Living Things

- Living things are called organisms.

- All organisms are made up of protoplasm
  - Protoplasm – a specialized substance

- Organisms use energy continuously
  - Plants produce their own energy in photosynthesis
  - Animals get energy from eating and digesting food

- Organisms are made up of cells
  - Remember, you need a microscope to see a cell

- Organisms are capable of growth and replacement
  - People grow taller
  - When a person gets a small cut, new skin eventually grows and covers the cut

- Organisms have a life span
  - Cats are born
  - Cats die

- Organisms can reproduce
  - Dogs have offspring or babies

- Organisms respond to stimuli and their environment

- What makes something alive?
- What are the characteristics of living things?
- What do all living things have in common?

Traits

Inherited Traits

- Inherited traits are characteristics offspring get from their parents
  - A puppy has a tail because its dog parents have tails
  - A chick has a beak because its rooster and chicken parents have a beak.
  - I have black hair because my dad had black hair

Acquired Traits

- Acquired traits are characteristics offspring get from interactions with their environment
  - You have a scar on your knee because you fell down on cement
  - You teeth fell out because you didn't get enough vitamin c in your diet
  - A dog has rabies because a rabid squirrel bit him

- Humans have over 60,000 inherited traits
- You get your inherited traits from the genes your mom and dad pass on to you
  - Why families look alike

- Some traits are more common than others
  - More people have them
- Some traits are dominant
  - The traits you see
- Other traits are recessive
  - The traits you could pass onto your offspring but don't see

Animal Adaptations

- Animals with certain traits are more likely to survive in certain environments
  - Polar bears have traits that help to survive in extreme cold
  - Fish have traits that help to survive under water
  - A owl that hunts at night doesn't compete for food with other animals that hunt in the day

- Adaptation: an inherited or acquired trait that helps an organism or animal to survive in a particular environment

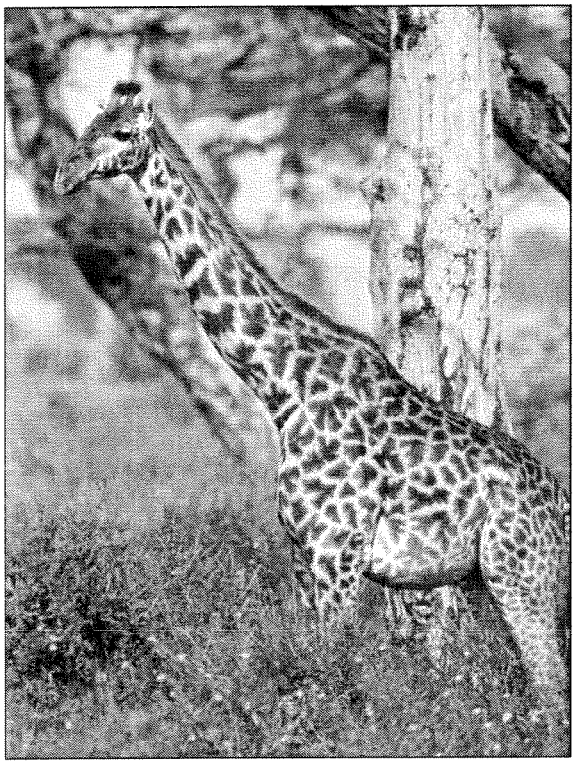
- Physical adaptations
  - Fur
  - Claws
  - Sharp teeth
  - Wings
  - Camouflague
  - Ability to run fast
  - Being really small
  - Mimicry
  - Poison

- Behavioral adaptations
  - Lying still when predators are near
  - Waiting patiently for prey
  - Migration of birds in winter
  - Lions cooperating when hunting
  - Nocturnal behavior
  - Communication
  - Beavers making a dam
  - Elephants working together to defend against attack

- As environments change over time

Giraffe

Giraffa camelopardalis



Giraffes, the tallest mammals on Earth, roam the African savanna in constant search for food, like treetop acacia buds.

Photograph by Medford Taylor

Giraffes are the world's tallest mammals, thanks to their towering legs and long necks. A giraffe's legs alone are taller than many humans—about 6 feet (1.8 meters). These long legs allow giraffes to run as fast as 35 miles (56 kilometers) an hour over short distances and cruise comfortably at 10 miles (16 kilometers) an hour over longer distances.

Typically, these fascinating animals roam the open grasslands in small groups of about half a dozen.

Bulls sometimes battle one another by butting their long necks and heads. Such contests aren't usually dangerous and end when one animal submits and walks away.

Giraffes use their height to good advantage and browse on leaves and buds in treetops that few other animals can reach (acacias are a favorite). Even the giraffe's tongue is long! The 21-inch (53-centimeter) tongue helps them pluck tasty morsels from branches. Giraffes eat most of the time and, like cows, regurgitate food and chew it as cud. A giraffe eats hundreds of pounds of leaves each week and must travel miles to find enough food.

The giraffe's height also helps it to keep a sharp lookout for predators across the wide expanse of the African savanna.

The giraffe's stature can be a disadvantage as well—it is difficult and dangerous for a giraffe to drink at a water hole. To do so they must spread their legs and bend down in an awkward position that makes them vulnerable to

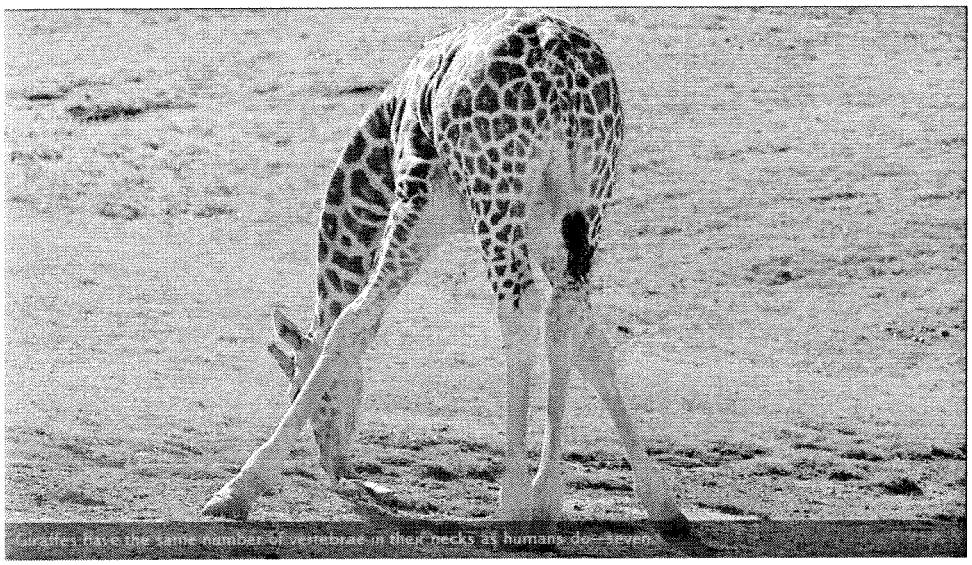
predators like Africa's big cats. Giraffes only need to drink once every several days; they get most of their water from the luscious plants they eat.

Female giraffes give birth standing up. Their young endure a rather rude welcome into the world by falling more than 5 feet (1.5 meters) to the ground at birth. These infants can stand in half an hour and run with their mothers an incredible ten hours after birth.

Giraffes have beautiful spotted coats. While no two individuals have exactly the same pattern, giraffes from the same area appear similar.

Please select a test to run

Mammals | GIRAFFE



Giraffes have the same number of vertebrae in their necks as humans do—seven.

PHOTOS

176 49

SCIENTIFIC CLASSIFICATION

Class: Mammalia (Mammals)

Order: Artiodactyla

Family: Giraffidae

Genus: Giraffa

Species: camelopardalis

Subspecies: reticulata (reticulated giraffe)

Subspecies: camelopardalis (Nubian giraffe)

Subspecies: rothschildi (Uganda or Baringo giraffe)

Subspecies: tippelskirchi (Masai giraffe)

Subspecies: angolensis (Angolan giraffe)

Subspecies: giraffa (southern giraffe)

FUN FACTS AT THE ZOO CONSERVATION

Range: Pockets of Africa, south of the Sahara Desert
Habitat: Savanna

Hello, up there!

Why do so many people look up to giraffes—besides the obvious reason? The long and short of it is that they are a wonderful example of nature's creativity.

