enterprises, Inc.

# CHIMPANZEES ADAPTATIONS

## How Are Chimpanzees Adapted To The Rainforest?

# Help The Chimpanzee Brachiate Through The Rainforest!

1. The chimpanzee can only swing a distance of 1.5 meters each time. Use a ruler to measure the scale. How many centimeters equal 1.5 meters? 1.5 meters = _____ centimeters.
2. Begin at the start point (A). Use a ruler to choose the next best connection point for the chimpanzee, keeping your scale in mind. Draw a straight line to this point.
3. Continue drawing straight lines to move the chimpanzee through the rainforest. Each time, use a ruler to measure the distance between points. Points do not have to connect in alphabetical order and you cannot retrace steps along the path. End at the finish point (M).
4. Estimate each angle along the chimpanzee's path as acute, right or obtuse. Use a protractor to measure these angles and check your predictions. Which angle is greatest? _____ Which angle is smallest?_____

See Disneynature CHIMPANZEE to learn more about the amazing adaptations of chimpanzees and their rainforest home.

Disneynature chimpanzee

© 2011 Disney Enterprises, Inc.

# LESSON 3 | Where Do Chimpanzees Live?

Grade Level: **2-3** | Subject Areas: **Science, Geography** | Time Frame: **1 hour**
Background Information: **Welcome to the African Rainforest: Home of the Chimpanzee (pages 9-10)**

**VOCABULARY:**
***Continent, country, state, city, map***

**STUDENTS WILL BE ABLE TO…**

- Explain the difference between a continent and a country
- Locate the continent of Africa on a world map and globe
- Compare and discuss the size of various geographical land masses using a world map and globe
- Identify how many maps of the United States can fit inside the continent of Africa
- Name at least three countries where chimpanzees live

**WHAT YOU NEED**

- World Map
- Globe
- Activity Sheet 3A: *United States Maps*
- Activity Sheet 3B: *Where Do Chimpanzees Live?*
- Safety scissors
- Crayons or colored pencils for each student
- Computers with internet access

This young chimpanzee is smashing pieces of fruit into a food wadge.

## LEARNING ACTIVITIES

1. Show the class a world map and a globe. Name and identify each continent on earth. Have students create their own definition of a continent using inferences from the map and globe.
2. Discover together the characteristics that define a continent and how a continent differs from a country, state or city. Ask students to provide examples for each of these three categories.
3. Point out the continent of Africa. Ask students to predict how large Africa is in relation to other continents on earth. Which continent do they think is the largest? Which continent is the smallest? Students should use the world map to support their predictions.
4. Distribute activity sheet 3A: *United States Maps* to each student. Students should cut out each of the four United States maps and place as many maps as can fit inside the African map on activity sheet 3B: *Where Do Chimpanzees Live?*. Students will conclude that three United States maps fit into the African continent.
5. Explain that the continent of Africa is a very diverse place, home to many countries, people from many different backgrounds, a wide variety of ecosystems and very unique plant and animal species, including chimpanzees.
6. Arrange the class into small groups and have them independently research which countries in Africa are home to chimpanzees (one great resource is the International Union for Conservation of Nature's Red List: http://www.iucnredlist.org/apps/redlist/details/15933/0). Construct a class list with their findings.
7. Distribute activity sheet 3B: *Where Do Chimpanzees Live?* to the class. Have students use the master list to color in the African countries where chimpanzees are found.
   - Chimpanzees are historically found in the following countries*: Angola, Benin (now regionally extinct), Burkina Faso, Burundi, Cameroon, Central African Republic, Congo, The Democratic Republic of the Congo, Côte d'Ivoire, Equatorial Guinea, Gabon, Gambia (now regionally extinct), Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Nigeria, Senegal, Sierra Leone, Sudan, Tanzania, Togo and Uganda.

   ** Note: although chimpanzees are present in all of these countries, only 12 countries have chimpanzee populations numbering over 1,000 individuals.*

© 2011 Disney Enterprises, Inc.

# WELCOME TO THE AFRICAN RAINFOREST

## Where Do Chimpanzees Live? *(2 of 2)*

### WRAP UP

8. Discuss students' completed activity sheets using the following questions:
   - Explain the difference between a continent and a country. *Continents are large land masses that cover the earth's surface. Countries are marked by political boundaries and have some form of government. Countries are found on continents.*
   - Place the following in size order from largest to smallest: city, continent, state, country. *Continent, country, state, city.*
   - What can you learn about continents and countries using a geographic map? *From a geographic map, you can tell the borders, size and location of a continent or country.*
   - Using the globe and world map, deduce which continent is the largest and which continent is the smallest. *Asia is the largest continent. Australia is the smallest continent.*
   - Based on the number of United States maps that fit into the continent of Africa, draw conclusions as to the size of the entire continent of Africa. *The continent of Africa is the second largest in the world.*
   - Has this activity changed your view on the sizes of different countries and continents? Write one paragraph to explain why or why not. *Students' answers will vary.*
   - Name at least three countries where chimpanzees are found. *Answers will vary; a full list of countries is provided in Step 7 of this lesson.*

Historically, chimpanzees were found in approximately 23 countries across Africa.

### EXTENDING THE LESSON: SOCIAL STUDIES

**Option 1:** Disneynature **CHIMPANZEE** was primarily filmed in two countries: Ivory Coast and Uganda. Gather the class into small groups and have each group research one of the many different cultures found within these two countries (there are over 60 different ethnic groups in the Ivory Coast and over 40 different ethnic groups in Uganda!). Students should discover the language, traditions, values and beliefs of the culture and share their findings with the class.

### CONNECT WITH NATURE

See Disneynature **CHIMPANZEE** to witness the amazing world of chimpanzees and to learn more about the tropical rainforests they call home.

### LESSON RESOURCES

**For Students and Teachers:**


- The IUCN Red List of Threatened Species. *Pan troglodytes*. International Union for the Conservation of Nature and Natural Resources. 18 July 2011. http://www.iucnredlist.org/apps/redlist/details/15933/0
- Google Maps. *Google Maps.* Google. 18 July 2011. http://maps.google.com/maps?hl=en&tab=wl


**ANSWER KEY: Activity Sheet 3B**

© 2011 Disney Enterprises, Inc.

# WELCOME TO THE AFRICAN RAINFOREST

**Where Do Chimpanzees Live?**

## United States Maps

Cut out the United States maps below and see how many you can fit inside the continent of Africa on Activity Sheet 3B.

See Disneynature CHIMPANZEE to witness the amazing world of chimpanzees and the diverse continent they call home.



© 2011 Disney Enterprises, Inc.

# WELCOME TO THE AFRICAN RAINFOREST

**Where Do Chimpanzees Live?**

## Where Do Chimpanzees Live?

1. Research the countries in Africa where chimpanzees are found. Make a list of these countries.
2. Use colored pencils or crayons to shade in the countries where chimpanzees live.

☐ = countries where chimpanzees live

See Disneynature CHIMPANZEE to witness the amazing world of chimpanzees and the tropical rainforests they call home.

Disneynature chimpanzee

© 2011 Disney Enterprises, Inc.

# LESSON 4 | How Are Chimpanzees And The Rainforest Connected?

Grade Level: **4-6** | Subject Areas: **Science, Geography** | Time Frame: **1 hour**
Background Information: **Welcome to the African Rainforest: Home of the Chimpanzee (pages 9-10)**

## VOCABULARY:

***Continent, country, equator, latitude, longitude, Tropic of Cancer, Tropic of Capricorn, tropical rainforest***

## STUDENTS WILL BE ABLE TO…

- Compare the size of various geographical land masses using a world map and globe
- Locate the equator, Tropic of Cancer and Tropic of Capricorn on a world map and globe
- Explain the difference between a continent and a country
- Label specific points of latitude on a map of the African continent
- Identify the tropical rainforests of Africa
- Name at least three countries where chimpanzees live
- Make connections between tropical rainforest habitat and chimpanzee distribution

## WHAT YOU NEED

- Globe and World Map
- Activity Sheet 4A: *United States Maps*
- Activity Sheet 4B: *How Are Chimpanzees And The Rainforest Connected?*
- Two different colored crayons or colored pencils (blue and yellow) for each student

For chimpanzees, the rainforest is the equivalent of a grocery store, pharmacy and hardware store all in one!

## LEARNING ACTIVITIES

1. Using a globe and world map, introduce the terms latitude and longitude. Explain that the major latitude lines include the equator, the Tropic of Cancer and the Tropic of Capricorn. Locate these on the map.
2. Point out the continents on the world map. Discuss what characteristics define a continent and how it differs from a country, state or city. Encourage students to make inferences as to the size of the continents. Which continent do they think is the largest? Which do they think is the smallest?
3. Have students find the continent of Africa. Ask them to make predictions about the size of the African continent. Distribute activity sheet 4A: *United States Maps* to the class. Students should cut out each of the four United States maps and place as many of these maps as can fit inside the map of Africa on activity sheet 4B: *How Are Chimpanzees And The Rainforest Connected?*. The class should conclude that three United States maps fit into the continent of Africa.
4. Review students' initial inferences. Were students surprised by the size of the African continent? What else can students learn about Africa from a world map? Discuss size, location and topography.
5. Distribute activity sheet 4B to the class. Students should label the equator, the Tropic of Cancer and the Tropic of Capricorn. Have students color the area inside the solid line yellow to represent the tropical rainforest and color the area inside the dashed line blue to represent where chimpanzees live. Any areas where chimpanzees and rainforest habitat overlap will be green.
6. As a class, use the completed map to make a set diagram. The set diagram should include the countries where rainforests are found, countries where chimpanzees are found and countries where rainforest habitat and chimpanzee populations overlap. Discuss why chimpanzees might live in the rainforest and what makes rainforests special.


© 2011 Disney Enterprises, Inc.

# WELCOME TO THE AFRICAN RAINFOREST

## How Are Chimpanzees And The Rainforest Connected? *(2 of 2)*

### WRAP UP

7. Use the following questions to guide your classroom discussion:
   - Describe in your own words the importance of latitude and longitude lines. *Latitude and longitude lines help people locate a specific point on earth's surface.*
   - Explain the difference between a continent and a country. *Continents are large land masses that cover the earth's surface. Countries are marked by political boundaries and have some form of government. Countries are found on continents.*
   - Rank the seven continents by size from largest to smallest. Which continent is the largest and which is the smallest? *Asia (largest), Africa, North America, South America, Antarctica, Europe, Australia (smallest).*
   - Based on the number of United States maps that fit into the continent of Africa, draw conclusions as to the size of the entire continent of Africa. *The continent of Africa is the second largest in the world. Africa is about three times as large as the United States.*
   - Has this activity changed your view on the sizes of different countries and continents? Write one paragraph to explain why or why not. *Students' answers will vary.*
   - What does the area inside the solid line represent on the map and why is it only found in certain locations? *The solid line represents the distribution of tropical rainforests across the continent of Africa. Tropical rainforests are only found near the equator, between the Tropic of Cancer and the Tropic of Capricorn.*
   - Name at least three countries where chimpanzees are found. In cases where chimpanzees are only found in a portion of a country, predict why this might be the case. *Answers will vary, but see the answer key for a complete list of countries. Students should consider how the climate and topography of each country might change chimpanzee distribution. For example, physical barriers such as mountains, large lakes or deserts may prevent chimpanzees from living in an entire country. People also play a role in chimpanzee distribution. In large urban areas, chimpanzees will not find the things they need to survive.*
   - Compare the distribution of tropical rainforests to the area where chimpanzees are found. What do you notice about the area where chimpanzees live? Why do you think chimpanzees are found here? *Much of the chimpanzee's habitat overlaps with the location of tropical rainforests. This means that most chimpanzees in Africa are found in the tropical rainforest. Tropical rainforests are very special ecosystems with a warm climate, lush vegetation, tall trees, abundant rainfall and a wide diversity of species. Rainforests are an ideal place to live because chimpanzees can find everything they need to survive including a large variety of food items, sources of water and large trees for shelter.*

### EXTENDING THE LESSON: SCIENCE AND SOCIAL STUDIES

**Option 1:** Explain that activity sheet 4B represents the general range of chimpanzees. However, much of this habitat is being used by people so chimpanzees are now only found in some areas of this range. Have students research and plot the current range of chimpanzees and compare this to their original map. As a class, discuss and make predictions around why these changes have occurred.

**Option 2:** Divide the class into small groups and assign each group one country in Africa to research independently. Have each group create a travel brochure, poster or commercial to highlight this country. Students should include cities to visit, places to stay, information about native people and culture, favorite foods, important landmarks and monuments, National parks and unique wildlife. Then, organize a classroom cultural day for students to present their projects to their peers.

### CONNECT WITH NATURE

See Disneynature **CHIMPANZEE** to witness the amazing world of chimpanzees and to learn more about the tropical rainforests they call home.

### LESSON RESOURCES

**For Students and Teachers:**


- IUCN Red List: The IUCN Red List of Threatened Species. *Pan troglodytes* International Union for the Conservation of Nature and Natural Resources. 18 July 2011. http://www.iucnredlist.org/apps/redlist/details/15933/0
- Google Maps. *Google Maps.* Google. 18 July 2011. http://maps.google.com/maps?hl=en&tab=wl




© 2011 Disney Enterprises, Inc.

# WELCOME TO THE AFRICAN RAINFOREST

**How Are Chimpanzees And The Rainforest Connected?**

## United States Maps

Cut out the United States maps below and see how many you can fit inside the continent of Africa on Activity Sheet 4B.

See Disneynature CHIMPANZEE to witness the amazing world of chimpanzees and the diverse continent they call home.

Disneynature chimpanzee

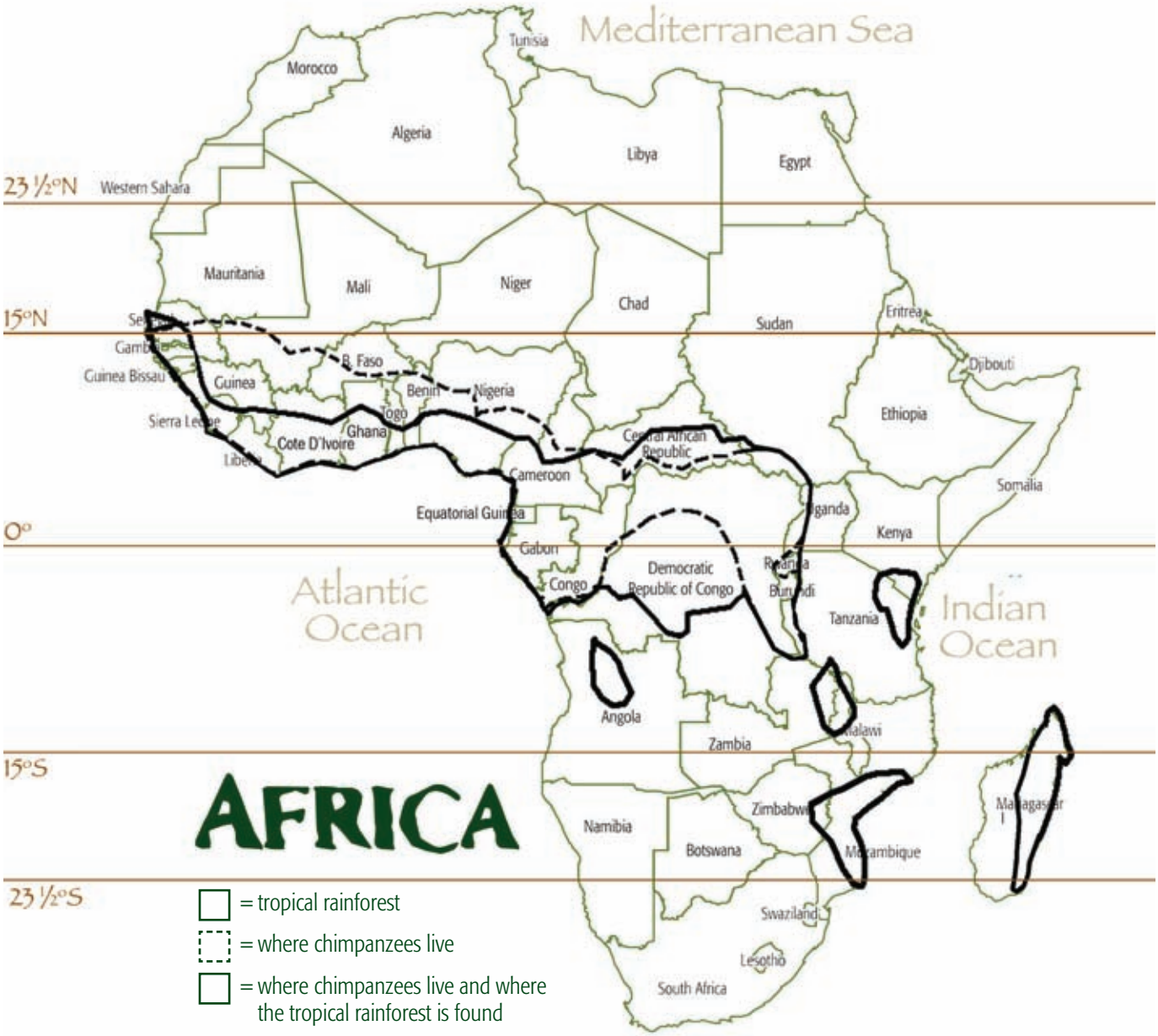
© 2011 Disney Enterprises, Inc.

# WELCOME TO THE AFRICAN RAINFOREST

## How Are Chimpanzees And The Rainforest Connected?

# How Are Chimpanzees And The Rainforest Connected?

1. Label the equator, the Tropic of Cancer and the Tropic of Capricorn.
2. Color the area inside the solid line yellow to represent the tropical rainforest.
3. Color the area inside the dashed line blue to represent areas where chimpanzees live.



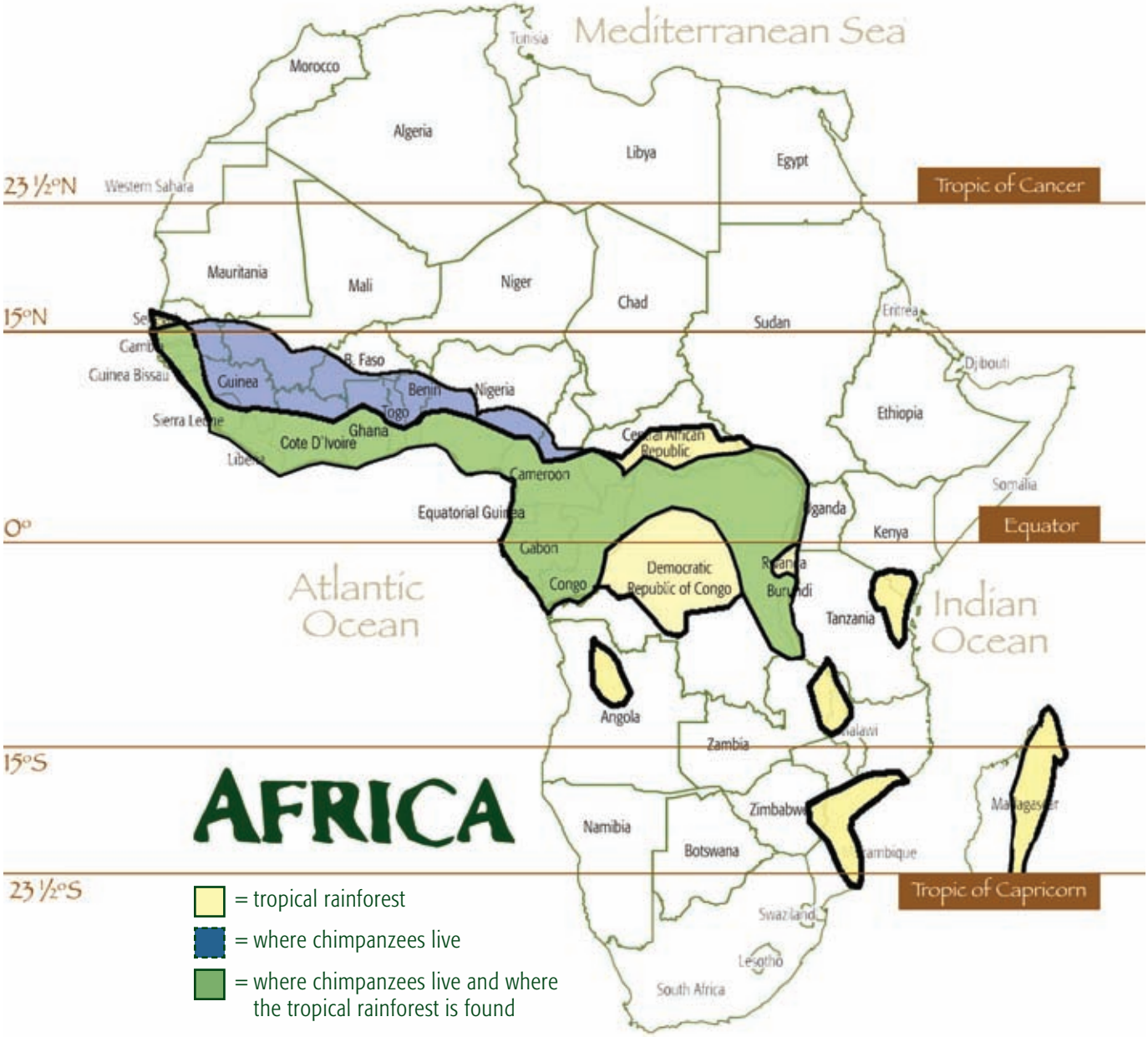

See Disneynature CHIMPANZEE to witness the amazing world of chimpanzees and the tropical rainforests they call home.

Disneynature chimpanzee

© 2011 Disney Enterprises, Inc.

# How Are Chimpanzees And The Rainforest Connected?

## ANSWER KEY




Disney nature chimpanzee

© 2011 Disney Enterprises, Inc.

# LESSON 5 | Who Are Chimpanzees' Neighbors?

Grade Level: **2-3** | Subject Areas: **Science, Language Arts, Art** | Time Frame: **1 hour**
Background Information: **Welcome to the African Rainforest: Home of the Chimpanzee (pages 9-10)**

**VOCABULARY:**
***Ecosystem, environment, habitat, organism, rainforest***

**STUDENTS WILL BE ABLE TO…**
- Define the terms rainforest, habitat, ecosystem and niche
- Explain how a habitat is different from an ecosystem
- Compare a habitat near their school to the African rainforest
- Describe the importance of every organism in its environment

**WHAT YOU NEED**
- Notebook paper or journals for each student
- Blank drawing paper
- Crayons, markers, non-toxic paint or colored pencils
- Activity sheet 5A: *An Incredible Journey*
- Activity sheet 5B: *Field Guide To African Rainforest Wildlife*

## LEARNING ACTIVITIES

1. Take the class outdoors to explore an environment near their school. Distribute notebook paper or a journal to each student. Using all senses except taste, students should make and draw or record observations about the area around them.
2. Discuss students' initial findings. Have students circle any observations in their journal that describe sources of food, water, shelter and a place for animals to raise young. Explain that these four elements make up an organism's habitat and many habitats make up an ecosystem. Based on their findings have students predict what animals might live there. Have students draw a picture of the habitat found near their school.
3. Explain that unique habitats exist all over the world. Read activity sheet 5B: *An Incredible Journey* to the class. Encourage students to act out portions of the story using the provided teacher prompts. Students should conclude that this is a rainforest habitat in Africa.
4. Distribute activity sheet 5B: *Field Guide To African Rainforest Wildlife.* Re-read *An Incredible Journey* and as each organism is described, have students mark the corresponding picture on activity sheet 5B (some organisms pictured on the field guide are not in the story). Students should infer that African rainforests are complex and home to many types of wildlife.
   - *Students should check the following boxes on activity sheet 5B: African elephant, mahogany tree, mushrooms, ferns, giant millipede, dung beetle, agama lizard, duiker, zipper-web spider, fig fruit, hornbill, blue monkey and chimpanzee.*
5. After reading, have students draw a picture of the rainforest habitat described in *An Incredible Journey*.
6. Use a T-chart to compare the habitat elements and species found near the school to the African rainforest habitat. As a class, discuss similarities and differences between organisms and how living things depend upon each other in an ecosystem.

## WRAP UP

7. Lead a wrap up discussion using the questions below:
   - Name the four elements of a habitat. *A habitat must include sources of food, water, shelter and a place for animals to raise their young.*
   - Explain how a habitat is different from an ecosystem. *A habitat is the area where an animal finds food, water, shelter and a place to raise young. An ecosystem is the arrangement and interactions of all living and non-living things in an area.*
   - Describe the African rainforest in your own words. Be sure to include all four habitat elements. *Answers will vary but students should include descriptions of*


© 2011 Disney Enterprises, Inc.

# WELCOME TO THE AFRICAN RAINFOREST

## Who Are Chimpanzees' Neighbors? *(2 of 2)*

*the physical environment (hot, wet, large trees, etc.) and be able to give examples of food, water, shelter and a place to raise young.*

- Explain why every living thing is important in a habitat. Predict what would happen if just one living thing was removed. *Students' answers will vary but should include the role each living thing has in the habitat and how they are connected to other organisms. Students should understand that removing even one plant or animal species will greatly impact all other species in the ecosystem.*

### EXTENDING THE LESSON: SCIENCE AND ART

**Option 1:** Have students turn the classroom into a chimpanzee's rainforest home. Each student should draw, paint or color a picture of one of the organisms in the story. Place the students' illustrations on a bulletin board or hang on the classroom walls to create a life-sized forest habitat.

**Option 2:** Have students write a short story about a day in the life of an animal that lives near their school. Students should include at least one example of each of the four habitat components and describe how the animal depends on these during a day.

### CONNECT YOUR CLASS WITH NATURE

Enrich habitats in your area or on school grounds! With permission, organize a tree planting, create a butterfly garden, place a bird bath or hang a birdhouse to provide wildlife with food, water, shelter and a place to raise young.

### LESSON RESOURCES

For Students:


- Fredericks, Anthony D. and Jennifer DiRubbio (Illustrator). *Around One Cactus: Owls, Bats, and Leaping Rats.* Nevada City, CA: Dawn Publications, 2003. ISBN: 1584690526.
- Fredericks, Anthony D. and Jennifer DiRubbio (Illustrator). *Near One Cattail: Turtles, Logs, and Leaping Frogs.* Nevada City, CA: Dawn Publications, 2005. ISBN: 1584690712.
- Fredericks, Anthony D. and Jennifer DiRubbio (Illustrator). *On One Flower: Butterflies, Ticks, and few more Icks.* Nevada City, CA: Dawn Publications, 2006. ISBN: 1584690879.
- Fredericks, Anthony D. and Jennifer DiRubbio (Illustrator). *Under One Rock: Bugs, Slugs, and other Ughs.* Nevada City, CA: Dawn Publications, 2001. ISBN: 1584690276.
- Rainforest Alliance. *Virtual Treehouse.* 19 July 2011. http://rainforest-alliance.org/multimedia/treehouse
- Ward, Jennifer and Jamichael Henterly (Illustrator). *Forest Bright, Forest Night.* Nevada City, CA: Dawn Publications, 2005. ISBN: 1584690674.


For Teachers:


- Barrett, Katharine and Carolyn Willard. *Schoolyard Ecology: Teachers Guide for Grades 3–6.* Berkeley, CA: Lawrence Hall of Science – University of California, 1998. ISBN: 0924885355
- Council for Environmental Education. *ProjectWild.* 19 July 2011. http://www.projectwild.org/resources.html
- International Year of the Forests. *Celebrating Forests for People.* United Nations Department of Public Information. 19 July 2011. http://www.un.org/en/events/iyof2011/
- World Wildlife Fund. *The Importance of Forests.* 19 July 2011. http://wwf.panda.org/about_our_earth/about_forests/importance/

The rainforest provides chimpanzees with food, water, shelter and a safe place to raise their young.

*Want to further your classroom conservation work? Visit **Disney.com/planetchallenge** TODAY!*

Disney Planet Challenge



© 2011 Disney Enterprises, Inc.

# WELCOME TO THE AFRICAN RAINFOREST

## Who Are Chimpanzees' Neighbors?

## An Incredible Journey

You have traveled a long way. You took a big plane and flew over the ocean to a different continent called Africa (have students spread their arms and pretend to fly).

You are in a place with many trees. It is hot and everything is wet. Red, squishy dirt covers the ground. Leaves crunch under your feet (have some students make squishing sounds while others make crunching sounds). You start walking down a muddy trail. There is a large puddle ahead. Then, you realize it is actually a footprint! It looks like a giant pancake. It must be from a very big animal with huge legs and feet.

The large trees around you are like towers. The trees reach so high they almost block the sun (have students reach high towards the sky). The trunks spread across the ground like tentacles (have students crouch low and weave their arms back and forth to imitate tentacles). "What could these big roots be for?" you wonder.

Plants that look like green feathers tickle your ankles. Whoops! You almost trip on a fallen log. You bend down to take a closer look. The log feels cool and damp (have students crouch down and touch the floor). It is covered in white mushrooms. Under the log is a millipede. It is as big as a ruler! Beetles are rolling dung into tidy balls (have students pull their legs in to their chests and curl into tight balls). Soon, a blue lizard appears. It climbs onto a tree stump nearby.

"What was that?" You hear a whish and then a whoosh (have students make these noises). You catch a peek of brown fur. The animal was about the size of a pig. But it has disappeared into the trees.

A spider's web sparkles in the sun (have students hold their hands out and wiggle their fingers to imitate sparkling). It looks like it has a big zipper down the middle! Then, you notice large vines crawling towards the sky (have students reach upwards like they are climbing a vine). Bright green fruit is hanging down from the vines. Above, there is a black and white bird sitting on a tree limb. The bird looks like it has a plate on its head! Monkeys with long tails leap between the tree branches (have students leap around on all fours).

Even higher in the trees, you see a nest. But this is not a bird's nest. It belongs to some other kind of animal. "Who could have made such a large nest?" you think. "It is big enough to hold someone my size!" Then you hear it. The call you have been waiting for. It starts out low: whoo-ooh-whoo-ooh. Then it gets faster. Whoo-ooooh! Whoo-oooh! until the sound is so loud you have to plug your ears. It is a chimpanzee! Then there are more calls. There is a whole group of chimpanzees nearby (have students make this call together)! As rain starts to fall, you smile (have students pat their laps at different speeds and volumes to mimic the sound of rain). You have found exactly what you were looking for. You have found the place where chimpanzees live.

***What an incredible journey!***

Go on an incredible journey right in your own backyard! Explore an area near your home or school and draw pictures or take photographs of the plants and animals that you find. Then, use books or the internet to identify the wildlife near you!



© 2011 Disney Enterprises, Inc.

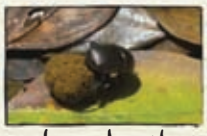
# WELCOME TO THE AFRICAN RAINFOREST

**Who Are Chimpanzees' Neighbors?**

## Field Guide to African Rainforest Wildlife

Listen to the story "An Incredible Journey" again.
Make a check mark next to each organism as it is described in the story.

### Rainforest Field Guide

- ☐ African elephant
- ☐ mahogany tree
- ☐ mushrooms
- ☐ ferns
- ☐ giant millipede
- ☐  dung beetle
- ☐ agama lizard
- ☐ butterfly
- ☐ zipper-web spider
- ☐ duiker
- ☐ fig fruit
- ☐ blue monkey
- ☐ hornbill
- ☐ leopard
- ☐ chimpanzee

Look for wildlife in your backyard and make your very own field guide! Then go exploring with family or friends to see how many different species you can find.



