

EDUCATOR GUIDE



AMERICA'S
ELEPHANT
KINGDOM

AFRICA'S ELEPHANT KINGDOM

Educator Guide



TABLE OF CONTENTS

Unit	LESSON PLANS	Page
Unit 1:	ABOUT THIS GUIDE	Grades 1-8: Elephant Education Chart 3
Unit 2:	MOTHER KNOWS BEST!	Grades 1-3: Elephant Family Playground Game Grades 4-8: Elephant Diary or Elephant Interview 4 5
Unit 3:	HOW TO BUILD AN ELEPHANT	Grades 1-3: Class Discussion Grades 4-8: Elephant Parts Posters 6 7
Unit 4:	ALL IN THE FAMILY	Grades 1-3: Class Discussion Grades 4 -8: Venn Diagram 8 8
Unit 5:	LOCAL & LONG - DISTANCE CALLS	Grades 1-8: Elephant Puppets 10
Unit 6:	ELEPHANTS AND PEOPLE	Grades 4 -8: Human/Elephant Relationship Presentation 12
Unit 7:	FAMILY TREE	Grades 3 -8: Elephant Ancestor Family Tree 14
Unit 8:	STRANGE COUSINS	Grades 1-8: True or False Guessing Game 18
Unit 9:	WHAT'S FOR DINNER ON THE SAVANNA?	Grades 4 -8: Ecology Pyramid 20
Unit 10:	WHITE GOLD	Grades 5 -8: Soap Carvings 22
Unit 11:	A PLACE TO LIVE	Grades 1-3: Color the Map Grades 4 -8: Graph the Populations 24 25
Unit 12:	GETTING THE WORD OUT	Grades 1-8: Conservation Poster 26
Unit 13:	CAMERAS GREAT AND SMALL	Grades 1-8: Make a Pinhole Camera 27
Unit 14:	JUST FOR FUN	Crossword Puzzle Wordsearch & Maze Puzzle Solutions 29 30 31
	BIBLIOGRAPHY AND RELATED SOURCES	32
	CREDITS AND ADDITIONAL RESOURCES	33

ABOUT THIS GUIDE

This Educator's Guide has been designed to enrich your students' experience in viewing Discovery's IMAX' feature, *Africa's Elephant Kingdom*. The information and activities in the Guide offer students a broad range of information concerning elephants. Each unit contains extensive background data for parents and teachers, as well as a wide variety of entertaining and informative lesson plans for students from first through eighth grades.

You will find the Guide easily adaptable to your students' specific educational needs. You can use any suggested activity by itself, in combination with the other lesson plans suggested in the Guide or in tandem with your standard curriculum on ecology, wildlife and conservation. Each of the lesson plans is recommended for specific grade levels. In an attempt to make the information in each unit accessible to as many students as possible, there are recommendations about how to tailor the lessons to both younger and older students. In addition, many ideas included in the Guide can be used as suggested, or easily modified for other age groups and a variety of classroom situations.

While this Guide contains a wealth of information and dozens of suggested activities, it is intended as a supplement to your curriculum, not as a comprehensive work on elephants. Whether you use these activities on their own, or in conjunction with your visit to *Africa's Elephant Kingdom*, the material in this Guide can improve your students' understanding of and appreciation for one of the world's most awesome and noble creatures: the elephant.

Before you go to the show, you may want to excite the curiosity of your students with the Lesson Plan on this page.

This Teacher's Guide corresponds with the 1996 National Science Education Standards for Grades K-8, particularly the fundamental concepts and principles in the Content Standard areas of Life Science and Science in Personal and Social Perspectives.

LESSON PLAN

Grades 1 - 8:

Elephant Education Chart

MATERIALS

Poster board

Marker

On a sheet of poster board, make four columns. At the head of each column, write one of these questions:

- What do you know about elephants?
- What do you want to know about elephants?
- What have you learned about elephants?
- What else would you like to find out?

Before you go to see *Africa's Elephant Kingdom*, have a class discussion to answer the questions in columns 1 and 2. Whatever the students know - or think they know! - about elephants, list in column 1. List what students hope to learn in column 2.

After you have seen *Africa's Elephant Kingdom*, you will want to come back to fill in columns 3 and 4. Talk with the students about the film, and find out what they learned. The students may want to discuss what they put in column 1, and see if all the information there is correct. Ask them what they still might be curious about. Whatever they want to find out, chances are there's an activity in this Guide designed to answer just that question!

QUICK FACTS

- It took almost a year to shoot *Africa's Elephant Kingdom*. This means that the filmmakers actually lived on the savanna for many months at a time, following the elephants and trying to record their behavior without disturbing them in any way.

MOTHER KNOWS BEST

LESSON PLAN

Grades 1 - 3:

Elephant Family Playground Game

In groups of 10 or 11, assign each of the students a role in a family:

- One matriarch.
- Two new babies.
- Two mothers (a daughter and granddaughter of the matriarch).
- Two or three aunts.
- One young male.
- One young female.
- One adult bull.

On the playground or in an open space in the classroom, have them act out the family relationships. Make sure they know:

- Who leads the group?
- Who takes care of the babies?
- What do the babies do?
- What happens if a predator threatens a baby (one student could play the role of predator - a hungry lioness or crocodile)?
- How do the females treat the adolescent male?
- Does the adult male live with the group?

OBJECTIVE:

To learn about elephants' family relationship and life cycle.

BACKGROUND INFORMATION

Elephants live in family groups that usually include about 10 to 15 members, but can sometimes have as many as 25 relatives. The leader of the family is not a big male, but rather the oldest female. She's called the matriarch, and might be as old as 50 or t50. She has a lot of responsibility. She knows the migratory routes and sources of water in the dry season. It's her job to decide where the family will go to find food, when they will stop to rest, and almost every other detail of elephant daily life. The family members rarely venture more than 50 yards from the matriarch.



African Elephant Feeding

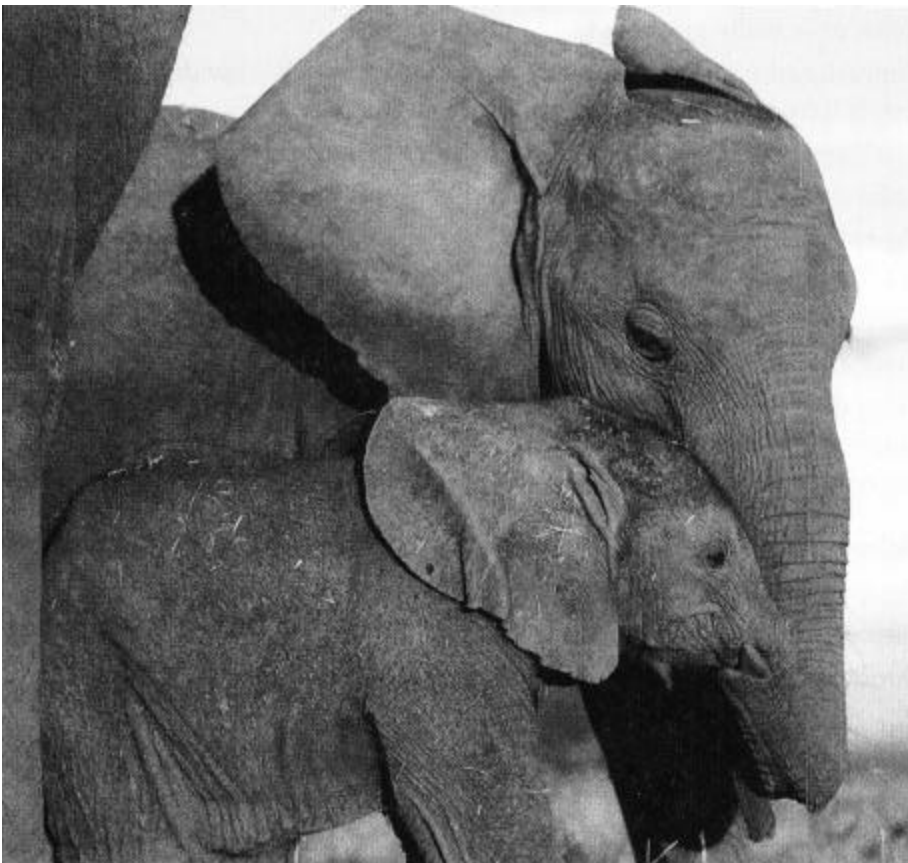
The family group consists of the matriarch and her daughters, as well as their young, both male and female. All males in the herd are under the age of puberty (10 to 15 years old). Healthy females give birth to new babies every four or five years from when they are about 12 all the way to age 50. When an elephant becomes a mother, her sisters and aunts help her in taking care of the baby. These female relations are very protective of all the young elephants in the family. When danger is near, they make a circle around the young elephants. Few natural predators can get past the enormous shielding wall of defensive female elephants!

Like a human baby, the young elephant's job is to eat, play and, in general, learn how to be a grown-up elephant. The young females will stay with the family all their lives. But the male elephants - called bulls - start to get a little aggressive when they are 10 or 15 years old, and the females chase them

MOTHER KNOWS BEST

away from the herd. These young bulls may follow the family for as long as 2 or 3 years until they become fully independent. Then they travel alone, or in groups of 4 to 10 males. But the connection between male elephants is not stable: unlike the females, they do not stay together for long. The bulls spend their whole lives determining who is dominant and keeping up their status with other males. They join the female elephants only when they are ready to mate. Then they may stay with a matriarch's group for several days before they leave again.

The typical day for an elephant starts around 6 a.m., when the family wakes up and starts walking, looking for food. They may feed and walk for 6 hours at a time, and travel as far as 30 miles a day during the dry season. Because adult elephants need to eat about 350 pounds of vegetation a day, they may spend 16 hours a day eating! In between all that eating, they will rest for two or three hours at a time, two or three times a day. Elephants also need to drink up to 50 gallons of water every day, so they need to find watering holes where they drink and bathe. They may also socialize with other family groups of elephants or single bulls. Sometimes elephants need to get salt and other minerals from rocks and soil. The matriarch knows the places where there are salty rocks. These places are called "salt licks." She will sometimes take her family to those places, where each adult can eat as much as 50 pounds of rock!



Baby and Young African Elephants

LESSON PLAN

Grades 4 and up:

Elephant Diary or
Elephant Interview

Have the students do library and on line research about elephant family relationships. They can write a day-in-the-life diary entry or an imaginary interview with the elephant family member of their choice. Here are some questions they might want to answer:

- Who are you? Are you male or female, old or young?
- With whom do you live? How many other elephants live there, and what type?
- Who takes care of you? Whom do you care for?
- What is your relationship with the other elephants in your area?
- What is your "job" in elephant society?
- What dangers do you face?
- What do you do all day?
- How much do you sleep?
- What do you eat?
- How often do you bathe?

CLASS DISCUSSION

- How do elephant families compare with human families?
- What advantages are there to the elephant family arrangements? What disadvantages?

QUICK FACTS:

- The elephant has the longest period of pregnancy of any mammal: almost two years!
- Elephants digging for salty rocks have actually dug a cave in Kenya. Kitum Cave, mined by countless generations of elephants over five million years, is 160 yards deep and as wide as 100 yards!

HOW TO BUILD AN ELEPHANT

LESSON PLAN

For all grades, you may want to start this exercise by reading Rudyard Kipling's *How the Elephant Got Its Trunk* from *Just So Stories*, or the fable of the Seven Blind Men.

Grades 1 - 3:

Class Discussion

MATERIALS

Paper

Crayons or colored markers

Discuss the elephant's body parts with the class.

Ask them:

- Why do you think the elephant is so big? What are the advantages and disadvantages of being very big?
- Why do you think the elephant has such big tusks? What might they use the tusks for?
- What does an elephant use his trunk for?
- Why are the elephant's ears so big?
- Why is the elephant's skin so thick?

