

Mammals



Evolution and Characteristics

Mammals belong to the class Mammalia, which includes 4000 species

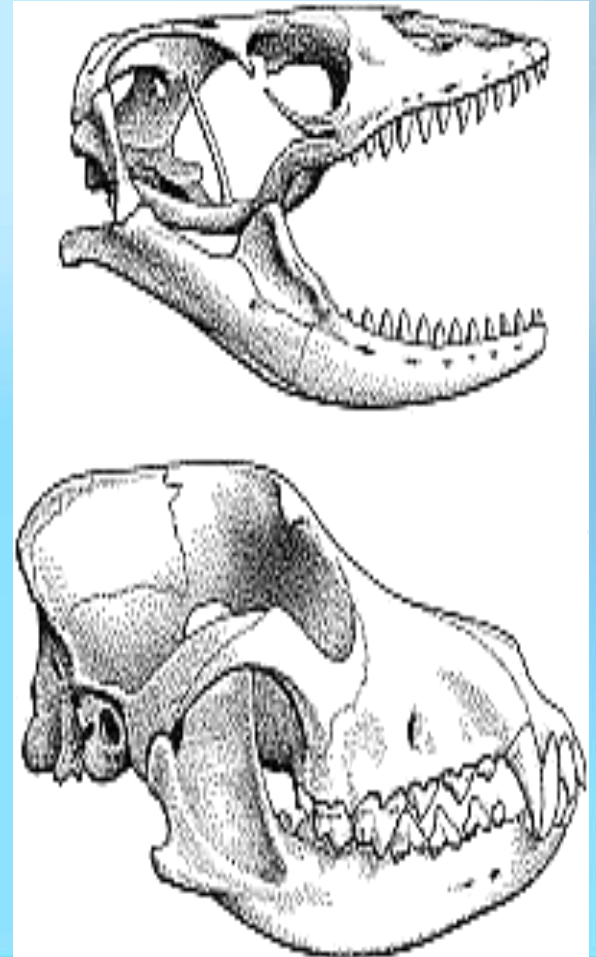
Most dominant land animals on earth.



Origin

Fossil skeletons show that early mammals had large eye sockets, which may have meant that they were active at night.

Mammals did not compete with dinosaurs for food, for they would feed on insects.

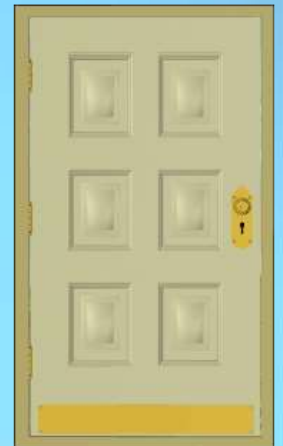
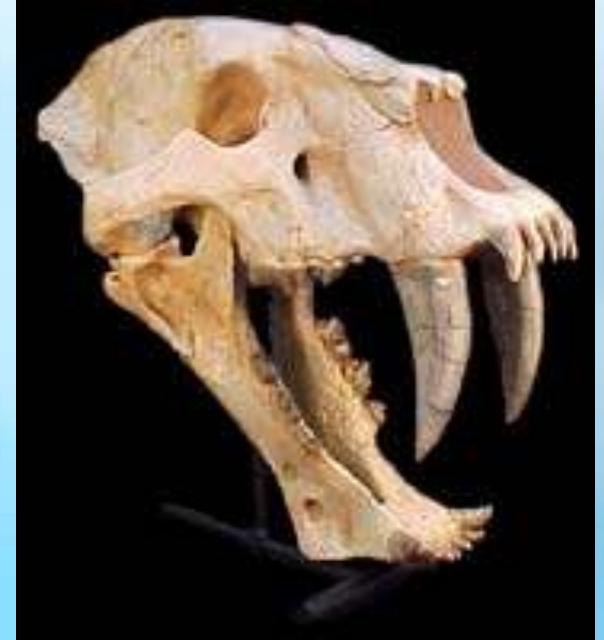


Origin

Mammals were not abundant during the Mesozoic era.