Giraffes are the tallest land animals. A giraffe could look into a second-story window without even having to stand on its tiptoes! A giraffe's 6-foot (1.8-meter) neck weighs about 600 pounds (272 kilograms). The legs of a giraffe are also 6 feet (1.8 meters) long. The back legs look shorter than the front legs, but they are about the same length. A giraffe's heart is 2 feet (0.6 meters) long and weighs about 25 pounds (11 kilograms), and its lungs can hold 12 gallons (55 liters) of air! Its closest relative is the okapi.

hide er-sized, two-animal combo

Giraffes have a small hump on their back and have a spotted pattern similar to that of a leopard. For a long time people called the giraffe a "camel-leopard," because they believed that it was a combination of a camel and a leopard. That's where the giraffe's **species** name *camelopardalis* comes from!

hide t with spots

ZOO BLOGS

A Trip Down Memory Lane
April 15th, 2013

Condor Chick Watching: Age 2 to 3 Weeks
April 15th, 2013

Tortoise in the Glass: Evaluating Health Problems
April 15th, 2013

LATEST TWEETS

Meet the patriarch of our giraffe herd, Silver. http://t.co/fOgbCxEY88 At 19ft. tall, he towers above guests. — *1 day 16 hours* ago

Monday is the last day to help us name our new CA condor chick. Vote here: http://t.co/6RDfEYnL0j — *2 days 9 hours* ago

#PeopleWouldDoAnythingFor cute & cuddly animals, but what about the rest? Every animal plays a critical role in its environment. — *2 days 15 hours* ago

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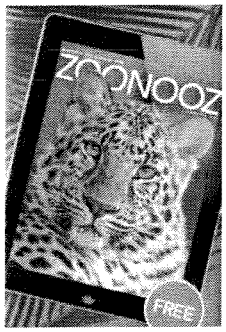


QUICK FACTS

Life span: 15 to 20 years

Gestation: 14 months

Number of young at birth: Usually 1

Age of maturity: 3 to 5 years

Size: Females, up to 14 feet (4.3 meters) tall; males, up to 18 feet (5.5 meters)

Weight: Females, up to 1,500 pounds (680 kilograms); males, up to 3,000 pounds (1,360 kilograms)

Size at birth: 6 feet tall (1.8 meters), 100 to 150 pounds (45 to 68 kilograms)

There is only one species of giraffe, with six main currently recognized **subspecies**. The subspecies have different coat patterns and live in different parts of Africa. Giraffe coat colors vary from light tan to practically black. The differences occur due to what the giraffes eat and where they live. Each individual giraffe's markings are as individual as our fingerprints.

Masai giraffes, from Kenya, have patterns that look like oak leaves. Uganda giraffes sport large, brown splotches separated by thick, beige lines. The **reticulated** giraffe, found only in northern Kenya, has a dark coat with a seeming web of narrow white lines. Some researchers now believe that reticulated giraffes are so genetically different from the other subspecies that they should be reclassified as a separate species.

A long neck, a lumpy headHow many bones are there in a giraffe's neck? Just like humans, giraffes have seven neck **vertebrae**. For giraffes, however, each one can be over ten inches (25.4 centimeters) long!

Both male and female giraffes have two distinct, hair-covered **horns** called **ossicones**. Male giraffes use their horns to **spar**, throwing their neck against each other. As a male matures, calcium deposits begin to form on his skull to protect it when he head-butts with other males. These calcifications can be quite pronounced, giving the strange appearance of a three- to five-horned giraffe.

hide **ing right in**

In a zoo, giraffes look conspicuous. But think of their presence in African habitat, where their coat patterns actually serve as **camouflage**, blending with shadows and leaves. Giraffes are well adapted for living on the open, tree-dotted African plains. While other African herbivores compete for grass and small plants to eat, giraffes have the high branches with their tender, young leaves all to themselves.

hide **ding themselves**

Giraffes are so big that they really don't need to hide from predators. There is safety in numbers! It's hard to pick out one giraffe from another when they form a tight group.

Besides humans, only lions and crocodiles hunt them. If they have to, giraffes defend themselves with a deadly kick, karate-style. Their speed, the way they move, and their body designs also help them to escape predators if they need to. Giraffes have a way of moving, or gait, in which both the front and back legs on one side move forward together, then the other two legs on the other side move forward. It's called "**pacing**." Giraffes can run very fast—around 35 miles (56 kilometers) an hour for short distances.

hide **me**

You might think watching out for lions and spending 16 to 20 hours a day eating would all weigh heavily on a giraffe. Surprisingly enough, giraffes only need 5 to 30 minutes of sleep in a 24-hour period! They often achieve that in quick naps that may last only a minute or two at a time. Giraffes can rest while standing, but they sometimes also lie down with their head resting on their rump. That's a vulnerable position for a giraffe, though, so usually one herd member stays on guard.

hide **the trees**

It takes a lot of leaves to fuel such a large animal. Giraffes may eat up to 75 pounds (34 kilograms) of food per day. They spend most of their day eating, because they get just a few leaves in each bite. Their favorite leaves are from acacia trees. These trees have long thorns that keep most animals from eating them. But those thorns don't stop the giraffes! They simply use their 18-inch (46-centimeter) tongue and **prehensile** lips to reach around the thorns. It is thought that the dark color of their tongue protects them from getting sunburned while reaching for leaves. Giraffes also have thick, sticky saliva that coats any thorns they might swallow. At the San Diego Zoo and the San Diego Zoo Safari Park, giraffes eat a variety of fresh acacia leaves hung high in artificial food "trees," as well as hay, carrots, and leaf eater biscuits.

Giraffes are ruminants and have a stomach with four compartments that digests the leaves they eat. When giraffes aren't eating, they're chewing their **cud**. After giraffes swallow the leaves the first time, a ball of leaves travels all the way back up the throat into the mouth for more grinding.

Acacia leaves contain a lot of water, so giraffes can go a long time without drinking. When they do get thirsty, giraffes have to bend a long way down to drink from a lake or stream. When they're bent over, it is easier for a **predator**, like a crocodile, to grab hold of the giraffe. So, giraffes go to a watering hole together and take turns watching for predators. If water is easily available, like in zoos, they can drink 10 gallons (38 liters) a day.

hide g a voice

Many people think that giraffes have no voice, but they do make a variety of sounds, including moos, roars, snorts, hisses, and grunts. They just very rarely do so. One sound giraffes make when they're alarmed is a snort. Threats such as lions nearby may warrant a snort. Giraffes are often the early warning signal for other savanna animals: if a giraffe herd starts to run, everyone else does, too! Studies suggest giraffes vocalize below the level of human hearing and perhaps use this sound for long-distance communication.

hide ing in

When a giraffe baby, called a calf, is born, it comes into the world front feet first, followed by the head, neck, and shoulders. Its entry is like a slow-motion swan dive! Because the umbilical cord is only about 3 feet (1 meter) long, it breaks midway through the birth, allowing the newborn to drop to the ground. The fall and the landing don't hurt the calf, but they do cause it to take a big breath. The calf can stand up and walk after about an hour, and within a week, it starts to sample vegetation. Sometimes the mother leaves the calf alone for most of the day. The youngster sits quietly until she returns.

When a calf gets older, the mother leaves her youngster together with other calves in a "nursery." One of the moms stays to babysit while the others go out to eat and socialize. In the nursery, the calves develop physical and social skills through play. Under the watchful eye of the designated babysitter, the youngsters explore their surroundings throughout the day. The young giraffes can eat leaves at the age of four months, but continue to nurse until they are six to nine months old.

It's easy to understand why giraffes top the list of so many people's favorite animals. Their elegant stride, outrageous eyelashes, and calm expression give them an air of refinement. We hope we've raised your appreciation for these big, beautiful browsers to new heights!

Giraffa camelopardalis rothschildi

Class
Mammals

Order
Artiodactyla

Description
The tallest animal on the ground, giraffes can reach up to 19 feet in height. Females are slightly shorter than males, topping out at 16 feet, but both genders display brown, patterned coats. The Baringo giraffe's front legs are longer than the back legs, giving the body as a whole a sloping appearance. Both male and female giraffes display tufted horns on the top of the head, although the males' skull develops layers of bony growths as it ages.

Range
Baringo giraffes can be found throughout sub-Saharan Africa.

Status
Common. Lincoln Park Zoo participates in the Reticulated and Rothschild Giraffe Species Survival Plan®, a shared conservation effort by zoos throughout the Association of Zoos and Aquariums.

Habitat
This herbivorous species prefers open woodlands, plains and savannas.

Niche
Baringo giraffes use their extremely long (up to 18 inches), manipulative tongues to gather leaves in the wild. The tongue is flexible enough to pluck preferred acacia leaves while avoiding the acacia tree's thorns.

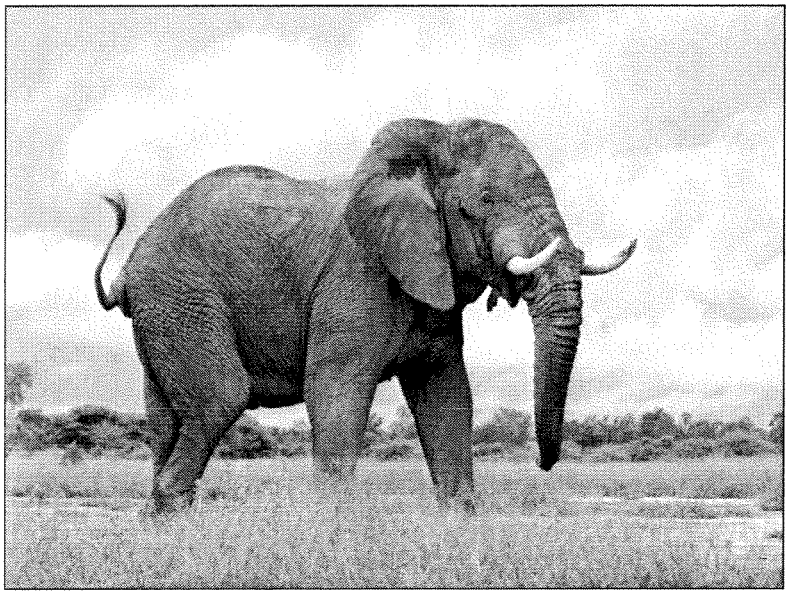
Life History
Baringo giraffes gather in herds of 2-40 individuals. These groupings are fluid, with members frequently coming and going. Males will compete for access to fertile females through "necking," a behavior where two males entwine their necks and wrestle to determine which is stronger. Females give birth after 14-15 months of gestation, and offspring can measure six feet at birth.