Explain to the student about the elephant's size, head, ears, feet, trunk, tusks, molars and skin. Have each student draw a picture of an elephant and label its parts. Have them draw a picture of themselves beside the elephant to show scale.

OBJECTIVE:

To learn about the characteristics and uses of the various parts of the elephant's body.

BACKGROUND INFORMATION

Trunk

The trunk is a combination nose and upper lip.

It is the longest nose of any living animal.

The nose is extremely sensitive: it can smell ripe fruit 3 miles away!

The trunk has no bones, but does have more than 150,000 separate muscle units.

The trunk can weigh 300 pounds and grow to six feet long.

The trunk has finger-like knobs at the end, so it acts as a combination nose and hand.

The trunk is versatile enough to pick up popcorn or tear down a tree.

The trunk can hold two gallons of water to spray in a shower or to drink.

The trunk can reach as high as 15 or 20 feet into trees to find food.

It takes months of practice before a baby elephant knows how to use its trunk.

TUSKS

Tusks are actually great big teeth, called incisors.

Elephant tusks are made of a substance called ivory. For hundreds of years, people have killed elephants for these big teeth.

Tusks grow all an elephant's life, sometimes as much as 7 inches a year.

Tusks can grow to be more than 10 feet long and weigh 200 pounds.

The tusks are used to dig for water.

The elephants may dig as deep as 8 feet in a dry riverbed looking for water.

Elephants can mine rocks for salt and minerals with their tusks.

Tusks are also used for protection.

Using their tusks, elephants strip the bark of trees that they eat to supplement their diet.

Elephants sometimes use their tusks to rest their trunk.

MOLARS

Elephants have four other teeth called molars.

They grind down their molars as they eat.

Throughout their life, they grow 6 replacement sets of molars.

New molars move forward in an elephant's mouth, as if on a very slow conveyor belt.

Each set of molars is bigger than the last. In the final set, each tooth can weigh 10 pounds and be a foot long!

HOW TO BUILD AN ELEPHANT

When the last molars wear out, the elephant (who is 50 or 60 years old by this time) will not be able to eat and eventually dies.

Feet

Despite their enormous size, elephants can move very silently because of their special feet.

The elephant's feet are cushioned, and this acts like a shock absorber for its great weight.

An elephant walks on tiptoes all the time.

Ears

Elephants' ears are like radiators; flapping their ears lets out heat to help them cool down.

Because Asian elephants live in forests, which are cooler than the savanna, their ears are smaller.

African elephant ears can weigh 110 pounds each and be 4 feet across.

Head

The elephant has the largest head and brain of any land animal. Its brain weighs 11 pounds. The human brain weighs 3 pounds. Parts of the skull may be six inches thick.

The head makes up a quarter of the elephant's body weight.

The heavy head is made lighter by air spaces or cells inside the skull.

Skin

Elephants are called pachyderms from the Greek *pachy derma*, or "thick skin." The skin can be up to one inch thick.

The whole skin weighs 2,000 pounds - one ton!

The elephant's skin is unusually sensitive. The elephant needs to take dust baths to protect its skin from sunburn and insects.

The folds and wrinkles in the skin serve to trap moisture, which slowly evaporates to cool the elephant.

Size

Newborns weigh 250-300 pounds.

Adult African males can grow to 13 feet tall and weigh 12,000 pounds (about as much as a school bus!).

Female elephants are smaller - they grow to about 9 feet and weigh only 10,000 pounds.

The elephant's size protects it from predators. Except for humans, no animal on the savanna will attack a healthy adult elephant.

LESSON PLAN

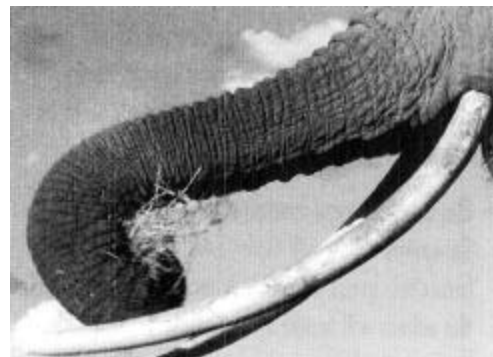
Grades 4 and up:

Elephant Parts Poster

MATERIALS

Poster board or construction paper
Crayons
and/or colored pencils or pens

Divide the class into pairs or small groups and assign each of them a body part or characteristic of the elephant (head, ears, feet, trunk, tusks, other teeth, skin and size). Using the materials available in the library or on the Internet, have them gather information on their body part or characteristic. Make sure they find out size, weight, special features and advantages, as well as the way in which the body part is used. Each group of students can make a poster for the classroom wall illustrating and describing their body part.



QUICK FACTS:

- In the same way that humans are right or left-handed, elephants are right or left-tusked. They tend to use one tusk more and it gets worn down faster, so it will be a little shorter than the other tusk.
- People grow until they're about 20 and then stop, but elephants keep getting bigger and taller and heavier throughout their entire 50 or 60-year life! The bigger an elephant is, the older it is.

ALL IN THE FAMILY

LESSON PLAN

Grades 1 – 3:

Class Discussion

Explain the differences between the two kinds of elephants. Show the students the pictures on this page, and ask them to identify which one is an African elephant and which one is an Asian elephant. Have them point out as many differences between the two elephants as they can.

Grades 4 and up:

Venn Diagram

Have one pair of students earn extra credit by making a poster with a Venn diagram showing how African and Asian elephants are alike/different.

QUICK FACTS:

- Elephant ears act as cooling devices. When an elephant flaps its ears slowly, it brings down its body temperature by cooling the blood in its veins.
- Elephants show a fascination with their dead. Sometimes they will cover dead elephants with branches, grass and soil. When an elephant dies, the others will spend a lot of time touching the body or the bones.

OBJECTIVE:

To see how the two living elephant species are alike and different.

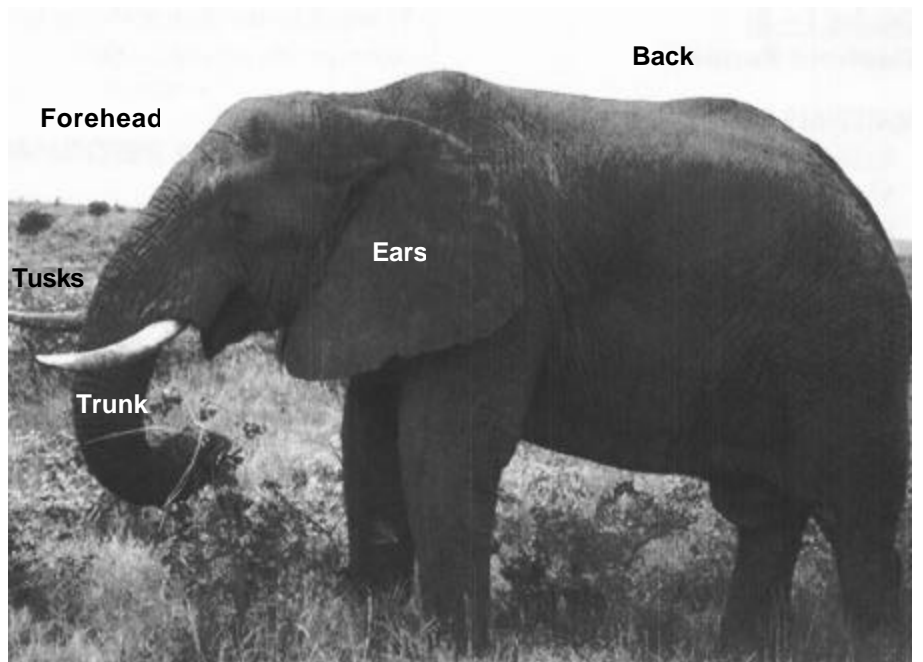
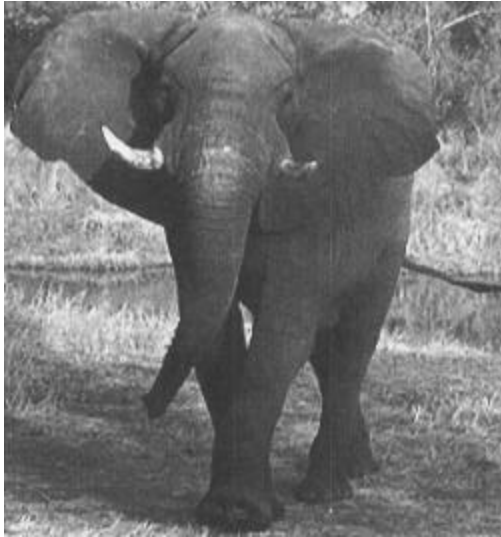
BACKGROUND INFORMATION

There are two species of elephants in the world today; the African elephant and the Asian elephant. Here are some ways to tell them apart:

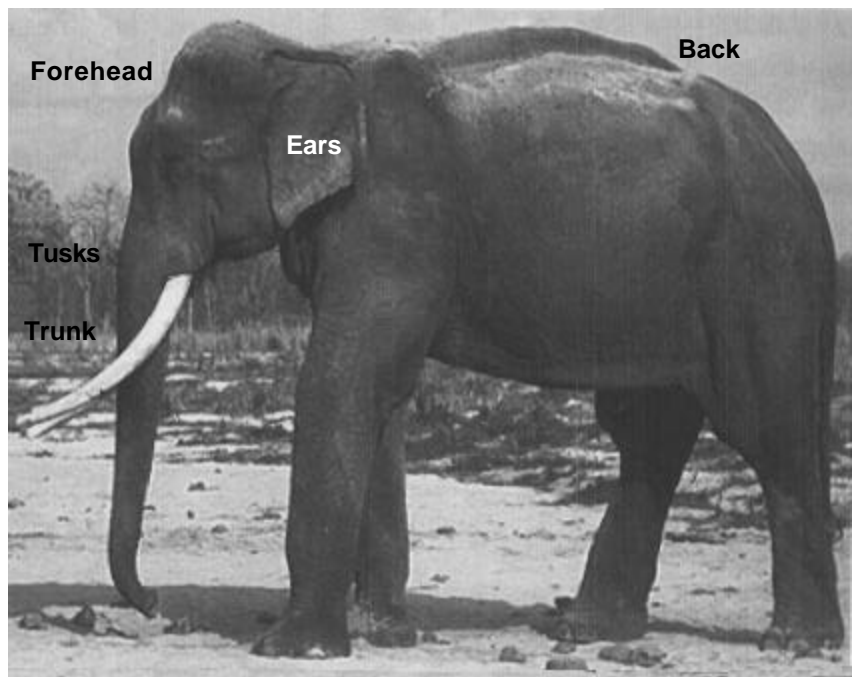
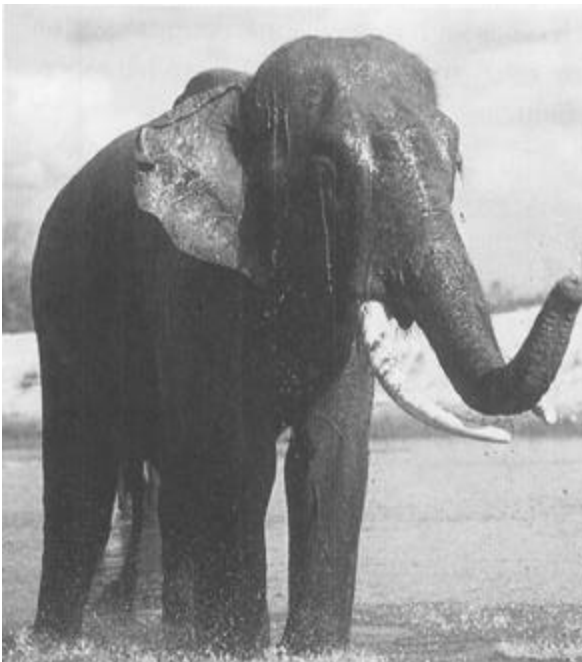
	African Elephant	Asian Elephant
Back	Straight or sway	Rounded
Ears	Large, cover shoulder	Smaller
Forehead	Flat or slightly curved	Domed
Tusks	Long; both males and females have them	Shorter; only males have them
Trunk	Two "fingers" at tip; distinctive ridges on trunk	One "finger" at tip; smoother trunk

ALL IN THE FAMILY

African Elephant



Asian Elephant



LOCAL AND LONG-DISTANCE CALLS

LESSON PLAN

Grades 1 - 8:

Elephant Puppets

MATERIALS

- Cardboard
- Scissors
- Markers or crayons
- Clean old knee socks or legs of opaque stockings
- Toy drums or tom-toms

Using cardboard, scissors and markers, have the students make a puppet of an elephant's head, with a hole where the trunk will be. The hole should be just big enough to slip over the student's arm to just past the elbow. Each student can put a sock or the leg of an opaque stocking over his or her arm, and when he or she puts the puppet on, presto! His or her arm is the elephant's trunk!

