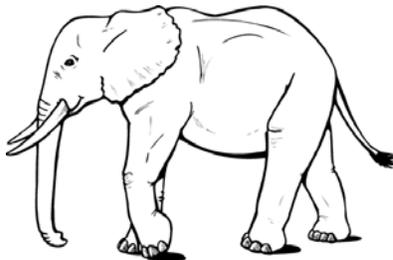




Zoo ***Activity*** ***Packet***

Elephants
Elephants



Dear Educator,

Niabi Zoo, located in Coal Valley, Illinois, is part of the Rock Island County Forest Preserve. The ground covers 38 acres, with an additional 200 acres set aside for native flora and fauna preservation. Niabi, an Oswego Indian word means “young deer spared from the hunter’s arrow”. A fitting name, Niabi is home to a variety of animals.

Niabi Zoo takes pride in the quality animals and experience we provide for our communities! Our education department is committed to providing top quality educational programming. It is our goal to help spread the message about the importance of caring for our earth by leaving healthy ecosystems for our families and future generations.

Niabi Zoo is a great place to visit and we want to make your experience as educational as possible. The purpose of this material is to encourage students and teachers to explore the animal kingdom while learning about conservation efforts to protect our ecosystems.

Zoos provide an opportunity to learn about animals, but more importantly, to develop positive attitudes and curiosity about nature. Niabi Zoo hopes to create an adventure that encourages our visitors to leave this experience with a greater appreciation for all living things!

After completing this guide, we ask that you complete and return the attached evaluation form. We would love to hear your comments and appreciate any suggestions for improvement!

Sincerely,

Education Department
Niabi Zoo



Teacher Guide Elephants

Objectives:

1. Students will be able to explain differences between Asian and African elephants.
2. Students will be able to discuss why Asian elephants have become endangered.
3. Students will be able to name the elephants at Niabi Zoo.
4. Students will be able to define animal enrichment.
5. Students will be able to list types of elephant enrichment.
6. Students will be able to discuss modern elephant husbandry techniques.

IL State Learning Standards that could be applied with this material:

English Language Arts:

1A, 1B, 1C; 3A, 3B, 3C; 4A, 4B; 5A, 5B, 5C

Goal 1 (Reading) 1A, 1B, 1C

Vocabulary skills, animal stories, compare and contrast

Goal 3 (Writing) 3A, 3B, 3C

Creative writing, animal cards, research paper, worksheets

Goal 4 (Listening & Speaking) 4A, 4B

Class discussion, class project, student reports

Goal 5 (Research) 5A, 5B, 5C

Research, organize and report information

Science:

11A; 12A, 12B

Goal 11 (Inquiry and Design) 11A

Investigating conservation efforts, collecting data on species, Food chain

Goal 12 (Concepts & Principles) 12A, 12B

Conservation efforts, conservation status of elephants, ecosystems and habitats.

Social Science:

17A, 17B, 17C

Goal 17 (Geography) 17A, 17B, 17C

Culture and demographics of where elephants are found in the world

Relationship between humans and elephants



Niabi Zoo Evaluation Form

Packet/ Kit

Please take a few minutes to complete this form and return to the Education Department. We appreciate your input to help us provide quality educational programs and materials! Please return evaluation form to Niabi Zoo, Kohler Education Center. All returned evaluation forms will be entered for a drawing!

Which packet/kit did you use:

Scavenger hunt

Notebook tour

Zoo Trunk

Zoo Activity Packet

Creature Feature Kit

Please specify title: _____

Name: _____

Address: _____

Please rate the following by circling the appropriate number:

1= Unsatisfactory, 4= Excellent

Information provided was useful?	1	2	3	4
----------------------------------	---	---	---	---

Subject material was age appropriate	1	2	3	4
--------------------------------------	---	---	---	---

Would you recommend this packet/ kit to others	1	2	3	4
--	---	---	---	---

If used in correlation with a field trip to Niabi Zoo:

Packet/ kit corresponded with the field trip	1	2	3	4
--	---	---	---	---

Pre and post activities were relevant	1	2	3	4
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Table of Contents