Fossils of the first mammals are scarce thus indicating that they were not as abundant.

The Cenozoic era is named the age of mammals, for this is the time which mammals rapidly started to increase



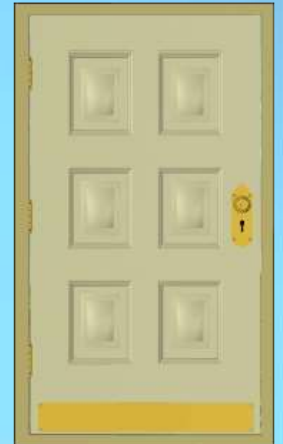
Evolution

- Animals evolved from the group of reptiles called Therapids.
- Therapids have both reptilian and mammalian characteristics.
- Therapids have a jaw bone composed of 5 bones rather than a simple jaw bone.



Evolution

- Like mammals, Therapsids have specialized teeth adapted for specialized functions.
- The earliest mammalian fossil found is from the early Mesozoic era, 200 million years ago



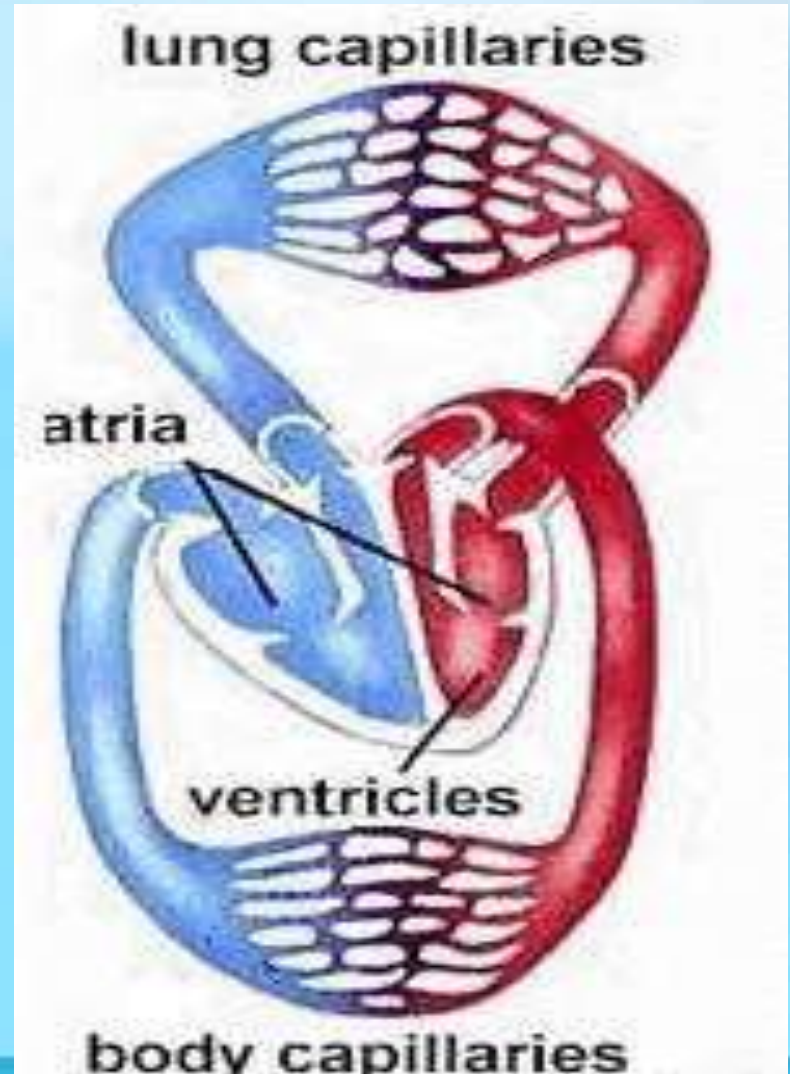
Characteristics

- Mammals are endothermic
- Mammals have hair
- Well-developed brains



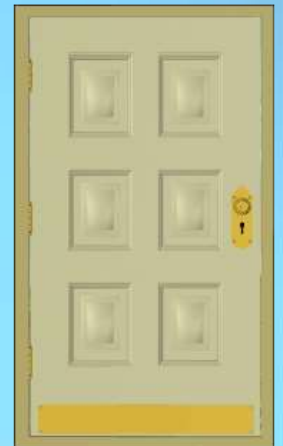
Characteristics

- Mammalian heart has 4 chambers
- Mammals have a muscle, the diaphragm that aids in breathing