Explain elephant communication to the students: the noises they make, the subsonic sounds and the body language.

Let the students pick their partners. Assign each pair of students a specific message to communicate. Using the puppets, have the students practice and then act out "elephant talk" for the class. The puppets can touch, and the students can make elephant noises. They can use drums for subsonic sounds. Have the class translate what the elephants are "saying."

OBJECTIVE:

To introduce the students to the various methods elephants use to communicate with each other.

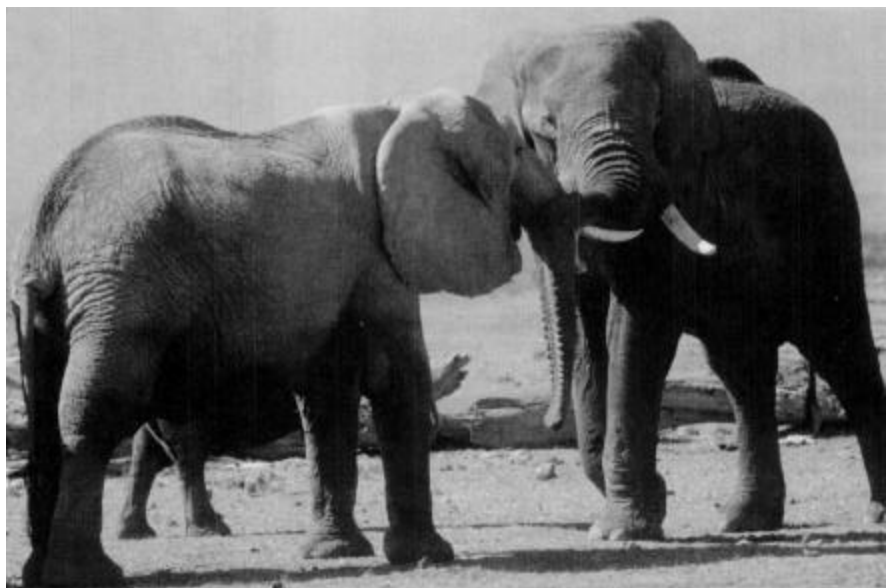
BACKGROUND INFORMATION

Elephants have a variety of ways to communicate. They make audible, purposeful noises, just like humans do when they talk. Some of the noises they make are barks, snorts, roars, growls and trumpets. These noises can indicate many things. Some examples include: the elephant is threatened or angry, an elephant calf is hungry or the elephant recognizes another group of elephants.

Elephants also use their sensitive trunk to communicate. With its trunk, an elephant can smell if another elephant is sick, ready to mate or ready to give birth.

Elephants use a lot of body language. Ears spread wide means, "Watch out!" Touching or stroking another elephant with the trunk is one way to greet or reassure another elephant. Elephant friends may stand head-to-head, their foreheads touching, silently saying, "This is my friend."

But the most amazing method of elephant communication is their use of sounds too low for the human ear to hear. This is called "subsonic communication." By sending out low rumbles, elephants can stay in touch over a distance of 50-80 miles. Family groups may travel in parallel paths for days on end, keeping track of each other with this subsonic communication. Females can advertise that they are ready to mate, and males can tell other males that they are in a mood to fight.



African Elephants Greeting

LOCAL AND LONG-DISTANCE CALLS

Here are a few ways that elephants use their many methods of communication to interact with each other:

- When elephants are afraid they will spread their ears, and trumpet loudly.
- Elephants use subsonic rumbles to advertise their location to family groups that are far away. If you were watching when this happened, a family group receiving a long-distance call would all raise their heads in unison and suddenly seem to freeze for no reason. But there is a reason! They are making sure they get the whole subsonic message. If you watched for a little while longer, you might see the second family group arrive and greet the family that got their call!
- When a calf is naughty, the mother will give it a little swat with her trunk.
- To reassure a frightened elephant, members of its family will stand close by and caress it with their trunks.
- If a matriarch holds her trunk up in the air, everyone in the family group can tell she has detected a far-away smell...maybe something dangerous, like a lion or a poacher, or maybe something delicious, like ripe fruit.
- When elephants from related family groups come together, they get very excited. A pair of elephants will raise their trunks in the air and touch the tip of their trunk to each other's forehead in a greeting ceremony. They may also trumpet, click tusks and wrap their two trunks one around the other.

CLASS DISCUSSION

- How do humans use body language to communicate? Do they have a body language greeting ritual? What other body language do they use?
- What other animals use subsonic sounds (whales and dolphins)? What animals can hear sounds inaudible to the human ear (dogs and wolves)?

QUICK FACTS

- Baby elephants may suck on the end of their trunks, like human babies suck their thumb.



Young Elephant

ELEPHANTS AND PEOPLE

LESSON PLAN

Grades 4 & up:

Elephant/Human Relationship Presentation

Divide the class into pairs. Assign each pair one human/elephant relationship:

- Elephants used in war
- Elephants used in the lumber industry
- Elephants in circuses
- Elephants revered as gods
- Elephants hunted for food and body parts
- Elephants used in tourism

Have them make a poster, a web page or slide show on the classroom computer, along with a 5-minute presentation to the class about that relationship.

ADDITIONAL ACTIVITIES

For extra credit, students can research other ways that elephants have been used by humans. Some possibilities include elephants in the movies, elephant racing and elephant tug-of-war.

CLASS DISCUSSION

- What are the pros and cons of using elephants in the circus?
- How do modern zoos take care of and protect animals?
- What is the best use humans can make of elephants?
- If you were an elephant, what kind of life would you want? Would you want to live with a circus or in the wild?

OBJECTIVE:

To learn about the ways elephants and humans have interacted throughout history.

BACKGROUND INFORMATION

Humans have taken advantage of the elephant's many special qualities for thousands of years.



Elephant Logging

money they bring in helps the local economy. When the native human populations see that the elephants can actually draw funds to them, they learn to value the living elephants more highly, and protect them with increased vigor and concern.

Elephants were first domesticated for use as natural bulldozers at least 3,500 years ago. Elephants can lift, push and haul enormous amounts of weight. Additionally, they are very capable of maneuvering in heavily forested terrain. Thus, they make excellent helpers in the logging industry. In Asia, elephants are used to this day. They develop close and powerful relationships with their trainers, who are called mahouts. These human-elephant friendships often last the entire life of both the man and the beast.

In Asia and Africa, elephants are trained to take tourists on elephant-back safari. This exciting adventure brings more and more travelers to the underdeveloped areas where the elephants live. The

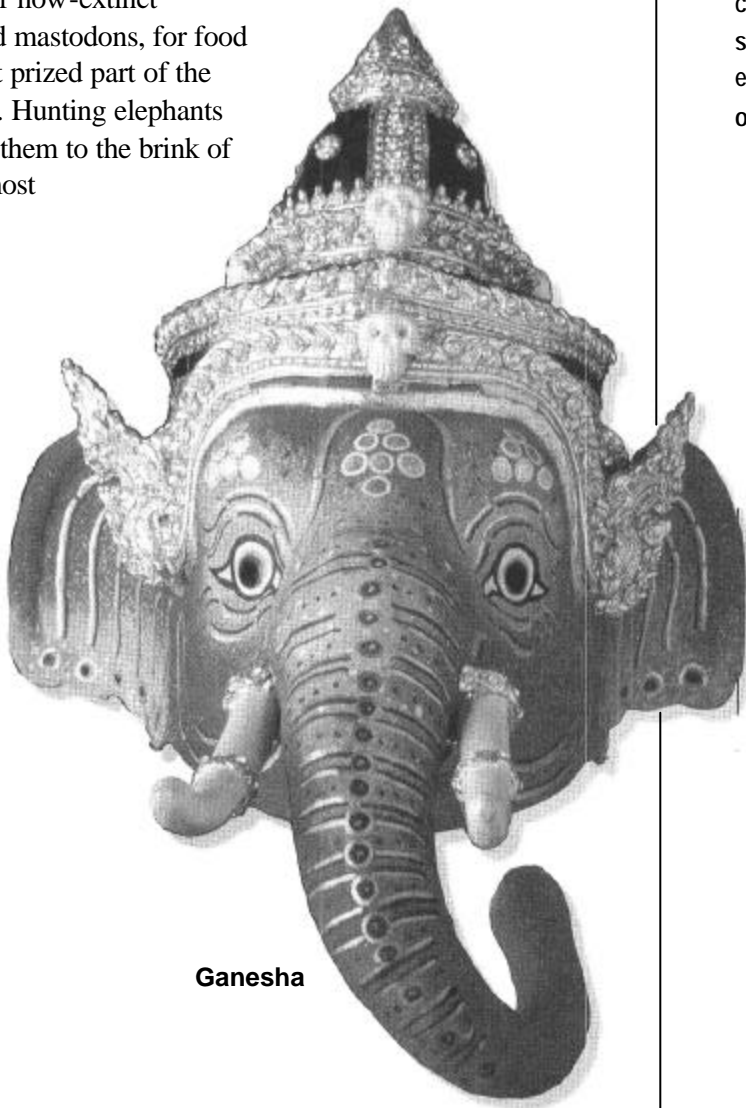
Since the era of Alexander the Great, military commanders have used elephants in battle. The huge animals, ridden by archers, terrified enemy warriors. But the elephants were easily terrified too, and would sometimes panic and run away. Any unfortunate human witnesses to this (on either side of the battle) risked being crushed under the frightened elephant's enormous feet. So the use of elephants in battle was abandoned. The most famous military elephants were those used by Hannibal in 218 BC, when he and 40,000 men marched over the Alps with 38 elephants... and nearly overthrew the Roman Empire!

Ever since the first circuses in the days of the Roman Empire, elephants have been used to entertain. Elephants are very intelligent animals, and fairly easy to train. They can be taught to do many tricks, including standing on their heads, doing balancing acts and dance routines. The life of a circus elephant is a difficult one: they spend almost all their time chained in a very limited space, and don't have the chance to live out their normal social and biological functions.

ELEPHANTS AND PEOPLE

Some people worship elephants as sacred. The Hindu god Ganesha has an elephant head. He is the patron of students and teachers. Hindus will often pray to Ganesha when they have exams. In Siam (now Thailand), elephants that were albino or light-colored were considered so holy, not even the king could ride them. These "white elephants" were kept in a stall that was decorated like a palace. Some Buddhist stories involve elephants as well. Perhaps people worship elephants because they are so big and powerful.

Since the dawn of humanity, people have hunted elephants and their now-extinct ancestors, mammoths and mastodons, for food and body parts. The most prized part of the elephant is its ivory tusks. Hunting elephants for their tusks has driven them to the brink of extinction. In the 1989, most countries agreed to stop trading in ivory in an attempt to save the remaining population of elephants. People have used other parts of the elephant, too: its meat for food; its skin for leather; its feet as bases for tables, trash cans or umbrella stands; and its hairs for good luck and traditional Asian medicinal use.