Special Adaptations

- The Baringo giraffe's long tail ends in a large tuft of hair, which the species uses as a flyswatter to drive away insects.
- To pump blood up to the brain, giraffes make use of a heart that weighs up to 24 pounds. Elastic blood vessels in the mammal's neck stretch when it lowers its head to drink to prevent an unwanted rush to the head.
- While the giraffe's neck is much longer than a human's, both structures are composed of the same number of bones: seven. The vertebrae in a giraffe's neck are simply much longer than those in a human's. This extra length is thought to have evolved to help the species spot predators on the plains of Africa.

African Elephant

Loxodonta africana



African elephants are the largest of Earth's land mammals. Their enormous ears help them to keep cool in the hot African climate.

Photograph by Beverly Joubert

African elephants are the largest land animals on Earth. They are slightly larger than their Asian cousins and can be identified by their larger ears that look somewhat like the continent of Africa. (Asian elephants have smaller, rounded ears.)

Elephant ears radiate heat to help keep these large animals cool, but sometimes the African heat is too much. Elephants are fond of water and enjoy showering by sucking water into their trunks and spraying it all over themselves. Afterwards, they often spray their skin with a protective coating of dust.

An elephant's trunk is actually a long nose used for smelling, breathing, trumpeting, drinking, and also for grabbing things—especially a potential meal. The trunk alone contains about 100,000 different muscles. African elephants have two fingerlike features on the end of their trunk that they can use to grab small items. (Asian elephants have one.)

Both male and female African elephants have tusks they use to dig for food and water and strip bark from trees. Males use the tusks to battle one another, but the ivory has also attracted violence of a far more dangerous sort.

Because ivory is so valuable to some humans, many elephants have been killed for their tusks. This trade is illegal today, but it has not been completely eliminated, and some African elephant populations remain endangered.

Elephants eat roots, grasses, fruit, and bark, and they eat a lot of these things. An adult elephant can consume up to 300 pounds (136 kilograms) of food in a single day.

These hungry animals do not sleep much, and they roam over great distances while foraging for the large quantities of food that they require to sustain their massive bodies.

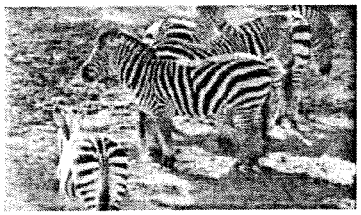
Female elephants (cows) live in family herds with their young, but adult males (bulls) tend to roam on their own.

Having a baby elephant is a serious commitment. Elephants have a longer pregnancy than any other mammal—almost 22 months. Cows usually give birth to one calf every two to four years. At birth, elephants already weigh some 200 pounds (91 kilograms) and stand about 3 feet (1 meter) tall.

African elephants, unlike their Asian relatives, are not easily domesticated. They range throughout sub-Saharan Africa and the rain forests of central and West Africa. The continent's northernmost elephants are found in Mali's Sahel desert. The small, nomadic herd of Mali elephants migrates in a circular route through the desert in search of water.

Please select a test to run

Zebra



ORDER: Perissodactyla

FAMILY: Equidae

GENUS: Equus

SPECIES: burchelli boehmi

DESCRIPTION:
Black ground color with bold contrasting stripes continuing all the way down to hooves; rarely any shadow stripes, except occasionally and faintly on hindquarters. Seven to ten neck stripes; three to four vertical body stripes. Short, upright mane. Tail terminally haired. Shoulder height 50"; weight 500-600 pounds.

GEOGRAPHICAL RANGE AND HABITAT:
From northern Zimbabwe to the Sudan in East Africa. Inhabits grasslands, especially those with scattered trees.

DIET:
In the wild, non-selective grazing of available grasses, especially grass stems and sheaths. Teeth very high crowned, an adaptation to chewing silica-rich grasses. Large barrel-shaped body holds a very large amount of relatively un-nutritious grass. Very dependent on water. At the zoo, they eat hay and alfalfa pellets fed inside at night.

LIFE CYCLE/SOCIAL STRUCTURE:
Live in stable family groups of up to 17 animals headed by a single stallion (Sometimes two stallions are part of the group, but one will be dominant). Mares stay with the group; offspring leave. Females establish a dominance hierarchy. During travel, group is led by the dominant female and her foal, followed by other females in their order of dominance. Members recognize each other by sight primarily, but also by voice and smell. Families maintain close bonds even during extended migrations with thousands of other zebra and wildebeest. The stallion is the rear guard when the family flees from a predator. Zebras are gregarious under conditions of abundant food or around water holes. Males have displays, including a sort of barking whinny, that seem to minimize aggression at such times. Males are not sexually mature until 5 to 6 years of age, although in zoos breeding may occur at 3 years of age. Until old enough to establish their own breeding groups, young males remain with their families or leave to form bachelor herds of 2 to 10 individuals. However, they retain good relationships with their fathers. Females have first estrous at 13-18 months but do not become fertile for another year. Young females have a characteristic stance during estrous which attracts nearby males who then attempt to abduct her. The abductor may have to fight her father to acquire her. She may be abducted by several males until she learns not to show estrous. This forceful removal from the family acts to prevent inbreeding. Under ideal conditions, a female may produce a foal every year. One young is born after a gestation of 361-390 days (about one year). Newborn has brown stripes and is short-bodied and long-legged. Weight 66-76 pounds; height 33". Female guards her baby from other members of the herd when it is first born, perhaps giving it time to learn her pattern of stripes. Foals are very attached to their mothers; bond lasts until birth of next foal. Life span is up to 28 years.

SPECIAL ADAPTATIONS:
Capable of running 40 mph. Zebras use hooves and teeth in defense. There is much discussion about the adaptive value of stripes, but none of the theories has consensus. One theory is that all those black and white stripes break up the shape and make it not so recognizable as prey; another is that the stripes of a herd exploding in all directions make it difficult for a predator to focus on one animal. The stripes also confuse the tsetse flies who cannot see the zebra for the stripes. And finally, the stripe pattern on each zebra is individual and the learned pattern of each serves to bond zebras together as a family group.

INTERPRETIVE INFORMATION:
The zebra is the only grazer to have both upper and lower incisors; it can thus snip the grass blade (rather than yanking it out), exposing the tender under grasses for others. The antelope of the plains rely on the zebra to open up the grasslands for them, removing the tough outer layers to expose nutritious parts.

OUR ANIMALS:
1 Male, 3 Females.

STATUS IN WILD:
Plains zebras are not in danger yet. They can eat coarse grass and are resistant to diseases that affect cattle, so as long as the African plains exist, so will the plains zebra. Two rarer species are in danger, however.

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4/18/2013

Community Group Overnight (7:00pm)
4/19/2013

Brownie Bugs Overnight (7:00pm)
4/20/2013

Animal Encounters (11:30am)
4/20/2013

Arroyo Viejo Creek Work Day (10:00 am)
4/20/2013

Animal Encounters (12:15pm)
4/20/2013

Sun Bear

ORDER: Carnivora

FAMILY: Ursidae

GENUS: Helarctos

SPECIES: malayanus

DESCRIPTION:
Smallest bear, length about 4.5 feet. Height at shoulder of 2.5 feet. Two-inch tail not easily seen. Weight 80-140 pounds. Coloration of sleek black fur with yellow crescent-shaped breast mark, grayish or orange shortened muzzle. Stocky build. Forearms incurved. Feet are large with strongly curved claws and naked soles. The ears are rounded and short. Head is short and flat with small eyes. Oakland Zoo also supports conservation organizations such as Animals Asia and Saving Sunbears.

GEOGRAPHICAL RANGE AND HABITAT:
Asia, Burma through Southeast Asia, Malay Peninsula, Sumatra and Borneo. May reach northern China and northeastern India. Dense tropical and subtropical forests at lower elevations.

DIET:
Omnivorous, using front paws for most of feeding activity. Trees are torn open in search of wild bee nests and for insects and their larvae. Also eat rodents, lizards, small birds, fruit, soft growing parts of palm trees and honey.

LIFE CYCLE/SOCIAL STRUCTURE:
Possibly no regular breeding season. Bears often sighted in pairs, leading to notion that they may be monogamous. Sexual maturity reached between 3 and 5 years of age. Mating occurs any time during the year. Litter of two blind, helpless 10-ounce cubs born on forest floor after a gestation of about three and a half months (not believed to have delayed implantation). Cubs walk at 2 months and are weaned at 4 months, but remain with mother for 2 years, learning to survive. Lifespan of 25 years.