Educator Letter.....	2
Objectives/ Learning Standards.....	3
Evaluation Form.....	4
Table of Contents.....	5
Vocabulary Sheet.....	6
Fun Facts About Elephants.....	7
African Elephants.....	8
Asian Elephants.....	9, 10, 11
Comparison Diagram.....	12
The Food Chain.....	13, 14
Pre Trip Activities.....	15, 16
Conservation Status sheet.....	17
“What I Know About Elephants” worksheet.....	18
“Asian & African Elephants” worksheet.....	19
“Animal Investigator” worksheet.....	20, 21
Food Chain activity.....	22
Post Trip Activities.....	23
Elephant Quiz.....	24, 25
Quiz Answer Key.....	26

Vocabulary Sheet

Animal Enrichment: Encouraging natural behaviors in captive animals.

Endangered: At risk of becoming extinct

Hoof Knife: A special knife that is used to open small cracks on the elephants foot.

Husbandry: The care and feeding of zoo animals.

Poaching: Illegal hunting or fishing of an animal.

Rasp: A special file used to file the nails on an elephant's feet.

Trunk: A modified nose and upper lip.

Tusks: Upper incisors teeth of an elephant.

Zookeeper: A person who takes care of the animals at the zoo.

Fun Facts About Elephants!

Elephants have no sweat glands!

At one time there were 600 species of elephants. Now there are 2!

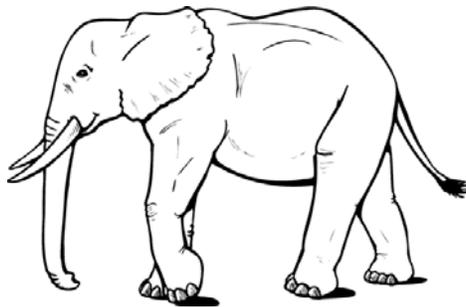
Fossils of elephants have been found on every continent in the world except Australia and Antarctica!

An elephant trunk has 100 thousand muscles in its upper lip and nose combined!

Elephants have 6 sets of molars throughout their lifetime!

An elephant tail can weigh as much as 20 pounds!

Elephant herds are headed by an adult female who is the matriarch!



African Elephants

The African Elephant is the largest living land animal (larger than the Asian Elephant). These mammals have very strong social bonds and live in family groups headed by a female (called a **cow**). Males (called **bulls**) occasionally join the group. Elephants are excellent swimmers. Elephants have few natural enemies except man, and they are in danger of extinction due to loss of habitat and poaching (they are killed for their ivory tusks).

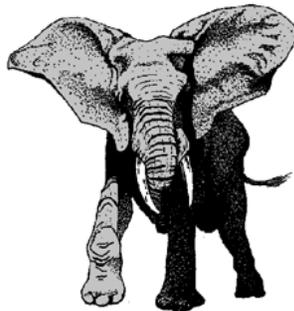
Anatomy: African elephants average about 10 feet (3 m) tall at the shoulder, weighing roughly 6 tons (5,400 kg). Males are larger than females. Both males and females have **tusks** (large, pointed ivory teeth). They have very thick, wrinkled, gray-brown skin that is almost hairless.

Ears: African Elephants have large ears (up to 5 feet=1.5 m long) that are shaped like the continent of Africa. The ears not only hear well, but also help the elephant lose excess heat, as hot blood flows near the surface of the skin.

Trunk: Elephants breathe through two nostrils at the end of their trunk, which is an extension of the nose. The trunk is also used to get water and food. To get water, the elephant sucks water into the trunk, then curls the trunk towards the mouth and squirts the water into it. The trunk has two **prehensile** (grasping) extensions at the tip, which it uses like a hand.

Diet: Elephants eat roots, grasses, leaves, fruit, and bark. They use their tusks and trunk to get food. These **herbivores** spend most of their time eating. Bulls can eat up to 300-600 pounds (130-260 kg) of food each day.