Ganesha

QUICK FACTS

- Tourists spend \$50 million every year to see the wild elephants in Kenya.
- The expression "white elephant," meaning a large but useless item, originated in the courts of Siam (now Thailand). The king would keep whitish elephants, which were considered sacred, in majestic splendor - but their upkeep was so expensive they might ruin their royal owner!

FAMILY TREE

LESSON PLAN

Grades 3 & up:

Elephant Ancestor Family Tree

Give the students photocopies of the evolutionary tree pictured on the next page. On pages 16 and 17 lists are of animals related to the elephants, indicating their main characteristics and how long ago they lived. Using this information, have the students fill the squares in the family tree with the name of the appropriate animal. Give simpler hints to the younger students (as suggested below) and more complex information to the older ones.

Explain that the dates the animals became extinct have to match the scale next to the family tree.

Animals that are similar are in the same branch of the tree, because they come from the same ancestor. Rough similarities can be deceiving, however. For example, mastodons look a lot like elephants, but they are not as closely related to them as the gomphotheres. Scientists have to compare precise details in the teeth and bones of the elephants to decide who is related to whom.

HINTS: Younger students may need the following hints. Numbers correspond to numbers in the family tree:

1. Did not have a trunk.
2. Had upper and lower tusks and a short trunk.
3. Had only lower tusks shaped like a hoe.
4. Lived in many different parts of the world.
5. Had lower tusks shaped like a shovel.
6. Lived in North America until recently.
7. Had upper and lower tusks.
8. Had huge tusks placed close together.
9. Was hunted by the Stone Age man.
10. Has small ears and tusks.
11. Has big ears.

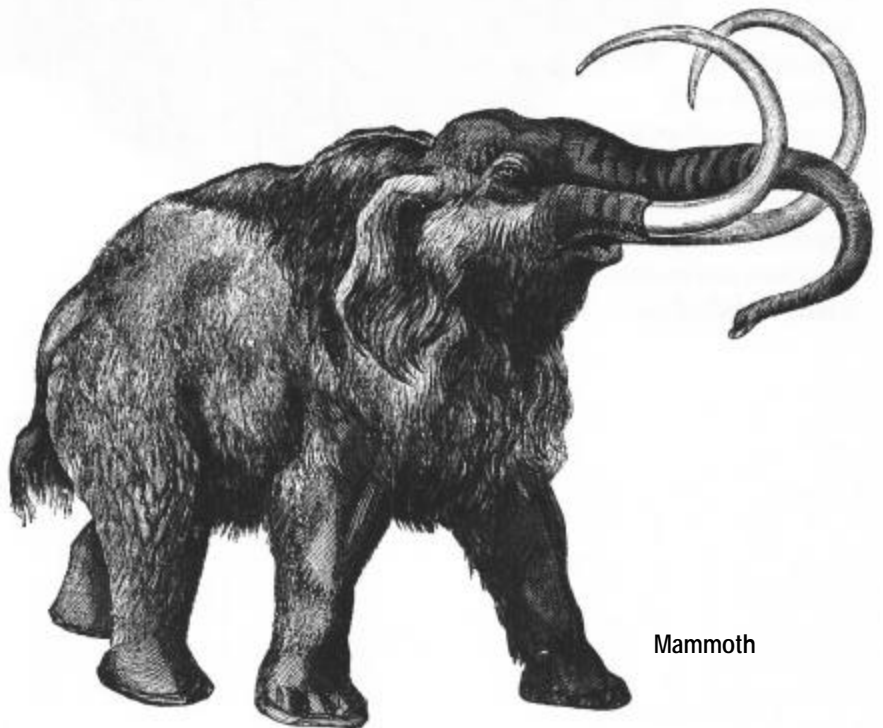
OBJECTIVE:

To familiarize students with biological concepts like species, evolution, extinction and evolutionary ancestors.

BACKGROUND INFORMATION

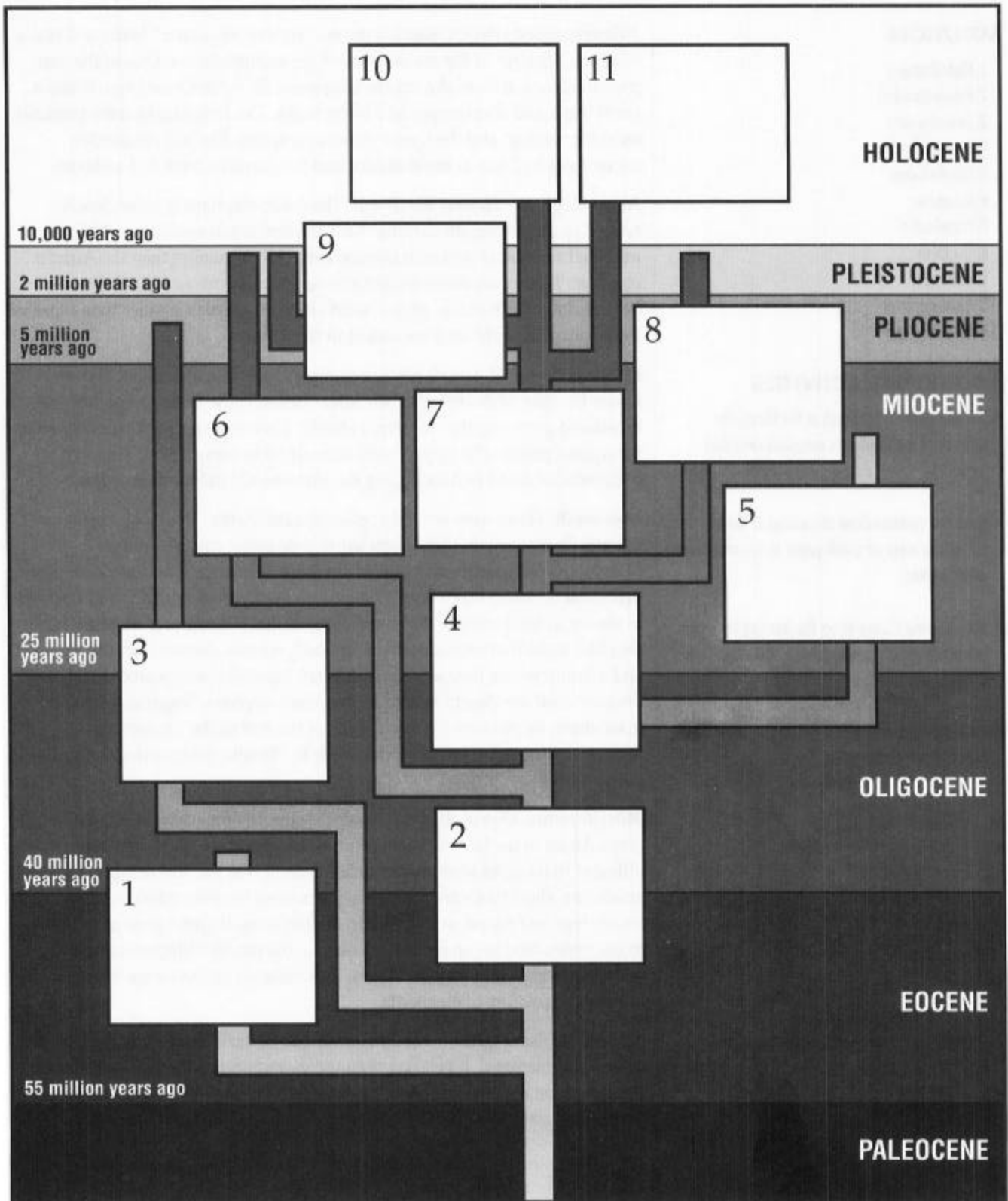
The elephant's prehistoric ancestors include mammoths, mastodons and other extinct *Proboscidea*, or mammals that have trunks and big tusks. There have been more than 350 species of elephants. Of these, only two survive: African and Asian elephants. The other species are extinct. Some species of elephants, like the mammoths, became extinct just a few tens of thousands years ago, a very short time in the history of life, while the oldest of the *Proboscidea* lived more than 40 million years ago. In comparison, the first human ancestors appeared 2 to 3 million years ago.

Over long periods of time, the shape and behavior of animals may change as they adapt to their environment. This is called evolution. A family tree, or evolutionary tree, shows how one species evolved into another. The oldest species are placed at the bottom of the tree and the youngest, that may be still alive, at the top. A time scale alongside of the tree indicates the era when the species lived.



Mammoth

FAMILY TREE



FAMILY TREE

SOLUTION

1. Moeritherium
2. Paleomastodon
3. Deinotherium
4. Gomphotherium
5. Platybelodon
6. Mastodon
7. Primelephas
8. Stegodon
9. Mammoth
10. Asian elephant
11. African elephant

ADDITIONAL ACTIVITIES

- Ask the students to search in the library for pictures of the elephant's ancestors described here.
- Have the students draw silhouettes of these animals to scale on graph paper to compare their relative sizes.
- Search in the library or on the Internet for other species of ancient proboscideans and place them in the family tree.
- Have the students make a timeline to show when the elephants lived.

Paleomastodon: Paleomastodon means "ancient mastodon" because it was a common ancestor of the mastodon and the gomphotheres. One of the first proboscideans, it lived during the Oligocene, 35 million years ago. It had a short trunk and short upper and lower tusks. The lower tusks were probably used for feeding, and the upper ones as weapons. The paleomastodon measured 6 to 7 feet at the shoulder and lived in the forest and savanna.

Asian elephant (*Elephas maximus*): The Asian elephant is more closely related to the mammoth than the African elephant. It evolved in Africa, and migrated to Asia. In Africa, it became extinct. It is smaller than the African elephant. Its ears are considerably smaller than its African cousin, and its head is domed. The tusks of the Asian elephant are also smaller than those of the African elephant, and are absent in the females.

Platybelodon: Platybelodon was a gomphother. It is also called shovel-tusker because of its characteristic lower tusks. These were completely flat, broad and grew together to form a shovel. They were probably used to scoop up aquatic plants. The upper tusks were small in comparison. The platybelodon lived in Asia during the Miocene (20 million years ago).

Mammoth: There were several species of mammoths. The most familiar is the woolly mammoth, often depicted in prehistoric cave paintings. Mammoths were frequently hunted by Stone Age men, who used mammoth tusks and bones to make huts. Remains of woolly mammoths found trapped in the ice in Siberia show that these animals had a dense coat of hair. They also had tusks that curved sharply upward, a trunk shorter than the elephant and a hump where they stored food as fat. Mammoths appeared during the Pliocene, and are closely related to the Asian elephant. Together with the mastodons, mammoths became extinct at the end of the Ice Age (ten thousand years ago), probably due more to climatic changes than to overhunting.

Moeritherium: One of the first proboscideans, the moeritherium lived in north Africa in the late Eocene period, 40 to 50 million years ago. Very different in its looks from modern elephants, it was the size of a pig, and had small ears, short tusks and no trunk, just a nose-lip. Nevertheless, it had sturdy legs and round feet similar to the elephant. It spent most of the time in the water, feeding on aquatic plants like the modern hippopotamus. Although considered proboscideans, they were an evolutionary side branch, not direct ancestors of elephants.

African elephant (*Loxodonta Africana*): The African elephant is the largest living land mammal. It is larger than the mammoth, about the same size as the mastodon and the stegodon, but smaller than the deinotherium and other prehistoric giant mammals.

FAMILY TREE

Mastodon: Mastodons look a lot like the modern elephants, with long trunks and big tusks that curve upward. A closer look, however, reveals that their teeth and head shape was very different from both mammoths and modern elephants. Some fossils of mastodons were found in east Africa and date back 20-25 million years, but the better known American mastodon lived in North America as recently as ten thousand years ago and was probably hunted by the first inhabitants of the New World.