SPECIAL ADAPTATIONS:
Arboreal, nocturnal. Sleep and sun bathe in tree nests formed of bent branches (often as high as 23 feet off the ground). Huge claws aid in climbing and manipulating food items and are probably used in defense as well. Unusually long tongue is used in slurping up insects. Bare soles also aid climbing.

INTERPRETIVE INFORMATION:
Also called "honey bear". Malayan name, basindo nan tenggil, means "he who likes to sit high". The pigeon-toed gait signals that this animal is arboreal. Chest markings are variable and may even be completely lacking, but the name "sun bear" may be due to the crescent shape usually present, likened to a rising or setting sun. If caught by large predator, can turn in its loose skin and bite attacker.

OUR ANIMALS:
3 Females.

STATUS IN WILD:
Listed as endangered by CITES. In Thailand, the primary threat is habitat destruction, especially logging, and the pet trade. By law, every man, woman and child is allowed to keep two of any species as pets, except none that are on the brink of extinction. Elsewhere poaching for meat and medicinal use of organs primarily in China, Taiwan, South Korea (greatest consumer) and Japan is the greatest threat. Thai officials say at least 30 sun bears were illegally shipped to South Korea to fortify Korean athletes for the 1988 Olympic Games. They are believed to be extirpated from India and Bangladesh and seriously threatened if not extinct in China, Burma, and Vietnam. Borneo is the one remaining stronghold for these bears.

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Arroyo Viejo Creek Work Day (10:00 am)
4/20/2013

Animal Encounters (12:15pm)
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Wolverines

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Because of they require lots of open space, wolverines frequent remote boreal forests, taiga, and tundra in the northern latitudes of Europe, Asia, and North America.

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Wolverines are large, stocky animals that look like small bears, but they are the largest member of the weasel family.

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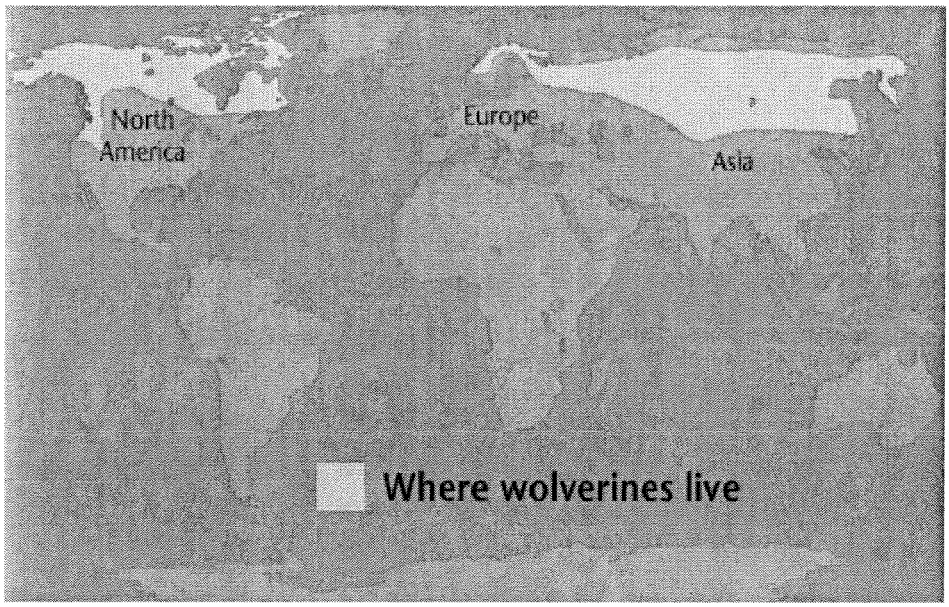
3. Keep this card and collect all our cards!



FACTS ABOUT WOLVERINES:

Wolverines are large, stocky animals that look like small bears, but they are the largest members of the weasel family. These tough animals are solitary, and like to roam long distances. Individual wolverines have been known to travel 15 miles (24 kilometers) in a single day in search of food.

Because of they require lots of open space, wolverines frequent remote boreal forests, taiga, and tundra in the northern latitudes of Europe, Asia, and North America.

In the summer months, wolverines eat many plants and berries, but this does not make up a major part of their diet—they are fierce predators with a taste for meat. Wolverines easily catch smaller prey, such as rabbits and rodents, but may even attack large animals many times their size, such as caribou and, on occasion, lynx, if the prey appears to be weak or injured.

Their feet are wide and furred, webbed, and front feet have long, strong claws, which help them climb. They often follow wolves to scavenge the remains of their prey. Wolves sometimes attack and kill the interlopers.

Wolverines also feed on carrion—the corpses of larger mammals, such as elk, deer, and caribou. During winter, these dead animals can sustain them when other prey is scarce. They have also been known to dig into burrows and eat hibernating mammals!

Males mark their territories with their scent, but they allow several female wolverines to live there. Females den in the snow to give birth to two or three young each late winter or early spring. Young wolverines, called kits, sometimes live with their mother until they are two years old.

Wolverines' thick fur is brown with two yellowish stripes on back. Trappers hunted wolverines for their fur in North America. In the past, their fur was used to line parkas, but this is less common today and the animals are protected in many areas.

Fast Facts
The scientific name for the wolverine is *Gulo gulo*.

Wolverines are mammals.

They are omnivores but are strong predators and eat lots of meat.

Wolverines will live 7 to 12 years in the wild.

Their head and body measure about 26 to 34 inches (66 to 86 centimeters) and their tails are usually 7 to 10 inches (18 to 25 centimeters) in length.

They can weigh from 24 to 40 pounds (11 to 18 kilograms).

Photograph by Alaska Stock Images
Illustration by NG Maps

NATIONAL GEOGRAPHIC KIDS

Printables

American Bison

DESPITE THEIR HEFTY SIZE, BISON ARE QUICK ON THEIR FEET.

fold here

American Bison

NATIONAL GEOGRAPHIC KIDS

tape here

Bison, sometimes called buffalo, are the iconic image of the Great Plains and the Old West. They are massive, shaggy beasts and the heaviest land animals in North America.

tape here

These large plant eaters feed on grasses, herbs, shrubs, and twigs.

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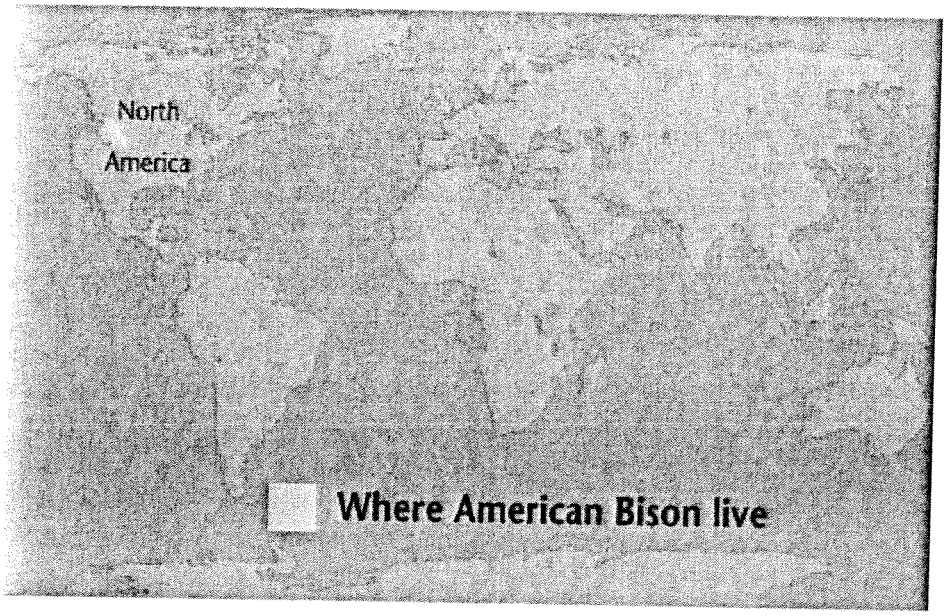
INSTRUCTIONS FOR COLLECTOR'S CARD (previous page)

1. Cut the card out along the dashed line.
2. Fold the card in half along the solid line and tape the card's edges.
3. Keep this card and collect all our cards!



FACTS ABOUT AMERICAN BISON:

Bison, sometimes called buffalo, are the iconic image of the Great Plains and the Old West. They are massive, shaggy beasts and the heaviest land animals in North America.

Bison are 5 to 6.5 feet (1.5 to 2 meters) tall at the shoulder, and can tip the scales at over a ton (907 kilograms). Despite their hefty size, bison are quick on their feet. With their small rumps and long front legs they can run faster than some racehorses—up to 40 miles (65 kilometers) an hour. Their curved, sharp horns can grow to be two feet (61 centimeters) long.

These large plant eaters feed on grasses, herbs, shrubs, and twigs. They can't fully digest their food and need to regurgitate it and chew it as cud before final digestion.

Females (cows) and adult males (bulls) generally live in small, separate bands and come together in very large herds during the summer breeding season. Males battle for mating rights, but such contests rarely turn dangerous. Females give birth to one calf after a nine-month pregnancy.

All bison wallow several times a day during the hot summer days. They stir up dirt and roll around in the dust. The dusty cloud of dirt probably deters insects and may keep their bodies cool.