© 2011 Disney Enterprises, Inc.

# LESSON 6 | Who Shares The Rainforest With Chimpanzees?

Grade Level: **4-6** | Subject Areas: **Science, Art** | Time Frame: **1 hour**
Background Information: **Welcome to the African Rainforest: Home of the Chimpanzee (pages 9-10)**

**VOCABULARY:**
***Canopy, emergent layer, ecosystem, forest floor, habitat, niche, rainforest, understory***

**STUDENTS WILL BE ABLE TO…**
- Identify and describe the different rainforest layers
- List the four components that make up a habitat and explain how habitat differs from ecosystem
- Define the term niche and list at least two examples of different niches in the rainforest
- Describe how the tropical rainforest provides chimpanzees with everything they need to survive

**WHAT YOU NEED**
- Projector or interactive white board
- Activity Sheet 6A: *Who Shares The Rainforest With Chimpanzees?*
- Interactive Cards: *A Chimpanzee's Rainforest Neighbors*
- Computers with internet access or rainforest books for students to research materials

## LEARNING ACTIVITIES

1. Ask students to close their eyes and imagine they are in a tropical rainforest in Africa. What type of weather could they expect? What sounds would they hear? What smells fill the air? What types of plants and animals might they see? Tell students this lesson will allow them to explore the tropical rainforest homes of chimpanzees.
2. Project the rainforest background image from activity sheet 6A onto a wall or interactive white board. Explain how the rainforest is divided into four layers: the rainforest floor, the understory, the canopy and the emergent layer. Divide the class into four groups with each group researching one of the layers. Students should identify the height at which each of these layers occurs in meters and then label their layer on the rainforest background at the front of the room.
   - *Students should determine the rainforest floor occurs between 0–10 meters, the understory occurs between 10–30 meters, the canopy occurs between 30–40 meters and the emergent layer occurs above 40 meters.*
3. Distribute one card to each student (all of the organisms depicted are found in the Taï National Forest in the Ivory Coast). Students should use the clues on their card to determine where the organism lives and place their plant or animal into the appropriate rainforest layer on the rainforest background. Have students compare this completed rainforest with their original ideas of an African tropical rainforest.
4. Introduce the term habitat and the four requirements of any habitat. Ask students for an example of a habitat found within each layer of the rainforest. Explain how some animals find everything they need in one place – for example, a spider's web provides food, water and shelter. Other animals like chimpanzees have a much larger habitat. Chimpanzees use all layers of the rainforest to find what they need to survive. Ask students to find examples of a chimpanzee's habitat needs within the rainforest they have created. Students should mention examples of food, water, shelter and a place to raise young.
5. Review the term ecosystem with the class and explain how an ecosystem is different from a habitat. Just as chimpanzees depend on their habitat, the rainforest ecosystem is equally important to their survival. Discuss the non-living things in the rainforest ecosystem that a chimpanzee needs to survive.


© 2011 Disney Enterprises, Inc.

# WELCOME TO THE AFRICAN RAINFOREST

## Who Shares The Rainforest With Chimpanzees? *(2 of 2)*

6. Introduce the term niche to the class and ask students to find specific examples of important niches within the rainforest on each of their animal cards. Write the different types of rainforest niches on the board and explain the importance of each. Students should conclude that all interactions are vital to the health of the tropical rainforest.

### WRAP UP

7. Use these questions to further your discussion on the rainforest habitat, ecosystem and niche:
   - Describe the layers of a tropical rainforest. Give at least one example of an animal that lives in each of these layers in an African rainforest. *Answers will vary but students should be able to explain the differences in each layer.*
   - Explain the difference between a habitat and an ecosystem. *A habitat is the area where an animal finds food, water, shelter and a place to raise young. An ecosystem is a collection of habitats, and includes the interaction of all living and non-living things.*
   - How would chimpanzees be affected if one of the four habitat elements was removed from the rainforest? *Students should conclude that removing one portion of a habitat can greatly impact chimpanzees. For example, taking away even one species of tree could reduce the amount of food available for chimpanzees, making survival difficult.*
   - Explain the term niche in your own words. Give at least two examples of different niches found within the tropical rainforest environment. *Answers will vary but students should be able to define niche as the role an organism plays in its environment. Examples might include pollinator, seed disperser, decomposer, insect control, prey or predator.*

### EXTENDING THE LESSON: SCIENCE AND MUSIC

**Option 1:** Create an ecosystem journal for an area near your school! Record the types of food, water and shelter available. Study this ecosystem and complete a journal entry each week to learn how these resources change over time. Be sure to observe the relationship between these habitat elements and the other living and non-living things found there. Compare students' observations to the ways that chimpanzees depend on the rainforest home for survival.

**Option 2:** Split students into small groups to write and perform a rainforest rap. Rap songs often use a couplet rhyming scheme (two written lines linked together in the same end rhyme). Students should use this rhyming scheme to describe how chimpanzees use all four habitat elements and interact with at least three other plant or animal species in the tropical rainforests of Africa. During the groups' performance, some members may choose to provide a background beat using small hand drums, plastic buckets, coffee cans or oatmeal containers. Other group members can also layer in sound effects by imitating the sounds of a rainstorm, other rainforest animals or chimpanzee calls.

### CONNECT WITH NATURE

Keep ecosystems healthy for wildlife in your area! With permission, organize a class outing to pick up litter, plant native flowers and trees, or start a school compost program. Check out Disney's Friends for Change – Project Green website for more ideas (http://disney.go.com/projectgreen/).

### LESSON RESOURCES

**For Students**

- African Wildlife Foundation. Wildlife Gallery. 25 July 2011. http://www.awf.org/section/wildlife/gallery

*Want to further your classroom conservation work?*
*Visit **Disney.com/planetchallenge** TODAY!*
Disney Planet Challenge

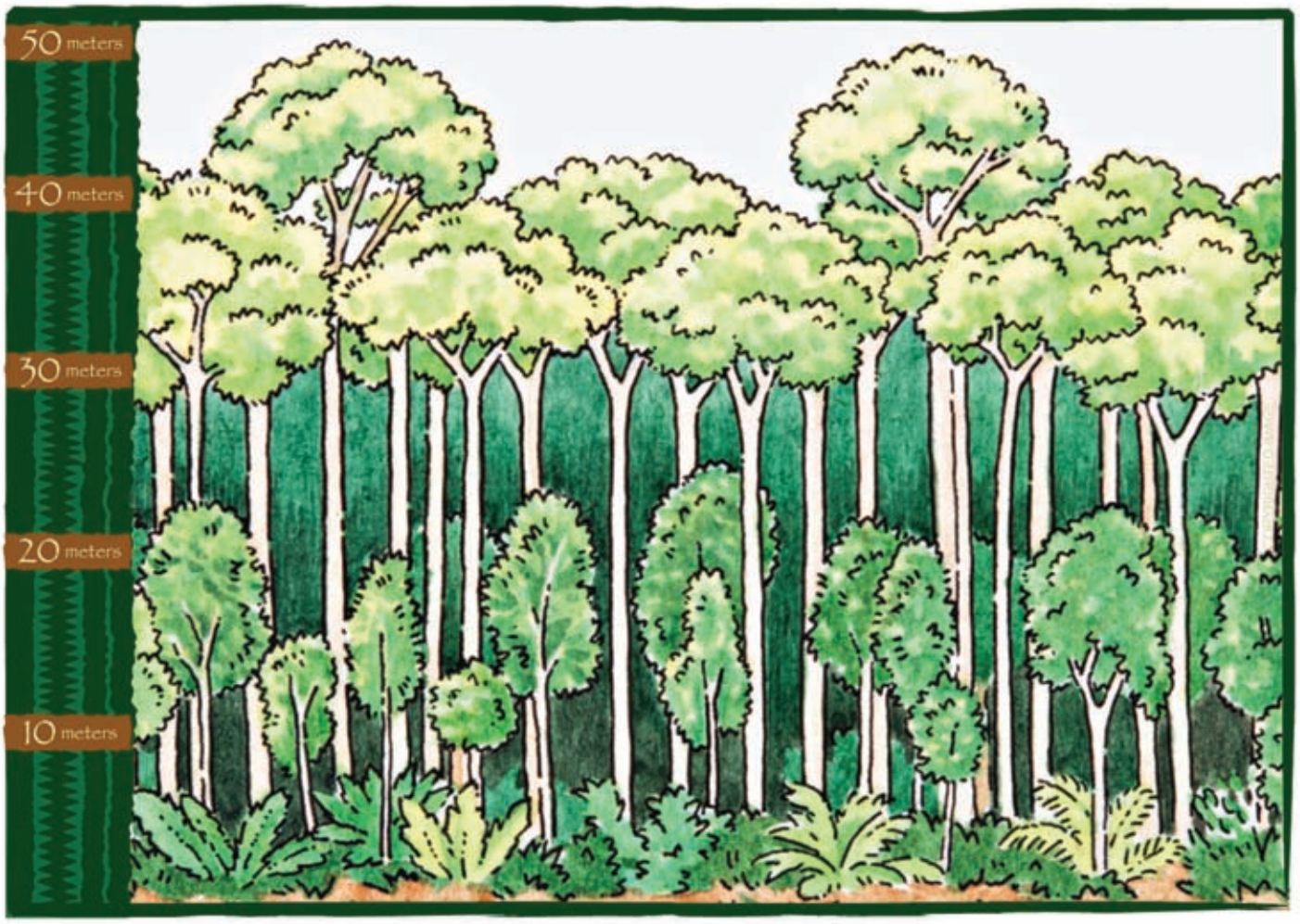


© 2011 Disney Enterprises, Inc.

# WELCOME TO THE AFRICAN RAINFOREST



## Who Shares The Rainforest With Chimpanzees?






© 2011 Disney Enterprises, Inc.

# WELCOME TO THE AFRICAN RAINFOREST

**Who Shares The Rainforest With Chimpanzees?**

## A Chimpanzee's Rainforest Neighbors

Cards 1 – 3

TREE HYRAX

My small body allows me to be a great climber, but I spend most of my time in trees less than 20 meters tall. At night I feast on twigs, leaves, grasses, fruit and insects. I help to spread seeds and control bug populations. I have to be careful of predators such as African golden cats and eagles.

fold here

cut here

GREEN MAMBA

The green scales all over my body help me camouflage into bushes and small trees no more than 30 meters tall. I use my fangs and venom to catch animals such as lizards, birds and mice. I also have to avoid predators such as birds and other snakes. My role is to keep animal populations healthy.

fold here

cut here

RED COLOBUS

My long fingers and flexible arms and legs make it easy for me to climb, jump and balance at any level of the rainforest. But, I spend most of my time in trees over 30 meters tall. I eat leaves, fruit and shoots. Seeds are spread in my dung which helps new plants grow. I am always watching out for eagles, chimpanzees and leopards.

fold here

Disney nature chimpanzee

© 2011 Disney Enterprises, Inc.

# WELCOME TO THE AFRICAN RAINFOREST

## Who Shares The Rainforest With Chimpanzees?

# A Chimpanzee's Rainforest Neighbors

Cards 4 – 6

RED-CAPPED MANGABEY

fold here

My strong arms and legs allow me to easily walk, jump and climb through all levels of the rainforest. But, I prefer to spend my time in trees less than 30 meters tall. Here I can find fruit, seeds, nuts, leaves, mushrooms and insects to eat. I avoid predators like eagles and leopards by moving lower or higher into the trees.

cut here

YELLOW-BACKED DUIKER

fold here

I am built for life in the rainforest. My slender, arched body and long hind legs help me move through the dense brush. I spend the night looking for food, especially fruit that has fallen to the ground. The fruit seeds are passed in my dung, so I help re-plant the rainforest. I try to avoid predators such as leopards, crocodiles and large snakes.

cut here

BONGO

fold here

I am the largest antelope in the rainforest. My horns keep me protected and my striped coat helps me blend in with tall plants and bushes. I am a gardener of the rainforest. As I eat leaves, flowers and twigs, I trim back plants so that new ones can grow. I just have to be careful of predators like leopards.



© 2011 Disney Enterprises, Inc.

# WELCOME TO THE AFRICAN RAINFOREST

**Who Shares The Rainforest With Chimpanzees?**

## A Chimpanzee's Rainforest Neighbors

Cards 7 – 9

TERMITES

We find food and make our nests in fallen logs and trees. As nature's recyclers, we eat wood and return important nutrients back into the ground in our waste. Our bodies are built for digging, so we also do a great job of mixing up soil, and adding fresh dirt to the rainforest floor. We try to avoid lizards, frogs, birds and chimpanzees.

fold here

cut here

BUTTERFLY

I fly from flower to flower in search of a sugary liquid called nectar. Along the way, I collect pollen and transfer it to other flowers. This makes it possible for new flowers to grow. When I'm not flying, I like to rest in sunny spots near the ground. My colors helps me hide from predators like birds, spiders and lizards.

fold here

cut here

LEOPARD

My strong legs are perfect for climbing and my spotted coat helps me camouflage into the thick rainforest brush. This means I can look for food on the ground and climb into trees that are less than 10 meters tall. As a top predator in the rainforest, I help keep other animal populations healthy and balanced.

fold here



© 2011 Disney Enterprises, Inc.

# WELCOME TO THE AFRICAN RAINFOREST

## Who Shares The Rainforest With Chimpanzees?

# A Chimpanzee's Rainforest Neighbors

Cards 10 – 12

AFRICAN GOLDEN CAT

My short but powerful legs make it possible for me to hunt for animals like tree hyrax, monkeys and birds in trees up to 10 meters tall. My tan coat also helps me camouflage on the ground so I can hunt for rodents and small deer. My job is to keep animal populations balanced, but I still have to avoid other predators such as leopards.

fold here

cut here

AFRICAN PIED HORNBILL

My large bill is quite impressive. On top of my bill is a hollow ridge called a "casque". It acts as a microphone to make my calls louder. I live in trees that are 30–40 meters tall. I still have to be careful of crowned eagles. I eat fruit and insects, so I help spread seeds and keep bug populations balanced.

fold here

cut here

CROWNED EAGLE

My strong legs, razor sharp beak and powerful talons help me capture prey such as monkeys, hyrax and duikers. As a skilled hunter, it is my role to help keep other animal populations balanced. Although I can hunt at any level of the rainforest, I will only build my nest in very high trees over 40 meters tall. I have few predators.

fold here



© 2011 Disney Enterprises, Inc.

# WELCOME TO THE AFRICAN RAINFOREST

**Who Shares The Rainforest With Chimpanzees?**

## A Chimpanzee's Rainforest Neighbors

Cards 13 – 15

HONEY BADGER

fold here

Like my name states, I love to eat honey! But my short, muscular body and quick speed also help me hunt for lizards, snakes, rodents, birds and insects. My role in the rainforest is to keep other animal populations balanced. I am strong and will quickly defend myself against other animals, even some that are much bigger than me.

cut here

HONEY BEES

fold here

Our day is spent flying between plants that are 10-40 meters tall in search of nectar. In the process, we spread pollen to help new plants grow. Many animals eat our honey and honey comb, including honey badgers and chimpanzees. But we also have to watch out for predators such as spiders, birds and wasps.

cut here

DIANA MONKEY

fold here

My arms, legs and hands are perfect for climbing trees between 30-40 meters tall. Here, I try to hide from predators such as leopards, eagles and chimpanzees. I can also find my favorite foods such as fruit, seeds and leaves. The leftover seeds in my dung help to plant new trees in the rainforest.



© 2011 Disney Enterprises, Inc.

# WELCOME TO THE AFRICAN RAINFOREST

## Who Shares The Rainforest With Chimpanzees?

# A Chimpanzee's Rainforest Neighbors

Cards 16 – 18

BLACK AND WHITE COLOBUS

My black and white fur helps me camouflage into the tops of trees that are 30 meters tall or more. I spend the day looking for food like leaves, fruit, flowers and seeds. I avoid predators like eagles, leopards and chimpanzees. Seeds in my dung are sometimes planted and grow into new trees.

fold here

cut here

STRAW-COLORED FRUIT BAT

My wings are long and narrow. This helps me fly long distances without tiring. I am most active at night when I am looking for fruit to eat. Fruit seeds are passed in my dung so I help plant new trees. During the day, I join a large group of other bats to rest in trees between 30–40 meters tall. My predators include eagles and owls.

fold here

cut here

AGAMA LIZARD

I am an excellent climber but I spend most of my time in rainforest layers between the ground and 10 meters tall. I use excellent vision and a sticky tongue to find ants and termites. Since I eat insects, I help control bug populations in the rainforest. I just have to be careful of birds and snakes, two of my main predators.

fold here



© 2011 Disney Enterprises, Inc.

# WELCOME TO THE AFRICAN RAINFOREST

## Who Shares The Rainforest With Chimpanzees?

# A Chimpanzee's Rainforest Neighbors

Cards 19 – 21

FOREST ELEPHANT

I use my excellent sense of smell and good eyesight to find food such as leaves, tree bark, twigs and fruit. Since my muscular trunk can pluck a blade of grass or knock down a large tree, I shape the rainforest. I also clear paths and dig water holes that are used by other animals. As the largest land animal, I have no predators.

fold here

cut here

RED RIVER HOG

My short legs and stocky body make it easy to move through tall grasses and thick bushes, but I cannot climb trees. Instead, I look for food on the ground. My favorites include plant roots, fruit, insects and animal carcasses. I just have to watch out for large predators like leopards.

fold here

cut here

PYGMY HIPPOPOTAMUS

When compared to other hippos, my body is better built for land. My legs are longer, my toes have less webbing and my back is sloped to help me move through the rainforest. I eat grasses, ferns and fruit. My dung provides plants with the nutrients they need to grow. My size makes leopards my only predator.

fold here



© 2011 Disney Enterprises, Inc.

# WELCOME TO THE AFRICAN RAINFOREST

## Who Shares The Rainforest With Chimpanzees?

# A Chimpanzee's Rainforest Neighbors

Cards 22 – 24

DWARF CROCODILE

My thick skin and tough scales keep my body protected but I spend most of my day hidden in burrows beneath the water. At night, I hunt for my favorite foods such as fish, birds, turtles and small mammals. As a baby, I avoid large birds, fish and other crocodiles. As an adult, I help keep animal populations balanced.

fold here

cut here

DUNG BEETLE

I use my powerful back legs to roll animal poop, called "dung," into balls. These dung balls are food for me and my offspring. Rolling these dung balls helps to clean up the ecosystem, making me a janitor of the rainforest. I stay busy cleaning up all that dung, but I also have to watch out for predators like birds, frogs and lizards.

fold here

cut here

AFRICAN MILLIPEDE

As a recycler of the rainforest I spend the day eating rotten leaves, flowers, twigs and fruit that fall to ground. My dung helps return important nutrients back into the soil. I release a smelly liquid and use my hard outer shell, called an exoskeleton, to protect myself against predators like lizards, frogs, scorpions, bats and birds.

fold here



© 2011 Disney Enterprises, Inc.

# WELCOME TO THE AFRICAN RAINFOREST

## Who Shares The Rainforest With Chimpanzees?

# A Chimpanzee's Rainforest Neighbors

Cards 25 – 26

EMPEROR SCORPION

fold here

I use my large pinchers and venomous stinger to catch food, especially termites. This controls insect populations, making me an important bug zapper in the rainforest. To avoid predators like lizards, frogs, bats and birds, I dig and hide in burrows. I also rely on my tough exoskeleton to keep me protected.

cut here

CHIMPANZEE

fold here

I am built for life in the rainforest. My flexible fingers, grasping thumbs, powerful arms and strong legs make me great at climbing. During the day, I may travel up and down the trees searching for food on the ground as well as further upwards. At night, I build a nest and sleep in trees between 30-40 meters tall.

Keep ecosystems healthy for wildlife in your area! With permission, organize a class outing to pick up litter, plant native flowers or start a school compost program.



© 2011 Disney Enterprises, Inc.

# LESSON 7 | What Do Animals Eat In The African Rainforest?

Grade Level: **2-3** | Subject Areas: **Science** | Time Frame: **1 hour**
Background Information: **Welcome to the African Rainforest: Home of the Chimpanzee (pages 9-10)**

**VOCABULARY:**
***Consumer, food chain, producer***

**STUDENTS WILL BE ABLE TO…**
- Identify the order of feeding relationships in a food chain
- Define the terms producer and consumer
- Create and interpret African rainforest food chains showing consumers and producers

**WHAT YOU NEED:**
- Interactive Cards: African Rainforest Food Chain Cards
- Activity Sheet 7A: African Rainforest Food Chains
- Glue sticks and safety scissors for each student

## LEARNING ACTIVITIES

1. Ask students to list what they ate for breakfast or lunch. Why is it important to eat? What does eating help us do? Students should determine that eating food gives us energy to play, go to school, work, sleep, etc. Explain that every living thing, including people, needs energy to survive.
2. Introduce the term food chain to the class. Explain that food chains show how living things get food (or energy) in their habitat. Food chains start with a producer and end with a top consumer.
3. To illustrate this idea, complete several food chains on the board using the students' lists. One example could be: sun → plants → turkey (from a turkey sandwich) → people.
4. Explain that students will now find out what animals eat in the African rainforest by using the same process to create rainforest food chains. Divide the class into six small groups. Distribute one set of rainforest food chain cards to each group.
5. Using the clues on the cards, have students cut out and glue their rainforest food chain in order from producer to top consumer and answer the questions on activity sheet 7A. Each group should construct one of the following food chains:

**Set 1:** Plants → termites → chimpanzee → leopard
**Set 2:** Flowers → butterfly → spider → hornbill
**Set 3:** Plants → termites → tree hyrax → crowned eagle
**Set 4:** Plants → termites → agama lizard → green mamba
**Set 5:** Plants → millipede → toad → dwarf crocodile
**Set 6:** Flowers → honey bees → honey badger → leopard

6. Bring students back together. Have each group present their completed rainforest food chain to the class. Ask the class to identify any overlaps in their food chains (tree hyrax eat both termites and plants; leopards eat tree hyrax, golden cats and chimpanzees). Students should conclude that in most cases, living things eat a variety of food items in their habitat so more than one food chain is possible. Explain that overlapping food chains create a larger food web.

## WRAP UP

7. Wrap up the lesson using these questions:
   - Describe what you can learn from a food chain. *A food chain shows what living things eat and how energy moves from producers to consumers in a habitat.*
   - List the producers and top consumers of the African rainforest habitat. *Plants are the main producers. The top consumers are leopards, dwarf crocodiles and crowned eagles.*
   - Explain the terms producer and consumer in your own words. *A producer is an organism that makes its own food. A consumer must eat other organisms for food. A decomposer breaks down old or rotten food and returns nutrients back into the environment.*


© 2011 Disney Enterprises, Inc.

# CHIMPANZEE BEHAVIOR

## What Do Animals Eat In The African Rainforest? *(2 of 2)*

- Predict what would happen if one living thing was removed from the rainforest food chain. How would this impact other organisms? *Removing even one living thing from the food chain would break the chain. Organisms would not have food to eat and could eventually starve. This could remove another portion of the food chain and affect even more organisms in the habitat. All living things depend upon each other to survive.*

### OUTDOOR ACTIVITY

Take the class outdoors and have students identify examples of producers, consumers and decomposers near their school. Have students draw or take photos of these organisms and use their images to construct food chains upon returning to the classroom.

### EXTENDING THE LESSON: SCIENCE AND SOCIAL STUDIES

**Option 1:** Create a classroom food web! Use string or yarn to connect food chains together to create an African Rainforest Food Web. Discuss the differences between food chains and food webs as a class.

**Option 2:** In addition to producers and consumers, every ecosystem must have decomposers (living things that help break down rotting materials). Decomposers are important because they return energy back into the ecosystem. Split students into small groups and have each group research an important rainforest decomposer such as mushrooms, worms, dung beetles, millipedes and cockroaches. Each group should present their findings to the class. Discuss how the rainforest ecosystem would be different if there were no decomposers.

**Option 3:** Have a "Rainforest Fare" tasting party with the class. Bring in different items such as chocolate, vanilla, bananas, coconut and cinnamon and allow students to taste some rainforest foods! Encourage discussion around the role of people in the rainforest food web.

### CONNECT WITH NATURE

Visit an AZA-accredited zoo to learn more about rainforest food chains! Choose a rainforest animal and research what the animal likes to eat as well as its natural predators. If possible, interview an animal caregiver to find out how the animal's prepared diet compares to what it eats in the rainforest.

### LESSON RESOURCES

For Students:

- American Museum of Natural History. *Interactive Game on Forest Biodiversity.* 19 July 2011. http://www.amnh.org/ology/index.php?channel=biodiversity#features/dzangasangha?TB_iframe=true&height=480&width=750
- EcoKids. *Chain Reaction: Build the Food Chain!* Earth Day Canada. 29 August 2011. http://www.ecokids.ca/pub/eco_info/topics/frogs/chain_reaction/play_chainreaction.cfm
- Kid's Corner. *The Food Chain Game.* Sheppard Software. 29 August 2011. http://www.sheppardsoftware.com/content/animals/kidscorner/games/foodchaingame.htm

*Want to further your classroom conservation work?*
*Visit **Disney.com/planetchallenge** TODAY!*

Disney Planet Challenge



© 2011 Disney Enterprises, Inc.

# CHIMPANZEE BEHAVIOR

**What Do Animals Eat In The African Rainforest?**

## Food Chain Cards

Cut out each set of cards. Make rainforest food chains by using the clues that connect the cards together in each set.

### SET 1

**TERMITES**
We eat plants. We are food for chimpanzees.
SET 1

**PLANTS**
We get energy from the sun. We are food for termites.
SET 1

**LEOPARD**
I eat chimpanzees.
SET 1

**CHIMPANZEE**
I eat termites. I am food for leopards.
SET 1

### SET 2

**FLOWERS**
We get energy from the sun. Our nectar is food for butterflies.
SET 2

**BUTTERFLY**
I eat nectar from flowers. I am food for spiders.
SET 2

**SPIDER**
I eat butterflies. I am food for hornbills.
SET 2

**HORNBILL**
I eat spiders.
SET 2

### SET 3

**CROWNED EAGLE**
I eat tree hyrax.
SET 3

**TERMITES**
We eat plants. We are food for tree hyrax.
SET 3

**TREE HYRAX**
I eat termites. I am food for crowned eagles.
SET 3

**PLANTS**
We get energy from the sun. We are food for termites.
SET 3

cut here



© 2011 Disney Enterprises, Inc.

# CHIMPANZEE BEHAVIOR

**What Do Animals Eat In The African Rainforest?**

## Food Chain Cards

Cut out each set of cards. Make rainforest food chains by using the clues that connect the cards together in each set.

### SET 4

**TERMITE**
We eat plants. We are food for agama lizards.
SET 4

cut here

**GREEN MAMBA**
I eat agama lizards.
SET 4

cut here

**PLANTS**
We get energy from the sun. We are food for termites.
SET 4

cut here

**AGAMA LIZARD**
I eat termites. I am food for mambas.
SET 4

### SET 5

**TOAD**
I eat millipedes. I am food for crocodiles.
SET 5

cut here

**MILLIPEDE**
I eat plants. I am food for toads.
SET 5

cut here

**DWARF CROCODILE**
I eat toads.
SET 5

cut here

**PLANTS**
We get energy from the sun. We are food for millipedes.
SET 5

### SET 6

**LEOPARD**
I eat honey badgers.
SET 6

cut here

**HONEY BADGER**
I eat honey bees. I am food for leopards.
SET 6

cut here

**HONEY BEES**
We eat nectar from flowers. We are food for badgers.
SET 6

cut here

**FLOWERS**
We get energy from the sun. Our nectar is food for bees.
SET 6

Disney nature chimpanzee

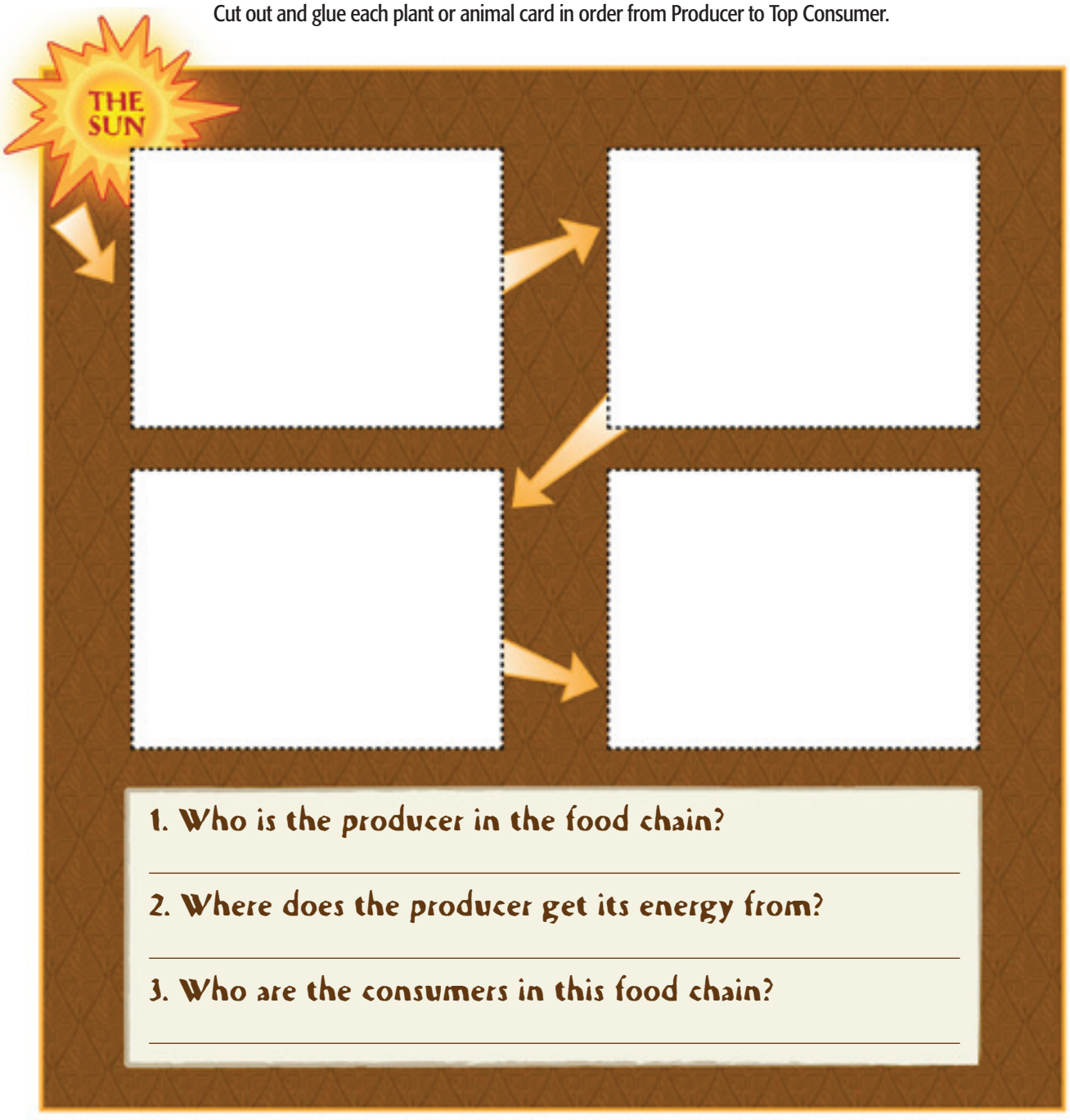
© 2011 Disney Enterprises, Inc.