Stegodon: These were large animals, standing 11 to 12 feet at the shoulder, with very impressive, enormous tusks, which almost reached the ground and curved sideways and upwards. The tusks were too close together at their base to permit the trunk to go between them. The stegodons originated in Asia during the Miocene epoch (8 million years ago). Until recently, the stegodons were thought to be ancestors of the mammoths and modern elephants, but now we know that they evolved in Asia, while the true elephants originated in Africa.

Deinotherium: This animal was also called hoe-tusker, because it had lower tusks that curved downward from the tip of the jaw, which may have been used to dig for roots. It had no upper tusks. They were the largest of the ancient proboscideans, standing 13 feet at the shoulder. The deinotherium survived for a long time, originating in the late Eocene and becoming extinct during the Pliocene.

Primelephas: The primelephas is the common ancestor of the Asian and African elephants, as well as the mammoths, forming the evolutionary bridge between gomphotheres and modern elephants. Similar to the gomphotheres and unlike modern elephants and mammoths, primelephas had upper and lower tusks. It lived in the east African savanna during the late Miocene (8 million years ago).

Gomphotherium: Gomphotheres is the name of a group formed by many species of ancient elephants, including the gomphotherium and the shovel-tusked platybelodon. The gomphotherium lived in Africa, Europe, Asia and North America some 25 million years ago. They were up to 10 feet tall, about the size of the modern Asian elephant, and had upper and lower tusks and a short but well-developed trunk. The gomphotherium is a direct ancestor of the modern elephant.

QUICK FACTS

- When somebody says "elephant" or "mammoth," we imagine large animals. There have been several species of pygmy elephants and mammoths, however, just 3 to 4 feet high, in different locations. Pygmy species appear whenever populations become isolated in small places with a limited food supply, such as the islands of Crete in the Mediterranean or Santa Rosa off southern California.
- The name mammoth originated in the Tartar word "mamut," a legendary giant rat whose bones, the stories said, could be found under the ice.

STRANGE COUSINS

LESSON PLAN

Grades 1 – 8:

True or False Guessing Game

Show the students pictures of the animals on the next page. Tell them the name of the animal. Ask if they think these species are related to elephants. Find out why they say TRUE or FALSE. Is it because the animal is very big? Because it has a big nose? Or because it has the word "elephant" in its name? After they guess each animal, you can tell them something about the relationship between that animal and the elephant. Be sure to tell the students that this game is for fun, not for competition!

QUICK FACTS:

- Jumbo was the world's most famous elephant. He performed in P.T. Barnum's circus from 1887 to 1885. During that time one million children rode on his back!
- Elephants are excellent swimmers, despite their size. They use their trunks as snorkels.

OBJECTIVE:

To learn which living species of animals are related to elephants.

BACKGROUND INFORMATION

There are two species of elephants alive today. They have no close relatives among living mammals... but they do have some distant cousins. Traditional zoology compares the bones of living animals and fossils to find similarities between distinct species. Sometimes they find a common ancestor. The two species probably branched off into different limbs on the evolutionary family tree millions of years ago. Another method for determining relationships between species involves studying the molecules that make up the living animals' bodies. If the molecules are very similar, the species might be related. Scientists have discovered some very surprising connections this way: elephants, sirenians (manatees and dugongs) and hyraxes share a common ancestor, who lived 55 million years ago!



Mature African Elephants

STRANGE COUSINS

TRUE OR FALSE:
Elephants are related to...?:



MANATEE

MANATEES

TRUE! The manatee and the elephant have a common ancestor who lived 55 million years ago.

WHALES

FALSE! Whales are the largest sea mammal and elephants are the largest land mammal, but they share no common ancestors.

HYRAXES

TRUE! Who would think that this rabbit-sized, African tree-dwelling animal is one of the elephant's closest cousins? Though they look very different, they had a common ancestor... their skeletons have distinct similarities.

RHINOS

FALSE! The elephant's big tusks are actually front teeth that keep growing longer and longer throughout its life; the rhinoceros' horn is made of a tough protein called keratin... the same material as human fingernails.

ELEPHANT SEALS

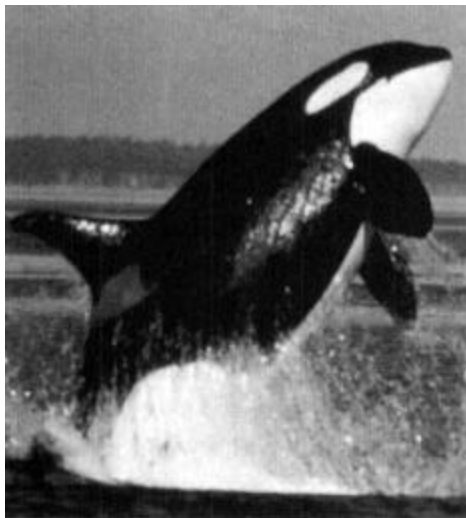
FALSE! These huge, noisy animals are called "elephant" seals because of their big, floppy nose. But except for both being mammals, elephants and elephant seals actually have no relation to each other.

ANTEATERS

TRUE! Anteaters are not like any other living animal, but they are very distant cousins to the elephant. More than 60 million years ago, they shared a common ancestor.

ELEPHANT SHREWS

FALSE! Any animal with a long, pointy nose is likely to have the word "elephant" in its common name. But this tiny beast is not actually related to its namesake.



WHALE



HYRAX



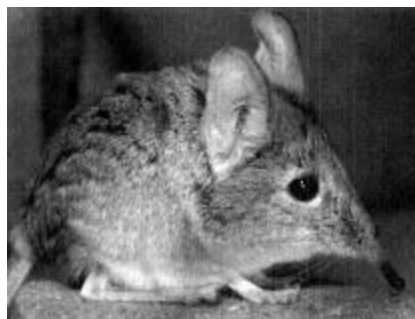
RHINO



ELEPHANT SEAL



ANTEATER



ELEPHANT SHREW

WHAT'S FOR DINNER ON THE SAVANNA?

LESSON PLAN

Grades 4 and up:
Ecology Pyramid

MATERIALS

Index cards
Poster board
Adhesive tape
Colored crayons or markers

Lead a brief discussion with your students about how an ecology pyramid works. Then write on index cards the names from the following list, one name per card. Give one or two cards to each student. Have older students draw a color picture of the animal or plant on the card. If they do not know what the animal or plant looks like, help them find a picture in the library or online.

The African savanna ecosystem:

Raw materials: sunlight, soil, rainwater, air, wind, lightning

Plants: grasses, brush, acacia trees, palms, baobab trees

Herbivores: gazelles, antelopes, impala, wildebeests, giraffes, zebras, buffaloes, rhinoceroses, elephants, ostriches, ants, termites, grasshoppers, crickets, warthogs, hares

Predators: lions, leopards, cheetahs, hyenas, anteaters, lizards, baboons, eagles, herons, bats, owls, swifts, aardvarks, wild dogs

Scavengers: vultures, jackals, meat flies, marabous

Now copy the empty ecology pyramid (see figure next page) onto poster board. Make it about 3-4 feet wide and 3-4 feet tall.

OBJECTIVE:

To learn about the interconnection of the species in an ecosystem, how each plant and animal needs the others to survive.

BACKGROUND INFORMATION

The African savanna is a very rich and complex ecosystem, supporting some of the largest carnivores (lions, hyenas, leopards) and herbivores (elephants, rhinoceroses) on Earth. A series of factors contribute to this. One of them is the great open spaces, which allow animals to roam large distances in search of food, thus correcting any local imbalances in the environment.

Another factor is the enormous energy received from the sun in the tropical latitudes, combined with the abundance of water during the rainy season.



Leopard



Wildebeests

Like any other ecosystem, the savanna environment can be depicted as an "ecological pyramid," with several levels indicating the movement of energy and matter in the ecosystem. At the base of the pyramid are the sources of energy and matter, including the sun, rains, soil, as well as the actual size or dimensions of land where the environmental interactions happen.

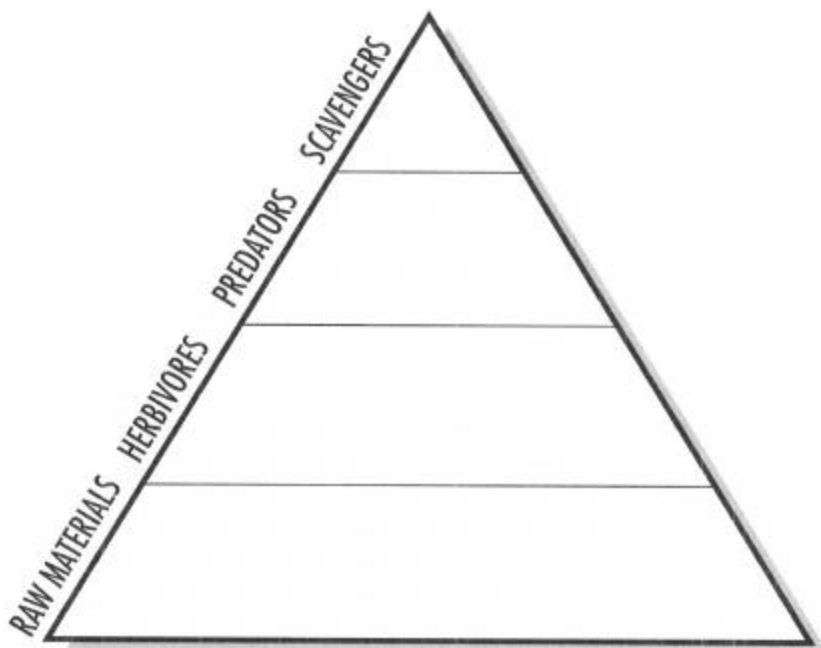
On the next level we have plant life, which transforms the raw matter and energy into organic (or living) material.

Just above the plants, we have the herbivores, or plant eaters: antelopes, zebras, giraffes, rhinos and elephants.

At the top of the pyramid we find the predators: lions, leopards, hyenas and cheetahs, as well as the scavengers, such as vultures and jackals.

The shape of the pyramid indicates that the number of animals decreases as we move from the bottom to the top, because otherwise the animals on the upper level would eat all the animals in the lower level and the ecosystem would collapse. In reality, each level consumes just a small part (10 to 20 percent) of the level immediately below it.

WHAT'S FOR DINNER ON THE SAVANNA?



ADDITIONAL ACTIVITIES

- Find more animals and plants that belong to the African savannah ecosystem and place them in the pyramid.
- What happens if we take out one species? What animals go hungry? What animals and plants grow too much because nobody eats them? What else happens in the environment?
- What happens if we bring a new species in the environment, for example, cattle or goats?
- Where would you place humans in the food pyramid?

QUICK FACTS

- Every day, an elephant eats 125 times as much food as a human. But the elephant's digestive system is inefficient, and they only digest about half of what they eat

Using adhesive tape, ask the students to stick their cards on the appropriate level. Point out the following information:

- Energy and matter flows from the bottom of the pyramid to the top: plants combine sunlight with water and chemicals from the soil to make sugars that they use to grow; herbivores eat the plants and are eaten by the predators and the scavengers.
- Matter returns to the bottom of the pyramid: animals "burn" their food to move and live, and it returns to the air in the form of carbon dioxide, which is taken by the plants. The waste and carcasses of animals returns to the soil.
- The pyramid is really a big cycle. Sunlight is the energy that keeps the cycle moving.
- Other things in the level of "raw materials" are also necessary for life: lightning produces plant food in the soil; the wind spreads the seeds of plants; and the great size of the savanna lets the animals move so that they will not eat all the food in one place.
- Some animals may belong to two levels of the pyramid; for example, baboons eat plants, but also meat, and hyenas are both predators and scavengers.
- The pyramid does not mean that a) the animals in one level eat all of the animals or plants in the level below. Adult elephants have no predators, except humans, but are eaten by scavengers when they die. Giraffes eat mostly acacia trees, while zebras eat mostly grass.