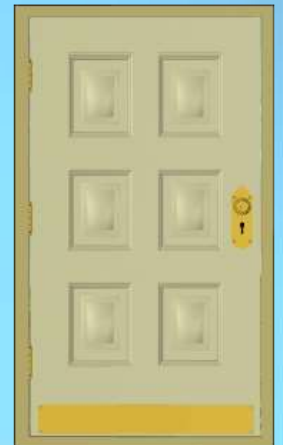
Characteristics

- Mammals have single lower jaw
- Most species have 4 different types of teeth

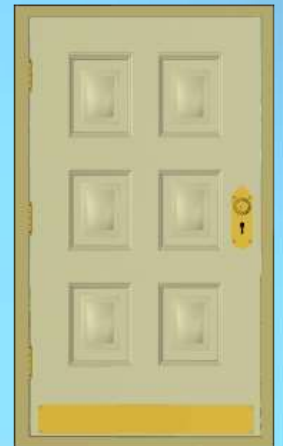


Characteristics

- Most species are viviparous, in which females carry their young until full development
- Female secrete milk from mammary glands to feed newborn young.

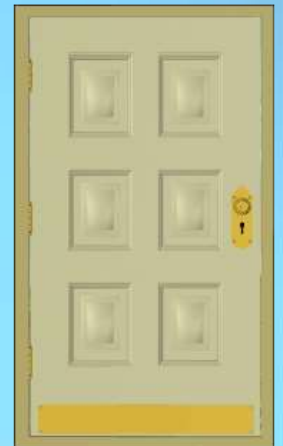


Two features that distinguish them from other invertebrates are that they all have hair and they produce milk.



Mammal Orders

There are 19 orders of mammals in the class Mammalia in which 17 nourish unborn young in the placenta, egg laying mammals and marsupials



Monotremes and Marsupials

Only 5 percent of all mammalian species are in the orders Monotremata and Marsupialia.



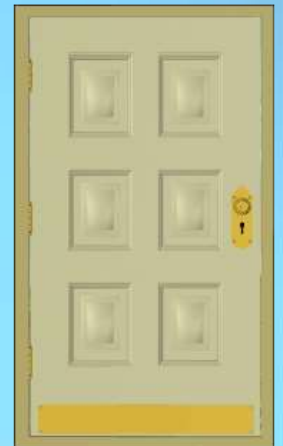
Monotremata

- Oviparous or egg laying mammals
- Only 3 in existence
- Duck-billed platypus and two species of spiny anteaters called echidna.
- Not completely endothermic (their body temperature is lower and fluctuates more than other mammals)



Marsupials

- Marsupials give birth to tiny immature young that crawl to a pouch on the mothers belly immediately after they are born.



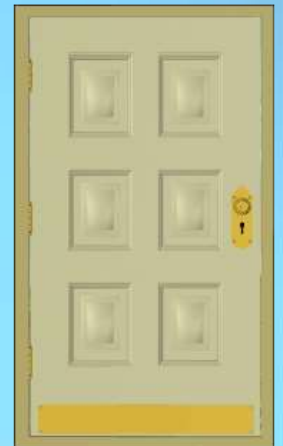
They attach themselves to milk secreting nipples nursing until they are mature enough to survive outside the pouch.