# CHIMPANZEE BEHAVIOR

**What Do Animals Eat In The African Rainforest?**

## African Rainforest Food Chain

Create an African rainforest food chain!
Cut out and glue each plant or animal card in order from Producer to Top Consumer.




1. Who is the producer in the food chain?

2. Where does the producer get its energy from?

3. Who are the consumers in this food chain?

Spend time outdoors in nature! Look for examples of food chains in a habitat near you. Then, share what you've learned with friends or family.



© 2011 Disney Enterprises, Inc.

# LESSON 8 | How Is Energy Transferred Through The African Rainforest Food Web?

Grade Level: **4-6** | Subject Areas: **Science** | Time Frame: **1 hour**
Background Information: **Welcome to the African Rainforest: Home of the Chimpanzee (pages 9-10)**

**VOCABULARY:**
***Carnivore, consumer (primary, secondary and tertiary), decomposer, detritivore, ecosystem, energy, food chain, food web, herbivore, niche, omnivore, producer, trophic level***

**STUDENTS WILL BE ABLE TO…**
- Construct a rainforest food web
- Explain how a food web depicts the transfer of energy through the African rainforest ecosystem
- Define the term niche and describe the niches depicted in the African rainforest food web
- Predict how specific changes in the food web could have an overall affect on the African rainforest ecosystem

**WHAT YOU NEED**
- Interactive Cards: *A Chimpanzee's Rainforest Neighbors (pages 46-54)*
  - Select the following animals from this larger set of cards: elephant, colobus monkey, yellow backed duiker, fruit bat, termites, African pied hornbill, chimpanzee, African golden cat, tree hyrax, crowned eagle, leopard, millipede and dung beetle
- Activity Sheet 8A: The Rainforest Food Web
- Chalkboard and chalk or whiteboard and erasable markers
- Pen or pencil for each student
- Tape

## LEARNING ACTIVITIES

1. Label three corners of the board as sun, dung and decomposing plant matter. Explain that most levels of the African rainforest ecosystem begin with one of these three things.
2. Introduce the term producer to the class. Write fruit and plants on the board. Explain that these are two examples of rainforest producers and are found at the bottom of many food chains.
3. Introduce the term decomposer to the class. Discuss the importance of decomposers in the ecosystem. Explain that fungus is one example of a decomposer in the rainforest and add this example to the board.
4. Introduce the terms primary consumer, secondary consumer, tertiary consumer and decomposer. Explain how these roles describe an organism's niche in their environment. Then, distribute one food web card to each student. The organisms on these cards are all found in the Taï National Forest in the Ivory Coast.
5. Ask all students who are holding a primary consumer card to read their card out loud and tape it to the board. Each student should draw an arrow pointing to their card, starting from their source of energy. Have the class fill in the circles and draw in the corresponding arrows on activity sheet 8A.
6. Repeat for secondary consumer, tertiary consumer and decomposer cards. At each level, students should draw an arrow starting from their card and pointing towards anything that receives energy from consuming that organism.
7. Explain why the diagram on activity sheet 8A is called a food web and how this differs from a food chain. Students should infer that a food web shows the transfer of energy between trophic levels in an ecosystem. Discuss the importance of each niche as it relates to energy transfer.
8. Explain that animals can also be grouped based on the types of food they eat. Introduce the terms herbivore, omnivore, carnivore and detritivore and have students label each living thing on activity sheet 8A.
9. To illustrate how each living thing is connected, remove different organisms from the food web or introduce events that could upset the food web such as floods or fire. Discuss how this would affect other organisms. Students should conclude that every organism in the


© 2011 Disney Enterprises, Inc.

## How Is Energy Transferred Through The African Rainforest Food Web? *(2 of 2)*

African rainforest food web is equally important and depends upon each other for survival.

### WRAP UP

10. Use the following questions to encourage class discussion:
    - Describe how a food web differs from a food chain. What can you learn from a food web? *A food chain shows how energy is transferred between one organism to another. Many food chains compose a food web. From looking at a food web, you can learn how living things are connected and how energy flows through an ecosystem. You can learn which organisms are producers, consumers and decomposers. You can also learn if an organism is an herbivore, omnivore, carnivore or detritivore by looking at a food web.*
    - Gather students into small groups to define the terms producer, consumer, decomposer, herbivore, omnivore, carnivore and detritivore in their own words. *A producer is an organism that makes its own food, while a consumer must eat other organisms for food. A decomposer breaks down old or rotting plant matter and returns these nutrients back into the environment. Herbivores only eat plants, omnivores eat plants and meat, carnivores only eat meat and detritivores eat decomposing matter.*
    - How are the terms producer, consumer and decomposer different from herbivore, omnivore, carnivore and detritivore? *The terms producer, consumer and decomposer describe the role or niche an organism has in an environment. The terms herbivore, omnivore, carnivore and detritivore describe what an organism eats.*
    - Compare the number of herbivores, omnivores and carnivores in this African rainforest ecosystem. Propose explanations for this ratio. *There are more herbivores than omnivores or carnivores. This is because an ecosystem needs more herbivores to feed the carnivores.*
    - Create a supporting statement for why every living thing is important and how they are connected to each other in the African rainforest ecosystem. *Every living thing has an important role to play in the rainforest. Plants are food for many animals, but animals often spread seeds and help new plants grow. Decomposers return nutrients back into the ecosystem; herbivores keep plants trimmed and are food for carnivores; and carnivores keep populations balanced. All living things depend upon others to survive.*
    - What changes occur when organisms disappear from an ecosystem? *The class should conclude that the disappearance of one organism can impact other organisms in an ecosystem.*

### OUTDOOR ACTIVITY

Take the class outdoors and have students identify examples of producers, consumers and decomposers near their school. Students should also look for examples of animals that are herbivores, omnivores, carnivores and detritivores. Have students draw or take photos of these organisms and use their images to construct a food web upon returning to the classroom.

### EXTENDING THE LESSON: SOCIAL STUDIES

**Option 1:** Have students build a personal food web using their favorite foods or a list of the food items they eat in one day. Students should identify all producers, consumers, herbivores, omnivores and carnivores in their personal food web.

**Option 2:** Many of the foods we eat every day come from rainforests around the world, so in a way, we are part of the rainforest food web too! Have students research different food products such as bananas, coffee, chocolate, peppers, vanilla and sugar that all come from the rainforest. Then, have a "Rainforest Fare" tasting party for the class to celebrate the rainforests that give us these amazing foods!

### CONNECT WITH NATURE

Visit your local AZA-accredited zoo to learn more about rainforest food webs. Choose an animal that is from the rainforest and take notes on the types of food it likes to eat. Also, find out if the animal has any predators in the wild. If possible, interview a zoo educator or animal caretaker to find out how the animal's zoo diet compares to what it might eat in the rainforest.

*Want to further your classroom conservation work?*
*Visit **Disney.com/planetchallenge** TODAY!*
Disney Planet Challenge



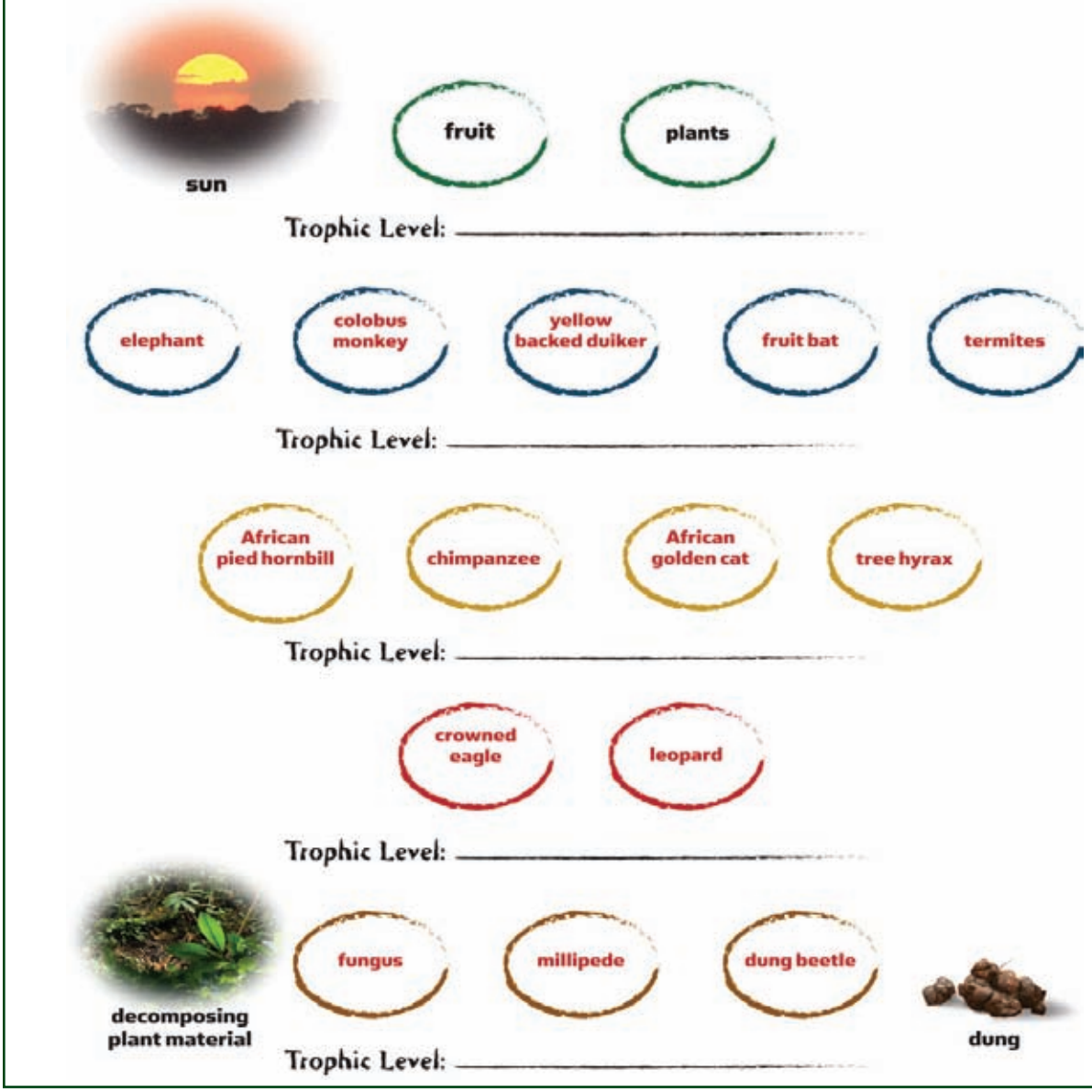
© 2011 Disney Enterprises, Inc.

# CHIMPANZEE BEHAVIOR

## How Is Energy Transferred Through The African Rainforest Food Web?

## The Rainforest Food Web

1. Use the clues on the selected Rainforest Neighbors Cards to draw arrows showing how energy moves through the food web.
2. Each arrow should start from the food source and point towards the organism gaining energy.
3. Label each trophic level as: producer, primary consumer, secondary consumer, tertiary consumer or decomposer.
4. Label each organism as: herbivore, omnivore, carnivore or detritivore.




Spend time exploring the outdoors near your school or home. Make a list of the wildlife you see and what each living thing needs to survive. Use your list to create a food web for a habitat in your area.

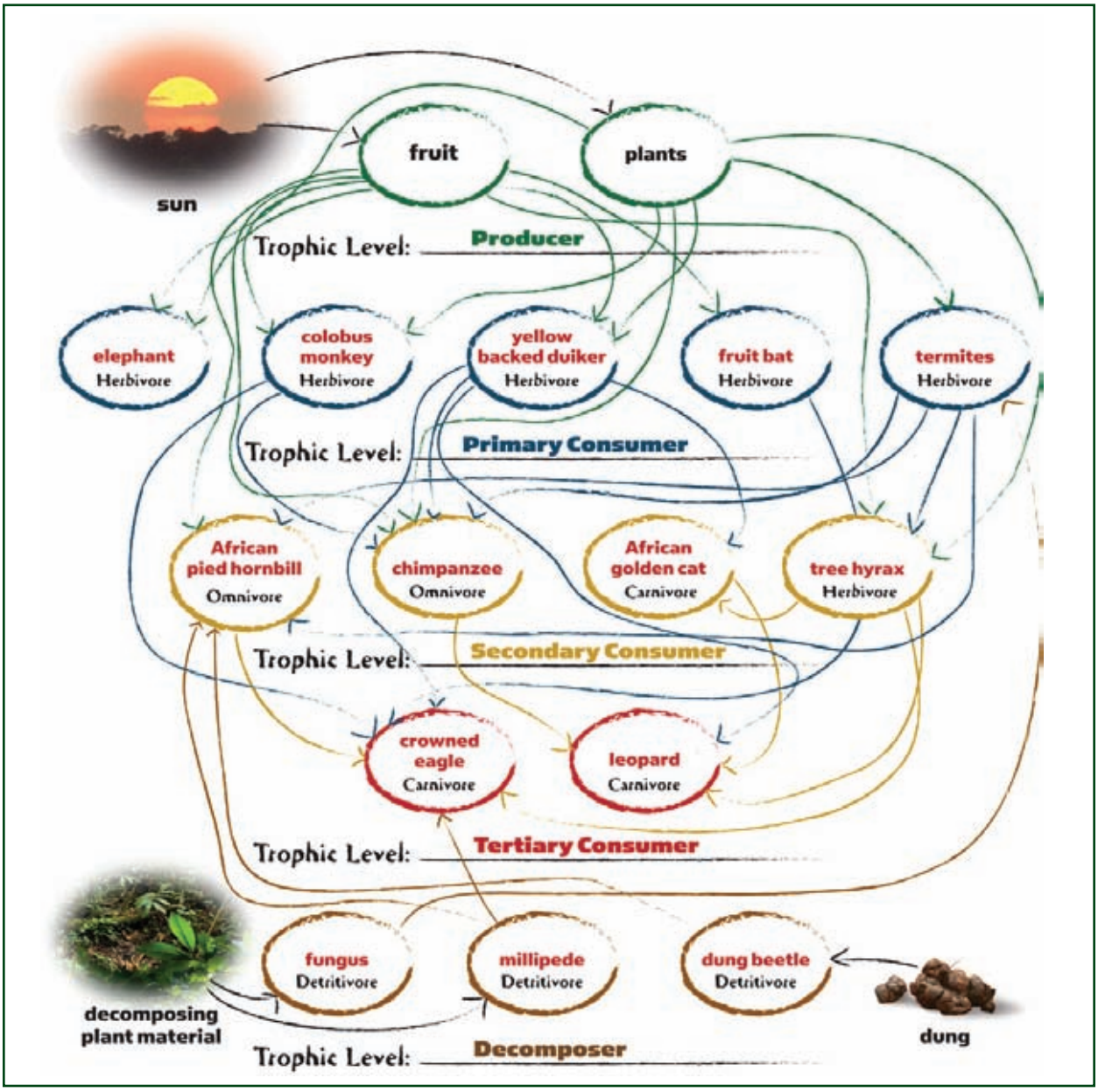


© 2011 Disney Enterprises, Inc.

# CHIMPANZEE BEHAVIOR

**How Is Energy Transferred Through The African Rainforest Food Web?**

## The Rainforest Food Web
## ANSWER KEY




Spend time exploring the outdoors near your school or home. Make a list of the wildlife you see and what each living thing needs to survive. Use your list to create a food web for a habitat in your area.



© 2011 Disney Enterprises, Inc.

# LESSON 9 | Why Do Chimpanzees Use Tools?

Grade Level: **2-3, 4-6** | Subject Areas: **Science** | Time Frame: **1 hour**
Background Information: **Chimpanzee Adaptations: Built for Life in the Rainforest (pages 10-11)**

**VOCABULARY:**
***Adaptation, tool, tool use***

**STUDENTS WILL BE ABLE TO…**
- Replicate how chimpanzees learn and teach each other in their society
- Explain why the use of tools is an important chimpanzee adaptation
- Compare and contrast how people use tools and how chimpanzees use tools

**WHAT YOU NEED**
- Activity Sheet 9A: *Which Tool Works Best?*
- "Tool" items: rocks, sticks, twigs and leaves
- "Food" items: hard-to-crack nuts (Brazil nuts, walnuts, chestnuts, acorns, etc.), raisins and jar lids filled with water
- Empty paper bowl for each student
- Make sure the outdoor space has plenty of rocks, sticks, twigs and leaves for students to collect. If not, collect them and place them on the ground in the outdoor area.

*NOTE: If nut allergies are a concern, replace the nuts with a hard candy or filled lollipop.*

## LEARNING ACTIVITIES

1. Define the term tool with the class and ask each student to make a list of the tools they use daily, along with how they learned to use the tool and who taught them.
2. Explain that like people, some animals, including chimpanzees also make and use tools. Using tools is an important adaptation that helps chimpanzees survive in their environment. Today, the class will be putting their tool-making skills to the test to learn about chimpanzee tool use.
3. Take the class outside into the space you have prepared. Divide the class into small groups of four.
4. Distribute a clipboard with activity sheet 9A to each group. Give each group a handful of nuts, some raisins, a jar lid filled with a thin layer of water and a bowl. Instruct students to search for tools that will help them complete the tasks found on the activity sheet. Remind students that their tools must be found within the schoolyard and come from nature.
5. Give students time to complete activity sheet 9A. Since chimpanzees learn from each other in the wild, it is also okay if students work together or ask other groups for ideas when solving the tasks.
6. Bring students back to the classroom. Review the background information on chimpanzee tool use and discuss the activity. Direct students to compare and contrast human and chimpanzee tool use.

## WRAP UP

7. Use the following questions to lead a wrap-up discussion:

**Questions for Grades 2-3:**

- What tools did you choose to use outside? Why did you pick these? *Tool choice could be based on size, shape, flexibility, etc. and will vary among students.*
- How did you learn to use a certain tool? *Students may say they learned through trial and error or by watching other classmates successfully complete a task.*
- How successful were you at completing the tasks using the tools you found outside? *Students' answers will vary.*
- Compare and contrast human and chimpanzee tool use and learning. Explain any similarities and differences. *Just like we often learn from watching our parents or friends, young chimpanzees watch others in their group to learn how to use tools. Also, both chimpanzees and people have the ability to address a challenge using tools. Although the types of tools we use may be different, some of the goals, such as obtaining and eating food are the same.*


© 2011 Disney Enterprises, Inc.

# BEHAVIORAL ADAPTATIONS

## Why Do Chimpanzees Use Tools? *(2 of 2)*

Questions for Grades 4-6:

- Building upon the knowledge you've gained from this lesson, explain why tool use is an important adaptation in chimpanzees? *Tool use is important because it allows chimpanzees to access and eat food that may otherwise be out of reach. Tools are also important for cleaning hair and soothing wounds.*
- Compare and contrast human and chimpanzee tool use and learning. Explain any similarities and differences. *Just like we often learn from watching our parents or friends, young chimpanzees watch others in their group to learn how to use tools. Also, both chimpanzees and people can look at a challenge and come up with a way to address the challenge using tools. Although the types of tools we use may be different, some of the goals, such as obtaining and eating food are the same.*
- Think of the most complex tool used by humans and the most complex tool used by chimpanzees. Compare and contrast their use and sophistication levels. *Students' answers will vary. Discuss which tool is most complex overall and why.*
- Chimpanzees rely on tools in their daily life for a variety of uses. Think of five 'tools' that you use daily that you could not survive without and explain how you use them. *Students' answers will vary.*

### EXTENDING THE LESSON: SCIENCE

**Option 1:** Modify this activity by using different food items such as chocolate candies, marshmallows, pretzel sticks, honey, grapes and rice. Provide students with utensils such as a pasta ladle, chopsticks, a drinking straw, toothpicks and a whisk (do not give students a fork, knife or spoon). Have students try to successfully pick up and transfer the provided food items into a dish using only the provided utensils. Have students record the tool that worked best for each food item. As a class, discuss which tools were most successful. Older grades should graph their results.

**Option 2:** In recent years, scientists have learned that other animals also make and use tools to solve complex problems! Divide students into small groups and have them research animals such as crows, ravens, sea otters, elephants and octopi that have been observed using tools. Encourage students to share their findings with the class.

### CONNECT WITH NATURE

Chimpanzee communities across Africa use different types of tools to achieve specific goals. Divide the class into small groups and have each group complete their own research project on chimpanzee tool use in one of these countries: Ivory Coast, Tanzania, Uganda or Republic of Congo. Students should then present their findings to the class and discuss any similarities and differences.

### LESSON RESOURCES

For Students

- Jane Goodall Institute of Canada. *Chimp Behaviour: Tool Use.* Jane Goodall Institute. 18 August 2011. http://www.janegoodall.ca/about-chimp-behaviour-tool-use.php
- Trivedi, Bijal. *Chimps Shown Using Not Just a Tool but a "Tool Kit".* National Geographic News, 6 Oct. 2004. Web. 18 August 2011. http://news.nationalgeographic.com/news/2004/10/1006_041006_chimps.html

For Teachers

- Boesch, Christophe and Hedwige Boesch-Achermann. *The Chimpanzees of the Taï Forest: Behavioural Ecology and Evolution.* New York, NY: Oxford University Press, USA, 2000. ISBN: 0198505078.
- Goodall, Jane. *The Chimpanzees of Gombe: Patterns of Behavior.* Cambridge, MA: Belknap Press, 1986. ISBN: 0674116496.
- Wrangham, Richard W., W.C. McGrew, Frans B. M. deWaal and Paul G. Heltne. *Chimpanzee Cultures.* Cambridge, MA: Harvard University Press, 1996.

This young chimpanzee is using a rock hammer to crack open nuts.



© 2011 Disney Enterprises, Inc.

# BEHAVIORAL ADAPTATIONS

## Why Do Chimpanzees Use Tools?

# Which Tool Works Best?

1. Read each task below.
2. Look outside around your school for tools that might help you complete these tasks.
3. The tools you select must be already on the ground and come from nature. Do not pick flowers or leaves or break off living branches to use as tools.
4. Record which tool worked best to help you complete your task.

### TASK 1: ANT FISHING

Chimpanzees love to eat ants! They use special tools to "fish" for and catch ants. Your task is to find a tool that will help you move all of the raisin "ants" into the bowl.

What tools did you try?_____

What tool was most successful and why?_____

_____

### TASK 2: NUT CRACKING

Chimpanzees in the Ivory Coast are very good at cracking nuts with special tools! Your next task is to find a tool that will help you crack all of the nuts without smashing them.

What tools did you try? _____

What tool was most successful and why?_____

_____

### TASK 3: COLLECTING WATER

Chimpanzees make special tools to collect water. Your task is to find a tool that will help you move the water from the jar lid into the bowl. Remember, you must use a tool, and cannot simply pour the water into the bowl!

What tools did you try? _____

What tool was most successful and why?_____

_____

Learn more about chimpanzee tool use by seeing Disneynature CHIMPANZEE in theatres!



© 2011 Disney Enterprises, Inc.

# LESSON 10 | What's In A Face?

Grade Level: **2-3** | Subject Areas: **Science, Art** | Time Frame: **1 hour** | Background Information: **Chimpanzee Communication: Connecting through Gestures, Expressions and Sounds (pages 11-12)**

**VOCABULARY:**
***Facial expression***

**STUDENTS WILL BE ABLE TO…**
- Explain the importance of non-verbal communication in chimpanzee society
- Determine similarities and differences between human and chimpanzee facial expressions

**WHAT YOU NEED**
- Activity sheet 10A: *Chimpanzee Facial Expressions*
- Small mirrors, drawing paper and crayons for each student or a digital camera and printing capabilities

## LEARNING ACTIVITIES

1. As a class list and discuss some examples of human feelings.
2. Pair students up. Without sharing their choice out loud, have each student pick one feeling from the list. Give students 30 seconds to decide how they might communicate this feeling to their partner without talking or making noise.
3. One student from each pair should turn to their partner and make a face that best represents their selected feeling. Their partner should guess what feeling is being expressed. Then, have pairs reverse roles. Again, their partner should guess the feeling using only facial clues.
4. Discuss as a class how facial expressions help people understand each other. Explain how animals like chimpanzees use facial expressions to communicate their feelings. Encourage students to make predictions around the importance of facial expressions in chimpanzee societies.
5. Show the class pictures of chimpanzees. Students should analyze what each chimpanzee facial expression might mean by assigning one picture to each of the following categories: sad, scared, playful or happy. Review their responses using the answer key.
6. Using a digital camera or small mirrors and drawing paper, have students create self-portraits demonstrating the same facial expression categories they discussed for chimpanzees (sad, scared, playful or happy). Use these self-portraits and the chimpanzee photographs to create a "Just Face It!" bulletin board that compares human and chimpanzee facial expressions.

## WRAP UP

7. Encourage students to think about the importance of facial expressions through discussion:
   - Explain in your own words why facial expressions are important. *Students should demonstrate understanding that facial expressions are an important form of non-verbal communication. Chimpanzees often use facial expressions to communicate their feelings to other chimpanzees.*
   - Looking at the "Just Face It!" bulletin board, what similarities and differences do you notice between human and chimpanzee facial expressions? *Answers will vary but students should point out that some facial expressions are different. For example, a "smiling" face might mean that a person is happy but it might mean that a chimpanzee is scared.*
   - Besides facial expressions, what other ways do you think chimpanzees communicate with each other? Group your responses into communication you can hear and communication you can see. Compare these to the ways that humans communicate. *Students' answers will vary.*

## EXTENDING THE LESSON: ART AND SOCIAL STUDIES

**Option 1:** People from different cultures throughout Africa create intricate and beautiful masks that represent their personality or family history. Many masks are inspired by animals found in the rainforest. Have students choose one of the animals from their rainforest scene that they feel


© 2011 Disney Enterprises, Inc.

best represents them. Using paper plates, string and crayons or markers, help students create masks of their chosen rainforest animals.

## CONNECT WITH NATURE

Express how much you care for wildlife! Tell your friends and family how amazing chimpanzees are and encourage them to learn more about ways they can make a difference for these animals and their rainforest home.

## LESSON RESOURCES

For Students:

- Jane Goodall Institute Center for Primate Studies. *Facial Expression Game.* University of Minnesota/ Jane Goodall Institute. 18 July 2011. http://www.discoverchimpanzees.org/activities/ident-a-chimp-expressions.php
- Jane Goodall Institute Center for Primate Studies. *Face Matching Game.* University of Minnesota/ Jane Goodall Institute. 18 July 2011. http://www.discoverchimpanzees.org/activities/face_matching.php

Like people, chimpanzees use a wide range of facial expressions to communicate with others in their group!

ANSWER KEY: Activity Sheet 10A

*Want to further your classroom conservation work? Visit* ***Disney.com/planetchallenge*** *TODAY!*

Disney Planet Challenge



© 2011 Disney Enterprises, Inc.

# CHIMPANZEE COMMUNICATION

**What's In A Face?**

## Chimpanzee Facial Expressions

Look at each chimpanzee image. Decide which emotion the chimpanzee is expressing: sad, scared, playful or happy.

Express how much you care for chimpanzees! Tell your friends and family about the amazing world of chimpanzees.



© 2011 Disney Enterprises, Inc.

# LESSON 11 | How Do Chimpanzees Communicate Without Making Noise?

Grade Level: **4-6** | Subject Areas: **Science** | Time Frame: **1 hour** | Background Information: **Chimpanzee Communication: Connecting through Gestures, Expressions and Sounds (pages 11-12)**

**VOCABULARY:**
***Body posture, communication, dominant, facial expression, non-verbal, submissive, verbal***

**STUDENTS WILL BE ABLE TO…**
- Explain the difference between verbal and non-verbal communication
- Identify various chimpanzee facial expressions and body postures
- Compare non-verbal communication in humans and chimpanzees
- Describe the importance of non-verbal communication in chimpanzee society

**WHAT YOU NEED**
- *How Do Chimpanzees Communicate Without Making Noise?* PowerPoint
- Activity Sheet 11A: *How Do Chimpanzees Communicate Without Making Noise?*
- Classroom computer connected to a projector or video screen

## LEARNING ACTIVITIES

1. Brainstorm a list of ways that different animals communicate. Encourage students to also think about ways people communicate with each other. Record this list on the board and sort words into two categories: verbal and non-verbal communication. Ask students to explain the difference between verbal and non-verbal communication.
2. Have students act out some of the following words using non-verbal communication: happy, playful, sad, scared, dominant (when an animal says "I want my way!") or submissive (when an animal says to another "I am not a threat, I do not want to fight you."). Similar to a game of charades, the student acting should not use any words or sounds to express their emotion. Ask the rest of the class to guess which emotion they are showing.
3. Like people, chimpanzees communicate using facial expressions and body postures. But, these emotions may look different when comparing chimpanzees to people. Show students the *How Do Chimpanzees Communicate Without Making Noise?* PowerPoint. Using each close-up image, students should predict what the chimpanzee is expressing: happy, playful, sad, scared, dominant or submissive. Have students record their predictions using activity sheet 11A.
4. Show students the second half of the PowerPoint featuring zoomed-out versions of each image to check their predictions. What was the chimpanzee expressing in each image? How does this compare to your original predictions? Have students record their findings on activity sheet 11A.

## WRAP UP

5. Use these activities and questions to discuss non-verbal communication in chimpanzees:
   - Explain in your own words the difference between verbal and non-verbal communication. *Students' answers will vary but they should determine that verbal communication involves noise, sound or language. Non-verbal communication cannot be heard, but instead involves facial expressions, body postures and actions.*
   - Compare non-verbal communication in humans and chimpanzees. How is it similar and how is it different? *Both humans and chimpanzees rely heavily on non-verbal communication to express emotion. Some types of non-verbal communication, such as a sad face, look similar in chimpanzees and humans. Other actions such as showing teeth can mean different things – in chimpanzees it can mean fear; in people it can express happiness.*


© 2011 Disney Enterprises, Inc.

# CHIMPANZEE COMMUNICATION

## How Do Chimpanzees Communicate Without Making Noise? *(2 of 2)*

- Imagine you are a chimpanzee living in the rainforest. Explain how you would use facial expressions and body posture to communicate with other chimpanzees throughout your day. Describe how and why your expressions would change if you encountered a family member, a friend and a rival chimpanzee. *Students should create a descriptive short story that depicts changes in non-verbal communication. Chimpanzees greeting a family member or friend would show happy or playful expressions. A chimpanzee faced with a rival may either show anger or submission. Refer to the background information for detailed information on chimpanzee communication.*

### EXTENDING THE LESSON: SCIENCE AND LANGUAGE ARTS

**Option 1:** Take the class outside or visit your local AZA-accredited zoo. Instruct each student to choose one animal to observe for at least 5 minutes. During this observation time, they should sit quietly and watch the animal's behaviors. Students should use a notepad or journal to record any examples of non-verbal communication they observe and predict the meaning of this non-verbal communication. Encourage students to look for other animals in the area that might be a friend, a potential mate or even a threat to the animal they chose. After completing their observations, have students compare the types of non-verbal communication used by animals near their school or in the zoo to chimpanzees.

### CONNECT WITH NATURE

Express your concern for wildlife and wild places! Write a letter to your local government official asking them to support laws that preserve natural habitats and protect endangered species such as chimpanzees.

A submissive chimpanzee presents the back of his hand to show he is not a threat to a higher ranking chimpanzee.