The relationships in the pyramid are not only eat or be eaten. Some plants need particular animals to spread their seed. Elephants eat bushes and small trees, making room for grasses needed by zebras and antelopes. Predators eat sick animals, keeping the rest of the animals healthy.

WHITE GOLD

LESSON PLAN

Grade 5 and up:
Soap Carvings

MATERIALS

- Two "family-size" bars of inexpensive white soap per student
- Carving knives

Have the students take one or two bars of soap and carve an object that could be made from ivory, such as a figurine, jewelry, piano keys, buttons or even a billiard ball. Be sure to carefully supervise the students when they are using the knives.



Carved Ivory Bracelet

OBJECTIVE:

To learn about the uses of ivory and suggest alternative materials.

BACKGROUND INFORMATION

Elephant tusks have been prized for their functional and decorative qualities since Neolithic times. Ivory's texture is uniform and it does not split or break; it is soft enough to carve yet hard enough to take a good polish; its color is creamy and attractive. It is fairly compact and extremely expensive, making it an excellent trade commodity.

By the time of the Roman Empire, elephants had been wiped out in the Mediterranean basin and North Africa. Worldwide demand for ivory and the subsequent killing of elephants skyrocketed in the 19th century. During and after the First World War, demand for ivory slackened and remained low for five decades. During the 1970s and 1980s, however, the price of ivory increased ten times, fueled principally by the rising prosperity of Japan and the demand for hankos (ivory seals). The elephant populations plummeted. Half of Africa's elephants were lost between 1979 and 1989. An international outcry then led to conservation measures. In 1989 the African elephant was added to Appendix I of the Convention on International Trade in Endangered Species (CITES), which banned all trade in ivory worldwide. With this measure poaching collapsed and many elephant populations slowly began to recover. In 1997, CITES upheld the ban on ivory trading, but allowed limited sales of ivory from the stockpiles of three countries, Botswana, Namibia and Zimbabwe. This decision was highly controversial as many fear it will trigger a new demand for ivory and risk a renewed slaughter.

Ivory has traditionally been used to make many luxury consumer items. At one time, it was the only material used for piano keys and billiard balls. People liked it for jewelry - brooches, bracelets and even buttons. Of course, it was used for decorative carvings, often of elephants or female figures.

With the advent of plastics, there is no need to kill an elephant to build a piano or make a billiard ball. Nowadays, the remains of extinct mammoths that have been discovered in Russia and elsewhere provide ivory to make trinkets and figurines. Bones and horn from animals that are not endangered can also be a substitute for ivory. In South America, certain very hard rainforest nuts have been found to make excellent buttons that look like ivory. The indigenous people of the rainforest harvest these nuts and market them to help their economy. When people buy clothes with "rainforest ivory" buttons, they are helping save the elephants in one part of the world, while they are supporting rainforest conservation in another!

WHITE GOLD



Ivory Piano Keys

CLASS DISCUSSION:

Every product made of elephant ivory means at least one more dead elephant. What alternative materials could be used? Be sure to talk about plastics, animal horn and bone, mammoth ivory and rainforest nuts (buying them means helping the environment in two far-distant parts of the world at the same time!).

QUICK FACTS

- In the days of slave trading in Africa, ivory traders used to capture entire villages, steal their ivory and force the villagers to carry the treasure to the coast - where both the ivory and the humans were sold.
- The heaviest tusk on record weighed 237 pounds -nearly twice as much as an adult woman!

For more information about the ivory trade, you may want to order a copy Trade Education Kit. Produced by the World Wildlife Fund, this kit helps students understand the impact that commercial trade can have on wildlife, including elephants, and also contains a slide show, fact sheets, a quiz and suggested related activities. To order, call 410-516-6951. Use Order Code HAWT.

A PLACE TO LIVE

LESSON PLAN

Grades 1 – 3:

Color the Map

MATERIALS

- Photocopies of the map of Africa from the next page
- Crayons or markers

Have the students color the light gray area of the map yellow. This is the range where African elephants lived from the time of the Romans to the early 1900s. It includes all of Africa south of the Sahara desert. The medium gray area they can color red. This is the extent of elephant habitat during the most recent census, about 1989.

CLASS DISCUSSION:

- Where do elephants live now?
- Where did they once live? Why don't they live there now?
- Describe the place where the elephants used to live, but don't anymore. How does it look different now?
- Are there more elephants now, in 1979 or at the beginning of the century? Why?

QUICK FACTS

- Scientists who study elephants tell them apart by taking photos of their heads and identifying details unique to each animal, such as the shape of the tusks or ears.

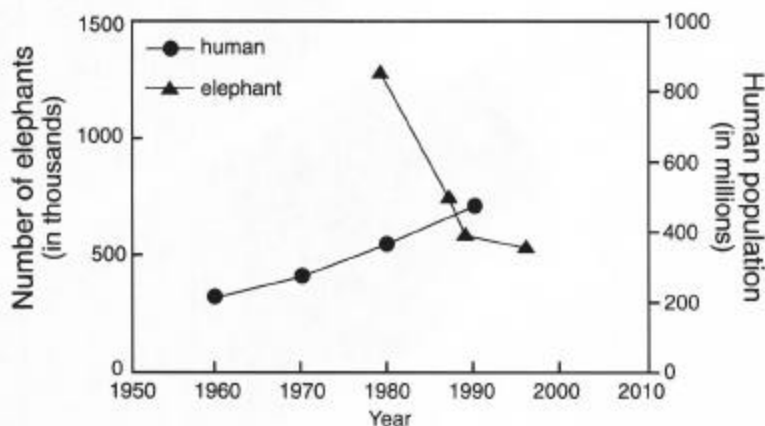
OBJECTIVE:

Show the students the relationship between the loss of habitat and the decrease in the population of elephants.

BACKGROUND INFORMATION

Excessive hunting of elephants for their ivory is only one of the reasons why African elephants are endangered. An even more important reason is loss of habitat due to several factors: 1) Quickly growing human populations, 2) the conversion of open land to agricultural fields and human settlements, and 3) the clearing of tropical forest. In some places like South Africa, relatively large elephant populations still exist, but the habitat left to these animals is so restricted that governments allow "culling" - legal shooting of elephants - to prevent overgrazing of these areas. Additionally, when the elephants' habitat is formed by "islands" separated by stretches of land that the elephants cannot cross, elephant populations living in these island habitats become vulnerable to outbreaks of disease, drought, and genetic weakness due to inbreeding.

Changes in elephant and human population in sub-Saharan Africa



A PLACE TO LIVE

LESSON PLAN

Grades 4 and up:

Elephant Parts Poster

MATERIALS

- Graph paper
- Ruler

The table on this page shows the population of elephants and humans in Africa at different times.

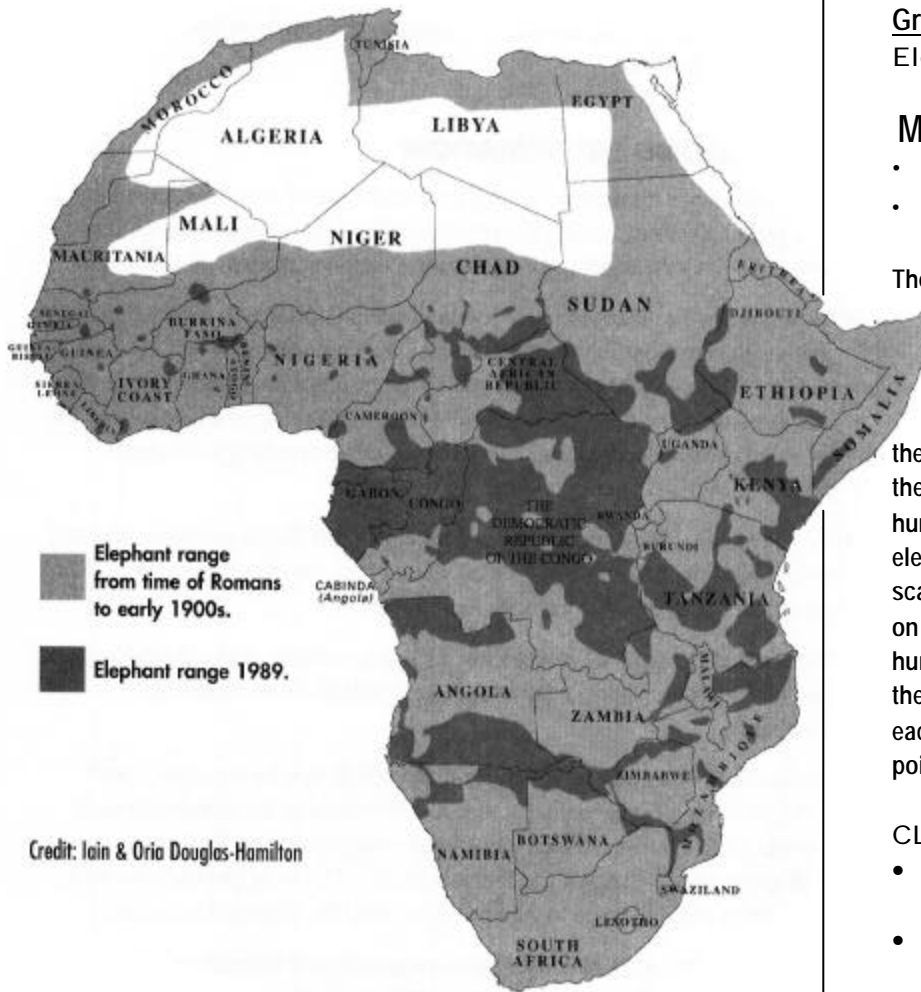
Have the students draw a graph with two axes. On the horizontal axis write the different years, and on the vertical axis, the populations. Because the number of humans is much bigger than the number of elephants, they will want to use different scales for each, putting elephant population on an axis at the left of the graph and human population on an axis at the right of the graph. Draw a point on the graph for each value on the table, then connect the points with lines.

CLASS DISCUSSION

- What is happening to human and elephant populations?
- If the trend continues, what will happen to the African elephant in the future?
- When does the graph predict that African elephants will become extinct?
- Does this necessarily have to happen, or is there any hope for the elephants?
- What is the connection between elephant population decline, habitat of the elephants and increase in human population?
- How do humans drive elephants from their habitat?

ADDITIONAL ACTIVITIES

Have students look in the library for the current and old range of Asian elephants.



Credit: Iain & Oria Douglas-Hamilton

Year	Human population in millions	Elephant population in thousands
1960	213	
1970	277	
1979		1300
1980	366	
1987		765
1989		608
1990	481	
1996		550

GETTING THE WORD OUT

LESSON PLAN

Grades 1 – 8:

Conservation Poster

MATERIALS

Poster board
Colored markers
Construction paper
Glue and tape

Have each student create a "Save the Elephant" advertising poster, highlighting one aspect of elephant conservation. Display the posters in the classroom, school hallway, library or another appropriate public space.

QUICK FACTS

- Because its size protects it from predators and it is rather resistant to disease, the elephant is one of the few wild animals that will live out its full lifespan... if it is not killed by humans.

OBJECTIVE:

To learn about protecting the elephant, and to develop new ideas for elephant conservation.

BACKGROUND INFORMATION

The African elephant may go extinct in the lifetime of your students. But raised public awareness and conservation efforts increase the elephant's chances of survival. Some important conservation concerns are listed here.