Classification: Kingdom Animalia (animals), Phylum Chordata (having a notochord), Class Mammalia (mammals), Subclass Eutheria (placental mammals), Order Proboscidae, Suborder Elephantoida, Family Elephantidae (mammoth and modern elephants), Genera and species: *Loxodonta Africana* (African savanna elephants), *Loxodonta cyclotis* (African forest elephants, discovered to be a separate species in 2001).



Asian Elephants

The Asian Elephant (also known as the Indian Elephant) is a huge land animal that lives in India, Malaysia, Sumatra, and Sri Lanka. This elephant is used extensively for labor; very few are left in the wild. Their life span is up to 70 years.

This mammal has very strong social bonds and lives in family groups headed by a female (called a **cow**). Males (called **bulls**) occasionally join the group. Elephants are excellent swimmers. Elephants have few natural enemies except man, and they are in extreme danger of extinction due to loss of habitat and poaching (they are killed for their ivory tusks).

Anatomy: Asian Elephants average about 8 feet (2.5 m) tall at the shoulder (smaller than African Elephants). Males weigh up to 6 tons (5,400 kg); females average about 4 tons (3,600 kg). Only males have **tusks** (large, pointed ivory teeth). They have very thick, wrinkled, gray-brown skin that is almost hairless. The ears not only hear well, but also help the elephant lose excess heat, as hot blood flows near the surface.

Life - Cycle

- The life cycle of the elephant is remarkably similar to that of an average human being.
- Suckle using the mouth, not trunk.
- Are weaned on milk between two - four years. Although the elephant will naturally be attracted to it's mother other cows in the herd often take turns to look after the baby.
- If the mother dies then the other cows (auntie's) look after the orphaned baby.
- Cows can bear young at age 16
- Begin work at 16
- Are fully grown at 20 years old
- Are in their working prime between 20-40
- Start going bald around 30 years
- Begin to slow down at 40
- Live around 70 years
- Are on light duties only when they reach 50
- An elephant will be able to tell if a corpse is from the same herd. If so then the whole herd will avoid that area, apparently out of respect. This is so even when the bones are buried. The reason for this phenomena but may be attributed to their acute sense of smell and possible other unknown factors.

Diet

- Are purely vegetarian, herbivore
- Eat around 200-300 Kg of fodder per day
- Drink about 150 litres of water
- Favoured foods include: Bananas, bamboo, berries, mangoes, coconuts, corn, jungle shrubs, palm fruits, sugar cane, wood apples *Feronia elephantorum* and wild rice. In western Zoos they are often fed bread and have developed a taste for this type of food. The popular myth that elephants love buns probably stems from this peculiarity.
- Salt is essential and the elephant shows a distinct liking for it.
- The elephants digestion system is quite inefficient and only around 50% of the fodder eaten is utilised.
- Cold climates cause stomach aches.
- Some elephants will even peel fruit before eating. The revered holy Thai white elephant is very particular about eating and will not consume any food that has fallen on the ground and will not eat with the rest of the herd.

Trunks

Trunks Arguably the most versatile of all animal organs. The trunk can be used for such diverse tasks as shifting a 600 kg log to picking up a coin. It is a boneless mass of flesh and up to 100,000 muscles that can bend easily. It is 2 metres long and weighs around 140 kg. The trunk has a small finger like lip at the end which can distinguish between size, shape, texture, hot and cold. The animal uses its trunk to feed and drink by bringing food and water to the mouth, breathe, make noises, caress it's young and sometimes even fight. When totally submerged in water the trunk can also be used as a snorkel. Trunks can hold six litres of water and are often used as a flexible shower hose pipe. It is a superb organ of smell, and can be directed easily toward the source.