### LESSON RESOURCES

**For Students:**

- Jane Goodall Institute Center for Primate Studies. *Facial Expression Game.* University of Minnesota/ Jane Goodall Institute. 18 July 2011. http://www.discoverchimpanzees.org/activities/ident-a-chimp-expressions.php
- Jane Goodall Institute Center for Primate Studies. *Face Matching Game.* University of Minnesota/ Jane Goodall Institute. 18 July 2011. http://www.discoverchimpanzees.org/activities/face_matching.php
- Lessons for Hope. *The ABC's of Chimpanzee Behavior.* Jane Goodall Institute. 18 July 2011. http://www.lessonsforhope.org/abc/index.asp

**For Teachers:**


- Boesch, Christophe and Hedwige Boesch-Achermann. *The Chimpanzees of the Taï Forest: Behavioural Ecology and Evolution.* New York, NY: Oxford University Press, USA, 2000. ISBN: 0198505078.
- Goodall, Jane. *The Chimpanzees of Gombe: Patterns of Behavior.* Cambridge, MA: Belknap Press, 1986. ISBN: 0674116496.
- Wrangham, Richard W., W.C. McGrew, Frans B. M. deWaal and Paul G. Heltne. *Chimpanzee Cultures.* Cambridge, MA: Harvard University Press, 1996.


ANSWER KEY: Activity Sheet 11A

| CHIMPANZEE BEHAVIOR | PREDICTION | RESULT |
|---|---|---|
| | | Sad |
| | | Playful |
| | | Scared |
| | | Happy |
| | | Dominant |
| | | Submissive |



© 2011 Disney Enterprises, Inc.

LESSON 11

ACTIVITY SHEET 11A
for grades 4–6

# CHIMPANZEE COMMUNICATION

**How Do Chimpanzees Communicate Without Making Noise?**

## Data Sheet

1. Look at each chimpanzee image. Predict what the chimpanzee is trying to communicate. Choose from: happy, sad, scared, playful, dominant or submissive.

2. Look at the zoomed-out version of the chimpanzee image. Based on this image, what was the chimpanzee trying to communicate? Was your prediction correct?

| CHIMPANZEE BEHAVIOR | PREDICTION | RESULT |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Express your concern for wildlife and wild places! Write a letter to your local government official asking them to support laws that preserve natural habitats and protect endangered species such as chimpanzees.



© 2011 Disney Enterprises, Inc.

# LESSON 12 | What Sounds Do Chimpanzees Make?

Grade Level: **2-3** | Subject Areas: **Science** | Time Frame: **1 hour** | Background Information: **Chimpanzee Communication: Connecting through Gestures, Expressions and Sounds (pages 11-12)**

**VOCABULARY:**
***Call, communication, drumming***

**STUDENTS WILL BE ABLE TO…**
- Define the terms call, communication and drumming
- Describe four different chimpanzee sounds and explain their meaning
- Compare the sounds that chimpanzees make to sounds that people use to communicate

**WHAT YOU NEED**
- Audio files of chimpanzee calls and drumming
- Computer with speakers or files downloaded onto an MP3 player
- Large open field or outdoor school yard (a gymnasium will work in inclement weather)
- Activity Sheet 12A: *Game Instructions*

## LEARNING ACTIVITIES

1. Explain how people and chimpanzees use sound to communicate. Chimpanzees make calls using their mouth and throat. They also use body parts such as their fingers and hands to make drumming sounds to communicate.
2. Listen to the chimpanzee sound clips. Have the class practice imitating these calls and drumming patterns. Use the background information to discuss the meaning of each sound in chimpanzee society.
3. Take the class outside and ask them to pretend they are chimpanzees from the same group living in the rainforest. The chimpanzee group has spent all day searching for food, but as a result they have been separated from their leader, the alpha chimpanzee. The group must now listen for the calls of the alpha chimpanzee in order to be reunited. Demonstrate each sound and review the meaning of each of these sounds before beginning the game:
   - The *food grunt* is a sound that chimpanzees make when they have found their favorite foods and are excited – other chimpanzees will hurry quickly towards a chimpanzee making a food grunt. In this game, a food grunt is a "green light". When students hear a food grunt, they should quickly but safely make their way across the field.
   - When traveling through the rainforest, chimpanzees will sometimes drum on the base of large trees to gather their group together. In this game, *drumming* is a "yellow light" and students should begin to reunite, taking small, slow steps across the field.
   - When frightened or scared, chimpanzees will *scream* – the equivalent of a "red light" in this game. When students hear a scream, they should immediately stop and stand in place. They cannot move until the alpha chimpanzee gives an "all clear" by either drumming or making a food grunt.
   - A *pant hoot* is used in times of extreme excitement and entire groups of chimpanzees will often pant hoot loudly at the same time. In this game, everyone should pant hoot once all students have reached the alpha chimpanzee on the other side of the field.
4. As the teacher, assume the role of the alpha chimpanzee. Stand on one side of the field and have the class stand across from you on the other side. Instruct them to listen for your calls, as you will be leading them towards food and away from danger. Follow the directions on activity sheet 12A to lead students through the game. Once all students have made it safely to the other side of the field, everyone should pant hoot together to signal that the group has been reunited and the game is over.

This chimpanzee is calling to others in his group. Like people, chimpanzees use sound to express many different emotions.


© 2011 Disney Enterprises, Inc.

# CHIMPANZEE COMMUNICATION

## What Sounds Do Chimpanzees Make? *(2 of 2)*

### WRAP UP

5. Bring students back to the classroom and use these questions to start a follow-up discussion:
   - Explain the meaning of each sound you listened to in chimpanzee society. When would chimpanzees use these sounds? *Students should demonstrate a strong understanding of what each sound means in chimpanzee society and how these sounds might be used. For more details on chimpanzee communication, refer to the Background Information.*
   - During the game, was it easy to understand what the alpha chimpanzee was communicating? What happened if you misunderstood or didn't follow their direction? How does this relate to chimpanzees in the rainforest? *Misunderstanding the directions of an alpha chimpanzee caused students to be "out" of the game. In the wild, this could mean that a chimpanzee is in danger because it did not listen to or find the other chimpanzees in its group. Students should conclude that communication is extremely important in chimpanzee society.*
   - Compare communication in chimpanzees and people. Explain any similarities and differences. *Students' answers will vary.*

### EXTENDING THE LESSON: MUSIC

**Option 1:** Use small drums or have students construct their own drums using a variety of arts and crafts materials. Coffee cans and oatmeal containers work great as small hand drums, plastic eggs and toilet paper rolls can be filled with rice to create shakers, paper plates can be stapled together and filled with lima beans to make tambourines and simple hand clapping rhythms can imitate chimpanzee drumming on trees. Have students explore the kinds of sounds that can be made by striking the cans with alternating fingers and different parts of their hands in multiple places on the drums. Also, encourage students to create various patterns of rhythm using fast or slow beats. You may have to demonstrate and play along with the group to ensure a steady beat. Help students create a new drumming "language" using repeated patterns to express words or phrases. Have students take turns teaching the class "words" from their new language.

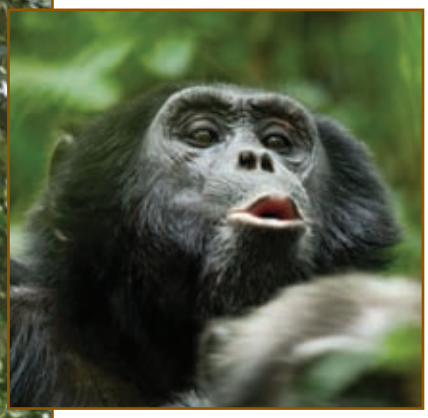
### CONNECT WITH NATURE

Spend time outside with a tape recorder, MP3 player, digital camera with video capabilities or a video camera. Find an animal to study and record the different types of sounds that the animal makes. Then, present your findings to the class; see if they can guess the animal you observed just by listening!

### LESSON RESOURCES

**For Students and Teachers:**


- Gollub, Matthew and Karen Hanke (Illustrator). *The Jazz Fly.* Santa Rosa, CA: Tortuga Press, 2000. ISBN: 1889910178.
- Scientific American. *Chimps R Us – Speaking Chimp Teaching Guide.* Public Broadcasting Systems (PBS). 19 July 2011. http://www.pbs.org/saf/1108/teaching/teaching2.htm



Chimpanzees are very social and use a variety of calls and sounds to communicate in the rainforest.



© 2011 Disney Enterprises, Inc.

LESSON 12

ACTIVITY SHEET 12A
for grades 2–3

# CHIMPANZEE COMMUNICATION

**What Sounds Do Chimpanzees Make?**

## Game Instructions

Use these instructions to guide you in playing the chimpanzee vocalization game. For additional rounds of play, alternate scenarios and calls or choose different students to act as the alpha chimpanzee.

1. Begin the game by explaining that you are the alpha chimpanzee and they must listen to your calls to travel safely through the rainforest. Start the students moving by patting your lap to make a **drumming** sound. This should bring the students closer to you. Explain that you are drumming to bring the group together. Everything seems safe in the rainforest at the moment.

2. Next, make a scream noise. Students should stop in place. Tell the class that the **scream** is a warning. In the distance, you hear drumming from another chimpanzee group. You might be in their territory! Everyone should freeze until you feel it is safe to start moving again.

3. Begin **drumming** again to let the class know it is once again safe to cross the forest. Students should continue walking slowly towards you. They should be on the lookout for danger from the rival chimpanzees.

4. Loudly make a **food grunt**. Students should safely run towards you. Explain that this is a food call and you have found some ripe fruit in the rainforest. Everyone should join you to share in the meal.

5. Once students have crossed about 3/4 of the field, quickly make a **scream**. Students should immediately stop. Explain that the rival chimpanzee group heard your food grunt too and they are moving very close now. There could be danger around any tree! Your chimpanzee group should stand very still to avoid conflict with another group.

6. After several seconds, let them know their method worked! The rival chimpanzees have moved on and it is safe again. Start **drumming** softly. Students should slowly start walking towards you again. Increase the volume of the drumming to bring the group closer together.

7. When students have almost reached you on the other side of the field, **food grunt** once more. Students should begin safely running and reach the other side of the field. The chimpanzee group has been reunited with its alpha leader. Everyone should **pant hoot** together to celebrate their success.

© 2011 Disney Enterprises, Inc.

# LESSON 13 | How Do Chimpanzees Use Sound To Communicate?

Grade Level: **4-6** | Subject Areas: **Science, Music** | Time Frame: **1 hour** | Background Information: **Chimpanzee Communication: Connecting through Gestures, Expressions and Sounds (pages 11-12)**

**VOCABULARY:**
***Communication, drumming, emotion, food grunt, pant hoot, predator, rival group, scream, vocalization, whimper***

**STUDENTS WILL BE ABLE TO…**
- Identify six types of vocalizations and drumming patterns used by chimpanzees
- Compare the different ways humans and chimpanzees communicate
- Explain the importance of vocalizations and drumming in chimpanzee society

**WHAT YOU NEED**
- Audio files of chimpanzee vocalizations and drumming
- Computer with speakers or files downloaded onto an MP3 player
- Activity Sheet 13A: *How Do Chimpanzees Use Sound to Communicate?*

## LEARNING ACTIVITIES

1. Introduce the term communication to the class and ask students to give examples of how people use sound to communicate (such as greeting, warning, fear, comfort, happiness). Write these examples on the board.
2. Split the class into small groups. Have students close their eyes and imagine a sound a person makes to express emotion. Examples could include sighing, laughter, grunting, crying, stomping or clapping. Students should not use words during this activity. Then, have students open their eyes and take turns making the sound they imagined. Other members in the group should guess the emotion.
3. Bring the class back together and discuss how each group did in the activity. Explain that like people, chimpanzees also have sounds they use to express emotion. A sound made by a chimpanzee using its mouth and throat is called a vocalization. Chimpanzees also use drumming to communicate in the rainforest.
4. Play each of the chimpanzee sound files for the class. After listening to each audio clip, use the background information to discuss what the sound means in chimpanzee society. Have students record their answers on activity sheet 13A: *How Do Chimpanzees Use Sound To Communicate?*
5. Play each sound again. This time, have students use the behaviors they wrote down on activity sheet 13A to critically listen to the calls. Ask them to explain the differences they hear in each sound and how these differences change the meaning for chimpanzees. As a class, practice imitating each of the chimpanzee vocalizations and drumming patterns.
6. Discuss how vocalizations and drumming relate to chimpanzee behavior. How might a group of chimpanzees behave in response to a pant hoot, food grunt, whimper or scream? How does drumming keep the group together?
7. Divide the class into small groups. Give each group 10 minutes to create their own short message using chimpanzee vocalizations. Students should first write down their message in English and then translate this message into "chimpanzee" using the sounds they have learned about in this lesson. Have each group act out their message using their new chimpanzee language. The rest of the class should try to decode each group's message.

## WRAP UP

8. Lead a wrap up discussion using the questions below:
   - Explain in your own words why vocal communication is important. *Students should demonstrate a strong understanding of the role vocal communication plays in chimpanzee behavior and society. Vocal communication and drumming can be used to keep groups together, warn of potential predators, scare rival groups and express a variety of emotions.*


© 2011 Disney Enterprises, Inc.

# CHIMPANZEE COMMUNICATION

## How Do Chimpanzees Use Sound To Communicate? *(2 of 2)*

- Compare how people and chimpanzees use sound to communicate. Explain any similarities or differences. *Students should conclude that both people and chimpanzees use sound to communicate emotion, stay connected and warn of danger. However, the ways that people and chimpanzees communicate are different. For example, both chimpanzees and people use sounds but people also have a spoken language that includes words and phrases to express complex meanings. People also have different languages, communicate in writing and use technology such as cell phones, e-mail and video conferencing to communicate.*
- Compare the first and second group activities. Which set of sounds (human or chimpanzee) were harder to understand and why? *Students' answers will vary.*
- What are some challenges for chimpanzees communicating in the rainforest? How do the different types of chimpanzee sounds help overcome these challenges? *Chimpanzees live in dense rainforests and travel throughout the day. Because of this, their sounds must be loud enough to hear above the noise of other animals and over long distances. Several sounds, including the pant hoot and drumming can be heard throughout the rainforest. These help groups stay together. They also can help groups know if they are entering rival territory long before they see another chimpanzee.*

### EXTENDING THE LESSON: MUSIC AND SOCIAL STUDIES

**Option 1:** Humans have played drums and other percussion instruments for thousands of years as an important part of religious ceremonies, peace talks, community celebrations, music making, as a way to express emotion and for long-distance communication. Divide the class into small groups and assign each group a different continent. Students should research at least three different cultures that use drumming on that continent. Have each group create a poster or PowerPoint presentation to share with the class.

**Option 2:** Use small drums or encourage the class to make their own drums using a variety of arts and crafts materials. Coffee cans and oatmeal containers work great as small hand drums, plastic eggs and toilet paper rolls can be filled with rice to create shakers, paper plates can be stapled together and filled with lima beans to make tambourines, washers or bottle tops can be strung together to make rattles and simple hand clapping rhythms can imitate chimpanzee drumming on trees. Have students explore the kinds of sounds that can be made by striking the cans with alternating fingers and different parts of their hands in multiple places on the drums. Also, encourage students to create various patterns of rhythm using fast or slow beats. You may have to demonstrate and play along with the group to ensure a steady beat. Help students create a new drumming "language" using repeated patterns to express words or phrases. Have students take turns teaching the class "words" from their new language. To play short clips of African drumming and rhythm for students, visit the Rhodes University International Library of African Music: http://www.ru.ac.za/ilam/products/cds/musicofafricaseries.

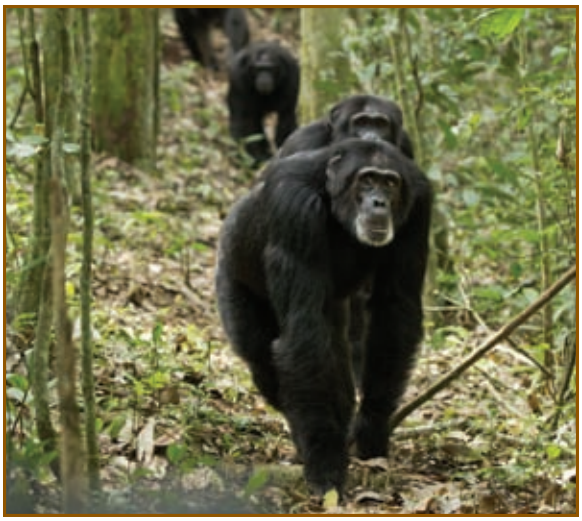
### CONNECT WITH NATURE

Go outside and listen for examples of vocal communication near your school or home. Take a tape recorder, MP3 player, digital camera with video capabilities or a video camera. Find at least three different animals to observe and try to record each one vocalizing. When you return to the classroom, present your findings to the class; see if they can guess the animals you observed just by listening!

### LESSON RESOURCES

**For Students and Teachers:**

- International Library of African Music. *Music of Africa Series.* Rhodes University. 27 July 2011. http://www.ru.ac.za/ilam/products/cds/musicofafricaseries



Chimpanzees live and travel in groups. Chimpanzees use sounds to keep groups together.



© 2011 Disney Enterprises, Inc.

# CHIMPANZEE COMMUNICATION

**How Do Chimpanzees Use Sound To Communicate?**

## How Do Chimpanzees Use Sound To Communicate?

1. Listen to each chimpanzee sound clip. Discuss each sound as a class. Write down what each sound means to chimpanzees.
2. Listen to each sound clip again. This time, describe the sound using words. Think about the volume, pitch and speed of the sound. Write your observations in the Notes section below.
3. Work in small groups and use your notes below to translate a message into "chimpanzee." Share this with your class to see if they can decode your chimpanzee message.

| SOUND | MEANING | NOTES |
|---|---|---|
| Pant hoot | | |
| Food grunt | | |
| Whimper | | |
| Scream | | |
| Drumming | | |

Go outside and listen for examples of vocal communication near your school or home! Record the animal sounds you hear and test your friends. Can they guess the animals just by listening?



© 2011 Disney Enterprises, Inc.

# How Do Chimpanzees Use Sound To Communicate?

## ANSWER KEY

| SOUND | MEANING | NOTES |
|---|---|---|
| Pant hoot | Excited | |
| Food grunt | Food is nearby or tastes great | |
| Whimper | Sadness or distress | |
| Scream | Extreme fear or anger | |
| Drumming | Bringing group together or marking territory | |



© 2011 Disney Enterprises, Inc.

# LESSON 14 | How Do Chimpanzees Spend Their Day?

Grade Level: **2-3** | Subject Areas: **Science, Language Arts** | Time Frame: **1 hour**
Background Information: **Chimpanzee Behavior: A Look into Their Unique Lives (pages 13-15)**

**VOCABULARY:**
***Behavior, forest, learn, play, social, tool use, wadge***

**STUDENTS WILL BE ABLE TO…**
- Define the term behavior and explain why behaviors are important
- Describe at least three examples of chimpanzee social behavior
- Compare a day in their life to a day in the life of a young chimpanzee

**WHAT YOU NEED**
- *Life as a Chimpanzee!* PowerPoint Presentation on Chimpanzee Social Behaviors
- Activity Sheet 14A: *A Day In The Life Of A Baby Chimpanzee*

## LEARNING ACTIVITIES

1. Ask students for examples of social animals, or animals that live in groups (examples include elephants, lions, bees, etc.). Explain that chimpanzees are very social and depend upon their family groups to survive. Review the PowerPoint slides with the class. Discuss the purpose of each social behavior and why it is important in chimpanzee society.
2. Distribute activity sheet 14A. Students should arrange the six pictures in order and use the story words to create their own "A Day In The Life Of A Baby Chimpanzee" story. Have students share their completed stories by reading them in a small group setting.
3. To make comparisons between humans and chimpanzees, have students write and illustrate a short story about a day in their life. Students should include information on where they live, who cares for them, who is part of their family, from whom and what they learn and how they spend the day.
4. Compile both sets of stories describing a day in their lives and a day in the life of a baby chimpanzee into a class story book. If possible, have students visit other classes to share this story book with their peers.

## WRAP UP

5. Use these questions to lead a follow-up discussion:
   - Explain the term behavior in your own words. *A behavior is an action completed by one or more animals.*
   - List three examples of social behaviors in chimpanzees. *Students' answers will vary but should include at least three examples presented in the background information, PowerPoint slides or "A Day In The Life Of A Baby Chimpanzee" story.*
   - Describe one similarity and one difference between a day in your life and the life of a chimpanzee. *Similarities might include learning, parental care, sharing food, playing and spending time with family. Differences might include who makes up the family, what types of food they eat and where the food comes from, how they play, how they learn and what types of activities make up the day (for example, people might watch TV, play an instrument or learn by reading books, not just social interaction).*
   - Why do you think social behaviors are important to chimpanzees? *Social behaviors are important because they help chimpanzees express emotions and build important relationships with other chimpanzees.*

## EXTENDING THE LESSON: MATH

**Option 1:** Encourage students to draw a picture that illustrates how each student spends their day. Students should draw a square and divide it into parts to show how much time is spent eating, playing, learning or going to school, resting and spending time with family or friends.


© 2011 Disney Enterprises, Inc.

# CHIMPANZEE BEHAVIOR

## How Do Chimpanzees Spend Their Day? *(2 of 2)*

Compare this to a chimpanzee's typical day, during which chimpanzees spend about 40% of their time resting (this includes playing, grooming, napping, peacefully interacting with other chimpanzees), 30% of their day feeding and 30% moving (Oda-Matsumoto, A. and R. Oda. *Activity Budgets of Wild Female Chimpanzees in Different Reproductive States.* Journal of Ethology: 19, 17-21. 2001). Discuss similarities and differences as a class.

### CONNECT WITH NATURE

As a class, take a walk outdoors and look for social animals that are a part of the school environment (ants, squirrels and birds are all easy-to-find examples of social animals). Students should spend time observing an animal of their choice to learn more about its behaviors and interactions with other animals. Have students write about their observations in a nature journal.

### LESSON RESOURCES

For Students:

- Doudna, Kelly. *It's a Baby Chimpanzee!* Edina, MN: ABDO Publishing, 2008. ISBN: 1604531527.
- Latta, Jan. *Chimaka the Chimpanzee.* Bronte, N.S.W, Australia: True to Life, 2007. ISBN: 0980795834.

Chimpanzees are extremely social animals. They spend their day eating, resting, grooming and learning from others in their group.



© 2011 Disney Enterprises, Inc.

# CHIMPANZEE BEHAVIOR

**How Do Chimpanzees Spend Their Day?**

## A Day In The Life Of A Baby Chimpanzee *(1 of 3)*

1

2

**STORY WORDS**

family learn play wrestle tickle hug safe

Observe an animal that lives in your backyard and write a story about how this animal spends its day!



© 2011 Disney Enterprises, Inc.

LESSON 14

ACTIVITY SHEET 14A
for grades 2–3

# CHIMPANZEE BEHAVIOR

**How Do Chimpanzees Spend Their Day?**

## A Day In The Life Of A Baby Chimpanzee *(2 of 3)*

3

4

**STORY WORDS**

nuts rock crack tools walk rainforest

Observe an animal that lives in your backyard and write a story about how this animal spends its day!

Disney nature chimpanzee

© 2011 Disney Enterprises, Inc.

# CHIMPANZEE BEHAVIOR

**How Do Chimpanzees Spend Their Day?**

## A Day In The Life Of A Baby Chimpanzee *(3 of 3)*

5

6

**STORY WORDS**

eat fruit wadge cuddle nap

Observe an animal that lives in your backyard and write a story about how this animal spends its day!

Disney nature chimpanzee

© 2011 Disney Enterprises, Inc.

# LESSON 15 | How Do Chimpanzees Interact With Each Other?

Grade Level: **4-6** | Subject Areas: **Science** | Time Frame: **1 hour**
Background Information: **Chimpanzee Behavior: A Look into Their Unique Lives (pages 13-15)**

**VOCABULARY:**
***Adult, alpha, hierarchy, infant, interaction, juvenile, social, submissive, survival***

**STUDENTS WILL BE ABLE TO…**
- Describe at least two examples of complex social interactions in chimpanzees
- Explain why social interactions are important to chimpanzee survival
- Make comparisons between chimpanzee social interactions and human social interactions

**WHAT YOU NEED**
- *Life as a Chimpanzee!* PowerPoint Presentation on Chimpanzee Social Interactions
- Activity Sheet 15A: *Skits of Chimpanzee Social Interactions*
- Activity Sheet 15B: *How Do Chimpanzees Interact With Each Other?*

## LEARNING ACTIVITIES

1. Share the *Life as a Chimpanzee!* PowerPoint with the class to introduce students to common chimpanzee social interactions.
2. Give students the opportunity to act out some of these chimpanzee social interactions. Split the class into groups and distribute one skit from activity sheet 15A to each group. Give students time to read through their assigned skit and decide how they are going to present it to the class.
3. Have the first group present their skit. Upon completing the skit, the class should fill out the chimpanzee roles and answer the questions listed on activity sheet 15B. Discuss how their observations compare to the social interactions they learned about at the beginning of the lesson. Repeat until all four skits have been presented and activity sheet 15B is complete.

## WRAP UP

4. Use these questions to expand upon your discussion of social interactions in chimpanzees:
   - List two examples of important chimpanzee social interactions. *Students' answers will vary but should include examples from the lesson or background information.*
   - Explain why social interactions are important in chimpanzee society. *Social interactions are important because chimpanzees live in groups. Chimpanzees build relationships with other individuals and social interactions help to express these bonds. They also help young chimpanzees learn the proper way to behave as adults in chimpanzee society.*
   - Compare chimpanzee social interactions to the ways people interact with each other. Describe any similarities and differences. *Similarities include: greeting friends and family with hugs or kisses, taking part in playtime, sharing with each other, learning from our parents and caring for young. Also, both humans and chimpanzees have gestures and interactions that vary among populations and cultures. Differences include: the number and types of individuals that make up chimpanzee groups versus human families and the way chimpanzees patrol their territory.*
   - Predict what would happen if a young chimpanzee was separated from its family group. How would its social interactions be different without other chimpanzees to learn from? *Because chimpanzees learn everything they need to know from their family, if a young chimpanzee was separated it would not learn how to behave as an adult chimpanzee. The young chimpanzee would not know how to properly show emotions or understand its place in the chimpanzee hierarchy. Its interactions would be*


© 2011 Disney Enterprises, Inc.

*different from normal chimpanzees. This is why it is important for young chimpanzees to stay with their group until adulthood.*

## EXTENDING THE LESSON: LANGUAGE ARTS

**Option 1:** Have each student choose one of the chimpanzee roles featured in this lesson (alpha male, alpha female, submissive male, submissive female, juvenile or infant) and write a short story from the perspective of this chimpanzee. Compile all of the students' stories into one classroom book entitled *"A Day in the Life of A Chimpanzee."*

## CONNECT WITH NATURE

Take students outdoors to observe wildlife near them! Lead a short nature walk around the schoolyard and have students look for examples of different animals' social interactions. These can be small: a butterfly traveling between flowers, crows calling to each other or two squirrels chasing each other up a tree. Ask students to compare the interactions they see near their school to the chimpanzee interactions they learned about in this lesson.

## LESSON RESOURCES

### For Students


- Lessons for Hope. *The ABC's of Chimpanzee Behavior.* Jane Goodall Institute. 18 July 2011. http://www.lessonsforhope.org/abc/index.asp
- Rockwood, Leigh. *Chimpanzees are Smart.* New York, NY: Rosen Publishing Group, 2010. ISBN: 1435898400.
- Spilsbury, Richard and Louise A. Spilsbury. *A Troop of Chimpanzees.* Chicago, IL: Heinemann-Raintree, 2003. ISBN: 1403407467.


### For Teachers


- Boesch, Christophe and Hedwige Boesch-Achermann. *The Chimpanzees of the Taï Forest: Behavioural Ecology and Evolution.* New York, NY: Oxford University Press, USA, 2000. ISBN: 0198505078.
- Goodall, Jane. *The Chimpanzees of Gombe: Patterns of Behavior.* Cambridge, MA: Belknap Press, 1986. ISBN: 0674116496.
- Wrangham, Richard W., W.C. McGrew, Frans B. M. deWaal and Paul G. Heltne. *Chimpanzee Cultures.* Cambridge, MA: Harvard University Press, 1996.


ANSWER KEY: Activity Sheet 15B

### SKIT 1: Searching For Food In The Rainforest

| CHIMPANZEE ROLE | CLASSMATE'S NAME | CHIMPANZEE ROLE | CLASSMATE'S NAME |
|---|---|---|---|
| ALPHA MALE | | ALPHA FEMALE | |
| OTHER FEMALE | | OTHER FEMALE | |
| OTHER MALE | | YOUNG CHIMPANZEE | |
| YOUNG CHIMPANZEE | | INFANT | |

1. What chimpanzee found the food? The younger male
2. What chimpanzee was able to eat first? The alpha male
3. What did the alpha female do with her food and why? She shared her food with another female and her baby. She shared food as a way of caring for her young and building a relationship with the other female.

### SKIT 2: Relaxing – Chimpanzee Style

| CHIMPANZEE ROLE | CLASSMATE'S NAME | CHIMPANZEE ROLE | CLASSMATE'S NAME |
|---|---|---|---|
| ALPHA MALE | | ALPHA FEMALE | |
| OTHER FEMALE | | OTHER FEMALE | |
| YOUNG CHIMPANZEE | | YOUNG CHIMPANZEE | |
| YOUNG CHIMPANZEE | | INFANT | |

1. What behaviors are happening in this scene? Grooming, playing, caring for young and resting.
2. Why is grooming important? Grooming is important because it builds relationships between chimpanzees. It also helps keep their skin and fur free of pests.
3. Why is playing important? Playing helps build bonds between individuals and teaches important social skills for living in chimpanzee society. Playing also strengthens muscles and helps chimpanzees learn how to climb, swing, and move through the rainforest.

ANSWER KEY: Activity Sheet 15B

### SKIT 3: Chimpanzee Tool Use

| CHIMPANZEE ROLE | CLASSMATE'S NAME | CHIMPANZEE ROLE | CLASSMATE'S NAME |
|---|---|---|---|
| ALPHA MALE | | ALPHA FEMALE | |
| OTHER FEMALE | | OTHER FEMALE | |
| SUBMISSIVE MALE | | YOUNG CHIMPANZEE | |
| YOUNG CHIMPANZEE | | INFANT | |

1. What important chimpanzee behaviors were demonstrated in this scene? Chimpanzees using tools and teaching their infants are the important behaviors depicted in this scene.
2. Describe the two different interactions that took place between each pair of female and infant chimpanzees. One female is teaching her baby how to properly use tools to crack open nuts. The other female is cracking open nuts and sharing them with her baby who is still too young to do this on his/her own.
3. Explain what happened between the alpha and submissive males. The alpha male has first choice over anything that belongs to the group, including tools. In this interaction, the alpha used dominance displays to challenge a submissive male, who then gave up his rock hammer.

### SKIT 4: Territory Patrols

| CHIMPANZEE ROLE | CLASSMATE'S NAME | CHIMPANZEE ROLE | CLASSMATE'S NAME |
|---|---|---|---|
| ALPHA MALE - GROUP 1 | | OTHER MALE - GROUP 1 | |
| OTHER MALE - GROUP 1 | | OTHER MALE - GROUP 1 | |
| OTHER MALE - GROUP 1 | | ALPHA MALE - GROUP 2 | |
| OTHER MALE - GROUP 2 | | OTHER MALE - GROUP 2 | |

1. What was the purpose of the drumming and vocalizations? The drumming and vocalizations were used to announce each group's presence and to maintain territory.
2. Why did one group retreat? The group that retreated had fewer individuals and knew the other group was larger because of the loud drumming and vocalizations. They chose to move away from the larger group because getting too close could mean danger.