- Humans need to learn to share the land with elephants in a way that both allows elephant habitat to remain intact, and is compatible with elephant behavior. Some ideas that allow both human economies and elephants to survive might include: limiting forest logging to selected trees, so that the wooded areas can stay intact; and mixing cattle ranching with game ranching in the more open areas.
- Poaching must be stopped. It is a dangerous and illegal business, and not only elephants lose their lives. Many law enforcement officials as well as poachers die in gun battles with each other.
- We must all respect the international ban on ivory, so that a dead elephant has no economic value. That way, no one will profit from killing elephants.
- Ecotourism - businesses which promote holidays where people watch wildlife in its natural habitat - can be a strong force for conservation. If people go to Africa to watch - not hunt - elephants, the local economy will grow with a share of the tourism profit. The local populations will have even more reasons to find a way to help the elephants survive.
- There are many animal conservation organizations throughout the world which try to protect animals through ongoing lobbying to governments, scientific work and education. (See bibliography page for information on contacting these organizations.)

CAMERAS GREAT AND SMALL

OBJECTIVE:

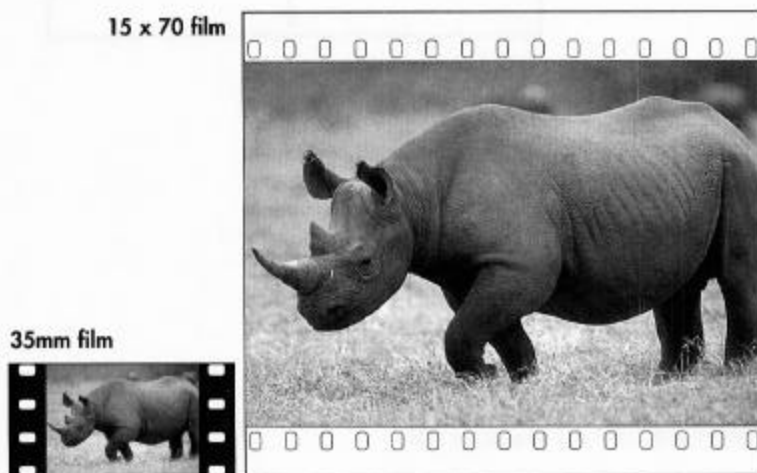
To learn how the most basic camera works, the class will make a pinhole camera and take photos with it. To understand more complicated photographic techniques, the class will discuss large format film technology.

BACKGROUND INFORMATION

Your students may be amazed that they can make a working camera out of common household items! Directions for making a pinhole camera and taking a picture with it follow under "LESSON PLANS."

About Large Format Film

- Large format film may be the most exciting motion picture technology to come along since color film.
- There are several manufacturers of large format cameras and projectors, like Iwerks Entertainment and Imax Corporation.
- IMAX technology premiered in 1970 at the World's Fair in Osaka, Japan.
- Large format screens can be up to 8 stories high.
- The large format film frame is 15 perforations x 70 mm, or 10 times larger than the conventional 35 mm frame.
- Each 1,000-foot roll of film weighs 10 pounds.
- When filming, each roll of film lasts only 3 minutes... and that's before editing starts!
- A 45-minute feature uses about 3 miles of film that projects at about 5.6 feet per second.
- Large format film projectors run horizontally, rather than vertically, on 7-foot-wide platters, as in traditional projection systems.



LESSON PLAN

Grades 1 - 8:

Make a Pinhole Camera

MATERIALS

- Coffee can, round oatmeal box or shoebox, if it is light-tight and in excellent condition
- Black paint
- Black construction paper
- Tape
- Aluminum roasting pan
- #10 needle
- Fast photographic paper from your local photography store
- A little modeling clay
- Basic darkroom facilities (if your school doesn't have a darkroom, perhaps a parent or teacher at the school is a photography hobbyist).

For younger students, you can make the camera. Older students can pair up to make cameras of their own and take pictures of each other.

You will have to paint the inside of your box (which will be the camera) a matte black or line it with black construction paper. If you use a coffee can with a plastic lid, paint both sides of the lid black and be careful that the paint does not chip or peel off.

You will want to make a pinhole at the opposite end of your box or can from the removable end (see the illustration on the following page). Start by cutting a square 2"x 2" in the center of the far end of the camera.

Next cut a 2.5"x2.5" square from the bottom of a disposable aluminum roasting pan. Paint one side black. Make a hole in the center of the square with a #10 needle. Rotate the needle as you push it in, and push it about half way to make a hole 0.5 mm or 1/75" in diameter.

Securely tape the aluminum square over the opening you cut in the camera.

CAMERAS GREAT AND SMALL

Cut a 2.5" x 2.5" square of black paper. This will be your shutter. Place it over the aluminum and tape it on one side only, so it is hinged (see the illustration).

To load your camera, go to the darkroom, open the package of photographic paper and tape an appropriate-sized sheet firmly to the inside end of your camera opposite your pinhole. (You may have to trim the paper with scissors to make it fit your camera.) The shiny side should face the pinhole. Then close the camera.

You will want to take your picture outside on a bright, sunny day.

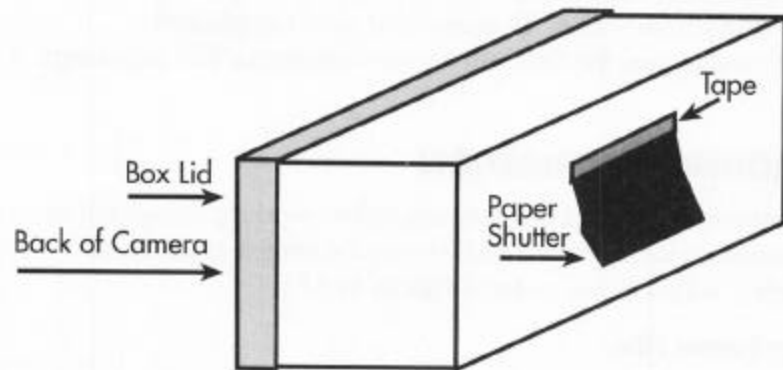
Place the camera so the pinhole looks at your subject. Use a lump of modeling clay to hold the camera still on a firm surface such as a chair.

Lift the black paper to uncover the pinhole. You may want to try this a few times in order to determine the right exposure for your conditions. Keep the pinhole uncovered for about 1 minute the first time, 90 seconds the second time, and 2 minutes the last time. For the period of time that the pinhole is uncovered, your subject will have to stay still, so you might want to photograph a tree or house rather than a kindergarten class. If you do photograph people, consider having them sitting in a chair or otherwise propped up so that it is easier for them to stay still. After the exposure time is over, cover the pinhole again with the paper shutter.

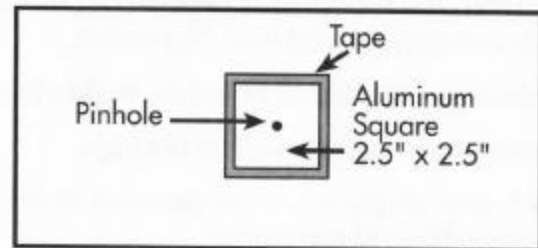
Develop the photographic paper in the darkroom using the standard procedures. This paper is a negative. To print a positive, dry the paper negative and make a contact print using another piece of photographic paper of the same size. To do that, put the negative on top of the positive, with the shiny side of both papers facing each other. Shine light through both papers and cycle the positive paper through developer and fixative.

For more detailed information and other pinhole camera techniques, read the Kodak "How to Make and Use a Pinhole Camera" web page at www.kodak.com/ciHome/education-essonPlans/pinholeCamera.

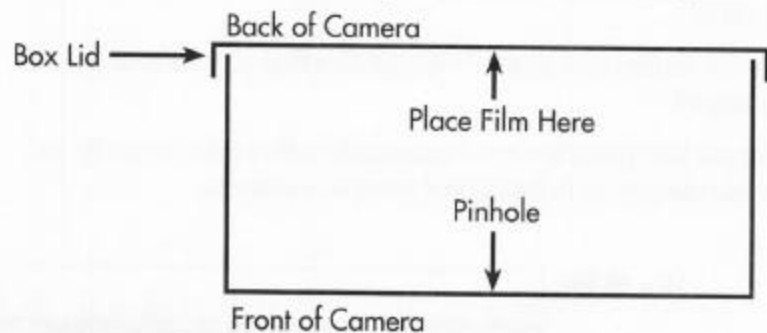
How To Make A Pinhole Camera



Front of camera before paper shutter is taped on.



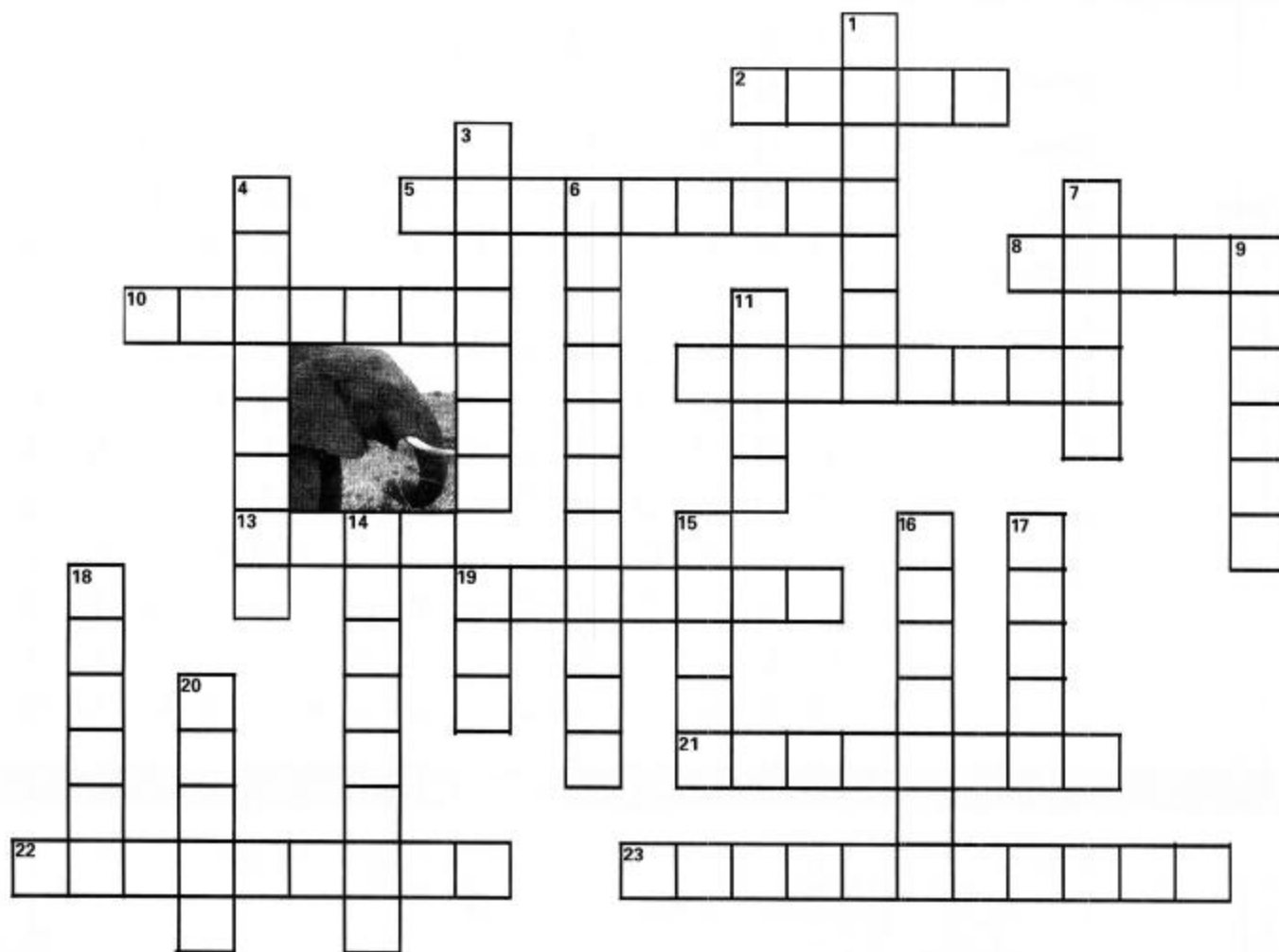
Cutaway view of camera interior.