Bison once covered the Great Plains and much of North America, and were important to Plains Indian societies. During the 19th century, settlers killed some 50 million bison for food, sport, and to deprive Native Americans of their most important natural asset.

The once enormous herds were reduced to only a few hundred animals. Today, about 200,000 bison live on preserves and ranches where they are raised for their meat.

An American bison image appeared on U.S. five-cent coins from 1913 to 1938 on the "tail" side of the Indian Head nickel (sometimes called the buffalo nickel), and they appear on the new state quarters for Kansas and North Dakota.

Fast fact:
Scientific name is *Bison bison*

The largest land mammal in North America.

Size: Head and body, 7 to 11.5 feet (2.1 to 3.5 meters); tail 19.75 to 23.5 inches (50 to 60 centimeters)

Buffalo chips, or dried bison dung, was an important fuel for cooking and heating for the settlers who crossed the open plains.

"Home on the Range," the state song of Kansas, begins with the phrase, Oh give me a home where the buffalo roam.

Photograph by Lela Bouse-McCracken, My Shot
Illustration courtesy NG Maps

Submit C

Quick facts

Photo Bytes

Class: Mammalia (Mammals)
Order: Carnivora
Family: Felidae
Genus: *Panthera*
Species: *leo*
Subspecies:
• *Panthera leo* (African)
• *Panthera leo persica* (Asian)
Body length: males—5.6 to 8.3 feet (1.7 to 2.5 meters); females—4.6 to 5.7 feet (1.4 to 1.7 meters);
Tail length: 27 to 41 inches (70 to 105 centimeters)
Shoulder height: males—4 feet (1.2 meters); females— 3.5 feet (one meter)
Weight: males—330 to 550 pounds (150 to 250 kilograms); females—265 to 400 pounds (120 to 180 kilograms)
Life span: 15 years in the wild, up to 30 in zoos
Gestation: almost 4 months
Number of young at birth: 1 to 6, usually 3 to 4 in a litter
Size at birth: 3 pounds (1.5 kilograms)
Age of maturity: 3 to 4 years
Conservation status: Asian lion is **vulnerable**; African lion is not currently endangered, but there is no space for it to live in Africa outside of parks and reserves.

Fun facts

• Some male lions do not have manes, seen most often in East Africa.
• Lions can often survive in extreme drought conditions, eating tsama melons for moisture in the Kalahari Desert.
• Lions are the only members of the cat family to have males and females that look distinctly different.
• Only lions have a tuft of dark hairs on the tips of their tails, which helps them communicate with other lions in their pride.

See them

San Diego Zoo and San Diego Zoo Safari Park

More

Video of lion cubs
Cat blog

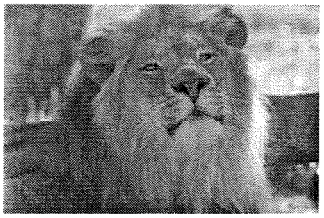
Animal Bytes:

- Caracal
- Cheetah
- Clouded Leopard
- Fishing Cat
- Jaguar
- Leopard
- Lynx & Bobcat
- Mountain Lion
- Ocelot
- Serval
- Small Cat

Mammals: Lion

Range: parts of Africa and the Gir Forest of India
Habitat: grassy plains, savannas, open woodlands, and scrubland

The king of the jungle, forest, and savanna



Lions have captured our imaginations for centuries. Stars of movies and characters in books, lions are the top of the African food chain. The Swahili word for lion, *simba*, also means "king," "strong," and "aggressive." The word lion has similar meaning in our vocabulary. If you call someone lionhearted, you're describing a courageous and brave person. If you lionize someone, you treat that person with great interest or importance.

Lion lore

African Lions— Scientists know more about African lions *Panthera leo* than any other cat. It is estimated that there are between 6,000 and 10,000 lions in Africa.

Asian Lions— Asian lions *Panthera leo persica* used to be found from the Middle East across to India. Now they are only found in the Gir Forest in India. There are only about 200 to 260 of these endangered lions left in the wild. They live in a reserve that used to be royal hunting grounds, in an area of dry teak forest. There are also about 200 Asian lions living in zoos.

Lions lying around

A lion's life is filled with sleeping, napping, and resting. Over the course of 24 hours, lions have short bursts of intense activity, followed by long bouts of lying around that total up to 21 hours! Lions are good climbers and often rest in trees, perhaps to catch a cool breeze or to get away from flies. Researchers have often noticed lions lying around in crazy poses, on their backs with their feet in the air or legs spread wide open!

Living with (a) pride

Lions are the only cats who live in large, social groups, called "prides." A pride is made up of 3 to 30 lions. The pride consists of lionesses (mothers, sisters, and cousins), and their cubs, along with a few unrelated adult males. The pride has a close bond and is not likely to accept a stranger. The unrelated males stay a few months or a few years, but the older lionesses stay together for life. In dry areas with less food, prides are smaller, with two lionesses in charge. In habitats with more food and water, prides can have four to six adult lionesses.

All for one and one for all

Living in a pride makes life easier. Hunting as a group means there is a better chance the lions will have food when they need it, and it is less likely that they will get injured while hunting. Lion researchers have noticed that some activities are "contagious" in prides. One lion will yawn, or groom itself, or roar, setting off a wave of yawning, grooming, or roaring! Lions and lionesses play different roles in the life of the pride.

You go, girls!

Lions live in a matriarchal society. The lionesses work together to hunt and rear the cubs. This allows them all to get the most from their energy, keeping them healthier and safer. Being smaller and lighter than males, lionesses are more agile and faster. During hunting, smaller females chase the prey towards the center. The larger and heavier lionesses ambush or capture the prey. Lionesses are versatile and can switch hunting jobs depending on which females are hunting that day and what kind of prey it is.

A king's life

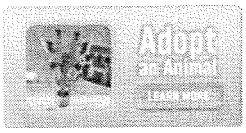
While it may look like the lionesses do all the work in the pride, the males play an important role. While they do eat more than the lionesses and bring in far less food (they hunt

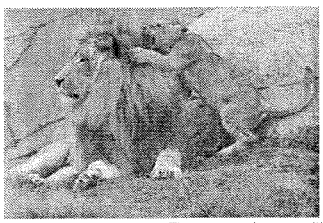
- Snow Leopard
- Tiger

Sound Bytes:

Listen to a lion's roar!

Listen to a lion's snarl!





less than 10 percent of the time), males patrol, mark, and guard the pride's territory. Males also guard the cubs while the lionesses are hunting, and they make sure the cubs get enough food.

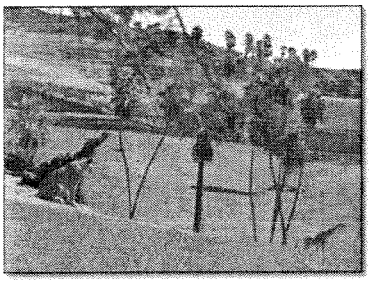
When new males try to join a pride, they have to fight the males already there. The lion's thick mane protects his neck against raking claws during fights with other males for membership in the pride. The new males are either driven off, or succeed in pushing out the existing males.

Lion school begins early

From the time they are born, cubs have a lot to learn! They can nurse from any adult lioness in the pride, not just their owns moms. Cubs born in a pride are twice as likely to survive as cubs born to a lioness on her own. How long a lion cub stays with Mom depends on the sex of the cub. Mothers generally raise males until they are just about two. Once they hit that stage in life, the mother usually runs them out of the group, and they are on their own; sometimes the subadult males form bachelor groups and run together until they are big enough to start challenging big males in an attempt to take over a pride. If the cubs are female, Mom cares for her offspring until about two years of age, but females usually stay with the pride they were born into, and Mother and daughter may live together for life.

Dinner at dusk and dawn

A lion chasing down prey can run the length of a football field in six seconds. Their eyes have a horizontal streak of nerve cells, which improves their vision following prey across a plain. Lions have been spotted taking down animals as large as buffalo and giraffes! They will even drag this heavy prey into thickets of brush to keep other animals from getting it.



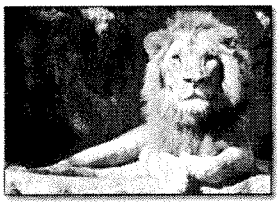
Lions hunt antelope and hoofed animals, baby elephants or rhinos, rodents, reptiles, insects, and even crocodiles. They will also scavenge or steal prey from leopards, cheetahs, hyenas, or wild dogs, even eating prey that is spoiled. Lions digest their food quickly, which allows them to return soon for a second helping after gorging themselves. At the San Diego Zoo and the San Diego Zoo Safari Park, the lions get carnivore diet, as well as an occasional large bone, thawed rabbit, or sheep carcass.

Are lions in trouble?

Yes and no. Natural habitat for lions is now only found in protected reserves, where lions are doing well. Although there are still enough lions to provide genetic diversity and prevent inbreeding, lion movement between prides is becoming more limited. Some hunting is still allowed on reserves, and there are so many lions for so little space that rangers often put the females on birth control to reduce the number of cubs born. Ranchers sometimes poison lions that prey on livestock.

Photo Bytes

2 of 4



Asian lions live in smaller prides than African lions. They are smaller in size, and the males have shorter manes.