© 2011 Disney Enterprises, Inc.

# CHIMPANZEE BEHAVIOR

**How Do Chimpanzees Interact With Each Other?**

## Chimpanzee Social Interactions Skits

Divide into groups and act out these skits based on common chimpanzee social interactions.

### SKIT 1: Searching For Food In The Rainforest

**NUMBER OF STUDENTS: 5-8** The chimpanzee group is searching for food. The other male chimpanzee finds food and makes a food grunt. All other chimpanzees start to food grunt and come over. When the alpha male comes over, all other chimpanzees move so he can take food first. After the alpha male eats, the other male is allowed to eat. Then, the alpha female is allowed to take food. The alpha female shares her food with one other female and an infant. The third female and the young chimpanzees eat last.

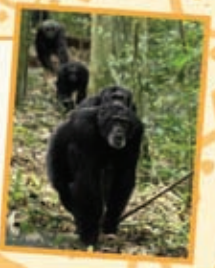
### SKIT 2: Relaxing – Chimpanzee Style

**NUMBER OF STUDENTS: 5-8** A group of chimpanzees is spending the afternoon relaxing on the rainforest floor. The alpha female is being groomed by another female chimpanzee. A group of three young chimpanzees are playing together – spinning, climbing and doing somersaults. The second female chimpanzee is cuddling her infant. The alpha male is resting.

### SKIT 3: Chimpanzee Tool Use

**NUMBER OF STUDENTS: 5-8** The chimpanzee group is using rocks as hammers to crack nuts on the rainforest floor. The alpha female is teaching her young chimpanzee to crack nuts. The young chimpanzee is watching the alpha female to learn the best technique. The young chimpanzee is trying different sizes and types of "hammers" before he finds the right sized rock and cracks open a nut! The second female and other young chimpanzee are successfully cracking open and eating nuts. A third female is cracking nuts and giving them to her infant who is too small to crack nuts on its own. The alpha male sees that the submissive male has a better rock hammer. The alpha male moves towards the submissive male and displays using body postures and vocalizations. The submissive male quickly moves away and leaves the hammer for the alpha male. The alpha male uses his new hammer to crack nuts.

### SKIT 4: Territory Patrols



**NUMBER OF STUDENTS: 5-8** Two groups of rival chimpanzees are traveling through the rainforest (one group has 3 members, the other has 5 members; the groups should stay on separate sides of the classroom). Both groups are patrolling their territory. The small group announces their presence by drumming and vocalizing. The larger group responds with their own distinct drumming patterns and vocalizations. After several exchanges, the smaller group retreats.



© 2011 Disney Enterprises, Inc.

# How Do Chimpanzees Interact With Each Other?

Watch your classmates perform each of the skits below and closely observe all of the chimpanzee interactions. Then, fill in the names of the students who performed each role and answer the questions that go along with the skit.

## SKIT 1: Searching For Food In The Rainforest

| CHIMPANZEE ROLE | CLASSMATE'S NAME | CHIMPANZEE ROLE | CLASSMATE'S NAME |
|---|---|---|---|
| ALPHA MALE | | ALPHA FEMALE | |
| OTHER FEMALE | | OTHER FEMALE | |
| OTHER MALE | | YOUNG CHIMPANZEE | |
| YOUNG CHIMPANZEE | | INFANT | |

**1.** What chimpanzee found the food? _____

**2.** What chimpanzee was able to eat first? _____

**3.** What did the alpha female do with her food and why? _____

_____

## SKIT 2: Relaxing – Chimpanzee Style

| CHIMPANZEE ROLE | CLASSMATE'S NAME | CHIMPANZEE ROLE | CLASSMATE'S NAME |
|---|---|---|---|
| ALPHA MALE | | ALPHA FEMALE | |
| OTHER FEMALE | | OTHER FEMALE | |
| YOUNG CHIMPANZEE | | YOUNG CHIMPANZEE | |
| YOUNG CHIMPANZEE | | INFANT | |

**1.** What behaviors are happening in this scene? _____

**2.** Why is grooming important? _____

_____

**3.** Why is playing important? _____

_____

_____

Go outdoors to observe wildlife near you! Look for examples of different social interactions and compare these to chimpanzees.



© 2011 Disney Enterprises, Inc.

# How Do Chimpanzees Interact With Each Other?

Watch your classmates perform each of the skits below and closely observe all of the chimpanzee interactions. Then, fill in the names of the students who performed each role and answer the questions that go along with the skit.

## SKIT 3: Chimpanzee Tool Use

| CHIMPANZEE ROLE | CLASSMATE'S NAME | CHIMPANZEE ROLE | CLASSMATE'S NAME |
|---|---|---|---|
| ALPHA MALE | | ALPHA FEMALE | |
| OTHER FEMALE | | OTHER FEMALE | |
| SUBMISSIVE MALE | | YOUNG CHIMPANZEE | |
| YOUNG CHIMPANZEE | | INFANT | |

**1.** What important chimpanzee behaviors were demonstrated in this scene? _____

_____

**2.** Describe the two different interactions that took place between each pair of female and infant chimpanzees.

_____

**3.** Explain what happened between the alpha and submissive males. _____

_____

_____

## SKIT 4: Territory Patrols

| CHIMPANZEE ROLE | CLASSMATE'S NAME | CHIMPANZEE ROLE | CLASSMATE'S NAME |
|---|---|---|---|
| ALPHA MALE - GROUP 1 | | OTHER MALE - GROUP 1 | |
| OTHER MALE - GROUP 1 | | OTHER MALE - GROUP 1 | |
| OTHER MALE - GROUP 1 | | ALPHA MALE - GROUP 2 | |
| OTHER MALE - GROUP 2 | | OTHER MALE - GROUP 2 | |

**1.** What was the purpose of the drumming and vocalizations? _____

_____

**2.** Why did one group retreat? _____

_____

Go outdoors to observe wildlife near you! Look for examples of different social interactions and compare these to chimpanzees.



© 2011 Disney Enterprises, Inc.

# LESSON 16 | HOT TOPIC: What Clues Do Chimpanzees Leave Behind?

Grade Level: **2-3** | Subject Areas: **Science, Language Arts** | Time Frame: **1 hour**
Background Information: **Protecting Chimpanzees: Saving Chimpanzees through Scientific Study, Community Involvement and Education (pages 16-19)**

**VOCABULARY:**
***Clue, dung, food wadge, sample site***

**STUDENTS WILL BE ABLE TO…**
- Identify the four basic clues that animals leave behind when they have inhabited an area
- Use clues to determine if a chimpanzee has passed through or inhabited the rainforest
- Define the terms sample site, dung, primatologist and food wadge

**WHAT YOU NEED**
- String or yarn
- Blank drawing paper, lined paper and clip board or a journal and a pencil for each student
- Local plant and animal field guides or print outs from internet resources about local flora and fauna
- Activity Sheet 16A: *Who Passed Through The Rainforest?*

## LEARNING ACTIVITY

1. Brainstorm a list of clues that might tell students an animal has passed through an area. They should mention footprints, leftover food (such as chewed up or missing leaves, fruit or scraps of meat), animal dung and an animal's home (such as a nest, web, burrow or den).
2. Take the class outdoors and give each student a piece of string. They should use the string to make a sample site by creating a closed loop around a portion of the schoolyard. Then, students should look for animal clues and identify what kind of animal(s) might have left these clues inside the sample site. They may also find animals, such as spiders, ants or beetles during this time! If students are unsure of an animal or an animal clue, they should use a wildlife field guide to help them identify their findings. Have students sketch their sample site, label "clues" they find in the site and record their observations on a piece of paper or in a journal. Be sure to include the student's name, date and time of observations, and the order in which the clues were found.
3. Return to the classroom and discuss students' findings. Then, explain that scientists use the same types of clues to study chimpanzees. In the rainforest it is often hard to see a chimpanzee, but chimpanzees leave behind many clues such as leftover food, called a wadge, nests and dung. Scientists use these clues to better understand how and where chimpanzees spend their time.
4. Distribute activity sheet 16A to the class. Tell the class that their fellow chimpanzee researchers want to know if chimpanzees have been in this rainforest. Students should look for chimpanzee clues in the image and decide whether they think a chimpanzee has or has not passed through this area. Have students write a few short sentences to explain the significance of each clue and convince researchers of their findings.
   - *Students should identify the following chimpanzee clues: a chimpanzee nest, a termite mound and "fishing" stick, cracked nuts and a rock hammer, eaten fruit/wadge, dung and footprints.*

## WRAP UP

5. Use the following questions to lead a wrap up discussion:
   - Name at least three clues that tell scientists an animal has passed through or inhabited the area. *Footprints, scraps of food, dung and a home or shelter are all clues that scientists look for when trying to decide if an animal has passed through an area.*
   - Did any of the animal clues from around your school surprise you? Did you find clues from an animal that you did not know was there? *These are open-ended questions so students' answers will vary.*
   - Compare the types of clues you found around your school to the clues that chimpanzees leave in the rainforest. Describe any similarities and differences.


© 2011 Disney Enterprises, Inc.

# PROTECTING CHIMPANZEES

## HOT TOPIC: What Clues Do Chimpanzees Leave Behind? *(2 of 2)*

*Students should determine that the animals they tracked and the clues they found may be different (for example, the types of food left behind or the type of nest they found are different from the clues that a chimpanzee would leave behind). However, students should conclude that all animals leave behind clues and we can learn about the world around us by taking time to look for them.*

- Were there any other animal clues in the rainforest scene on activity sheet 16A? What can you learn from these clues? *There are a bird's nest, a feather and a spider web. These clues tell us that other animals also live in this rainforest with the chimpanzees.*
- Imagine you are a scientist studying chimpanzees in the rainforest. Besides the clues we talked about in this lesson, what are some other ways you might be able to study chimpanzees (think about using other senses)? *Scientists also listen to and record vocalizations, observe chimpanzee groups from a distance and use cameras to learn more about these amazing animals.*

### EXTENDING THE LESSON: LANGUAGE ARTS AND SCIENCE

**Option 1:** Encourage the class to do an independent research project on a scientist who studies primates, called a primatologist, such as Dr. Jane Goodall or Christophe Boesch. Students should create a biography that features information on when and where their chosen primatologist was born, went to school, what type of primate(s) they study and any significant achievements. Students should then share their findings with the class.

### CONNECT WITH NATURE

Organize a school fundraiser to help endangered chimpanzees! As a class, research different organizations that are working to protect chimpanzees in the wild such as Jane Goodall Institute (JGI), Wild Chimpanzee Foundation (WCF), and Pan African Sanctuary Alliance (PASA). Discuss how and why each organization is working to protect chimpanzees. Then, vote on which wildlife organization you would like to support. Make posters to advertise the fundraiser, come up with a slogan to include on the posters and donate a portion of the profits to this organization.

### LESSON RESOURCES

**For Students:**


- Dendy, Leslie and Linda Garrow (Illustrator). *Tracks, Scats and Signs.* New York, NY: Cooper Square Publishing LLC, 1996. ISBN: 1559715995.
- Lynch, Wayne. *The Scoop on Poop!* Markham, ON, Canada: Fifth House Books, 2001. ISBN: 1894004590.
- Nail, Jim and Hyla Skudder (Illustrator). *Whose Tracks are These? A Clue Book of Familiar Forest Animals.* Lanham, MD: Roberts Rinehart Publishers, 1996. ISBN: 1570980780.
- Selsam, Millicent E. and Marlene Hill Donnelly (Illustrator). *Big Tracks, Little Tracks: Following Animal Prints.* New York, NY: HarperCollins Publishers, 1998. ISBN: 0064451949.


**For Teachers:**


- Barrett, Katharine and Carolyn Willard. *Schoolyard Ecology: Teachers Guide for Grades 3–6.* Berkeley, CA: Lawrence Hall of Science – University of California, 1998. ISBN: 0924885355
- Broda, Herbert W. *School-yard Enhanced Learning: Using the Oudoors as an Instructional Tool, K–8.* Portland, ME: Stenhouse Publishers, 2007. ISBN: 1571107290.

This chimpanzee is using a large stick to crack open nuts. Empty nut shells are a clue that chimpanzees have been in the area.



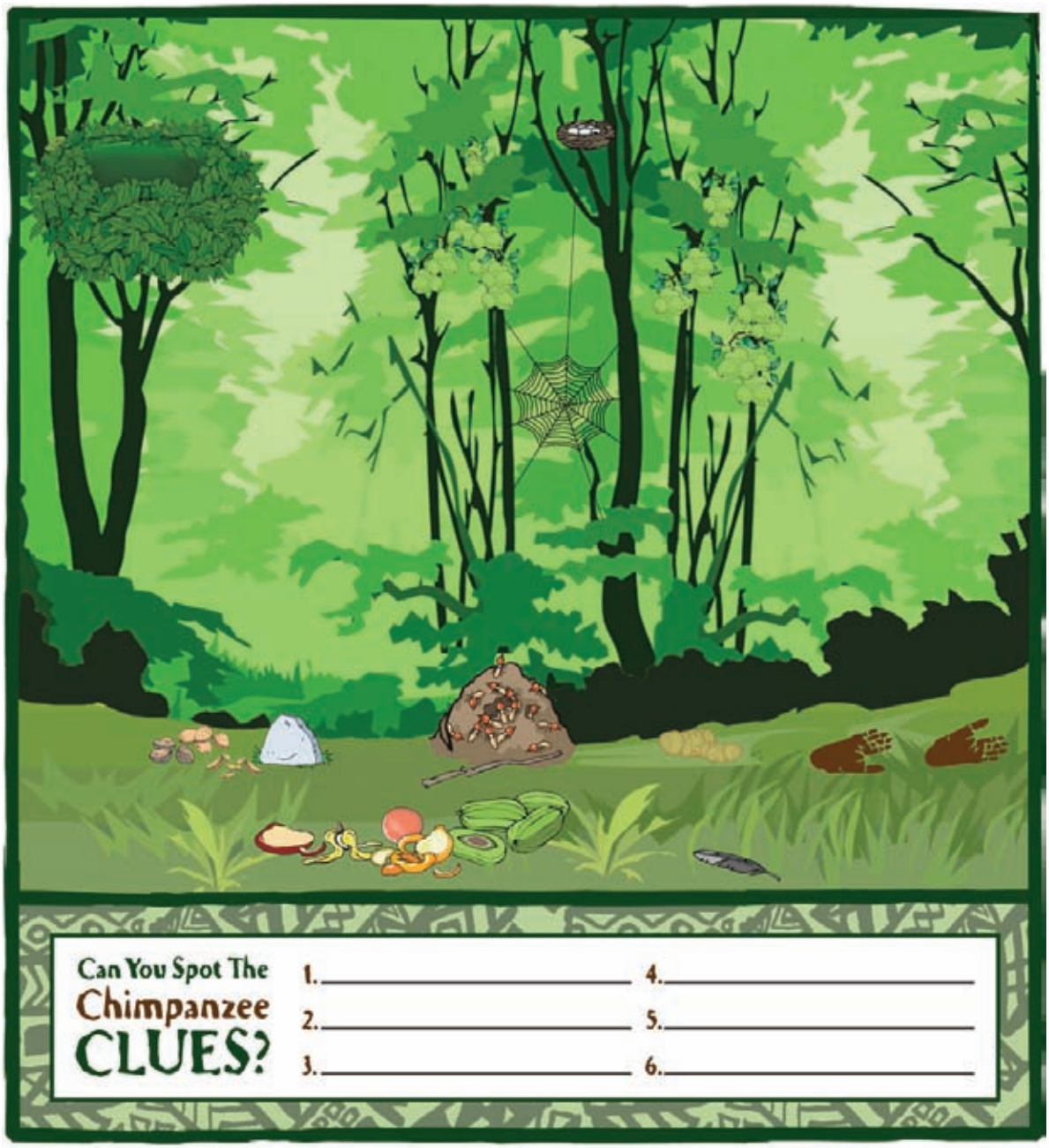
© 2011 Disney Enterprises, Inc.

# PROTECTING CHIMPANZEES

**HOT TOPIC: What Clues Do Chimpanzees Leave Behind?**

## Who Passed Through The Rainforest?

Look for chimpanzee clues in the image and decide whether a chimpanzee has or has not passed through this area.




Look for animal clues such as leftover food, feathers, webs or footprints in your backyard. Draw or write about your findings in a nature journal!



© 2011 Disney Enterprises, Inc.

# LESSON 17 | HOT TOPIC: How Do Scientists Study Chimpanzees?

Grade Level: **4-6** | Subject Areas: **Science, Language Arts, Math** | Time Frame: **1 hour**
Background Information: **Protecting Chimpanzees: Saving Chimpanzees through Scientific Study, Community Involvement and Education (pages 16-19)**

## VOCABULARY:

***Dung, field notes, food wadge, footprint, Global Positioning Systems (GPS) technology, home range, knuckle print, nest counting, primatologist, range map, tracking, waypoints***

## STUDENTS WILL BE ABLE TO…

- Interpret scientific field notes
- Plot GPS waypoints on a graph and use these to calculate chimpanzee home range
- List examples of at least three chimpanzee clues and explain what can be learned from these clues
- Describe how GPS technology helps scientists study and protect chimpanzees in the wild

## WHAT YOU NEED

- Activity Sheet 17A: *Scientific Field Notes*
- Activity Sheet 17B: *Chimpanzee Range Map*
- Colored pencils for each student

Groups of chimpanzees travel through the rainforest, leaving behind clues such as leftover food, old nests and footprints.

## LEARNING ACTIVITIES

1. Ask students to imagine they are a primatologist studying chimpanzees in the rainforest. What methods would they use to study these animals? What challenges might they face? Explain to the class that because the rainforest is dark and vegetation can be very dense, animals like chimpanzees are not always easy to see. However, scientists can learn about chimpanzees using clues they leave behind.
2. Review the background information with the class. Discuss the terms footprint, knuckle print, dung and food wadge. Introduce the concepts of tracking, nest counting, home range, range map, waypoints, field notes and GPS technology.
3. Distribute activity sheet 17A to each student. Students will be interpreting animal clues and GPS data to learn more about chimpanzees and their home range. Students should plot the GPS coordinates found in the Scientific Field Notes on activity sheet 17B. Each type of clue (i.e. food, nest, tracks or dung) should be plotted in a different color. Have students fill in the key accordingly.

## WRAP UP

4. After students have completed their range maps, discuss the field notes and maps as a class:
   - What clues did the scientist use to determine that chimpanzees were in the area? *The scientist used clues such as footprints, knuckle prints, leftover food, dung samples and nests.*
   - Of these clues, which ones did the scientist find most often? Which clues were found least often? *Make a bar graph to depict these results. Food clues were found most often, while dung was found least often.*
   - Where did the chimpanzees spend their time feeding? What can you infer about this area based on the food clues that the chimpanzees left behind? *The chimpanzees spent their time feeding on the lower right side of the rainforest. Because food like figs, nuts and ants are all found in this location, we can infer that the area has a great variety of plant and animal life. This must be a place in the rainforest that offers a range of foods that chimpanzees prefer.*


© 2011 Disney Enterprises, Inc.

# PROTECTING CHIMPANZEES

## HOT TOPIC: How Do Scientists Study Chimpanzees? *(2 of 3)*

- Where did the chimpanzees choose to rest and how did the scientist find these spots? *The chimpanzees chose to rest in the upper left region of the rainforest. Scientists found these resting spots by looking for chimpanzee nests high in the trees.*
- Explain what scientists can learn from sampling an animal's dung. *Scientists can learn a lot about an animal based on its dung. The dung can tell scientists what the animal ate, if it is male or female and if a female is pregnant.*
- What examples of chimpanzee tool use did the scientists record in their journal? *The scientists found a rock that had been used to crack open nuts as well as leftover "fishing" sticks used to catch ants. Both of these are great examples of chimpanzee tool use.*
- Describe in your own words what GPS technology is and how scientists use it to study animals. *GPS stands for Global Positioning System and it is a set of satellites that collect and record your location anywhere on Earth. Scientists can use GPS to mark an animal's current location or where it has been based on clues. From these data points, scientists can create a map of an animal's home range and track an animal's movements through its environment over time.*
- How could GPS technology help scientists protect chimpanzees in the wild and ensure their survival for future generations? *Because scientists can use GPS data to determine a chimpanzee's home range, it helps them know what areas of a rainforest need to be protected for future generations.*
- What potential errors could exist in this data? How could you improve on the scientist's method for finding and analyzing chimpanzee clues? *Students' answers will vary.*
- List the coordinates of the two GPS points that are farthest apart on the map. Calculate the distance between these two points in kilometers. *The two points that are farthest apart are at the following coordinates: (5°46'03" N, 7°07'02" W) and (5°46'09" N, 7°08'09" W). Considering a scale of 5 centimeters = 0.5 kilometers, the distance between these two coordinates is about 1.33 km [13.25 cm x 0.5 km/5 cm (the map scale) = 1.325 km].*
- Assume the entire area shown on the map is the chimpanzees' home range. Use the map scale to calculate the size of the chimpanzees' home range in square kilometers. *The chimpanzees' home range is about 10.5 $km^2$ [ 9.5 cm x 11 cm = 104.5 $cm^2$ → 104.5 $cm^2$ x 0.5 km / 5 cm (the map scale) = 10.45 $km^2$ ].*

### OUTDOOR ACTIVITY

Take the class outdoors to look for animal clues around the school! Split the class into small groups and assign each group a different area of the schoolyard to explore. Students should search for any animal clues in their area of the schoolyard and create their own scientific field notes to record their findings. Upon returning to the classroom, compare the clues that chimpanzees leave behind to clues students' found near their school. Use a T-chart to describe any similarities and differences.

- **Technology in the Classroom:** If your school has access to handheld GPS devices, distribute one GPS unit to each small group. Have students create waypoints to mark the animal clues. Then, have each small group switch their GPS with another group. Students should try to locate other groups' animal clues using the GPS waypoints collected by their classmates.

### EXTENDING THE LESSON: SCIENCE AND SOCIAL STUDIES

**Option 1:** After scientists collect field data, they often share their findings with the public. Break the class into small groups and have each group create a list of interview questions. Have students conduct a mock interview using the information found in the scientific field notes and chimpanzee range map. Students should summarize and report findings from this interview by following the format of who, what, where, when and how to create their own newspaper, magazine article or news broadcast. Have students share their completed projects with the class.

**Option 2:** Much of what we know about chimpanzees is thanks to primatologists such as Jane Goodall and Christophe Boesch who have spent their lives studying these animals in the wild. Have students research and write a two-page biography on either Jane Goodall or Christophe Boesch. Students should include information on their person's early life and values, what inspired them to become primatologists, the path they took to become a primatologist (schooling, previous research experience, mentors, etc.) and any significant discoveries they have made.



© 2011 Disney Enterprises, Inc.

# PROTECTING CHIMPANZEES

## HOT TOPIC: How Do Scientists Study Chimpanzees? *(3 of 3)*

### CONNECT WITH NATURE

Organize a school fundraiser to help chimpanzees! Research different organizations working to protect chimpanzees in the wild, such as Jane Goodall Institute (JGI), Wild Chimpanzee Foundation (WCF) or the Pan African Sanctuary Alliance (PASA). Then, vote on which wildlife organization you would like to support and donate a portion of the funds to this organization.

### LESSON RESOURCES

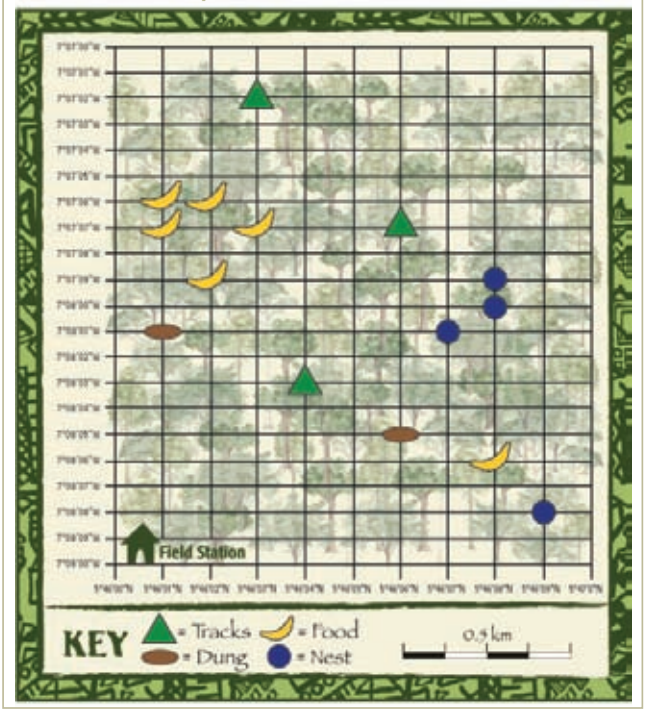
For Students


- Atkins, Jeannine and Paula Conner (Illustrator). *Girls Who Looked Under Rocks.* Nevada City, CA: Dawn Publications, 2000. ISBN: 1584690119.
- Dendy, Leslie and Linda Garrow (Illustrator). *Tracks, Scats and Signs.* New York, NY: Cooper Square Publishing LLC, 1996. ISBN: 1559715995.
- Lynch, Wayne. *The Scoop on Poop!* Markham, ON, Canada: Fifth House Books, 2001. ISBN: 1894004590.


For Teachers


- Boesch, Christophe and Hedwige Boesch-Achermann. *The Chimpanzees of the Taï Forest: Behavioural Ecology and Evolution.* New York, NY: Oxford University Press, USA, 2000. ISBN: 0198505078.
- Goodall, Jane. *The Chimpanzees of Gombe: Patterns of Behavior.* Cambridge, MA: Belknap Press, 1986. ISBN: 0674116496.
- Goodall, Jane. *Jane Goodall: 50 Years at Gombe – A Tribute to Five Decades of Wildlife Research, Education and Conservation.* New York, NY: Stewart, Tabori and Chang, 2010. ISBN: 1584798785.
- Goodall, Jane. *My Life with the Chimpanzees.* New York, NY: Aladdin Paperbacks, 1988. ISBN: 0671562711.
- Robbins, Martha M. and Christophe Boesch. *Among African Apes: Stories and Photos from the Field.* Berkeley, CA: University of California Press, 2011. ISBN: 0520267107.


ANSWER KEY: Activity Sheet 17B



© 2011 Disney Enterprises, Inc.

# PROTECTING CHIMPANZEES

**HOT TOPIC: How Do Scientists Study Chimpanzees?**

## Scientific Field Notes *(1 of 3)*

Interpret the animal clues and GPS data to learn more about chimpanzees and their home range.

### Field Observations

Location: Taï National Forest, Ivory Coast
Date: August 14, 2011

**GPS Point 1 - Coordinates:** 5°46'03"N, 7°07'02"W Time: 8:02 AM

*Observations:* We are in search of the largest chimpanzee group in this area. Here we have found a group of chimpanzee tracks. There are footprints and knuckle prints from at least 8 individuals.

**GPS Point 2 - Coordinates:** 5°46'03"N, 7°07'07"W Time: 9:56 AM

*Observations:* We have come across some leftover food. These look like chewed up bits of fig fruit. Chewed up food is called a "wadge."

**GPS Point 3 - Coordinates:** 5°46'02"N, 7°07'06"W Time: 10:05 AM

*Observations:* We have come across an entire pile of nutshells. There must be at least 150 empty shells scattered on the ground. This is a great clue!

**GPS Point 4 - Coordinates:** 5°46'01"N, 7°07'06"W Time: 11:32 AM

*Observations:* We have found more coula nut shells on the ground, as well as half-eaten leaves from the many trees around us. Chimpanzees must be near!

**GPS Point 5 - Coordinates:** 5°46'01"N, 7°07'07"W Time: 11:49 AM

*Observations:* An ant hill has been disturbed and there are plenty of sticks on the ground. It looks like chimpanzees have been fishing for driver ants in this area.

*From the Field Notebook of L. Dede*

Start your own nature journal! Keep track of the types of plants, animals and animal clues you find in your backyard.



© 2011 Disney Enterprises, Inc.

# PROTECTING CHIMPANZEES

**HOT TOPIC: How Do Scientists Study Chimpanzees?**

## Scientific Field Notes *(2 of 3)*

Interpret the animal clues and GPS data to learn more about chimpanzees and their home range.

### Field Observations

Location: Taï National Forest, Ivory Coast
Date: August 14, 2011

**GPS Point 6 - Coordinates:** 5°46'02"N, 7°07'09"W Time: 12:15 PM

*Observations:* Crumpled up leaves are all over the ground. Some of the leaves are wet and look like they've been dipped in water. Half-eaten and smashed up fruit covers the area.

**GPS Point 7 - Coordinates:** 5°46'01"N, 7°08'01"W Time: 12:30 PM

*Observations:* Chimpanzee dung – always a good sign! We can test dung to learn all sorts of things about an animal. Based on the seeds in this dung, it looks like this chimpanzee has been eating a lot of fruit today.

**GPS Point 8 - Coordinates:** 5°46'04"N, 7°08'03"W Time: 1:09 PM

*Observations:* More chimpanzee tracks! It looks like the group of eight are headed northwest, deeper into the rainforest.

**GPS Point 9 - Coordinates:** 5°46'06"N, 7°08'05"W Time: 2:17 PM

*Observations:* Another dung sample! We will collect this and take it back to the field station. We can test to see if the chimpanzee that left this dung was male or female. If it is female, we can also test to see if she is pregnant!

**GPS Point 10 - Coordinates:** 5°46'08"N, 7°08'06"W Time: 2:48 PM

*Observations:* Figs and other fruits are smashed and squished all over. The juices and sweet parts are gone. Just a messy pile of seeds and wadges remain.

*From the Field Notebook of L. Dede*

Start your own nature journal! Keep track of the types of plants, animals and animal clues you find in your backyard.



© 2011 Disney Enterprises, Inc.

# PROTECTING CHIMPANZEES

**HOT TOPIC: How Do Scientists Study Chimpanzees?**

## Scientific Field Notes *(3 of 3)*

Interpret the animal clues and GPS data to learn more about chimpanzees and their home range.

### Field Observations

Location: Taï National Forest, Ivory Coast
Date: August 14, 2011

**GPS Point 11 - Coordinates:** 5°46'09"N, 7°08'09"W Time: 3:35 PM

*Observations:* There is a chimpanzee nest high in the trees. It looks like the nest is a few days old, but is quite large - big enough for a mother and baby.

**GPS Point 12 - Coordinates:** 5°46'07"N, 7°08'01"W Time: 4:06 PM

*Observations:* More nests! It looks like these were built last night.

**GPS Point 13 - Coordinates:** 5°46'08"N, 7°08'00"W Time: 4:22 PM

*Observations:* There are three more large chimpanzee nests high in the trees. This is a great sign - chimpanzees must be nearby.

**GPS Point 14 - Coordinates:** 5°46'08"N, 7°07'09"W Time: 4:33 PM

*Observations:* This is a popular chimpanzee resting spot! We found one last nest in an Ebony tree at least 30 meters tall.

**GPS Point 15 - Coordinates:** 5°46'06"N, 7°07'07"W Time: 4:48 PM

*Observations:* This set of footprints and knuckle prints are fresh. The mud is still wet beneath our feet. These tracks show the chimpanzees moving south.

August 14, 2011 - 5:17 PM

We are heading back to the field station now! A storm is approaching. But we've collected a huge amount of data today. Chimpanzees are definitely living in this area!