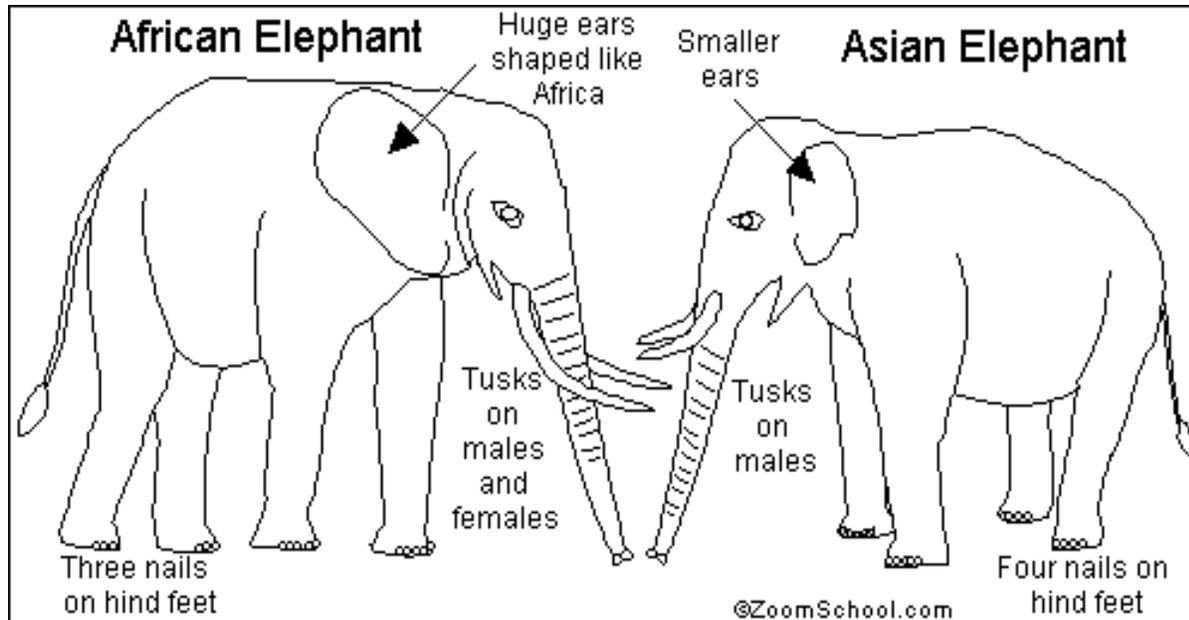
When an elephant is on unsteady or unfamiliar ground it will use the outside of the trunk to beat the earth, determining if the ground is firm enough to walk on. Once safety is substantiated the front foot is moved forward onto the tested area. The rear foot follows and is carefully placed in exactly the same footprint.

Tusks & Teeth

- Males have larger tusks of up to 1.5 - 1.8m in length whilst the females have very short tusks, that usually are not visible.
- Milk tusks are fully grown at just 2 inches long and are shed before the calf reaches it's second birthday. Permanent tusks then begin to grow.
- Tusks are, in fact teeth (incisors) and are classified as ivory. The only other creature to have ivory teeth is the walrus.

- The purpose of the tusk is to dig for food, clear debris, fight and to carry heavy loads of up to 1 tonne such as timber.
- Molars (grinding teeth) are at least 30 cm, 1 ft long and weigh about 4 kg, 8.8 lbs. The animal has only four of these teeth at any one time. New molars form in the back of the mouth and push the old ones forward and out completely. An elephant usually grows six sets of these molars in a lifetime, the final set grows when it is about 40 years of age. When the last set decays, around 70 years, the elephant finds it hard to eat and subsequently a great many are likely to die of starvation.
- Tusks never stop growing.

Classification: Kingdom Animalia (animals), Phylum Chordata, Class Mammalia (mammals), Order Proboscidea, Family Elephantidae, Genus *Elephas*, Species *E. maximus*.



Comparison Diagram

African Elephants:

The African Elephant is the largest living land animal (larger than the Asian Elephant).

Anatomy: African elephants average about 10 feet (3 m) tall at the shoulder, weighing roughly 6 tons (5,400 kg). Males are larger than females. Both males and females have tusks (large, pointed ivory teeth). They have very thick, wrinkled, gray-brown skin that is almost hairless.

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Anatomy: Asian Elephants average about 8 feet (2.5 m) tall at the shoulder (smaller than African Elephants). Males weigh up to 6 tons (5,400 kg); females average about 4 tons (3,600 kg). Only males have tusks (large, pointed ivory teeth). They have very thick, wrinkled, gray-brown skin that is almost hairless. The ears not only hear well, but also help the elephant lose excess heat, as hot blood flows near the surface.