250 species of marsupial species exist in Australia, New Guinea, Tasmania, And the Americas



Tasmanian Devil



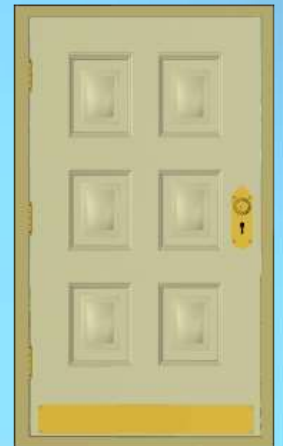
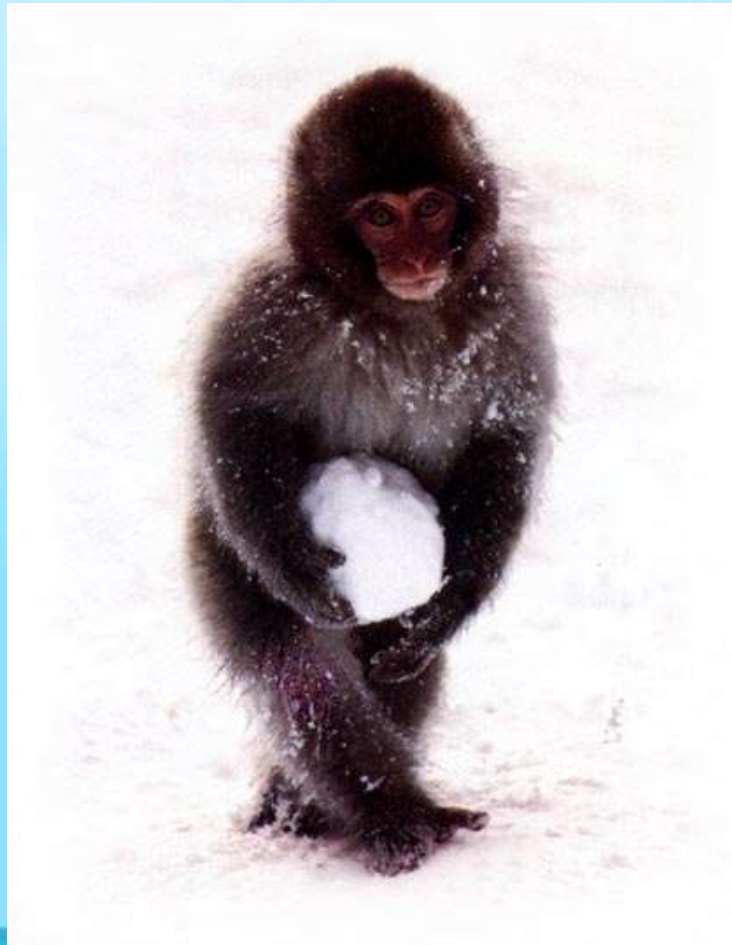
American Marsupial



- 60 hundred million years ago, no placental mammals inhabited the continent
- Lacking in competition Australian marsupials underwent adapted radiation and eventually became adapted to all environments.

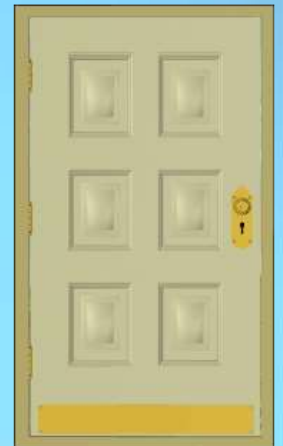


Placental Mammals



Characteristics of Placentals

- Placental mammals carry unborn young in the uterus until young can survive in the wild.
- Oxygen and nutrients are transferred from mother's blood to baby's blood



Placental Characteristics

- The placenta is a membrane providing nutrients and waste & gas exchange between the mother and developing young
- Gestation period-is the time which mammals develop in mother's uterus



Mammals are a diverse group living on land and in water. Some mammals can fly!