*From the Field Notebook of L. Dede*

Start your own nature journal! Keep track of the types of plants, animals and animal clues you find in your backyard.



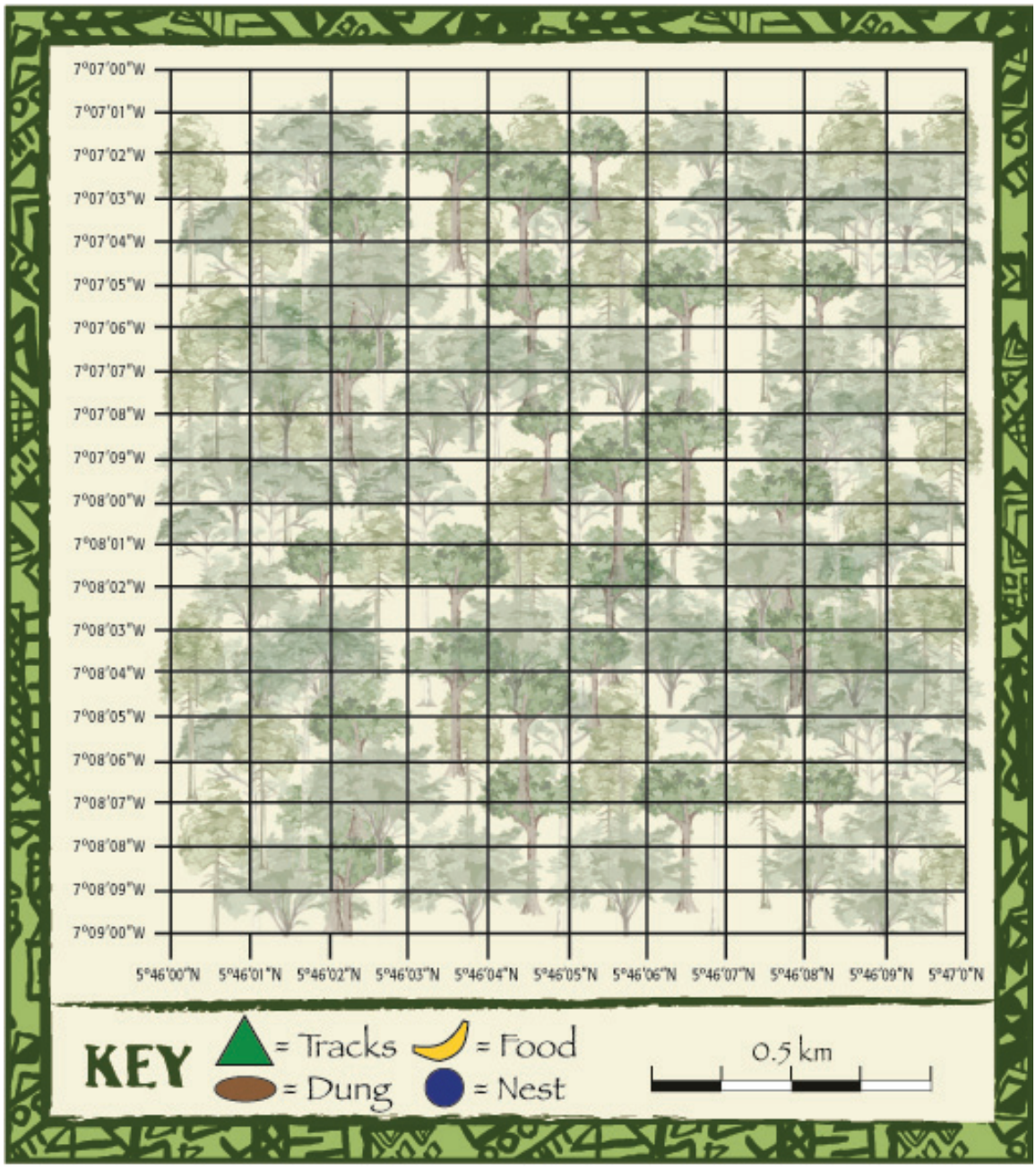
© 2011 Disney Enterprises, Inc.

# PROTECTING CHIMPANZEES

**HOT TOPIC: How Do Scientists Study Chimpanzees?**

## Chimpanzee Range Map

Plot the GPS coordinates found in the Scientific Field Notes. Plot each clue according to the key below.




Look for animal clues such as leftover food, feathers, webs or footprints in your backyard.



© 2011 Disney Enterprises, Inc.

# LESSON 18 | What Is The Difference Between A Monkey And An Ape?

Grade Level: **2-3** | Subject Areas: **Science** | Time Frame: **1 hour**
Background Information: **Classifying Chimpanzees: From Kingdom to Species (pages 8-9)**

**VOCABULARY:**
***Ape, monkey, primate***

**STUDENTS WILL BE ABLE TO…**
- Define the terms primate, monkey and ape
- Describe at least two similarities and two differences between monkeys and apes

**WHAT YOU NEED**
- Activity Sheet 18A: *What Is The Difference Between A Monkey And An Ape?*
- Activity Sheet 19A: *Primate Identification Cards*

## LEARNING ACTIVITIES

1. Introduce the term primate to the class. Show students pictures of different primates using the following images from activity sheet 19A: *Primate Identification Cards**:
   - Monkeys: Rhesus macaque, blue monkey, black and white colobus monkey, cotton-top tamarin, uakari monkey
   - Apes: white-cheeked gibbon, orangutan, chimpanzee, white-handed gibbon, gorilla

**Note: students will not need to identify scientific name or home continent for this activity.*

2. Explain that scientists often classify animals into groups based on similar characteristics, such as common ancestors or shared physical features. Monkeys and apes are two groups of primates.
3. Discuss the similarities and differences between monkeys and apes using the background information. Have students complete activity sheet 18A to compare these two groups of primates.

## WRAP UP

4. Use the following questions to lead a wrap up discussion:
   - Create your own definition for the terms primate, monkey and ape based on what you learned in this lesson. *Students' answers will vary but should include the traits and characteristics discussed in this lesson.*
   - List three things that primates have in common. *Primates are a diverse group of animals that share the following characteristics: mammals, have large brains compared to body size, binocular and color vision, have five fingers, five toes and an opposable thumb (there are a few exceptions), a reduced sense of smell and live in social groups.*
   - Describe at least two differences and two similarities between monkeys and apes. *A complete list of similarities and differences can be found on the answer key for activity sheet 18A. One of the easiest differences for students to remember is that monkeys have tails while apes do not.*

## EXTENDING THE LESSON: SCIENCE

**Option 1:** The prosimian group of primates are different from monkeys and apes and include animals such as lemurs, tarsiers and lorises. Have students form small groups and research one type of prosimian by using books from the library or reputable sites on the internet. Have each group present their findings to the class. Together, compare prosimians to monkeys and apes and discuss their similarities and differences.

## CONNECT WITH NATURE

Encourage students to learn more about one of the monkeys or apes featured in this lesson. Students should independently research one of these animals to find out the animal's full name, where it is found (countries, continent and ecosystem), whether it is a monkey or ape, two unique physical characteristics, diet and three fun facts. Have each student present their findings to the class through a poster or PowerPoint presentation.

© 2011 Disney Enterprises, Inc.

LESSON 18

# CLASSIFYING CHIMPANZEES

## What Is The Difference Between A Monkey And An Ape? *(2 of 2)*

### LESSON RESOURCES

For Students:


- Kalman, Bobbie and Heather Levigne. *What is a Primate?* New York, NY: Crabtree Publishing Company, 1999. ISBN: 0865059500.
- National Primate Research Center. *Primate Factsheets.* The University of Wisconsin. 18 July 2011. http://pin.primate.wisc.edu/factsheets/
- Silverman, Maida and James Spence (Illustrator). *The Golden Book of Monkeys, Apes and Other Primates.* Racine, WI: Western Publishing Company Inc., 1991. ISBN: 0307158586.
- Wexo, John Bonnett. *The Apes.* Mankato, MN: Creative Education Publishing, 1986. ISBN: 0-88682-265-3.


For Teachers:


- O'Neil, Dennis. *Primates Overview.* Palomar Community College. 19 July 2011. http://anthro.palomar.edu/primate/prim_1.htm
- O'Neil, Dennis. *The Primate Order.* Palomar Community College. 19 July 2011. http://anthro.palomar.edu/primate/table_primates.htm
- Rowe, Noel and Wayne Rowe. *Pictorial Guide to the Living Primates.* Charlestown, RI: Pogonias Press, 1996. ISBN: 0964882515.
- Sleeper, Barbara. *Primates: The Amazing World of Lemurs, Monkeys, and Apes.* San Francisco, CA: Chronicle Books, 1997. ISBN: 0811814343.


ANSWER KEY: Activity Sheet 18A

Rhesus macaque

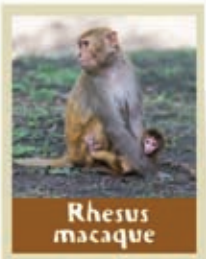
Chimpanzee

Disneynature chimpanzee

© 2011 Disney Enterprises, Inc.

# What Is The Difference Between A Monkey And An Ape?

Monkeys and apes are animals called primates. They have some things in common, but they also can be very different. To compare monkeys and apes, use the words below to fill in the set diagram.

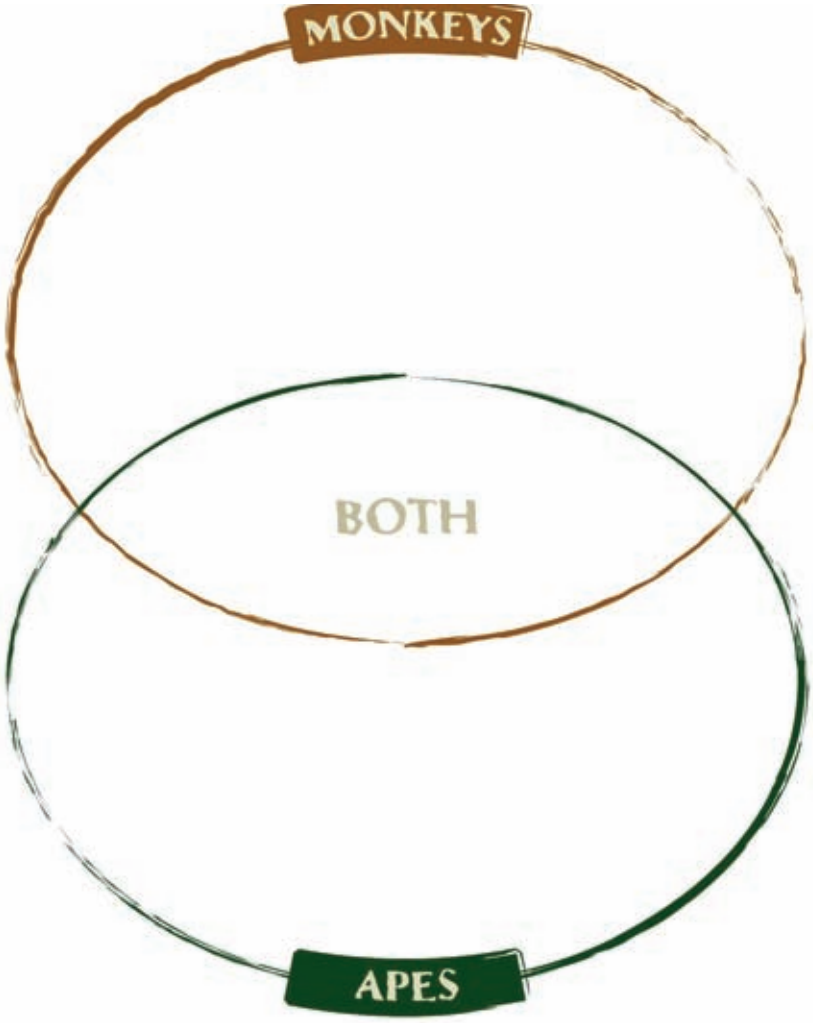

Rhesus macaque

blue monkey

black and white colobus

cotton-top tamarin

uakari monkey

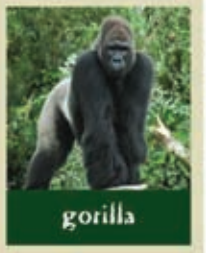


white-cheeked gibbon

orangutan

chimpanzee

white-handed gibbon


gorilla

- deep chest
- wide chest
- color vision
- smaller brains
- no tail

- arms are the same length or shorter than legs
- four fingers and a thumb on each hand
- arms are longer than legs

- eyes that face forward
- fingernails
- have a tail
- larger brains

Visit a local zoo to learn more about monkeys & apes! Then, share what you learned with your friends & family.



© 2011 Disney Enterprises, Inc.

# LESSON 19 | How Do Scientists Classify Primates?

Grade Level: **2-6** | Subject Areas: **Science** | Time Frame: **1 hour**
Background Information: **Classifying Chimpanzees: From Kingdom to Species (pages 8-9)**

**VOCABULARY:**
***Ancestry, ape, class, family, form, genus, habitat, kingdom, Linnaean classification, monkey, order, phylum, primate, prosimian, species, structure***

**STUDENTS WILL BE ABLE TO…**
- Describe the purpose of a classification system
- Classify and identify primates from around the world

**WHAT YOU NEED**
- Computer and classroom projector
- Activity Sheet 19A: *Primate Identification Cards* (fold and cut out each card)
- *Primate Classification Chart* (project the image on a chalkboard/erasable white board)
- Computers with internet access

## LEARNING ACTIVITIES

1. To encourage students to begin thinking about how scientists group animals, distribute the Primate Identification Cards to the class, giving one card to each student. Using the primate picture on their card, students should infer which primates are most closely related. Have students arrange themselves into groups to reflect these predictions. Discuss as a class why students choose to group themselves this way and write their initial groups on the board.
2. Introduce the term classification to the class. Discover together through discussion that classification can be complex since animals that look similar may not always be related. Also, classifications often change as we learn more about the natural world. Teach students that animals are often grouped using the Linnaean classification system. Explain the levels kingdom, phylum, class, order, family, genus and species to the class.
3. Have each student research the primate on their card using the websites at the end of this lesson. Students should decide whether their primate is a prosimian, monkey or ape and identify the primate's family, genus and species.
4. Together, ask students to detect which level of classification is shared by all of the primates on their cards. Students should infer that all of these animals belong to the order primata.
5. Have students re-classify themselves using the primate on their card. Students should first group by prosimian, monkey or ape, then by family and genus. Write the students' new groups on the board. Discuss as a class how these groups are different from the first groups they created.
6. Complete the Primate Classification Chart. As a class, decide the correct labels for kingdom, phylum, class and order. Students should use the information they researched on the Primate Identification Card to fill in their primate's family, genus and species name on the classification chart. As a visual, students may also tape their card to the board beneath their primate's completed classification branch.

## WRAP UP

7. Conduct a wrap up discussion using the questions below:
   - Explain in your own words the purpose of taxonomy. Create a supporting statement for why classifying animals is useful to scientists. *Students should conclude that classification systems are used to categorize animals based on similar structures, forms and ancestry.*
   - Compare the different levels of a classification system. How do they change as you move from kingdom to species? *Kingdom is the broadest level of classification and contains the widest variety of organisms. Each level becomes more specific as you move from kingdom to species. The species level contains only one type of organism.*
   - Based on your observations and research, generate three rules that must apply to an animal for it to be classified as a primate. *Students should include at least some of the following primate characteristics:*


© 2011 Disney Enterprises, Inc.

# CLASSIFYING CHIMPANZEES

## How Do Scientists Classify Primates? *(2 of 2)*

*must be a mammal and a vertebrate; have a large brain compared to body size; binocular and color vision; five fingers, five toes and an opposable thumb (although there are a few exceptions); reduced sense of smell; live in social groups.*

- Compare and contrast the different species in each family. Predict why animals may look different even though they are in the same family. *Students' answers will vary but they should conclude that each type of primate is specially adapted to its lifestyle and habitat.*

### EXTENDING THE LESSON: SCIENCE AND LANGUAGE ARTS

**Option 1:** Fossils show that primates have been on Earth for at least 50 million years. Encourage students to research some of these amazing primate ancestors in small groups. As a class, create a fossil timeline by hanging pictures of each primate ancestor in sequential order using string or a clothesline. Discuss how form and function have changed over time.

**Option 2:** Humans are primates too! Visit the Smithsonian Museum of Natural History's website at http://humanorigins.si.edu/education to learn more about our human ancestors.

**Option 3:** Have each student write a descriptive "Primate Poem" to describe the physical characteristics of the primate on their card. Students may also choose to illustrate their poems. Display their poems on a bulletin board or have a classroom poetry reading to share students' writings with their peers.

Two chimpanzees playing together in the rainforest.

### CONNECT WITH NATURE

Learn more about the primate featured on your card by doing a school report. Then, present your report to the class. Be sure to tell your family and friends about the amazing world of primates!

### LESSON RESOURCES

**For Students:**


- Great Apes and Other Primates. *Differences Among Prosimians, Monkeys and Apes.* Smithsonian National Zoological Park. 27 July 2011. http://nationalzoo.si.edu/Animals/Primates/Facts/Primateness/Differences/
- Kalman, Bobbie and Heather Levigne. *What is a Primate?* New York, NY: Crabtree Publishing Company, 1999. ISBN: 0865059500.
- National Primate Research Center. *Primate Factsheets.* The University of Wisconsin. 18 July 2011. http://pin.primate.wisc.edu/factsheets/
- Silverman, Maida and James Spence (Illustrator). *The Golden Book of Monkeys, Apes and Other Primates.* Racine, WI: Western Publishing Company Inc., 1991. ISBN: 0307158586.
- Wexo, John Bonnett. *Apes.* Evanston, IL: Zoobooks/Wildlife Education, 2001. ISBN: 0937934038


**For Teachers:**


- Human Origins Research. *What Does It Mean to Be Human?* Smithsonian National Museum of Natural History. 27 July 2011. http://humanorigins.si.edu/education
- O'Neil, Dennis. *Primates Overview.* Palomar Community College. 19 July 2011. http://anthro.palomar.edu/primate/prim_1.htm
- O'Neil, Dennis. *The Primate Order.* Palomar Community College. 19 July 2011. http://anthro.palomar.edu/primate/table_primates.htm
- Rowe, Noel and Wayne Rowe. *Pictorial Guide to the Living Primates.* Charlestown, RI: Pogonias Press, 1996. ISBN: 0964882515.
- Sleeper, Barbara. Primates: *The Amazing World of Lemurs, Monkeys, and Apes.* San Francisco, CA: Chronicle Books, 1997. ISBN: 0811814343.


*Want to further your classroom conservation work? Visit* ***Disney.com/planetchallenge*** *TODAY!*

Disney Planet Challenge



© 2011 Disney Enterprises, Inc.

LESSON 19

ACTIVITY SHEET 19A
for grades 2–6

# CLASSIFYING CHIMPANZEES

## How Do Scientists Classify Primates?

# Primate Identification Cards

fold here

Prosimian, monkey, or ape?

Family

Scientific Name

- Genus
- Species

Continent

cut here

fold here

Prosimian, monkey, or ape?

Family

Scientific Name

- Genus
- Species

Continent

cut here

fold here

Prosimian, monkey, or ape?

Family

Scientific Name

- Genus
- Species

Continent



© 2011 Disney Enterprises, Inc.

LESSON 19

ACTIVITY SHEET 19A
for grades 2–6

# CLASSIFYING CHIMPANZEES

## How Do Scientists Classify Primates?

# Primate Identification Cards

fold here

Prosimian, monkey, or ape?

Family

Scientific Name

- Genus
- Species

Continent

cut here

fold here

Prosimian, monkey, or ape?

Family

Scientific Name

- Genus
- Species

Continent

cut here

fold here

Prosimian, monkey, or ape?

Family

Scientific Name

- Genus
- Species

Continent

Disneynature chimpanzee

© 2011 Disney Enterprises, Inc.

# CLASSIFYING CHIMPANZEES

## How Do Scientists Classify Primates?

# Primate Identification Cards

fold here

Prosimian, monkey, or ape?

Family

Scientific Name

· Genus

· Species

Continent

cut here

fold here

Prosimian, monkey, or ape?

Family

Scientific Name

· Genus

· Species

Continent

cut here

fold here

Prosimian, monkey, or ape?

Family

Scientific Name

· Genus

· Species

Continent



© 2011 Disney Enterprises, Inc.

# CLASSIFYING CHIMPANZEES

**How Do Scientists Classify Primates?**

## Primate Identification Cards

fold here

Prosimian, monkey, or ape?

Family

Scientific Name

- Genus
- Species

Continent

cut here

fold here

Prosimian, monkey, or ape?

Family

Scientific Name

- Genus
- Species

Continent

cut here

fold here

Prosimian, monkey, or ape?

Family

Scientific Name

- Genus
- Species

Continent

Disneynature chimpanzee

© 2011 Disney Enterprises, Inc.

# CLASSIFYING CHIMPANZEES

**How Do Scientists Classify Primates?**

## Primate Identification Cards

fold here

Prosimian, monkey, or ape?

Family

Scientific Name

· Genus

· Species

Continent

cut here

fold here

Prosimian, monkey, or ape?

Family

Scientific Name

· Genus

· Species

Continent

cut here

fold here

Prosimian, monkey, or ape?

Family

Scientific Name

· Genus

· Species

Continent

Disney nature chimpanzee

© 2011 Disney Enterprises, Inc.

# CLASSIFYING CHIMPANZEES

## How Do Scientists Classify Primates?

# Primate Identification Cards

fold here

Prosimian, monkey, or ape?

Family

Scientific Name

- Genus
- Species

Continent

cut here

fold here

Prosimian, monkey, or ape?

Family

Scientific Name

- Genus
- Species

Continent

cut here

fold here

Prosimian, monkey, or ape?

Family

Scientific Name

- Genus
- Species

Continent



© 2011 Disney Enterprises, Inc.

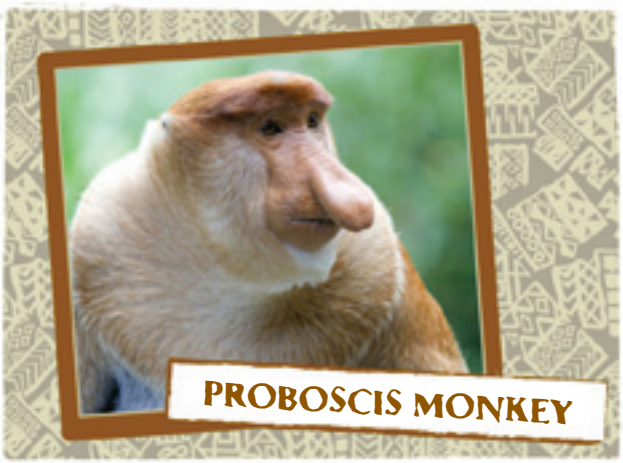
LESSON 19

ACTIVITY SHEET 19A
for grades 2–6

# CLASSIFYING CHIMPANZEES

## How Do Scientists Classify Primates?

# Primate Identification Cards




fold here

Prosimian, monkey, or ape?

Family

Scientific Name

- Genus
- Species

Continent

cut here

fold here

Prosimian, monkey, or ape?

Family

Scientific Name

- Genus
- Species

Continent

cut here

fold here

Prosimian, monkey, or ape?

Family

Scientific Name

- Genus
- Species

Continent

Disney nature chimpanzee

© 2011 Disney Enterprises, Inc.

# CLASSIFYING CHIMPANZEES

## How Do Scientists Classify Primates?

# Primate Identification Cards

fold here

Prosimian, monkey, or ape?

Family

Scientific Name

- Genus
- Species

Continent

cut here

fold here

Prosimian, monkey, or ape?

Family

Scientific Name

- Genus
- Species

Continent

cut here

fold here

Prosimian, monkey, or ape?

Family

Scientific Name

- Genus
- Species

Continent

Disney nature chimpanzee

© 2011 Disney Enterprises, Inc.

# CLASSIFYING CHIMPANZEES

## How Do Scientists Classify Primates?

# Primate Identification Cards

Prosimian, monkey, or ape?

Family

Scientific Name

- Genus
- Species

Continent

fold here

cut here

Prosimian, monkey, or ape?

Family

Scientific Name

- Genus
- Species

Continent

fold here



© 2011 Disney Enterprises, Inc.

LESSON 19

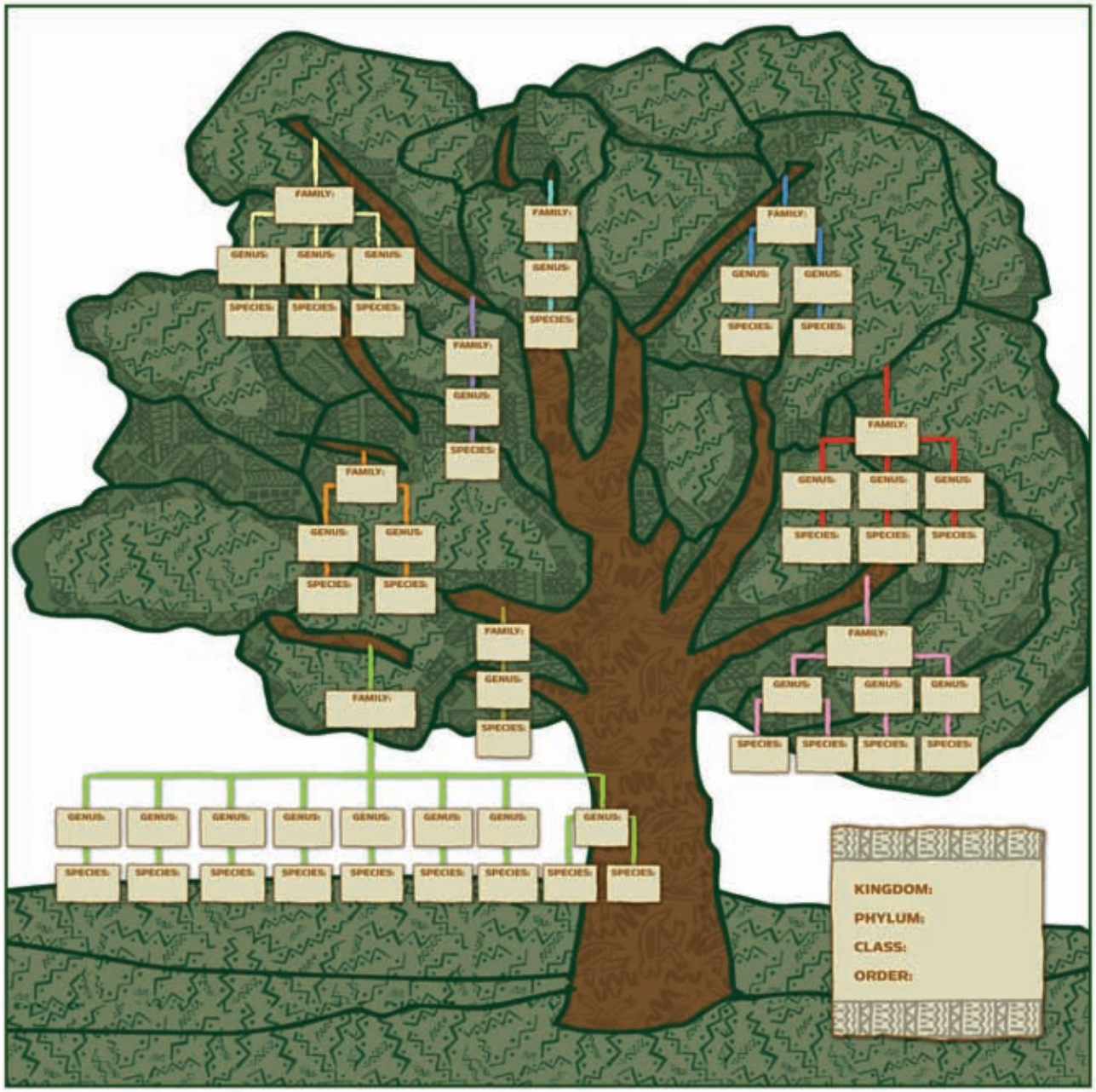
ACTIVITY SHEET 19B
for grades 4–6

# CLASSIFYING CHIMPANZEES

## How Do Scientists Classify Primates?

## Primate Classification Tree

**Use the information on the back of your Primate Identification Card to classify each primate into one of the categories below.**




Disney nature chimpanzee

© 2011 Disney Enterprises, Inc.

LESSON 19

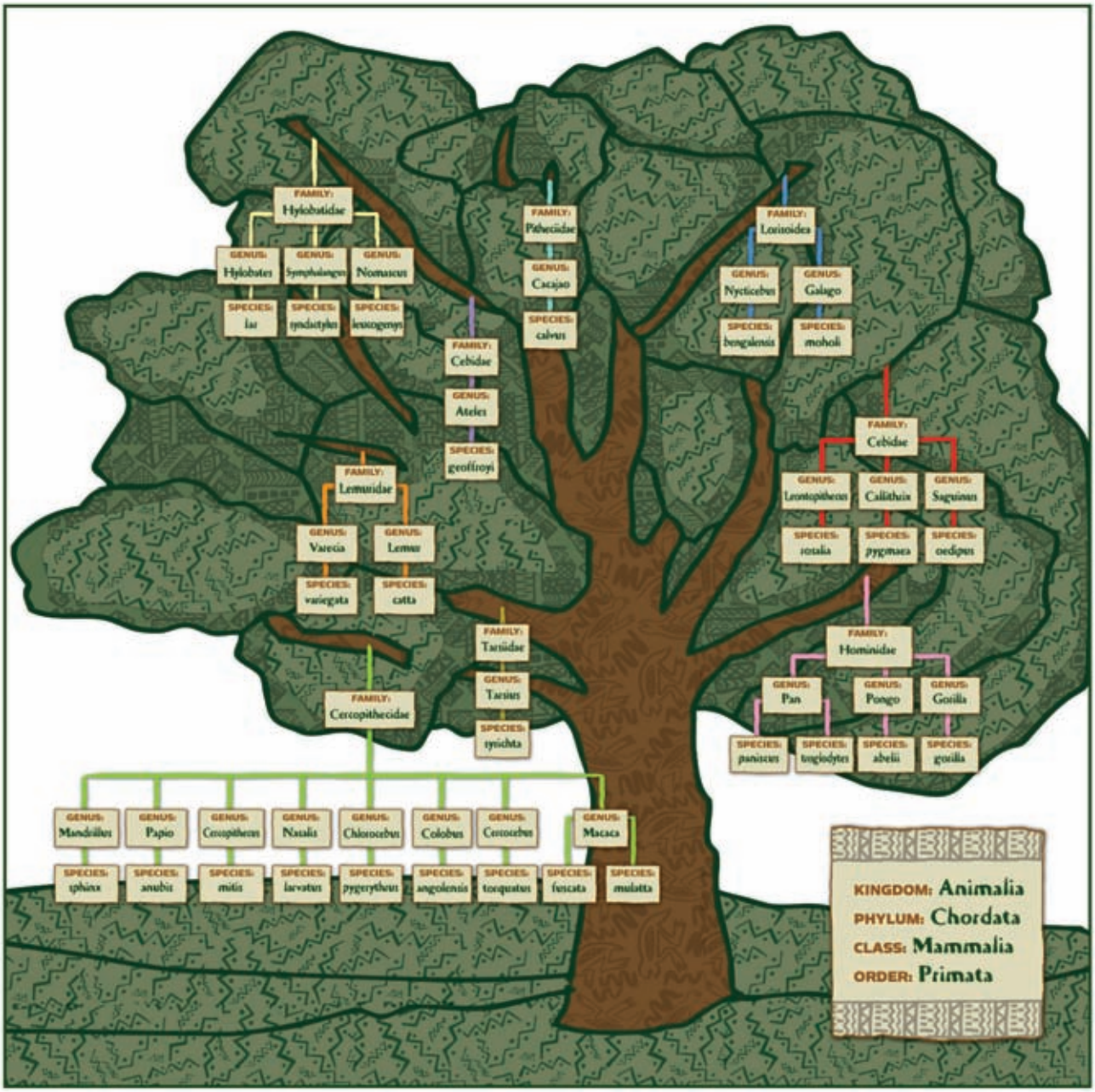
ACTIVITY SHEET 19B
for grades 4–6

# CLASSIFYING CHIMPANZEES

## How Do Scientists Classify Primates?

## Primate Classification Tree

ANSWER KEY




Disneynature chimpanzee

© 2011 Disney Enterprises, Inc.