The Food Chain:

An ecosystem is a living community which depends on each member and its surrounding environment. The living part of an ecosystem is sometimes called a food chain.

Every participant in an ecosystem has an important part to play and if one becomes more dominant than the others, the ecosystem can develop problems.

We'll start with the producers. These are living things which take the non living matter from the environment, such as minerals and gases and uses them to support life. Green plants are considered producers and they are at the beginning of the food chain.

Next are the consumers. These living things need the producers to be their food.

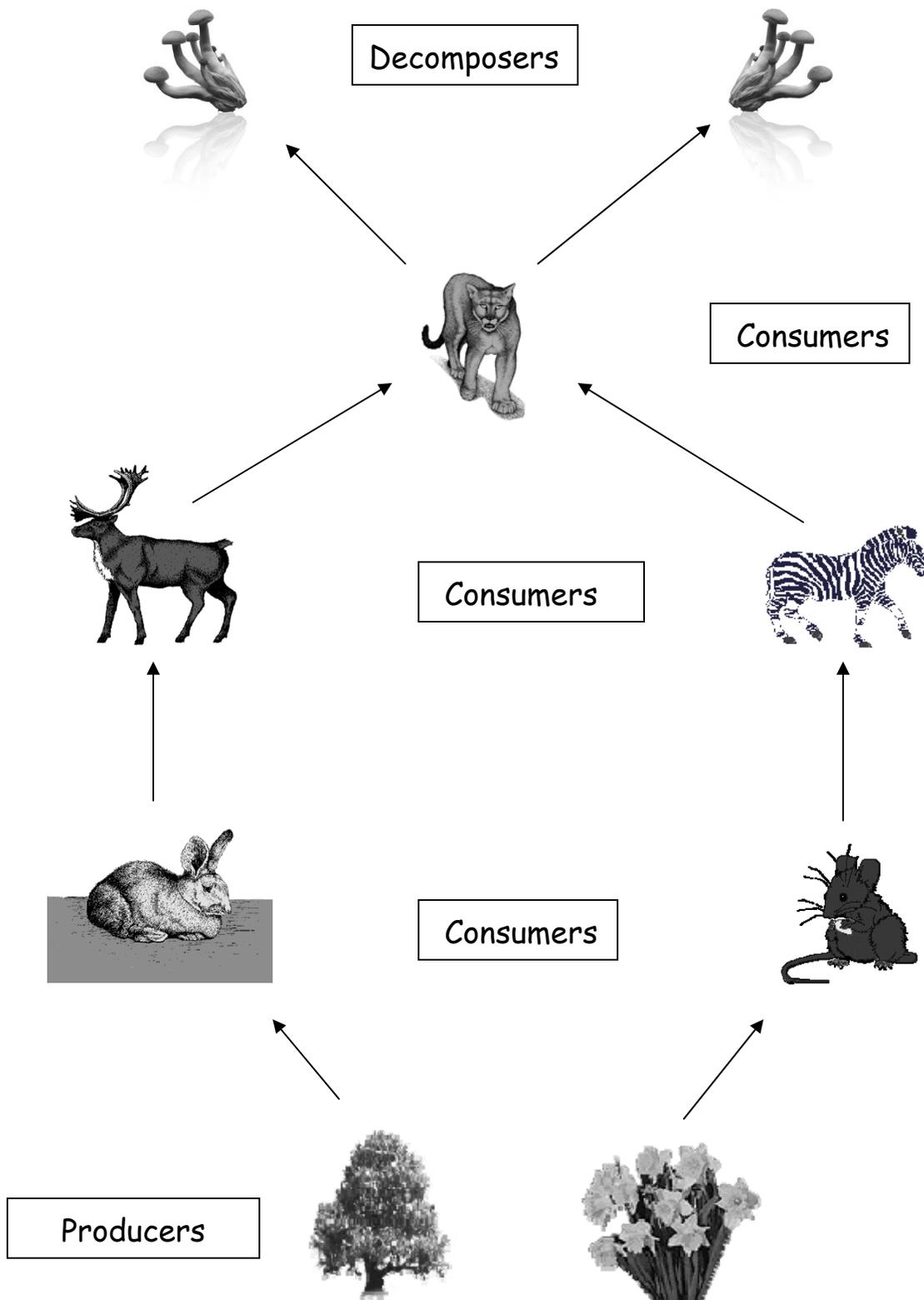
Animals who eat plants are called herbivores. They are considered consumers and are next in the food chain.