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Quick facts

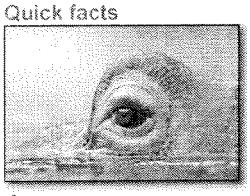


Photo Bytes

Class: Mammalia (Mammals)
Order: Artiodactyla
Family: Hippopotamidae
Genus: *Hippopotamus*
Species: *amphibius*
Length: 10.8 to 16.5 feet (3.3 to 5 meters)
Shoulder height: up to 5.2 feet (1.6 meters)
Weight: males—3,500 to 9,920 pounds (1,600 to 4,500 kilograms); females—average 3,000 pounds (1,400 kilograms)
Life span: about 45 years
Gestation: 8 months
Number of young at birth: 1
Size at birth: 50 to 110 pounds (25 to 45 kilograms
Age of maturity: males, average of 7 years; females, 5 to 6 years

Conservation

status: **vulnerable**

Fun facts

- Hippos can run up to 14 miles per hour (30 kilometers per hour) on land.
- The hippo is similar in size to the white rhinoceros.
- Hippos can store two days' worth of grass in their stomachs and can go up to three weeks without eating, if needed.
- If pressed, an adult hippo might be able to hold its breath underwater for up to 30 minutes.
- In African rivers, hippos look like floating islands, with birds fishing from their backs. Turtles and even baby crocodiles have been seen sunning themselves on hippos!
- Hippos are one of the noisiest animals in Africa: some hippo vocalizations have been measured at 115 decibels, about the same volume as being 15 feet away from the speakers at a rock concert!
- A group of hippos is sometimes called a bloat, pod, or siege.

See them

San Diego Zoo

More

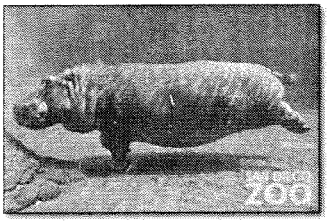
Animal Bytes: Pygmy Hippopotamus
Blog posts:

Mammals: Hippopotamus

Range: West, Central, East, and South Africa
Habitat: rivers, lakes, and their surrounding grasslands

What's in a name?

"Hippopotamus" comes from a Greek word meaning "water or river horse." But hippos are not related to horses at all—in fact, their closest living relatives may be pigs or whales and dolphins! species of hippopotamus: the river, or common, hippo *Hippopotamus amphibius* (featured on this fact sheet) and the much smaller pygmy hippo *Hexaprotodon liberiensis*. The hippo is heaviest land mammal (after the elephant).



Come on in, the water's fine!

Hippos are definitely adapted for life in the water and are found living in slow-moving rivers and lakes in Africa. With their eyes, ears, and nostrils on the top of the head, hippos can hear, see, and breathe while most of their body is underwater. Hippos also have a set of built-in goggles: a clear membrane covers their eyes for protection while still allowing them to see when underwater. Their nostrils close and they can hold their breath for five minutes or longer when submerged. Yet despite all these adaptations for life in the water, hippos can't swim! They can't even float! Their bodies are far too dense to float, so they move around by pushing off from the bottom of the river or simply walking along the riverbed in a slow-motion gallop, lightly touching the bottom with their toes like aquatic ballet dancers.

Blood sweat

Hippos have unique skin that needs to be kept wet for a good part of the day. Staying out of the water for too long can lead to dehydration, so hippos try to stay in the water during the day. They don't have true sweat glands; instead, hippos secrete a thick, red substance from their pores known as "blood sweat" because it looks like the animal is sweating blood. But not to worry! The blood sweat creates a layer of mucous that protects hippo skin from sunburn and keeps it moist. It is thought that this mucous may also prevent infections because even large wounds don't get infected despite the filthy water hippos sometimes live in.

A little goes a long way

During daylight hours, the hippo spends almost all its time wallowing in shallow water. In the evenings, after the hot sun has set, hippos come out of the water for a night of grazing—in fact, this goes on for about six hours! Despite their enormous weight, hippos eat an average of only 88 pounds (40 kilograms) of food a night. This amount is about 1 to 1.5 percent of their body weight. By comparison, the largest cattle eat 2.5 percent of their body weight each day. While hippos like to feed on patches of short grasses (called "hippo lawns") close to water, they must sometimes travel several miles (kilometers) to find food, making long trips on land to new lakes or rivers. Their ears help them hear the sounds of falling fruit and their keen sense of smell helps them sniff out the tasty treats. Hippos are mostly inactive unless eating and this helps them conserve energy. At the San Diego Zoo, the hippos are fed herbivore pellets, alfalfa and Bermuda hay, lettuce, and on special occasions, melons.

Rub-a-dub-dub, baby hippo in a tub

The breeding season for hippos is linked to the dry season so that most births happen during the

- First Birthday for Hippo
- Baby Hippo!
- Hippo Photo Goes Global
- Hippos: Big Love
- Enormous Changes for Hippos

Videos:

- Happy Birthday, Adhama!
- Hippo Calf Update
- Hippo Calf Underwater Ballet
- Baby Hippo is a Boy!
- Zoo Welcomes Birth of Hippo

Sound Byte:

Listen to a hippopotamus

wettest time of the year. Hippos prefer to breed in the water but can also do so on land. Amazingly, the hippo gestation period is just 8 months—slightly shorter than the human gestation period—yet the hippo calf is about 10 times larger than a human baby! When the female, called a cow, nears the time to give birth, she will leave the herd for one or two weeks to give birth to her young and create a bond with her calf. She is comfortable giving birth in water or on land. If the calf is born underwater, the mother needs to push it to the surface to breathe. Newborn hippos are only able to hold their breath for about 40 seconds at a time. The mother stays in the water with her newborn for several days without eating, and she waits until her baby is strong enough before they dare to go out at night to graze. Mothers will nurse their babies, even underwater, for about eight months.

What's that I "herd"?

The hippopotamus is a social animal, living in groups of 10 to 30 animals. They have even been seen in much larger groups of up to 200 animals! The herd has several cows and several bulls (males), but there is one dominant bull. He has the right to mate with all cows in his herd, although he will sometimes allow subordinate bulls in and around his territory to mate. The dominant bull reminds other hippos of his territory by flinging his dung as far as possible with his fan-shaped tail! When rival bulls meet, they stand nose to nose with their mouths open as wide as possible, up to 150 degrees. This is called "gaping," a way to size each other up. Usually the smaller bull will then retreat without being pursued by the larger hippo. When two hippos do decide to fight, they slash out with their tusks or swing their enormous heads like sledgehammers while bellowing loudly. They have been known to die as a result of a very aggressive battle.

Cute, but not cuddly

Despite the hippos' cute appearance, they are among the most dangerous and aggressive of all mammals. Their canine teeth and incisors grow continuously, with canines reaching 20 inches (51 centimeters) in length. Bulls especially use their canines for fighting. To ward off enemies, a hippo may yawn, scoop water with its mouth, shake its head, rear up, lunge, roar, grunt, chase, and make a loud wheezing sound, all of which are threat displays. A hippo can kill people if it's provoked or feels threatened. But the impressive tusks and canine teeth are used mainly for defense or fighting with other hippos.

Uncertain future

Although the hippo is not yet endangered, its habitat has been greatly reduced over the last 200 years. Once common to all of Africa, hippos are now abundant only in East Africa. Poachers sometimes hunt hippos for their large, soft ivory tusks, which are easier to carve than elephant tusks. Humans have moved into hippo habitat, using the fresh water where hippos live for farming needs. A new threat to hippos these days is hunters who kill them for their meat, which has become a popular food item.

Photo Bytes 1 of 9

A month-old hippo sticks close to her mother, who is about 80 times larger!

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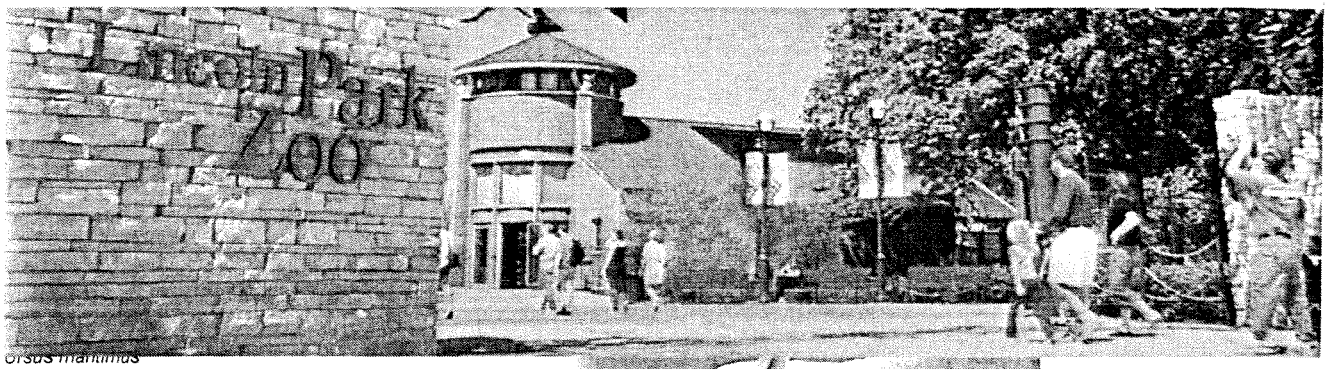
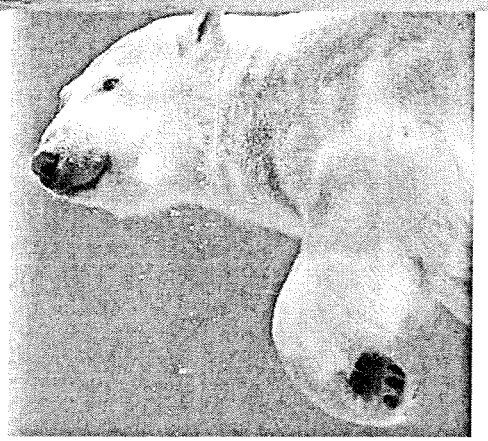


Ursus maritimus



Class
Mammals

Order
Carnivora

Description
The largest land-based predators on Earth, polar bears can reach up to 8 feet long and 1700 pounds in weight. Their distinctive white coat is actually composed of long, transparent hairs; the reflection of light on fur provides the white appearance. Small ears and a short tail help limit heat loss in the polar bear's icy environment while large paws assist them in paddling through the water.