# LESSON 20 | How Does Habitat Loss Affect Chimpanzees?

Grade Level: **2-3** | Subject Areas: **Science, Math** | Time Frame: **1 hour**
Background Information: **Threats to Chimpanzees (pages 15-16)**

**VOCABULARY:**
***Habitat loss***

**STUDENTS WILL BE ABLE TO…**
- Define and explain the concept of habitat loss
- Describe how habitat loss affects chimpanzees
- List three ways that people contribute to habitat loss
- Describe two ways that people can protect habitats

**WHAT YOU NEED**
- Large open space, playing field or outdoor environment
- Four large jump ropes, rope or string
- 100–150 paper clips (or similar item) that can be used as food tokens
- Activity Sheet 20A: *Habitat Game Instructions for Teachers*
- Notebook paper or data sheet to record results from the game

## LEARNING ACTIVITIES

1. Ask students to think about the concept of habitat as it was presented in previous lessons. How is the rainforest habitat important to chimpanzees? Do you think people use the rainforest too? How might people have an impact on the rainforest habitat where chimpanzees live?
2. Introduce the term habitat loss and use the background information to discover as a class how habitat loss impacts chimpanzees.
3. Take the class outdoors and use activity sheet 20A to lead the Habitat Game. Create a data sheet or use notebook paper to record the number of students at the beginning, after each round of play and at the end of the game.
4. Return to the classroom and graph the game results as a class. Use this graph to discuss how the chimpanzee population changed over time as habitat was lost or gained.

## WRAP UP

5. Lead a wrap up discussion using the following questions:
   - Describe the term habitat loss in your own words. *Habitat loss is the process in which natural environments are altered to the point where they cannot support the species found there. Although habitat loss can occur through natural processes such as floods, erosion or brush fires, the majority of habitat loss throughout the world is caused by human action.*
   - Use results from the Habitat Game to explain how habitat loss affects chimpanzee populations. *Because a habitat is where an animal finds everything it needs to survive, losing habitat can have a negative impact on chimpanzees. In the game, as habitat was lost, food supply became limited and the number of chimpanzees decreased. There were enough resources to support the chimpanzee population.*
   - After which scenario did the chimpanzee population drop the most? After which scenario did the chimpanzee population increase most? Explain any reasons for these changes. *Responses will vary but students should use the data collected from the game to answer this question. Students should think about how human actions in each scenario impacted the chimpanzee population.*
   - Give three examples of ways that people cause habitat loss. *Building roads, cutting down trees and clearing land for farming are examples of ways that people cause habitat loss.*
   - Describe two actions that people can take to help protect chimpanzees and their rainforest habitat. *Two actions that people can take to help protect chimpanzees are to plant trees and to grow crops in a way that does not harm the environment. People can also be careful of where and how they build roads, since roads divide habitat and pose*


© 2011 Disney Enterprises, Inc.

# THREATS TO CHIMPANZEES

## How Does Habitat Loss Affect Chimpanzees? *(2 of 2)*

*problems for chimpanzees. A great action that people of all ages can take is to start educational programs and teach others about respecting and caring for chimpanzees and their rainforest home!*

- Do you think there are any other items we use each day that might affect habitats or wildlife? What can we do to lessen our impact? *Everything we use comes from and impacts habitats around the world. The food we eat, the clothes we wear, the beauty products we use and many of the materials that make up our homes and cars all started from something in nature. Although we need many of these things to survive, we can lessen our impact by wasting less, choosing reusable items, recycling and selecting items that are produced without harming the environment.*

### EXTENDING THE LESSON: SOCIAL STUDIES AND SCIENCE

**Option 1:** Encourage students to research how habitats in their area have changed over time. Students should use photographs or create maps to show the land as it appeared 300 years ago, 150 years ago and now. Infer how changes to the land have impacted nature. As a class, brainstorm actions that students can take to benefit this habitat. Encourage them to make a difference for wildlife by completing at least one of these actions.

### CONNECT WITH NATURE

Learn more about ways people are working to protect habitats and wildlife around the world by visiting Disney's Friends For Change Website at http://disney.go.com/projectgreen/changearoundtheworld.html. Then, volunteer as a class to help protect or restore a native habitat in your area! Wetland clean-ups, dune-grass planting or weeding for invasive plant species are just a few ways we all can make a difference for wildlife.

*Want to further your classroom conservation work? Visit* ***Disney.com/planetchallenge*** *TODAY!*

Disney Planet Challenge

### LESSON RESOURCES

For Students:


- Malnor, Carol, Bruce Malnor and Anisa C. Hovemann. *Earth Heroes: Champions of the Wilderness.* Nevada City, CA: Dawn Publications, 2009. ISBN: 1584691167.
- Malnor, Carol, Bruce Malnor and Anisa C. Hovemann. *Earth Heroes: Champions of Wild Animals.* Nevada City, CA: Dawn Publications, 2010. ISBN: 1584691239.
- McDaniel, Jequita and Van Jon Zyle. *Mardy Murie Did!: Grandmother of Conservation.* Lanham, MD: Taylor Trade Publishing, 2010. ISBN: 1589795652.
- Nivola, Claire A. *Planting the Trees of Kenya: The Story of Wangari Maathai.* New York, NY: Farrar, Straus & Giroux, 2010. ISBN: 0374399182.
- Winter, Jeanette. *Wangari's Trees of Peace: A True Story from Africa.* San Diego, CA: Harcourt Children's Books, 2008. ISBN: 0152065458.


For Teachers:


- Goodall, Jane. *Jane Goodall: 50 Years at Gombe – A Tribute to Five Decades of Wildlife Research, Education and Conservation.* New York, NY: Stewart, Tabori and Chang, 2010. ISBN: 1584798785.
- National Wildlife Federation. *Wildlife Conservation: Habitat Loss.* 19 July 2011. http://www.nwf.org/Wildlife/Wildlife-Conservation/Threats-to-Wildlife/Habitat-Loss.aspx

The rainforest habitat provides chimpanzees with everything they need to survive.



© 2011 Disney Enterprises, Inc.

# THREATS TO CHIMPANZEES

**How Does Habitat Loss Affect Chimpanzees?**

## Habitat Game: Instructions For Teachers *(1 of 2)*

1. Prepare a safe outdoor field or play space. Check for the presence of any medically significant plants such as nettles or poison ivy before bringing the class outside.
2. Scatter 100–150 food tokens across the playing field. These will represent food during the game.
3. If at any point during the game a student cannot find one piece of food, they are temporarily out. Explain that as a chimpanzee, their habitat did not have enough food to support their survival. Have these students bring any collected tokens with them and take a seat on the field sidelines.
4. Instruct students to spread out and choose any spot on the field. Count and record the number of students at the start of the game.
5. Students should pretend they are chimpanzees living in the rainforest. Read Scenario 1 to the class.
   - **Scenario 1:** *You are a chimpanzee living in the rainforest. The rainforest provides you with everything needed to survive. Walk around the field and pick up one token to represent the food you found today. Once you have found your food, sit down on the ground and rest.*
6. Record the number of students remaining after the first round of play. Discuss as a class whether it was easy or difficult to find food.
7. Using a jump rope, rope or piece of string, divide the playing field in half (see diagram for details). Read Scenario 2 to the class.
   - **Scenario 2:** *A few months have passed. People have started to cut down trees to use as firewood. This has divided the rainforest into two separate habitats. Search for one piece of food in your habitat only. Do not cross over into another habitat.*
8. Any students who were not able to find food should take a seat on the sidelines. Then, record the number of students remaining in the game. Together, discuss any challenges the students faced now that they were restricted to two separate habitats.
9. Read Scenarios 3-5. Each time, use a rope to divide the field (see included diagram as a reference). Students cannot cross the rope or travel to other parts of the field. After each round of play, record the number of students remaining in the game. Discuss what happened as their habitat was fragmented and food supply became limited. How did shrinking or dividing the habitat make the game more difficult? How did these changes affect the chimpanzee population? What does this represent for chimpanzees living in the rainforest that may be faced with similar challenges?
   - **Scenario 3:** *A local village has moved into a portion of the rainforest where chimpanzees live. This has divided the rainforest even further and pushed chimpanzees out. Try to find one piece of food in your remaining habitat.*
   - **Scenario 4:** *Villagers need a place to grow crops. They have burned down a large portion of the rainforest to use as farmland. Find food in your remaining habitat.*
   - **Scenario 5:** *The surrounding communities have built a road through the center of the rainforest. This has divided the rainforest again. Try to find one more piece of food within your habitat.*
10. Tell the class that people in the area have now noticed the damage they are causing to the rainforest and are starting to take action. Remove rope #3 and read the scenario below.
    - **Scenario 6:** *The villagers have started collecting firewood from trees that have already fallen to the rainforest floor. Because of their actions, no new trees are being used for firewood.*
11. Have several students join back into the game from the sidelines, entering into the newly connected habitat. They should bring their food tokens with them and scatter them on the ground. Students should walk around and collect one food item each. Although the area has expanded, students still cannot cross existing ropes. Record the number of students on the playing field.
12. Read Scenario 7. Remove rope #2 and add more students back into the game. Give them time to walk around the expanded habitat and collect one food item each. Record the number of students on the playing field.
    - **Scenario 7:** *People have learned that they can plant trees in place of the ones they need to cut down. The local community has planted several hundred trees in the middle of the rainforest.*
13. Read Scenario 8 and remove rope #4. Have students once again find food and record the number of students left on the playing field.
    - **Scenario 8:** *Local people have learned that burning down the rainforest to grow crops is not friendly to the environment. Instead they have learned how to sustainably grow crops in the shade of the existing rainforest trees.*
14. Read Scenario 9 and remove rope #5.
    - **Scenario 9:** *The community has created an educational program to teach others about chimpanzees. Now they can use the road to spread their message to other towns and villages around the rainforest. This will help protect chimpanzees and their habitats in this area.*


© 2011 Disney Enterprises, Inc.

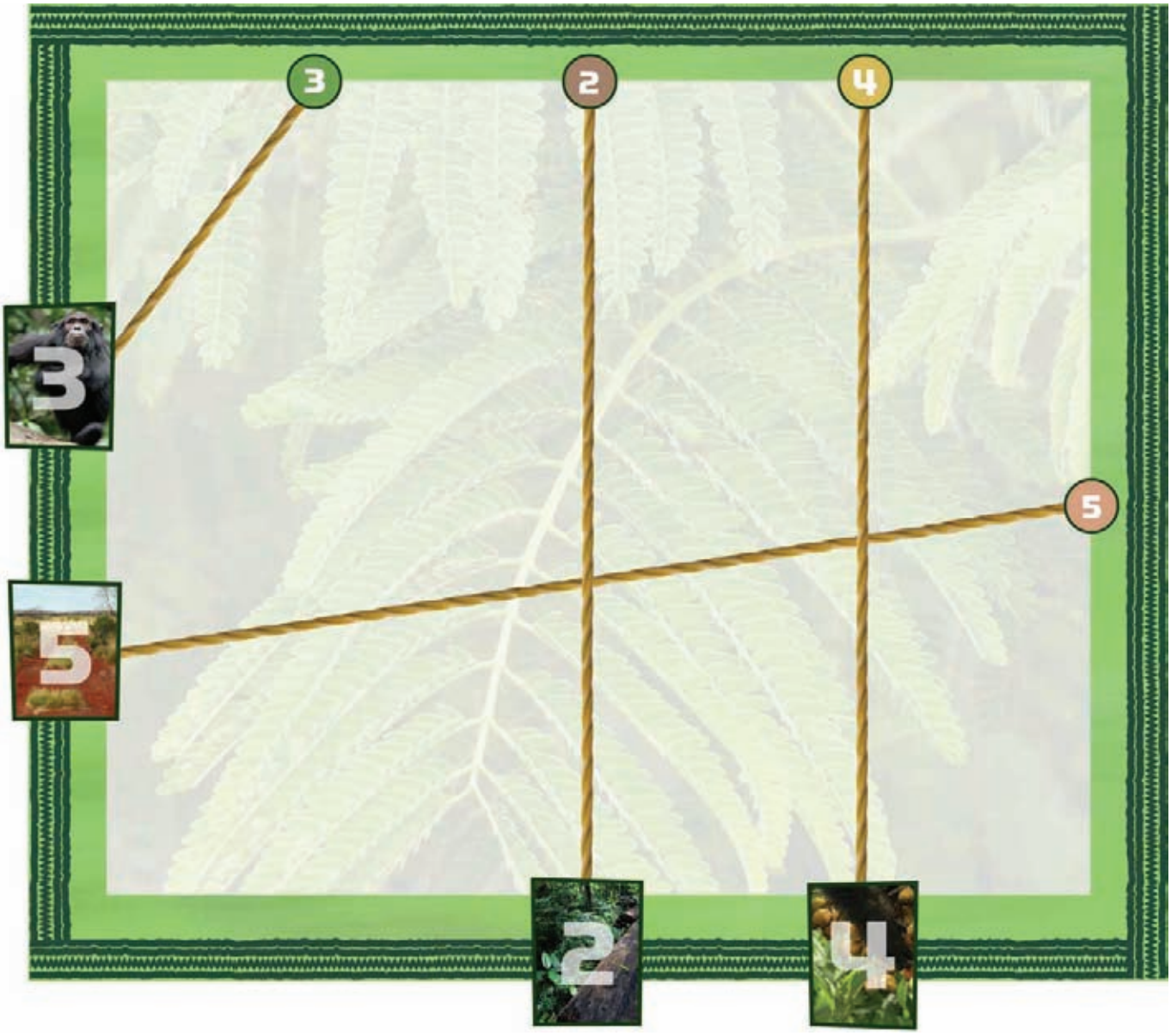
# THREATS TO CHIMPANZEES

**How Does Habitat Loss Affect Chimpanzees?**

## Habitat Game: Instructions For Teachers *(2 of 2)*

**15.** Once there are no more rope barriers on the field, bring anyone who is left on the sidelines back into the game. With all students on the field, have them each search for one last piece of food (there should be enough for every individual). Record the number of students on the field at the end of the game. Discuss how removing ropes and reconnecting the habitats impacted the game. What actions removed students from the game? What actions allowed students to join back in the game? How does this relate to chimpanzees living in the rainforest? Did it become easier to find food and space when ropes were removed? Explain why this might be. Describe how this game relates to protecting habitats for chimpanzees.

Reference Diagram for Game:






© 2011 Disney Enterprises, Inc.

# LESSON 21 | How Can Recycling Electronics Protect Chimpanzee Habitat?

Grade Level: **2-3** | Subject Areas: **Science, Math** | Time Frame: **1 hour**
Background Information: **Threats to Chimpanzees (pages 15-16)**

**VOCABULARY:**
***Natural resource, recycle***

**STUDENTS WILL BE ABLE TO…**
- Define the terms natural resource and recycling
- Describe how recycling electronics can protect chimpanzee habitat
- Connect every day actions to our impact on wildlife

**WHAT YOU NEED**
- *Recycle Electronics!* Poster

## LEARNING ACTIVITIES:

1. Electronics are an important part of our everyday life! As a class, discuss how we use electronics such as cell phones, MP3 players, computers, televisions and video game systems to have fun, keep in touch with family and friends, learn new things and stay up-to-date on current events.
2. Ask students what they do with electronics when they are outdated, old or broken. Although many people might throw old electronics away or keep them in a "junk drawer" at home, students might be surprised to know that these items can be recycled!
3. As a class, discuss the purpose of recycling. Students should conclude that recycling helps prevent waste from entering landfills and protects habitats by using existing materials to make new items.
4. Define the term natural resource as something people use that comes from nature. List examples of natural resources, such as air, water, food, wood and metal. Discuss where each of these resources might be found in nature and how we use these resources. For example, trees provide us with the wood we need to build homes and plants provide us with the food we need to eat. In the same manner, certain metals are used to create electronic devices we use every day. These metals are often found in the same African rainforests where chimpanzees live.
5. Explain to students that recycling electronics is a great way to protect these rainforest habitats. Because some of the metals used to create electronics come from the African rainforest, when we recycle these electronics, we are reducing the need for new materials. By using materials we already have, we can help protect chimpanzees and the natural resources of the African rainforest.
6. Show students the example poster and discuss a list of guidelines for creating an effective poster. Have students work individually or in small groups to create their own electronics recycling poster.
7. Invite other classes to visit your room to view students' posters. Have students staff their posters and describe the layout, materials and images they selected to their peers. Students should explain how their design conveys the overall theme of their poster and share information on how recycling electronics helps to protect chimpanzees.

## WRAP UP

8. Conduct a wrap up discussion using the statements and questions below:
   - Define the term natural resource in your own words. *A natural resource is something that people use that comes from nature. Air, water, food, wood and metal are a few examples of natural resources we use daily.*
   - Give one example of an action that people can take to help protect the chimpanzees' rainforest habitat. *Some of the materials used to make electronics*


© 2011 Disney Enterprises, Inc.

# PROTECTING CHIMPANZEES

## How Can Recycling Electronics Protect Chimpanzee Habitat? *(2 of 2)*

*come from the rainforests where chimpanzees live. An easy action people can take to protect chimpanzees and their habitat is to recycle their old electronics, such as cell phones, MP3 players, computers and video game systems. Recycling electronics means we can use existing materials to make new products, helping to reduce waste and protect the rainforest.*

- Do you think there are any other items we use each day that might affect habitats or wildlife? What can we do to lessen our impact? *Everything we use comes from and impacts habitats around the world. The food we eat, clothes we wear, beauty products we use, and many of the materials that make up our homes and cars all started from something in nature. Although we need many of these things to survive, we can lessen our impact by wasting less, choosing reusable items, recycling, and selecting sustainable items.*

### EXTENDING THE LESSON: SOCIAL STUDIES AND SCIENCE

**Option 1:** Hold an electronics recycling event at your school to encourage students and their families to make a difference. Display the students' posters at the event so others can learn about the connection between cell phones and chimpanzees. Donate collected cell phones to a local police station, shelter, charity or cell phone recycling organization.

### CONNECT WITH NATURE

Contact the Department of Natural Resources in your state to find out more about habitat restoration projects in your area. With permission, organize a class field trip to participate in one of these projects. Wetland clean-ups, dune grass plantings, or weeding for invasive species are all great ways to actively involve students in making a difference for local habitats and local wildlife.

### LESSON RESOURCES

**For Students:**

- Disney's Friends for Change: Project Green. *Disney's Friends for Change: Take Action!* The Walt Disney Company. 19 July 2011. http://disney.go.com/projectgreen/takeaction.html
- EarthWorks Group. *50 Simple Things Kids Can Do to Save the Earth.* 19 July 2011. http://www.50simplekids.com/

**For Teachers:**

- Cellular-News. *Coltan, Gorillas and Cellphones.* 19 July 2011. http://www.cellular-news.com/coltan/
- Disney Worldwide Conservation Fund. *Conservation Initiatives.* The Walt Disney Company. 19 July 2011. http://disney.com/conservation
- Gazelle Electronics Recycling. *Gazelle Homepage.* 8 Nov 2011. http://www.gazelle.com
- National Wildlife Federation. *Wildlife Conservation: Habitat Loss.* 19 July 2011. http://www.nwf.org/Wildlife/Wildlife-Conservation/Threats-to-Wildlife.aspx

© 2011 Disney Enterprises, Inc.

LESSON 21

ACTIVITY SHEET 21A
for grades 2–3

# PROTECTING CHIMPANZEES

## How Can Recycling Electronics Protect Chimpanzee Habitat?

## WONDERING WHAT TO DO WITH YOUR OLD ELECTRONICS?

Don't trash them!

Recycle!

### Recycle your electronics to protect the rainforest home of chimpanzees!

- The materials used to create our electronics come from African rainforests where chimpanzees live.
- By recycling old electronics, we can use existing materials to make new phones, computers, MP3 players and video game systems!
- Next time you buy a new electronic device, recycle your old one! You can help protect the rainforest home of chimpanzees.



© 2011 Disney Enterprises, Inc.

# LESSON 22 | HOT TOPIC: How Can I Help Wildlife In My Backyard?

Grade Level: **2-3** | Subject Areas: **Science, Language Arts** | Time Frame: **1 hour**
Background Information: **Protecting Chimpanzees: Saving Chimpanzees through Scientific Study, Community Involvement and Education (pages 16-19)**

**VOCABULARY:**
***Habitat, protect, wildlife***

**STUDENTS WILL BE ABLE TO…**
- Describe five actions that positively influence wildlife and habitat
- Share these positive ways to impact wildlife with others

**WHAT YOU NEED**
- Activity Sheet 22A: *How Can I Help Wildlife In My Backyard?*
- Drawing paper, crayons, markers or colored pencils for each student

## LEARNING ACTIVITIES:

1. Discuss the importance of protecting wildlife and habitats with students. Why is helping wildlife important? How can protecting habitats also protect wildlife? What are some things you already do to help nature?
2. Have students complete activity sheet 22A. Ask students to explain how the actions in each of the five correct responses positively impact wildlife and nature.
3. Brainstorm additional actions students can take to protect wildlife and habitats in their area. Record this list on the board and discuss each action as a class.
4. Distribute drawing paper and art supplies to the class. Each student should illustrate one of the actions and compile their pictures together into a class book titled *"How can I help wildlife in my backyard?"*
5. Share this book with other classes in the school through an interactive storytelling session. Have each student describe how their action helps wildlife and explain the illustration they created.

## WRAP UP

6. Lead a wrap up discussion using the following statements and questions:
   - Explain why you think it is important for people to protect wildlife and natural habitats. *This is an open ended question; all positive responses are acceptable.*
   - In your opinion, what wildlife-friendly actions are easiest to complete? *Answers will vary.*
   - Are there any wildlife-friendly actions that are more difficult to complete? What changes could make completing these actions easier? *Actions that are limited by time, space or money may be the most difficult to complete, so encourage students to think creatively when problem-solving these challenges. For example, planting a tree may not be an option if students do not have a yard. However, growing flowers in a porch planter or window box still achieves the same goal – it provides wildlife with natural sources of food and shelter.*
   - How could you encourage others to protect wildlife and wild places? *A wide variety of responses are acceptable here. Examples include: telling others about the importance of helping wildlife, inviting friends and family to complete one of the actions discussed in this lesson or starting a wildlife club at school. Any of these will help students encourage others to protect wildlife and wild places.*

## EXTENDING THE LESSON: SCIENCE AND ART

**Option 1:** Create a wildlife action board! Have each student pledge to complete one action to help wildlife and photograph themselves completing this action. Display students' pledges and photographs on a classroom or school bulletin board. Encourage other classes to join in and add their pledges and photographs to the board.

**Option 2:** Have students create a poster or short promotional video to encourage others to help protect wildlife and wild places. Posters or videos should be catchy, explain why conserving wildlife is important


© 2011 Disney Enterprises, Inc.

# PROTECTING CHIMPANZEES

## HOT TOPIC: How Can I Help Wildlife In My Backyard? *(2 of 2)*

and include at least one action people can take to help protect wildlife. Share these posters and videos with other students and teachers at a school function, as part of an environmentally-themed special event or post them online.

### CONNECT WITH NATURE

Learn more about ways people are working to protect habitats and wildlife around the world by visiting Disney's Friends for Change Website at http://disney.go.com/projectgreen/changearoundtheworld.html. Volunteer as a class to help protect or restore a native habitat in your area! Wetland clean-ups, dune-grass plantings or weeding for invasive plant species are just a few ways we all can make a difference for wildlife.

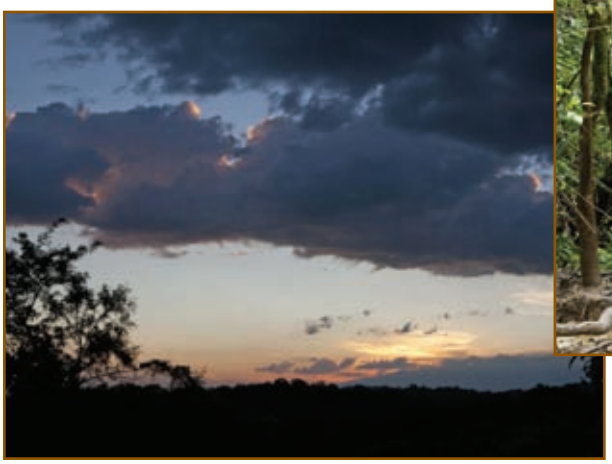
### LESSON RESOURCES

**For Students:**


- Disney's Friends for Change: Project Green. *Disney's Friends for Change: Take Action!* The Walt Disney Company. 19 July 2011. http://disney.go.com/projectgreen/takeaction.html
- EarthWorks Group. *50 Simple Things Kids Can Do to Save the Earth.* 19 July 2011. http://www.50simplekids.com/
- Herzog, Brad and Linda Holt Ayriss (Illustrator). *S is for Save the Planet.* Chelsea, MI: Sleeping Bear Press, 2009. ISBN: 1585364282.
- Kelman, Marcy and Alan Batson. *Disney Handy Manny – Think Green.* New York, NY: Disney Press, 2009. ISBN: 9781423117186.
- Pratt-Serafini, Kristin Joy and Rachel Crandell (Illustrator). *The Forever Forest: Kids Save a Tropical Treasure.* Nevada City, CA: Dawn Publications, 2008. ISBN: 1584691026.
- Schimmel, Schimm. *Dear Children of the Earth: A Letter from Home.* Minocqua, WI: NorthWord Press Inc., 1994. ISBN: 1559712252.


**For Teachers:**


- Broda, Herbert W. *School-yard Enhanced Learning: Using the Oudoors as an Instructional Tool, K–8.* Portland, ME: Stenhouse Publishers, 2007. ISBN: 1571107290.
- Cornell, Joseph Bharat. *Sharing Nature with Children: 20th Anniversary Edition.* Nevada City, CA: Dawn Publications, 1998. ISBN: 1883220730.
- Grant, Tim. *Teaching Green – The Elementary Years: Hands-on Learning in Grades K–5.* Portland, ME: Stenhouse Publishers, 2005. ISBN: 0865715343.
- Grant, Tim and Gail Littlejohn. *Greening School Grounds: Creating Habitats for Learning.* Vancouver, BC, Canada: New Society Publishers, 2001. ISBN: 0865714363.
- Louv, Richard. *Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder.* Chapel Hill, NC: Algonquin Books, 2008. ISBN: 1565126053.
- Sobel, David. *Beyond Ecophobia.* Great Barrington, MA: Orion Society, 1999. ISBN: 0913098507.

Wildlife everywhere needs our help! Simple actions can help us protect beautiful habitats around the world.

*Want to further your classroom conservation work?*
*Visit **Disney.com/planetchallenge** TODAY!*

Disney Planet Challenge

Disney nature chimpanzee

© 2011 Disney Enterprises, Inc.

# How Can I Help Wildlife In My Backyard?

Circle five pictures below that show the best ways kids can help wildlife.

Hang a birdhouse in your backyard.

Plant flowers or a tree.

Blow bubbles.

Visit a zoo or aquarium to learn more about animals.

Throw trash on the ground.

Help pick up litter to keep habitats clean.

Eat ice cream.

Keep a journal. Draw pictures of the plants and animals you find outdoors.

Draw a picture of something else you can do to help wildlife.



© 2011 Disney Enterprises, Inc.

# LESSON 23 | HOT TOPIC: How Can People Make A Difference For Chimpanzees?

Grade Level: **4-6** | Subject Areas: **Science, Social Studies** | Time Frame: **2 hours**
Background Information: **Protecting Chimpanzees: Saving Chimpanzees through Scientific Study, Community Involvement and Education (pages 16-19)**

**VOCABULARY:**
***Environment, habitat, protect, wildlife***

**STUDENTS WILL BE ABLE TO…**
- Explain the complexities of protecting habitat and wildlife
- Identify how people can have both negative and positive impacts on the environment
- Discuss the challenges of balancing the needs of people and local wildlife
- Propose solutions to real-life wildlife issues
- List at least two ways students can make a difference for wildlife near their community

**WHAT YOU NEED**
- Activity Sheet 23A: *Map Of Village – Scenario 1*
- Activity Sheet 23B: *Map Of Village – Scenario 2*
- Activity Sheet 23C: *Discussion Questions*

## LEARNING ACTIVITIES

1. Review the background information with the class. Discuss the complexities of protecting habitats and the importance of balancing people's needs with the needs of wildlife.
2. Show students the two maps from activity sheets 23A - 23B. Ask students for their initial observations of these two maps. What is the same in each? What is different?
3. Present the scenarios and lead a class discussion using activity sheet 23C.
4. Discuss solutions to the challenges in each scenario. Refer to activity sheet 22C for examples.
5. Gather the class into small groups and assign one solution to each group. The group should create a project proposal that describes how this solution will help villagers, chimpanzees and the rainforest habitat. Proposals should include information on cost, whether it is a short-term or long-term solution, and any drawbacks or benefits. Students should present their proposal to the class.
6. **People Making a Difference in North America:** Ask students to brainstorm a list of issues facing habitats and wildlife in North America, such as wetland destruction, water pollution and conflicts with animals such as bears. Gather the class into small groups and assign each group one of these topics to research. Students should identify the issue, explain how this issue impacts habitats, people and animals, and propose at least one solution to solve this issue. Each small group should present their project to the class.

## WRAP UP

7. Lead a wrap up discussion using the following statements and questions:
   - Create an argument for the importance of protecting habitats and wildlife. What might happen if we do not conserve wildlife and their habitats? *Answers will vary but students should demonstrate a strong understanding of the impact our actions have on the environment and the importance of protecting wild spaces for future generations. If we do not conserve, we could negatively impact ecosystems worldwide.*
   - What are some challenges to protecting habitats and wildlife? *Protecting habitats and wildlife is a complex process and there is rarely one right and one wrong answer. The needs of people, the needs of wildlife and the requirements of an ecosystem, along with economic costs and benefits, short-term and long-term solutions, and the impact on future generations must all be considered when attempting to solve an issue.*
   - How can communities positively impact wildlife? *Communities have the ability to make a difference by working together to create solutions to issues in*


© 2011 Disney Enterprises, Inc.