Animals who eat other animals are called carnivores. They also are considered consumers and are a link farther along on the food chain since they need the herbivores for their food.

Animals and people who eat both animals and plants are called omnivores, and they are also part of the consumer piece of the ecosystem.

Finally, the last part of the ecosystem is the decomposers. These are the living things which feed off dead plants and animals and reduce their remains to minerals and gases again. Examples are fungi, like mushrooms, and bacteria.

The Food Chain



Pre Field Trip Activities

Behind each activity you will find state goals that can be applied to each activity.

1. Discuss vocabulary words with students. This will help them better understand the elephant program given by zoo staff. *(1A)*
2. Discuss the term Endangered with the students. Also inform them of other levels of conservation status... Extinct, Endangered, Threatened, Least Concern. *(1A; 12B; 17A, 17B)*
3. Read students books on elephants. Books to consider:

“Ella The Elegant Elephant” by Carmela D’Amico, “Saggy Baggy Elephant” by Golden Press, “Stand Back, Said The Elephant, I’m Going To Sneeze” by Patricia Thomas, “Elephant’s Child” by Rudyard Kipling *(1B, 1C)*
4. Have students complete Part 1 of the “What I Know” worksheet. *(3A)*
5. Have students complete the “Asian Elephants... African Elephants” worksheet. This is a compare & contrast worksheet. *(3A)*
6. Call on students to become investigators before visiting Niabi Zoo. Have them complete the “Animal Investigator” worksheet. *(3A; 5A, 5B, 5C; 11A)*

7. Have students select one animal. Using that animal, have students create a food chain that shows where their animal fits in. Students will have to research the diets of various animals to make sure their food chain is accurate! *(1C; 3A; 5A, 5B, 5C; 11A; 12A, 12B; 17A, 17B, 17C)*

8. Elephants are now only found two places in the world- Asia & Africa. Using a map or globe, discuss these locations with students. Have them research culture and demographics of these countries. *(4A, 4B; 5A, 5B, 5C; 11A; 17A, 17B, 17C)*

9. Have students develop 3 research questions based on elephants. Collect and redistribute questions. Using research methods have students answer the questions. Ask several students to report their information to class! *(3A; 4A, 4B; 5A, 5B, 5C; 11A; 12A, 12B)*

10. Have students select one animal. Using that animal, have students create a food chain that shows where their animal fits in. Students will have to research the diets of various animals to make sure their food chain is accurate! Have students make a food chain... see attached worksheet. *(1C; 3A, 3B, 3C; 5A, 5B, 5C; 12A, 12B)*



Conservation Status

Elephants are an endangered animal. Discuss why they are endangered and other animals that are endangered.

Extinct: The species is no longer in existence.

Endangered: The species population is limited and without protection, may become extinct.

Threatened: The species population is declining and is on it's way to becoming endangered.

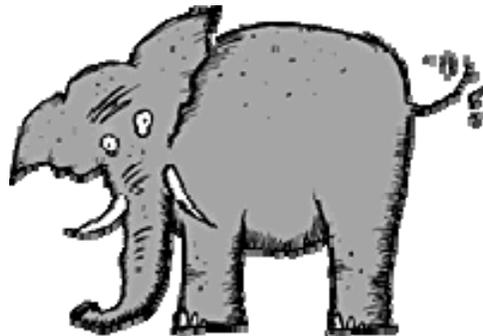
Least Concerned: The population of a species is stable. The species is not in danger of becoming endangered, but conservation efforts are still very important so the population does not start to decline.

What I Know About Elephants!

Name: _____

Part 1: To be completed before visiting Niabi Zoo.