Walrus



Insectivora

- Consists of 400 species
- Includes shrews and moles



Mole

Shrew



Insectivora

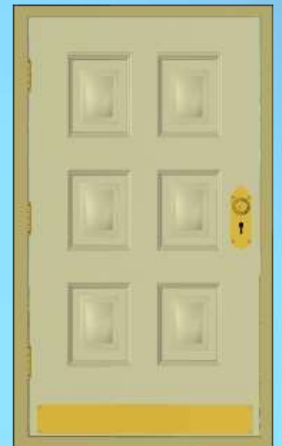
- Small animals with high metabolic rate and found in North America, Europe, and Asia.
- Most have long pointed noses that enable them to grub for insects, worms, and invertebrates.
- Live on ground, trees, in water, and underground.



Rodentia

- Largest mammalian order having over 2,400 species.
- On every continent except for Antarctica
- Includes squirrels, marmots, chipmunks, gophers, muskrats, mice, rats, and porcupines.

Chipmunk





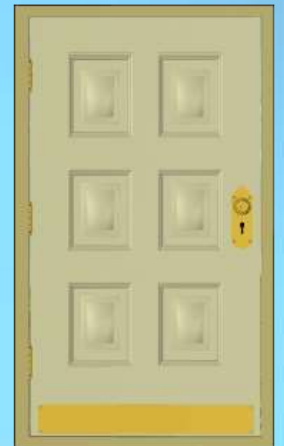
Porcupine



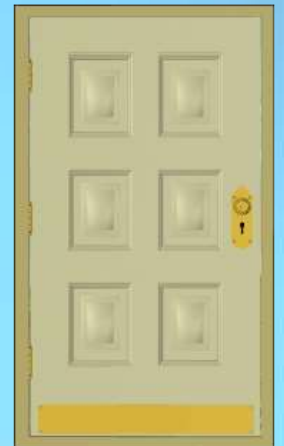
Marmot



Squirrel



Only two incisors in each jaw, grow as long as rodent lives, and used for gnawing



Lagomorpha

- Includes rabbits, hares, and small mountain mammals called pikas.
- Found worldwide



Pika

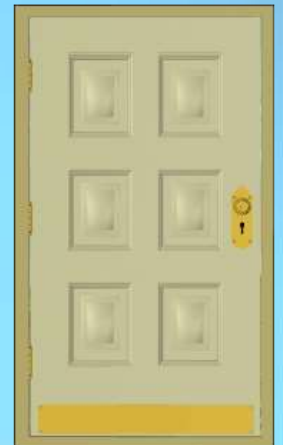


Hare



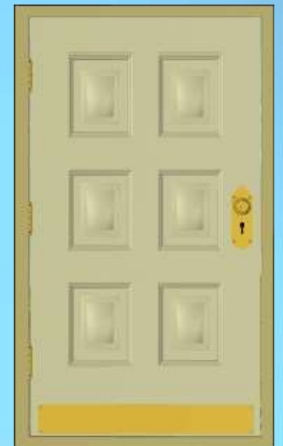
Lagomorpha

Double row of incisors, large front teeth backed with two smaller ones, adaptation for herbivorous diet.



Edentata

- Made up of 30 living species including anteaters, armadillos, and sloths.
- The name edentate means “without teeth”





Sloths

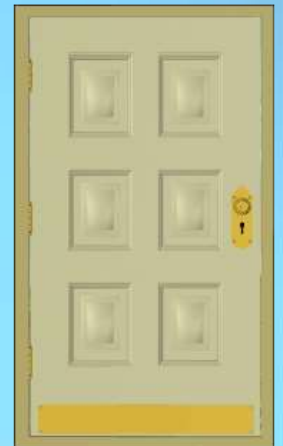


Anteater

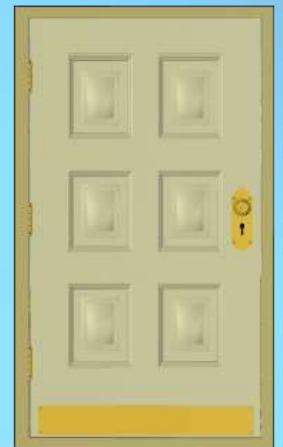


Edentates have adaptations for insectivorous diets, including a long, sticky tongue and clawed front paws

Anteater feeding at a Termite mound



Sloths, on the other hand have continuously growing teeth as an adaptation for grinding plants