# PROTECTING CHIMPANZEES

## HOT TOPIC: How Can People Make A Difference For Chimpanzees? *(2 of 2)*

*their area. Communities have the power to influence companies and governments to take action.*

- Compare the wildlife issues facing people and chimpanzees in Africa to wildlife issues in North America. Describe any similarities and differences. *Students' answers will vary.*
- What are two things you can do to help wildlife living near your community? *Students can do many things to help wildlife near their community! Students may have a wide variety of answers. Planting trees, teaching others and supporting ecotourism are all solutions that might come from this lesson. On a more basic level, hanging birdhouses, putting out a bird bath, planting native flowers and trees, learning more about animals and spending time observing nature are all ways that students can help wildlife near them.*

### EXTENDING THE LESSON: SCIENCE AND SOCIAL STUDIES

**Option 1:** Many villages in Africa are governed by the village elders. Without their support, changes cannot be made in the village. Ask a panel of teachers from your school to act as the Kazinga Village elders. Have each group of students present their project proposal to the elders. The panel should vote on whether the proposal is accepted or denied based on the following: benefits the project will have on people, chimpanzees and the rainforest; costs associated with the project; long-term viability of the project; and overall creativity. Have students create new maps showing how the accepted projects positively impacted the village of Kazinga.

**Option 2:** Communities throughout Africa are working to protect chimpanzees and other great apes. Encourage students to explore the current ways that people are working to protect these amazing animals by visiting Disney Worldwide Conservation Fund's (DWCF) Google Earth site: http://disney.com/conservation.

### CONNECT WITH NATURE

Encourage your class to make a difference! Help students put one of their proposed solutions in North America into action. For ideas on how to make a change in your community, visit Disney's Friends for Change – Project Green: http://disney.go.com/projectgreen/takeaction.html.

### LESSON RESOURCES

**For Students:**

WETLAND DESTRUCTION:

- Idaho Public Television. *Dialogue for Kids – What is a wetland?* Idaho State Board of Education. 19 July 2011. http://idahoptv.org/dialogue4kids/season6/wetlands/wetland.cfm
- Ranger Rick. *What is a Wetland?* National Wildlife Federation. 19 July 2011. http://www.nwf.org/Kids/Ranger-Rick/People-and-Places/Whats-a-Wetland.aspx
- United States Environmental Protection Agency. *America's Wetlands.* United States Department of Commerce. 19 July 2011. http://water.epa.gov/type/wetlands/wetlands.cfm

WATER POLLUTION:

- Environmental Education for Kids! *Water Facts and Conservation Tips.* Wisconsin Department of Natural Resources. 19 July 2011. http://dnr.wi.gov/org/caer/ce/eek/earth/conserve.htm
- United States Environmental Protection Agency. *Water Sense Program.* United States Department of Commerce. 19 July 2011. http://www.epa.gov/watersense/kids/index.html

HUMAN-BEAR CONFLICT:

- Environmental Education for Kids! *The Black Bear.* Wisconsin Department of Natural Resources. 19 July 2011. http://dnr.wi.gov/org/caer/ce/eek/critter/mammal/bears.htm
- MassWildlife. *Living with Black Bears.* Massachusetts Division of Fisheries and Wildlife. 19 July 2011. http://www.mass.gov/dfwele/dfw/wildlife/living/living_with_bears.htm

**For Teachers:**

- Disney Worldwide Conservation Fund. *Projects Working to Protect Chimpanzees in Africa.* The Walt Disney Company. 18 July 2011. http://sites.concept3d.com/dwcf/widget/v2.0/#
- World Wildlife Fund. *Community Conservation: Empowering People to Conserve Natural Resources.* PDF. 19 July 2011. http://www.worldwildlife.org/what/communityaction/people/phe/WWFBinaryitem7525.pdf

*Want to further your classroom conservation work?*
*Visit **Disney.com/planetchallenge** TODAY!*
Disney Planet Challenge



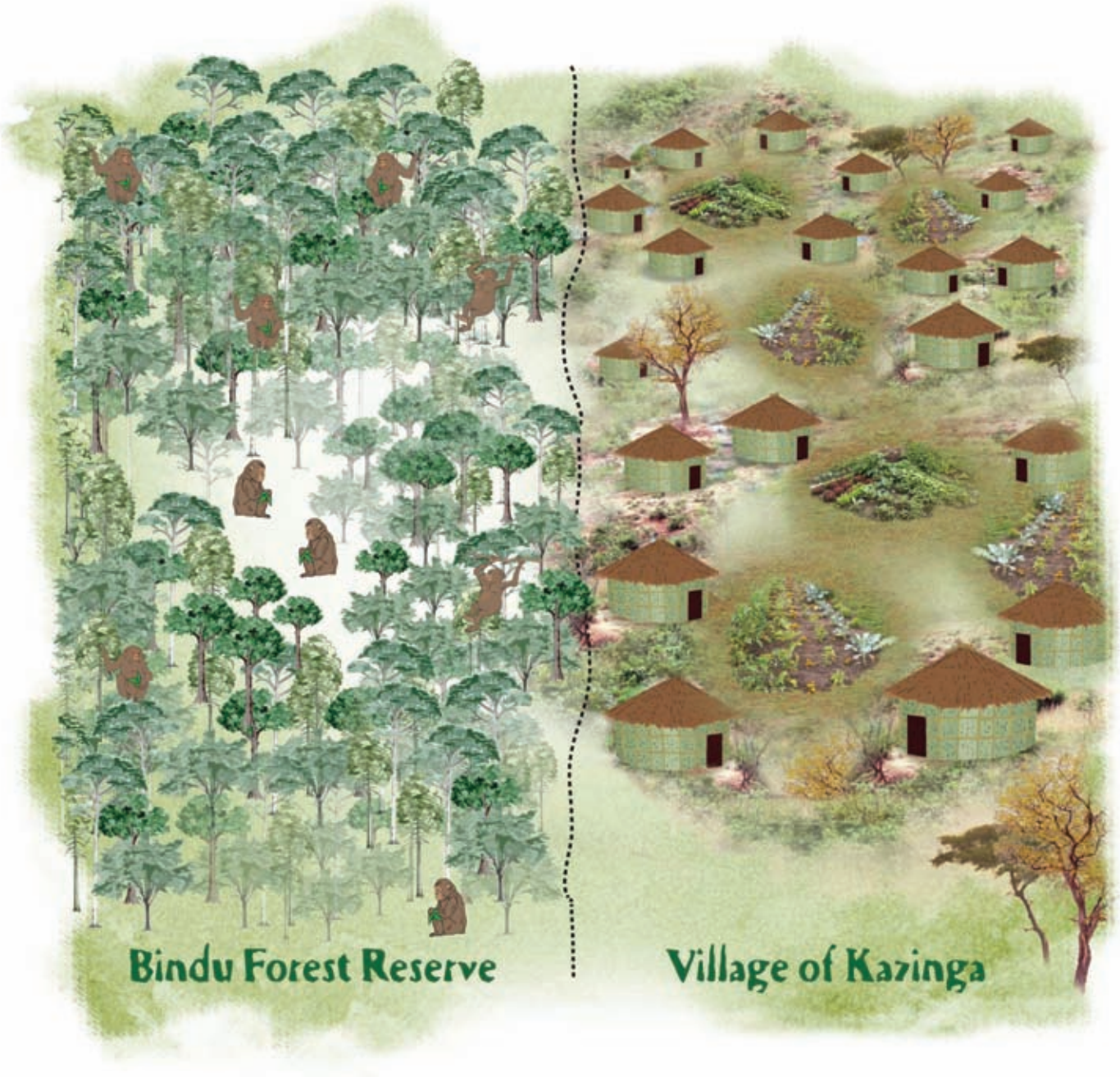
© 2011 Disney Enterprises, Inc.

# PROTECTING CHIMPANZEES

**HOT TOPIC: How Can People Make A Difference For Chimpanzees?**

## Map of Village – Scenario 1

- There are very few jobs in the village.
- People do not have much money.
- Clothing and medicine are hard to find.
- Most people only go to school through the 5th grade.
- People illegally hunt wild animals in the rainforest for meat.
- Chimpanzees have a large rainforest habitat to find food, water and shelter.
- Chimpanzees rarely go into the village in search of food.
- The rainforest is full of many trees.





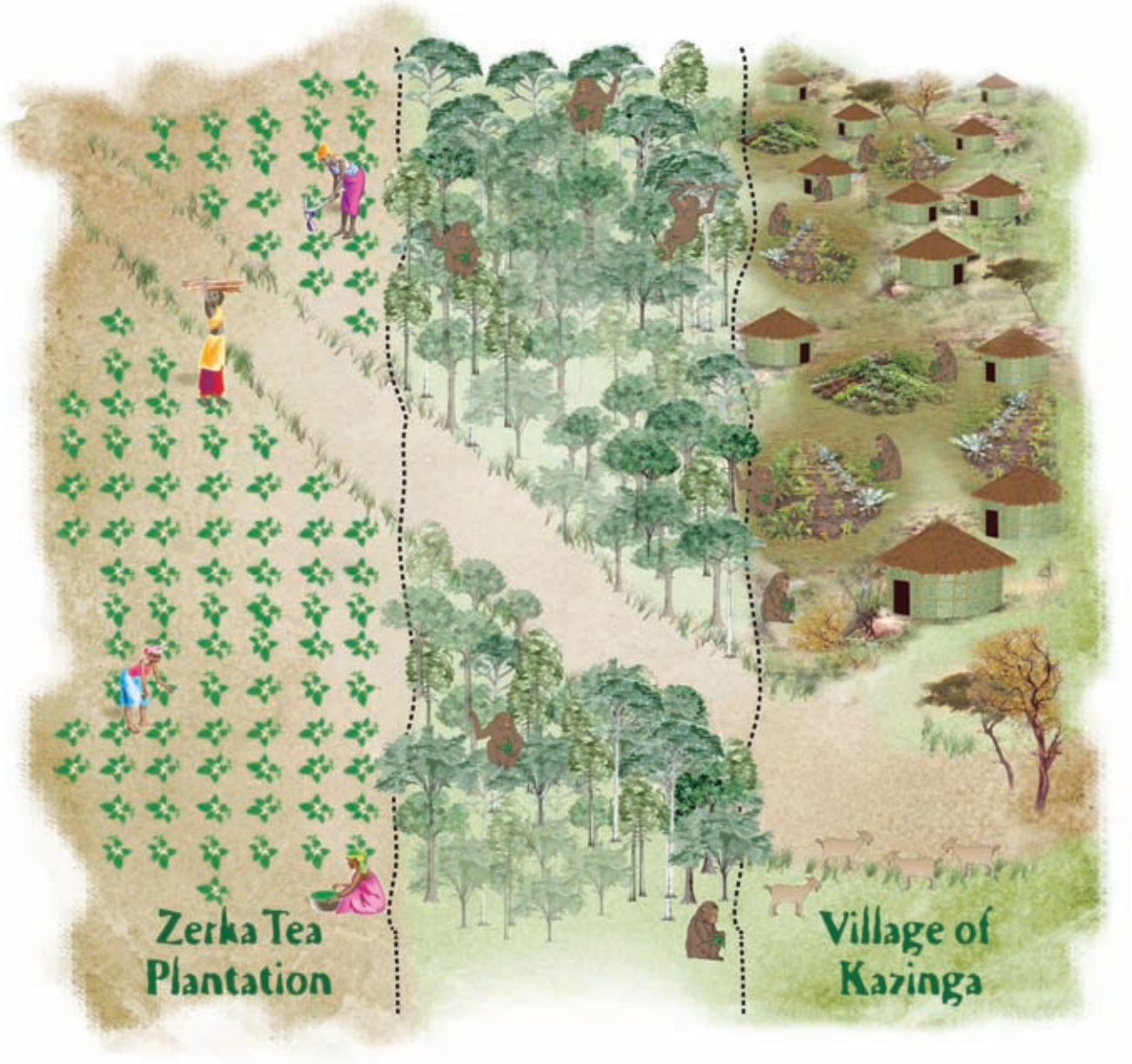
© 2011 Disney Enterprises, Inc.

# PROTECTING CHIMPANZEES

**HOT TOPIC: How Can People Make A Difference For Chimpanzees?**

## Map of Village – Scenario 2

- A company has cut down a large part of the rainforest to create a tea plantation.
- Almost everyone in the village has a job.
- People have money to buy food and raise chickens, goats and sheep for meat.
- People no longer hunt wild animals in the rainforest.
- Children are staying in school longer and have the opportunity to go to college.
- The villagers are healthier and have better access to medicine.
- The rainforest habitat cannot support the chimpanzees that live here.
- Chimpanzees are traveling into the village to steal farmers' crops.
- Farmers are beginning to retaliate against the chimpanzees.
- Chimpanzees are coming too close to homes and schools, posing a danger to the villagers.
- There are very few trees left in the rainforest.

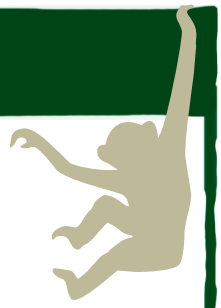




© 2011 Disney Enterprises, Inc.

# PROTECTING CHIMPANZEES

**HOT TOPIC: How Can People Make A Difference For Chimpanzees?**



# How Can People Make A Difference For Chimpanzees?

## Discussion Questions *(1 of 2)*

Use the following questions to discuss the maps and scenarios with students:

| | PROS | CONS |
|---|---|---|
| SCENARIO 1 | • Chimpanzees have a large rainforest habitat to find food, water and shelter.<br>• Chimpanzees rarely go into the village in search of food.<br>• The rainforest is full of many trees. | • There are very few jobs in the village.<br>• People do not have much money.<br>• Clothing and medicine are hard to find.<br>• Most children only go to school through the 5th grade.<br>• People illegally hunt wild animals in the rainforest for meat.<br>• There are fewer animals in the rainforest because people are hunting them for food. |
| SCENARIO 2 | • Almost everyone in the village has a job.<br>• People still grow some of their own food but also have money to buy livestock such as chickens, goats, cows and sheep.<br>• People no longer hunt wild animals in the rainforest.<br>• Children are staying in school longer and have the opportunity to go to college.<br>• The villagers are healthier and have better access to medicine. | • The rainforest habitat cannot support the group of chimpanzees that live here.<br>• Chimpanzees are now traveling into the village and stealing farmers' crops. This is costing the farmers food and money.<br>• Farmers are beginning to retaliate against the chimpanzees.<br>• Chimpanzees are posing a danger to children in the village because they are coming near the school in search of food.<br>• There are very few trees left in the rainforest. |

1. Identify the pros and cons in each scenario above:
2. What major change happened between Scenario 1 and Scenario 2? How did this change affect the Bindu Forest Reserve? *In Scenario 2, Zerka Tea Company constructed a tea plantation in part of the rainforest reserve. Many of the trees in the rainforest were cut down to create the tea plantation. However, since people have more money to buy food they are no longer hunting illegally in the rainforest, so some native wildlife is actually protected.*
3. Describe how this change impacted the villagers. *The tea plantation had both positive and negative impacts for the villagers. It created jobs for most people in the town, so people have more money, better food, education and healthcare. However, it also has created a problem of chimpanzees coming too close to the village. Farmers' crops are being raided by chimpanzees who are losing their fear of people, so they are getting to close to homes and schools. This could be dangerous for people, especially children, in the village.*


© 2011 Disney Enterprises, Inc.

# How Can People Make A Difference For Chimpanzees?

## Discussion Questions *(2 of 2)*

Use the following questions to discuss the maps and scenarios with students:

4. What impacts did the construction of the tea company have on chimpanzees in the rainforest? Where are the chimpanzees choosing to spend their time in Scenario 2? *The tea plantation negatively impacted chimpanzees. The chimpanzees lost a large portion of their rainforest home and sources of food and shelter. This has forced the chimpanzees to move closer to people in search of food. For chimpanzees, a farm is the perfect place to find food (it's like a free buffet restaurant!). However, when chimpanzees eat food that a farmer relies on to feed their family or sell for profit, this can cause conflict. Because this is like losing money, farmers will sometimes retaliate against the chimpanzees for their actions.*
5. As a class, propose possible short-term and long-term solutions to the challenges represented in each scenario. The table below contains examples of possible solutions.

## POSSIBLE PROPOSED SOLUTIONS

| | |
|---|---|
| SCENARIO 1 | • Create an environmentally friendly tourism business that will allow people to visit the rainforest and see chimpanzees in the wild. This process would take about 10 years but would create jobs as educators, chimpanzee trackers and tour guides for the tourism company.<br>• When people visit the area, they might also spend money on food, crafts and souvenirs. This means other people in the village would make money as well.<br>• If the tourism company runs tours in a way that does not hurt the rainforest or the animals that live there, chimpanzees are not impacted. In addition, local people are more inclined to protect the chimpanzees because their jobs depend upon them.<br>• Build a business in an area that does not impact the rainforest, such as on the other side of the village. Instead of cutting down the rainforest, a different plot of land could be used. |
| SCENARIO 2 | • Construct large fences around the farmers' crops to keep them protected from chimpanzees.<br>• Hire several watchmen to patrol the boundary between the rainforest and the village. These watchmen can scare off (but not hurt!) any chimpanzees that try to enter the village.<br>• Relocate farms that are next to the rainforest. Chimpanzees may not travel as far into the village without food incentives.<br>• Plant trees along the rainforest boundary to help restore the chimpanzees' habitat.<br>• Encourage farmers to plant other crops that chimpanzees do not like to eat, such as aloe and chili peppers. Farmers can still sell these for profit but will not lose their crops to chimpanzees. |

FINAL PROJECT

# FINAL PROJECT: All About Chimpanzees!

Grade Level: **2-3, 4-6** | Subject Areas: **Interdisciplinary**

This final project is designed to assess students' understanding of the Disneynature CHIMPANZEE curriculum. Individually or in groups, students should create a video, multi-media presentation, marketing campaign, collage, persuasive essay or story board that tells a story about a chimpanzee's life in the rainforest using the Final Project Criteria below. Students may choose to use some of the resources available on the **www.disney.com/chimpanzee** website, such as images, video clips and vocalization tracks, to complete their final project. Students should be sure to include an action message that their audience can take to protect chimpanzees or wildlife in their area.

Students should share their final projects with their class or school peers. Some creative ways of sharing include: presenting in the classroom, hosting a "Celebrate Chimpanzees!" event, inviting other classes to a project gallery, posting online or any other ideas that would encourage students to share.

## Final Project Criteria

The final student project should demonstrate the following:

### Chimpanzee Content Connections: 5 POINTS EACH = 25

- Project fully demonstrates an understanding of chimpanzee characteristics;
- Project fully demonstrates examples of the communication abilities of chimpanzees;
- Project fully demonstrates a variety of chimpanzee social interactions;
- Project fully demonstrates knowledge of the chimpanzee's habitat;
- Project fully demonstrates examples of threats facing the endangered chimpanzee;
- Project fully demonstrates that the student has completed lessons and learned the content in the Chimpanzee Educators Guide.

### Actions That Benefit Chimpanzees And Other Wildlife: 10 POINTS EACH = 30

- Project fully demonstrates that students understand that their actions can help chimpanzees and other wildlife;
- Project fully demonstrates that scientific research helps people make the best choices to ensure chimpanzee survival;
- Project identifies at least two actions that students or their families can take to help chimpanzees.

### Project Quality: 5 POINTS EACH = 15

- Project demonstrates clear evidence that students were involved in all of the following: inquiry, design, research, implementation, documentation.
- Project is complete and displays all criteria.
- Overall project presentation is original, creative and artistic and shows quality attention to detail.



© 2011 Disney Enterprises, Inc.

# GLOSSARY

**Adaptation** *a trait that helps an animal survive in its environment*

**Alpha male** *the highest ranking male chimpanzee in a group*

**Alpha female** *the highest ranking female chimpanzee in a group*

**Ape** *a group of large bodied, tailless primates characterized by a high level of intelligence, including bonobos, chimpanzees, gorillas, orangutans and gibbons*

**Arm span** *the distance from one hand to the other, measured at the fingertips, when arms are raised parallel to the ground at shoulder height*

**Behavior** *an action completed by one or more animals*

**Body posture** *a type of non-verbal communication that may express a variety of emotions such as dominance or submission*

**Brachiation** *a type of movement where an animal uses its arms to swing from one holdfast to another*

**Canopy** *the upper layer of the rainforest, formed by tall, mature trees*

**Carnivore** *an animal that eats meat*

**Classification** *a scientific process used to categorize living things based on similar structures, forms and ancestry; the seven main ranks of the Linnean classification structure include Kingdom, Phylum, Class, Order, Family, Genus, and Species*

**Chimpanzee community** *a large social group of chimpanzees made up of adults, juveniles and infants*

**Consumer** *an organism that does not make its own food; primary consumers eat producers, secondary consumers eat primary consumers, and tertiary consumers eat secondary consumers*

**Continent** *one of seven great landmasses on earth*

**Country** *geographical region with a government and political borders*

**Decomposer** *a living organism at the base of the food web that breaks down dead animals and plants*

**Detritivore** *an organism that eats decomposing matter*

**Dominant** *an individual that is higher in rank or more powerful than another*

**Drumming** *the act of a chimpanzee using the buttresses (exposed roots) of a tree to create loud sounds; a form of non-verbal communication*

**Dung** *animal waste; scat*

**Ecosystem** *the interaction of all living and nonliving components found within a given area*

**Emergent layer** *the tallest trees in the rainforest, occuring above the canopy*

**Equator** *an imaginary line that separates the Earth's northern and southern hemispheres*

**Facial expression** *the use of facial movements or positions to convey an emotional state; a form of non-verbal communication*

**Food chain** *the way energy is transferred from producers to consumers*

**Food web** *an interconnected network of feeding relationships*

**Forest** *an area with many trees and other plants*

**Global Positioning Systems (GPS) technology** *a system of navigational satellites that can provide accurate data on an object's location*

**Habitat** *a place where plants and animals find everything they need to survive*

**Habitat loss** *the damage or reduction of space in a habitat or ecosystem*

**Herbivore** *an animal that eats plants*

**Hierarchy** *a social ranking of individuals where some are higher or lower than others*

**Latitude** *imaginary lines used to measure the distance north or south from the equator*

**Longitude** *imaginary lines used to measure the distance east or west from the prime meridian*

**Mining** *the extraction of materials from the earth*

**Monkey** *the group of primates containing the highest number of species, including New World Monkeys (South and Central America) and Old World Monkeys (Africa and Asia)*

**Natural resource** *an item used by people that comes directly from nature such as air, water, wood, coal and metallic ore*

**Niche** *the role each living thing has in its habitat*

**Non-verbal communication** *the use of facial expressions, body language and behaviors to send messages or communicate*

**Omnivore** *an animal that eats plants and animals*

**Primate** *a group of mammals that includes prosimians, monkeys and apes*

**Primatologist** *a person who studies primates*

**Producer** *an organism that is able to make its own food (i.e., plants, algae)*

**Prosimian** *a group of small primates that include tarsiers, lemurs, lorises and bushbabies*

**Range** *the area where an organism naturally lives*

**Social** *interactions between organisms and how organisms live together*

**Submissive** *willingness to submit or relinquish power to another individual*

**Sustainable** *a method of harvesting or using a resource so that the resource is not depleted or permanently damaged*

**Tool use** *the use of objects to perform tasks*

**Tropic of Cancer** *an imaginary line located at 23.5° north of the equator*

**Tropic of Capricorn** *an imaginary line located at 23.5° south of the equator*

**Tropical rainforest** *an area of dense tree cover near the equator, with a warm and wet climate characterized by a high level of biodiversity.*

**Understory** *the level of the rainforest that grows under the canopy*

**Vocalization** *a sound produced by an animal through its nose, throat, or lungs which is used to communicate with other animals*

**Wadge** *a clump of discarded material that is created when chimpanzees extract the juices from the food that they eat*

**Wildlife Researcher** *a person who studies living organisms such as algae, fungus, plants, or animals*



© 2011 Disney Enterprises, Inc.

# RESOURCE GUIDE FOR STUDENTS

## BOOKS:


1. Albee, Sarah. *Chimpanzees.* New York, NY: Gareth Stevens Publishing, 2010. ISBN: 1433921186.
2. Bow, Patricia. *Chimpanzee Rescue: Changing the Future for Endangered Wildlife.* Richmond Hill, Ontario: Firefly Books Ltd., 2004. ISBN: 1552979082.
3. Dennard, Deborah and John McGee (Illustrator). *Chimpanzees.* New York, NY: Cooper Square Publishing, LLC, 2003. ISBN: 1559718455.
4. Doudna, Kelly. *It's a Baby Chimpanzee!* Edina, MN: ABDO Publishing, 2008. ISBN: 1604531527.
5. Feinstein, Stephen. *Chimpanzee: Help Save This Endangered Species.* Berkeley Heights, NJ: Enslow Publishers Inc., 2007. ISBN: 1598450392.
6. Frost, Helen. *Chimpanzees.* Minneapolis, MN: Coughlan Publishing, 2007. ISBN: 0736896085.
7. Goodall, Jane. *The Chimpanzee Family Book.* New York, NY: North-South Books, 1997. ISBN: 1558588035.
8. Greenberg, Daniel A. and Christina Wilsdon. *Chimpanzees.* Pelham, NY: Benchmark/Cavendish-Marshall Corporation, 2009. ISBN: 0761443414.
9. Kalman, Bobbie and Hadley Dyer. *Endangered Chimpanzees.* New York, NY: Crabtree Publishing Company, 2005. ISBN: 0778719052.
10. Kalman, Bobbie and Heather Levigne. *What is a Primate?* New York, NY: Crabtree Publishing Company, 1999. ISBN: 0865059500.
11. Latta, Jan. *Chimaka the Chimpanzee.* Bronte, N.S.W, Australia: True to Life, 2007. ISBN: 0980795834.
12. McDonnell, Patrick. *Me… Jane.* New York, NY: Little, Brown and Company Books for Young Readers, 2011. ISBN: 0316045469
13. Murray, Julie. *Chimpanzees.* Edina, MN: ABDO Publishing, 2002. ISBN: 1577657132.
14. Rockwood, Leigh. *Chimpanzees are Smart.* New York, NY: Rosen Publishing Group, 2010. ISBN: 1435898400.
15. Silverman, Maida and James Spence (Illustrator). *The Golden Book of Monkeys, Apes and Other Primates.* Racine, WI: Western Publishing Company Inc., 1991. ISBN: 0307158586.
16. Spilsbury, Richard and Louise A. Spilsbury. *A Troop of Chimpanzees.* Chicago, IL: Heinemann-Raintree, 2003. ISBN: 1403407467.
17. Trivedi, Bijal. *Chimps Shown Using Not Just a Tool but a "Tool Kit".* National Geographic News, 6 Oct. 2004. Web. 18 August 2011. http://news.nationalgeographic.com/news/2004/10/1006_041006_chimps.html
18. Wexo, John Bonnett. *The Apes.* Mankato, MN: Creative Education Publishing, 1986. ISBN: 0886822653.


## WEBSITES:


1. Disney Worldwide Conservation Fund. *Disney Worldwide Conservation Fund.* The Walt Disney Company. 18 July 2011. http://disney.com/conservation
2. Chimp Haven. *Learn About Chimpanzees.* 30 July 2011. http://www.chimphaven.org/kids-learn.cfm
3. The IUCN Red List of Threatened Species. *Pan troglodytes.* International Union for the Conservation of Nature and Natural Resources. 18 July 2011. http://www.iucnredlist.org/apps/redlist/details/15933/0
4. Jane Goodall Institute of Canada. *Chimp Behaviour: Tool Use.* Jane Goodall Institute. 18 August 2011. http://www.janegoodall.ca/about-chimp-behaviour-tool-use.php
5. Jane Goodall Institute Center for Primate Studies. *Facial Expression Game.* University of Minnesota/Jane Goodall Institute. 18 July 2011. http://www.discoverchimpanzees.org/activities/ident-a-chimp-expressions.php
6. Jane Goodall Institute Center for Primate Studies. *Face Matching Game.* University of Minnesota/Jane Goodall Institute. 18 July 2011. http://www.discoverchimpanzees.org/activities/face_matching.php
7. Lessons for Hope. *The ABC's of Chimpanzee Behavior.* Jane Goodall Institute. 18 July 2011. http://www.lessonsforhope.org/abc/index.asp
8. National Primate Research Center. *Primate Factsheets.* The University of Wisconsin. 18 July 2011. http://pin.primate.wisc.edu/factsheets/

© 2011 Disney Enterprises, Inc.

## BOOKS:


1. Boesch, Christophe and Hedwige Boesch-Achermann. *The Chimpanzees of the Taï Forest: Behavioural Ecology and Evolution.* New York, NY: Oxford University Press, USA, 2000. ISBN: 0198505078.
2. Goodall, Jane. *The Chimpanzees of Gombe: Patterns of Behavior.* Cambridge, MA: Belknap Press, 1986. ISBN: 0674116496.
3. Goodall, Jane. *In the Shadow of Man.* New York, NY: Mariner Books/Houghton Mifflin Company, 1988. ISBN: 0395331455.
4. Leach, Michael. *The Great Apes: Our Face in Nature's Mirror.* New York, NY: Sterling Publishing Co. Inc., 1996. ISBN: 0713724889.
5. Nichols, Michael. *The Great Apes: Between Two Worlds.* Washington, D.C: National Geographic Society, 1993. ISBN: 0870449478.
6. Robbins, Martha M. and Christophe Boesch. *Among African Apes: Stories and Photos from the Field.* Berkeley, CA: University of California Press, 2011. ISBN: 0520267107.
7. Rowe, Noel and Wayne Rowe. *Pictorial Guide to the Living Primates.* Charlestown, RI: Pogonias Press, 1996. ISBN: 0964882515.
8. Sleeper, Barbara. *Primates: The Amazing World of Lemurs, Monkeys, and Apes.* San Francisco, CA: Chronicle Books, 1997. ISBN: 0811814343.
9. Wrangham, Richard W., W.C. McGrew, Frans B. M. deWaal and Paul G. Heltne. *Chimpanzee Cultures.* Cambridge, MA: Harvard University Press, 1996.

## WEBSITES:


1. Disney Worldwide Conservation Fund. *Projects Working to Protect Chimpanzees in Africa.* The Walt Disney Company. 18 July 2011. http://sites.concept3d.com/dwcf/widget/v2.0/#
2. Jane Goodall Institute. *Jane Goodall Institute Home.* 31 July 2011. http://www.janegoodall.org
3. Roots & Shoots. *Roots & Shoots Home.* Jane Goodall Institute. 31 July 2011. http://www.rootsandshoots.org
4. Boesch, Christophe and Hedwige Boesch. *About Chimpanzees.* Wild Chimpanzee Foundation. 30 July 2011. http://www.wildchimps.org/wcf/english/files/wissen.htm
5. Boesch, Christophe and Hedwige Boesch. *Chimpanzee Awareness.* Wild Chimpanzee Foundation. 23 August 2011. http://www.wildchimps.org/wcf/english/files/awareness.htm
6. Chimp Haven. *Chimp Haven.* 30 July 2011. http://www.chimphaven.org/index.cfm
7. Animal Simulation Laboratory. *Brachiation Simulation.* The University of Manchester. 19 July 2011. http://homepage.mac.com/wis/ASL/Projects/Brachiation/index.html
8. ChimpCARE. *About Chimpanzees.* 31 July 2011. http://chimpcare.org/
9. O'Neil, Dennis. *Primates Overview.* Palomar Community College. 19 July 2011. http://anthro.palomar.edu/primate/prim_1.htm
10. O'Neil, Dennis. *The Primate Order.* Palomar Community College. 19 July 2011. http://anthro.palomar.edu/primate/table_primates.htm
11. Pan African Sanctuary Alliance. *PASA Home.* 31 July 2011. http://pasaprimates.org/
12. Scientific American. *Chimps R Us – Speaking Chimp Teaching Guide.* Public Broadcasting Systems (PBS). 19 July 2011. http://www.pbs.org/saf/1108/teaching/teaching2.htm




© 2011 Disney Enterprises, Inc.