CLASS DISCUSSION

After you have developed the photos, discuss the large format technology of *Africa's Elephant Kingdom* with the class. How difficult was it for the class to make a simple still image? How much more difficult must it be to take a motion picture of wild animals with extremely heavy equipment and a limit of 3 minutes per roll?

JUST FOR FUN



CLUES

DOWN

- 1 - Elephant's call of alarm
- 3 - Elephant's habitat
- 4 - He brought elephants over the Alps
- 6 - The greatest threat to elephant survival
- 7 - Elephant's big teeth
- 9 - An adult elephant's only predator
- 11 - Baby elephant
- 14 - Tusks are this kind of teeth
- 15 - Where elephants have dug a cave
- 16 - Familiar elephant ancestor
- 17 - The world's most famous elephant
- 18 - Where elephants with big ears live
- 20 - Prized elephant product

ACROSS

- 2 - Elephant's closest living relative
- 5 - Greek for "thick skin"
- 8 - Condition when male elephants are ready to mate
- 10 - Hindu elephant-headed god
- 12 - Where elephants go for minerals
- 13 - Where elephants are used for logging
- 19 - Legal killing of elephants
- 21 - Elephant ancestor that looks like a modern elephant
- 22 - The head of the elephant family
- 23 - Oldest elephant ancestor

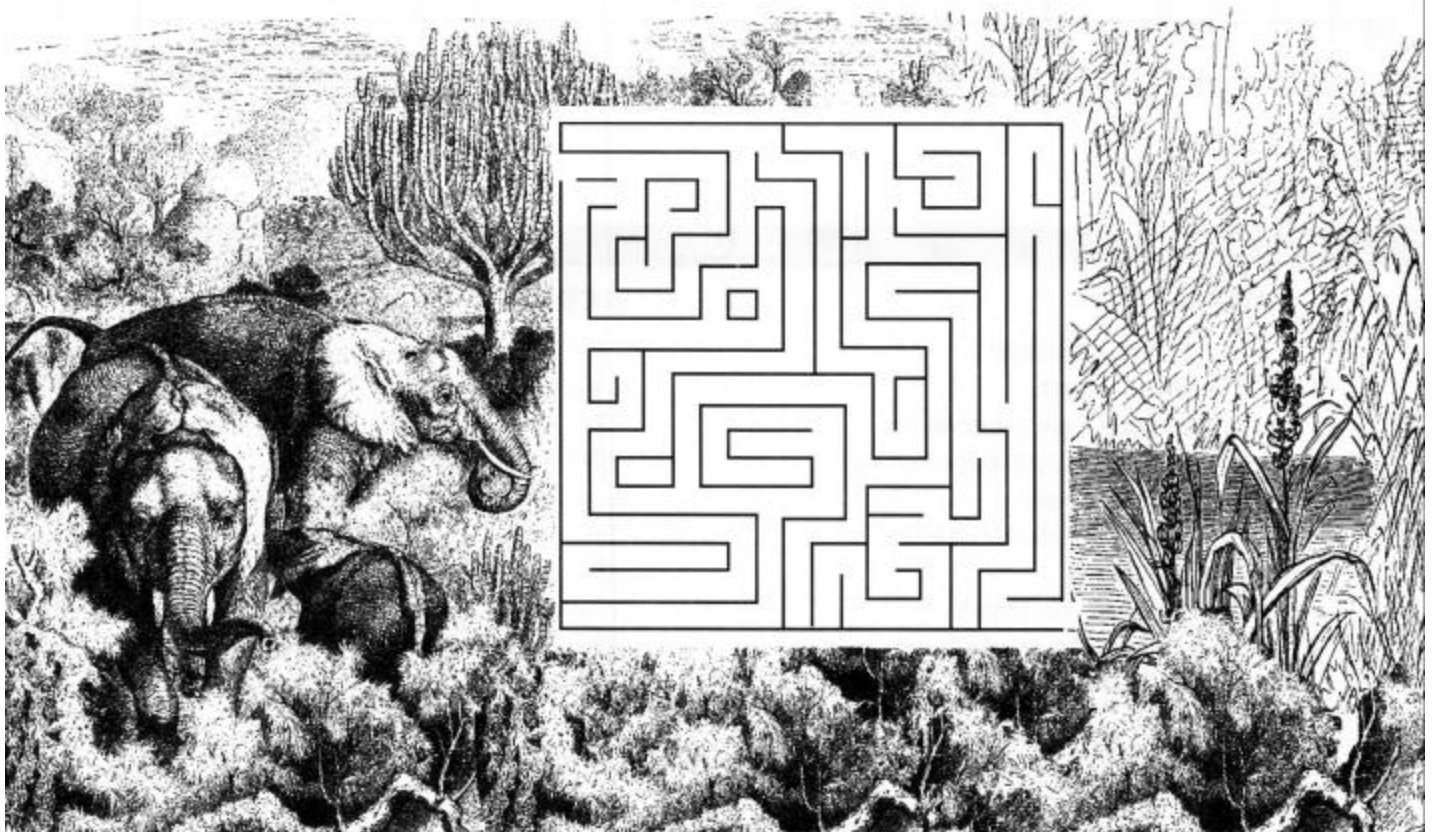
JUST FOR FUN

Can You Find These Words?

- | | |
|--------------|-----------|
| Bull | Mammoth |
| Calf | Maasai |
| Conservation | Mastodon |
| Cow | Matriarch |
| Endangered | Poaching |
| Elephant | Savanna |
| Giraffe | Trunk |
| Ivory | Tusk |
| Lion | Zebra |

I P C O N D I V O R Y C A E H
 T E B O M C L B K E J P I L D
 E N A F N G T R U N K H V E W
 G D E R U S Z U I L T J H P K
 I A S M M L E V C O L G E H C
 R N P R A S E R F O P A J A A
 A G H Y M S B T V F U W E N L
 F E A S M A T R I A R C H T F
 F R Q R O Z V O L W T U V K B
 E E U D T X E M D O L I O N A
 C D Y U H P X B Z O T B O C D
 P O A C H I N G R O N U E N L
 C B I F E X G N H A R I S T K
 O L S A V A N N A G O S E K I
 W Z A G I M A A S A I S M O N

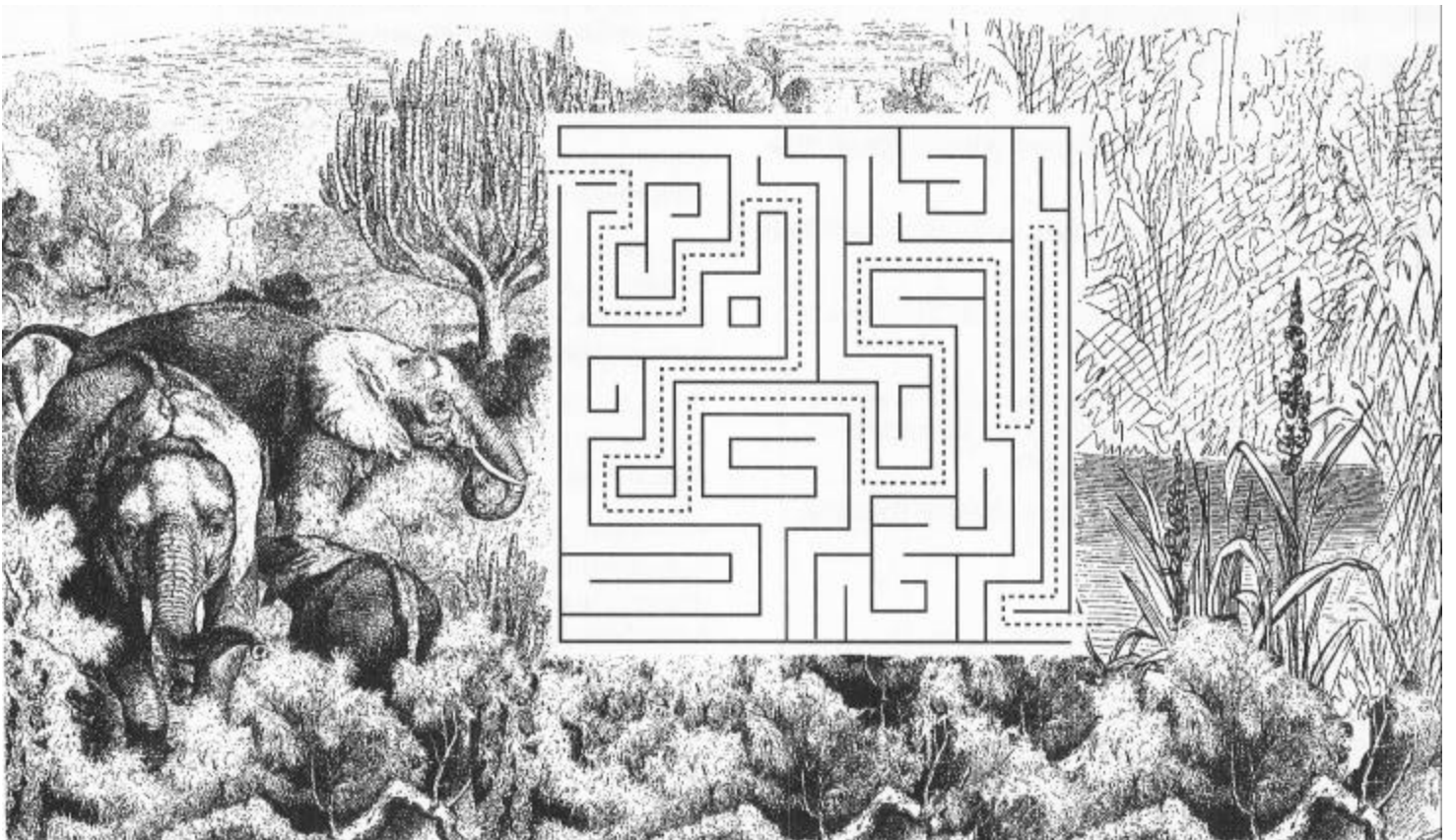
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Save The Elephants
7 New Square, Lincoln's Inn, London, WC2A 3RA England

World Wildlife Fund
1250 24th Street, NW Washington, DC 20037

African Wildlife Foundation
1400 Sixteenth Street, NW Suite 120, Washington, DC 20036.

CD-ROM

Animal Planet, Discovery Channel Multimedia. 1-888-892-3284

WEBSITES

Living With Elephants
Discovery Channel Online
www.discovery.com/area/nature/elephants/0525.html#pic2

African Elephant
Created by The Philadelphia Zoo.
www.phillyzoo.org

All You Wanted to Know About Elephants and More
By University of British Columbia Library Education students, this page includes elephant facts, elephants in history, elephants in literature, elephant trivia and a bibliography.
www.ritslab.ubc.ca/libe477/group2main.html

The Elephant Consultance Home Page
Several pages, including elephant "Frequently Asked Questions," as well as an extensive list of links.
www.wineasy.se/elephant/main.htm

Ivory Haven & Laura the Elephant's House
A surprising wealth of information on elephants and poaching, links and books lists.
www.geocities.com/RainForest/2248/

African Wildlife Foundation
Amboseli Elephant Research
www.awf.org

World Wildlife Foundation
In addition to information about elephants and elephant conservation efforts, you can also sign up for the Conservation Action Network, which will provide you with regular e-mails on how to help save endangered species.
www.worldwildlife.org

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