Range
Polar bears make their homes on the ice of the Arctic Ocean, where they hunt seals and other blubber-rich prey. During summer, the bears can occasionally be found on islands and icy coastlines.

Status
This massive predator is classified as vulnerable. As the bears are dependent on ice to hunt their prey, global warming has left them with a shrinking habitat. Lincoln Park Zoo participates in the Polar Bear Species Survival Plan®, a shared conservation effort by zoos throughout the Association of Zoos and Aquariums.

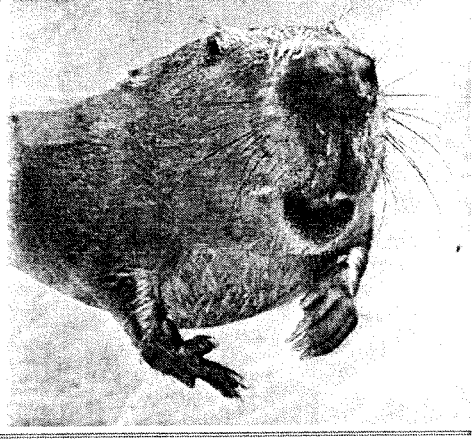
Habitat
Polar bears inhabit the ice floes surrounding the North Pole. They can be found in Canada, Alaska and even the southern shores of Greenland and Iceland.

Niche
Polar bears are carnivorous, preying mostly on seals. They often lay in wait for their prey, staking out a seal's breathing hole in the ice and attacking when the marine mammals resurface. Polar bears are strong swimmers and can head under the ice to sneak up on prey. The energy-rich blubber of seals provides polar bears with the nutrients they need to stay warm in their icy home.

Life History
Polar bears are solitary, coming together only to breed. After mating, females will dig snow dens to give birth to their litters of one–four cubs. Cubs are born blind and helpless, and they remain in the den for months as they mature. Even after leaving the den, cubs are dependent on their mother's care for two–three years. Male polar bears are known to prey on cubs, so females have to be vigilant in defending their young.

Special Adaptations
- The polar bear's thick coat helps it to stay warm, and black skin beneath helps the species absorb heat. Beneath the skin, a sizable layer of blubber—up to five inches thick—helps the mammal stay warm.
- In addition to insulation, the polar bear's coat provides camouflage as well. By blending into the snow of the Arctic, the predator is better able to stalk prey.
- Thick fur on the polar bear's feet helps the species maneuver on the ice.

Castor canadensis



Class
Mammals

Order
Rodentia

Description
Large incisors, a thick, flat tail and waterproof brown fur make the American beaver easy to recognize. The species, which can weigh up to 65 pounds, is one of the largest members of the rodent order. Adults can reach up to four feet in body length, with the tail extending an additional one-two feet beyond that.

Range
Alaska to Mexico

Status
The American beaver was nearly driven to extinction in the 1800s due to overhunting. North American populations have rebounded, however, and the species can now be found through much of its original range.

Habitat
Streams and small lakes surrounded by tree groves

Niche
In the spring, the American beaver primarily feeds on leaves, shoots and grasses, but in the fall the mammal switches to a diet mostly consisting of trees and branches. Bacteria in the beaver's stomach help it digest wood.

Beavers build their dams from mud, stones, sticks and branches. The large mounds with underwater entrances provide the beaver with protection from predators and help to flood lakes and streams, providing additional habitat. Beavers will also store branches and sticks in the water near their dams. The cool water preserves the food for the rodents to eat in winter.

Life History
Beavers live in family groups consisting of a mating pair and their young offspring. The group occupies a defined territory, working together to build their dam and drive off other beavers that intrude. The animals communicate via scent and by slapping the water with their tails, a signal that warns other group members to seek cover.

Male and female beavers mate for life, producing one litter of offspring, or kits, every year. All group members contribute to bringing food to the den to feed the young. Newly born beavers can swim within hours after birth, and they usually begin to explore the area outside their dens with their parents within a few days.

Special Adaptations
- The American beaver's tail helps it steer through the water and also provides a powerful paddle for extra speed.
- Translucent membranes cover the beaver's eyes when it dives, enabling it so see underwater. The mammal's throat can also be sealed tight by its tongue, helping it carry (and chew) sticks underwater.
- Beaver's teeth are durable and grow constantly throughout their lives, a necessity for gnawing through trees. A group of the animals working together can fall a tree that's a foot thick in less than four hours.

Ice Age Mammoth

PRINCIPIA COLLEGE ELSAH, ILLINOIS

visit our website: www.prin.edu/mammoth

Our knowledge of mammoths is based on the fossil record and our knowledge of modern elephants

PRINCIPIA'S MAMMOTH:

Woolly Mammoth – *Mammuthus primigenius*
or* Jeffersonian Mammoth – *M. jeffersonii

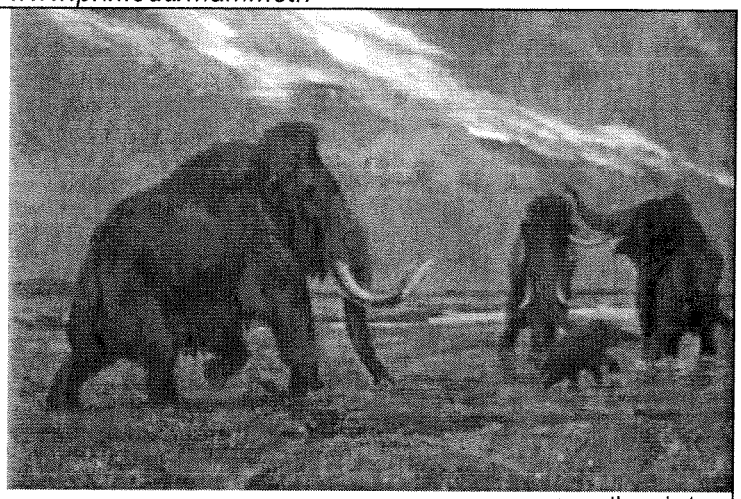
- Male, based on tusks
  - Massive tusks, ~6.5 ft long
- Mature (39-43 years old), based on teeth
  - Last set of molars (M3)
  - Amount of wear on molars
- 10.7 ft tall at shoulder
  - determined from length of humerus
- Flat molars were for grinding grass
- Ate ~300 pounds of vegetation a day
- Weighed ~6 tons
- Head is 12-25% of body weight
  short neck, long nose to reach ground

WHEN DID HE LIVE?
WHAT WAS THE AREA LIKE THEN?

GEOLOGY

Buried in wind-blown loess (fine silt)

- Loess blankets limestone bluffs
- Silt derived from glacial deposits in flood plain
- Accumulated from 12,000-55,000 years ago
- Our mammoth is in the upper part of the loess so we estimate that he **lived ~17,500 years ago**



www.mammuthus.chat.ru

CLIMATE & HABITAT

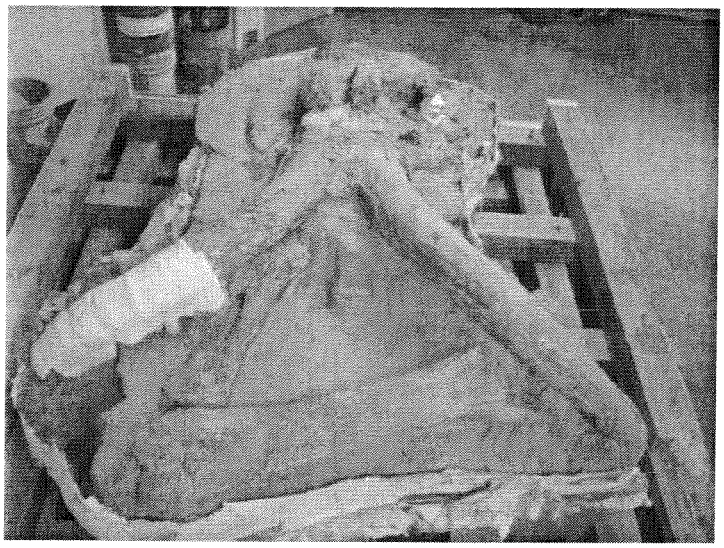
Ice Age

- From 1.6 million years ago to ~13,000 years ago
- This area – last glacier melted about 125,000 ybp

Climate – cold, windy at times (dust storms)
Habitat – tundra-like steppe environment, grassland

HOW DID THEY SURVIVE THE COLD?