Chiroptera

- Made up of over 900 species of bats
- Live throughout the world except in polar environments



- A bat's wing is modified front limb which skin membrane between extremely long finger bones
- Bats use thumbs for climbing, walking, or grasping





- Most bats are active at night and have a special way to navigate using echolocation (bouncing off high-frequency sound waves)
- Frequency of returning sound waves with the size, distance, and rate of movement of different objects

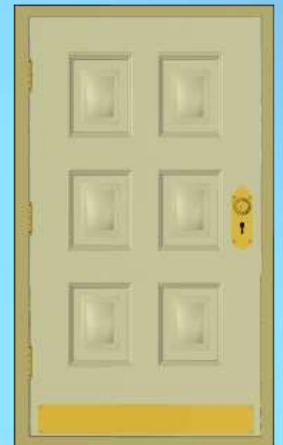


Chiroptera

- Bats that use echolocation have small eyes and large ears.
- Feed on insects and have teeth specialized for such diets

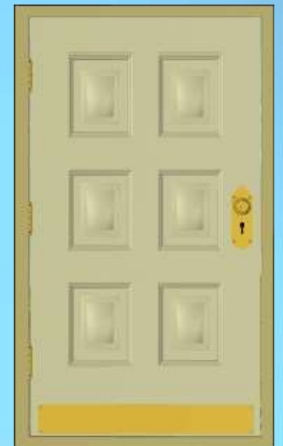


- Some feed on fruit and flower nectar and do not use echolocation.
- These bats are sometimes called flying foxes, have large eyes and keen sense of smell.

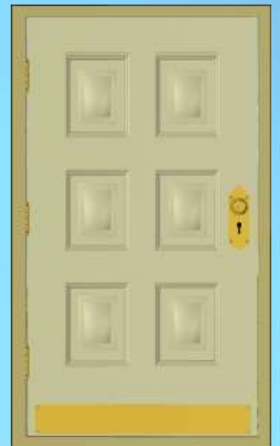


Cetacea and Sirenia

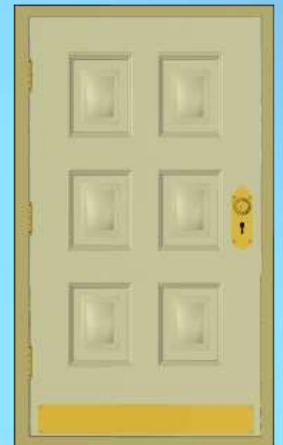
- 90 species of whales, dolphins, and porpoises are distributed worldwide.
- Cetaceans have fishlike bodies with forelimbs modified as flippers.



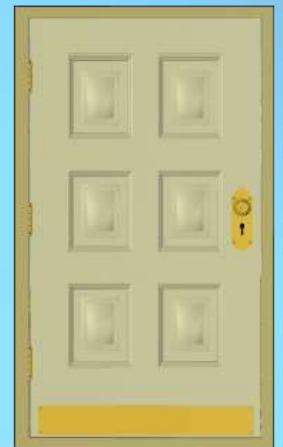
- Cetaceans divided into two groups which are toothed whales and baleen whales.
- Toothed whales include beaked whales, sperm whales, beluga whales, narwhals, killer whales, dolphins and porpoises.



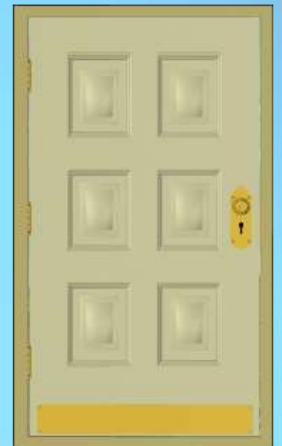
- Have over 100 teeth
- Prey on fish, squid, seals and whales



- Baleen whales lack teeth
- Baleen-thin plates of finger like material
- Shrimp and other small invertebrates are the pray of the baleen whales.



The Order Sirenia is made up of four species of manatees and dugongs.