I think I know that elephants _____



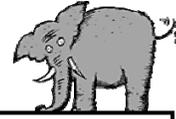
Part 2: To be completed after visiting Niabi Zoo.

I know that elephants _____

Asian Elephants..... African Elephants

Name: _____

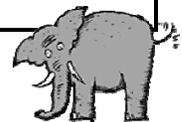
Compare and Contrast the two species of elephants.



Asian Elephants



Asian & African Elephants



African Elephants

Animal Investigator

Animal I am investigating:

Use 3 sources to find information:

Source # 1: _____

Source # 2: _____

Source # 3: _____

Write 3 things you learned from these sources...

1. _____

2. _____

3. _____
- _____
- _____
- _____
- _____

Food Chain

Plants make food for all living things and use the sun's energy to grow. When animals eat plants, they get energy. You also get energy from eating food. Your food may be plants or animals.

A food chain shows how energy is passed from one living thing to another. All food chains start with plants. You can make your own food chain.

You will need:

- 8 ½ in. by 11 in. sheets of paper or construction paper
- Crayons or markers
- Pencils
- Tape
- Pictures of plants and animals

1. Cut a few pieces of paper in half the long way.
2. Find a picture of a plant or draw one. Tape it to one of these strips of paper.
3. Loop the ends of the strip of paper together and add tape to make a closed circle. You now have the first link in your food chain.
4. Find or draw a picture of something that can eat your plant. Tape it to another strip of paper. Put one end of the strip through the first link and tape the ends to make another closed circle. Now your food chain has two links.
5. Find or draw a picture of something that eats the animal that is eating your plant. Make a third loop. Follow the directions in Step 4.
6. Keep going.

Here are some food chain ideas for you to start with:

Grass—prairie dog—rattlesnake

Acorn—gray squirrel—red-tailed hawk

Flower—beetle—skunk—great horned owl

Mayfly—sunfish—wood stork—alligator

Post Field Trip Activities

Behind each activity you will find state goals that can be applied to each activity.

1. Discuss the reason elephants are endangered animals. Discuss things the class could do to help with conservation efforts for elephants. Carry out those ideas! (4A, 4B; 11A; 12A, 12B; 17A, 17B, 17C)
2. Have your class make a homemade “Zoo Book” on their field trip to Niabi Zoo! (3A)
3. Have students complete Part 2 of the “What I Know About Elephants” worksheet. Have each student tell the class their elephant fact! (3A; 4A, 4B)
4. Have students take the Elephant Quiz.
5. Have students use their “Animal Investigators” worksheet to create animal fact cards. These cards should contain true or false facts on various animal(s) studied. Use 3x5 index cards. Add creativity by having students draw pictures or cut out pictures and glue to the cards. (3A; 5A, 5B, 5C; 11A; 12A, 12B)
6. Have students construct their own book which contains 1) a fictional story about an elephant, 2) pictures that correspond with the story. (3A)
7. Have students write a non fictional book on elephants. (5A, 5B, 5C)

Elephant Quiz

Name: _____

1. On which continents are elephants found?

_____ and _____

2. Which type of elephant is bigger and has larger ears?

3. Do elephants live in social groups? _____

4. About how much does a baby elephant weigh at birth?

5. What is the name of the long, protruding upper teeth of an elephant? _____

6. Are elephants the biggest land animals on Earth? _____

7. Can elephants swim? _____

8. What is the name of an elephant's long nose?

9. Are elephants meat-eaters or plant-eaters?

10. Are elephants in danger of extinction? _____

Elephant Quiz Answer Key

1. On which continents are elephants found?
Africa and Asia
2. Which type of elephant is bigger and has larger ears?
African elephants
3. Do elephants live in social groups?
yes
4. About how much does a baby elephant weigh at birth?
200 pounds (90 kg)
5. What is the name of the long, protruding upper teeth of an elephant? tusks
6. Are elephants the biggest land animals on Earth? yes
7. Can elephants swim? yes
8. What is the name of an elephant's long nose? trunk
9. Are elephants meat-eaters or plant-eaters? plant-eaters
10. Are elephants in danger of extinction? yes