- Hairy coat – 3 layers
  - Outer guard hairs – coarse, 3' long in places
  - Underfur – thinner, shorter, 10-12" long
  - Thick layer of wool next to skin – 1-3" long
- ~4" of fat beneath its skin to insulate it
- Small ears (less heat loss)



MAMMOTH EVOLUTION

Order Proboscidea (includes all elephants)
Proboscideans evolved ~50 million years ago (mya)
Proboscis = long flexible snout
165 species

Elephantids split into 3 main groups ~3-5 mya
Mammuthus (mammoths – now extinct)
African elephant (modern)
Asian elephant (modern)

Mastodons evolved ~25 mya and are quite different from mammoths in size, diet, structure, habitat
Mammoths are not closely related to mastodons, nor are they the ancestors of the modern elephant

Mammoths occurred originally in Africa
Then moved north into Europe and Asia
Steppe mammoth evolved into woolly mammoth
Woolly mammoth traveled into North America via the land bridge (Central Beringia) ~1.8 mya
Ancestral mammoth traveled into North America and evolved into Columbian mammoth

COMPARING MAMMOTHS, MASTODONS, AND MODERN ELEPHANTS

Ancestral mammoth
- 13' tall
- lived in warm tropical forests
- died out as climate cooled

Steppe mammoth
- 14' tall
- became extinct

Columbian mammoth
- 13' tall, weighed 10 tons
- low-latitude temperate grasslands
- large ears

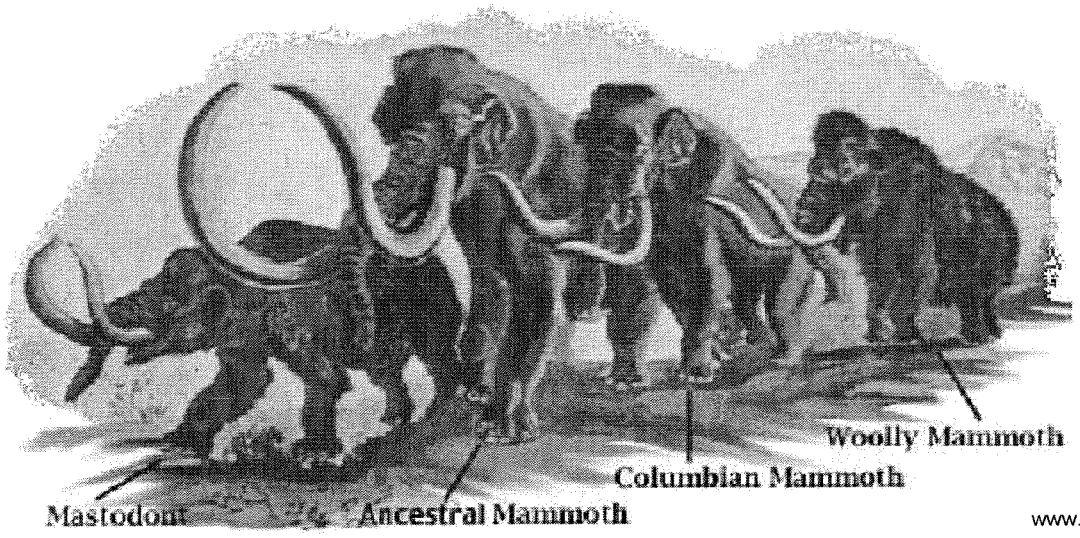
Woolly mammoth
- 11' tall, weighed ~6 tons
- cold arctic steppe (cold, dry grassland)
- head high-crowned
- grazer

Jefferson's mammoth
- Intermediate between Columbian and Woolly

Mastodon (not a mammoth)
- shorter, stockier - 8-10' tall
- head more sloped
- teeth had pointed ridges/cones
- browser – ate branches, twigs, leaves, roots, melons

African elephant
- 10' tall, weighs 6 tons (up to 11 tons)
- big ears shaped like Africa
- no domes on head
- back dips in the middle
- longer legs than Asian elephant
- teeth like mammoth – flat

Asian elephant (more akin to woolly mammoth)
- shorter, weighs 5 tons
- smaller ears
- double domes on head
- rounded or hump-shaped back



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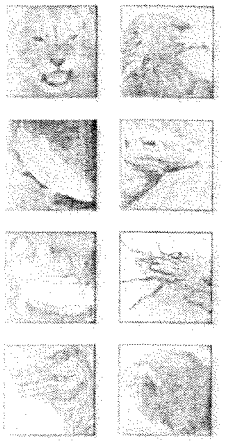
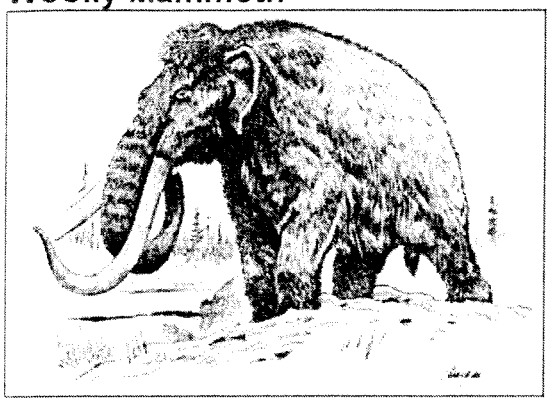
Prehistoric Mammals

More Prehistoric Animals



Woolly Mammoth



Where are they found? Asia, Europe, North America

Woolly mammoth, *Mammuthus primigenius*

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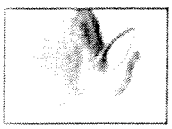
Woolly mammoths are symbolic of the ice age because of their large size (about 3 m high at the shoulders; 10 ft.), broad circumpolar geographic distribution, relative abundance during the last glaciation and adaptation to cold environments. A great deal is known about the appearance of these hairy elephants as a result of the discovery of several well-preserved carcasses in frozen ground in Siberia and Alaska, and from depictions in European Paleolithic cave art. The woolly mammoth had large (up to 4 m; 13 ft.), curved ivory tusks, a high domed head and sloping back. Their coats were similar to those of muskoxen (*Ovibos moschatus*), consisting of long (up to 90 cm; 35 in.), dark guard hairs and fine underwool. Under the coat was an insulating layer of fat up to 9 cm (3.5 in.) thick. Their cheek teeth were massive, and comprised a large series of compressed enamel plates that make excellent grinding mills for the relatively tough, dry grasses on which these animals commonly fed. These mammoths roamed the northern tundra and cool steppe grasslands of Eurasia and North America during the Late Pleistocene Epoch. One of the best Canadian specimens is a nearly complete skeleton of an adult female from Whitestone River, Yukon. It died there about 30 000 years ago, according to a radiocarbon date, and was located by following up a legend related by a native elder in the settlement of Old Crow. Woolly mammoth tracks are clearly recorded in 11 000-year-old sediments at a site near Cardston, Alberta. They yield information on both herd structure and behaviour of these extinct elephants. Woolly mammoths could not cope with the rapidly changing environment and increasing human predation toward the close of the last glaciation, and most became extinct about 11 000 years ago. However, some survived as late as 3700 years ago on Wrangel Island off the northeastern coast of Siberia.

More Images



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The Disappearance of Dinosaurs

Dinosaurs, after being a common and dominant life form for millions of years, disappeared from the Earth approximately 65 million years ago. Many other species of animals disappeared at the same time leading scientists to search for the cause of this large-scale extinction. There have been other large-scale extinctions during the Earth's history and there are many theories as to what caused the relatively sudden disappearance of so many species. Scientists disagree about how long it took for the dinosaurs and other life forms to disappear – some believe it happened very quickly, while others believe it took place over a few million years, which is relatively quick in terms of geologic time.

Some scientists attribute the dinosaur disappearance to a series of volcanic eruptions. These eruptions caused huge volumes of ash to be released into the atmosphere, blocking sunlight. This decrease in sunlight in turn caused the Earth to cool and would have affected plant life and microorganisms that rely on sunlight to survive. As plant life changed or died out as a result of the changing environment, herbivores like the dinosaurs would have had to change their diet or not survive. If dinosaurs were unable to adapt, the predators that fed on them would have had to change eating habits or die as well. Only animals that could change and adapt to the new conditions would be able to survive.

Other scientists theorize that a meteor struck the Earth with enough force to cause huge amounts of dust to be released into the atmosphere. This dust could have created a similar situation as described above – cooling the Earth and affecting plant survival.

There is also a theory that the Earth's atmosphere changed more slowly due to evolving conditions here on Earth. These changes may have led to a cooler or even warmer environment. This change in climate would have affected the types of plants that survived and may have caused dinosaurs to starve.

Some scientists believe that this extinction could only have been brought about by a combination of these or even other factors. Any of the above events could have caused this extinction 65 million years ago. An event that affected plant life would have created a chain reaction of events – herbivores that rely on those plants would have been affected, and even oxygen levels could have been affected by a decrease in plant life.