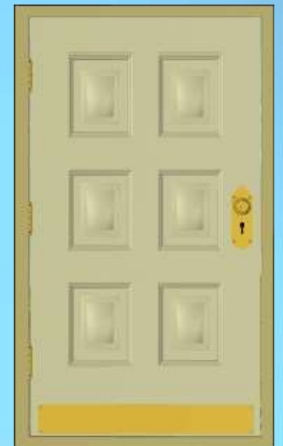


- Front limbs are flippers for swimming
- Sirenians lack hind legs but have flattened tails.



Carnivora

- 250 living species in carnivoria are distributed worldwide
- Most of the species mainly eat meat, which explains the name.
- About 34 species

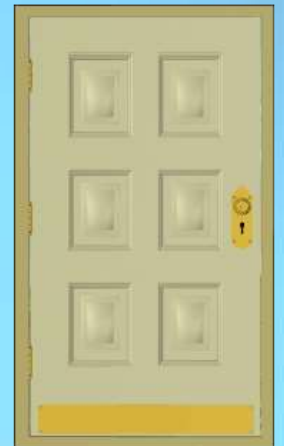


- Some members of this order such as bears feed extensively on plant material as well as meat, so they are called omnivores.
- Carnivores generally have long canine teeth, strong jaws, clawed toes.



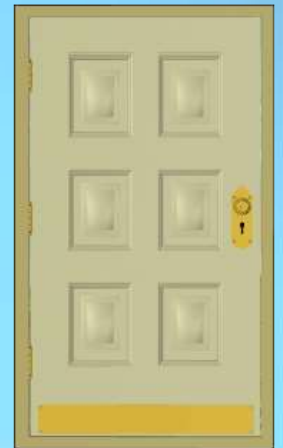
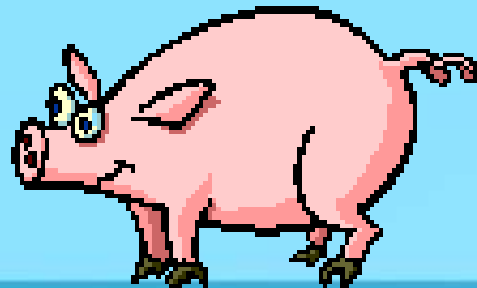
Pinnipedia

- Pinnipedia are water dwelling carnivores and have streamlined bodies

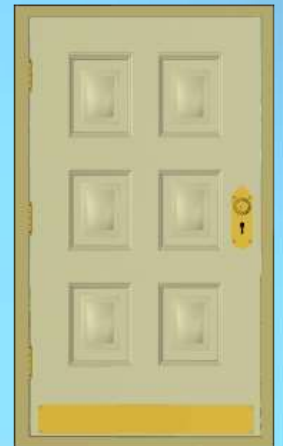


Artiodactyla and Perissodactyla

- Ungulates-hoofed mammals, classified into two orders: Artiodactyla and Perissodactyla
- These two classes are herbivores.
- They have a storage chamber in their stomach called the rumen, undergoes double digestion.



Ungulates with an even amount of
toes make up the class
Artiodactyla

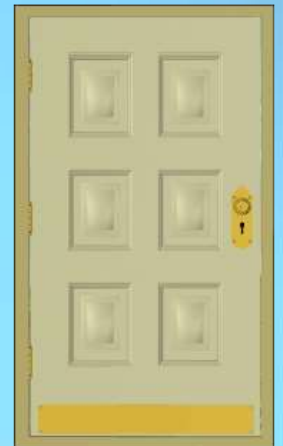


Ungulates with an odd number of toes make up the class Perissodactyla.

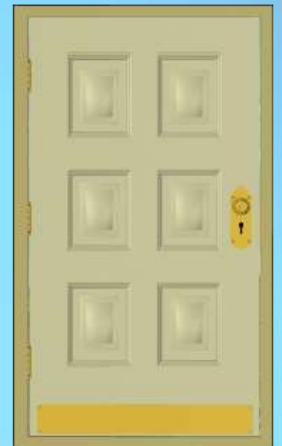
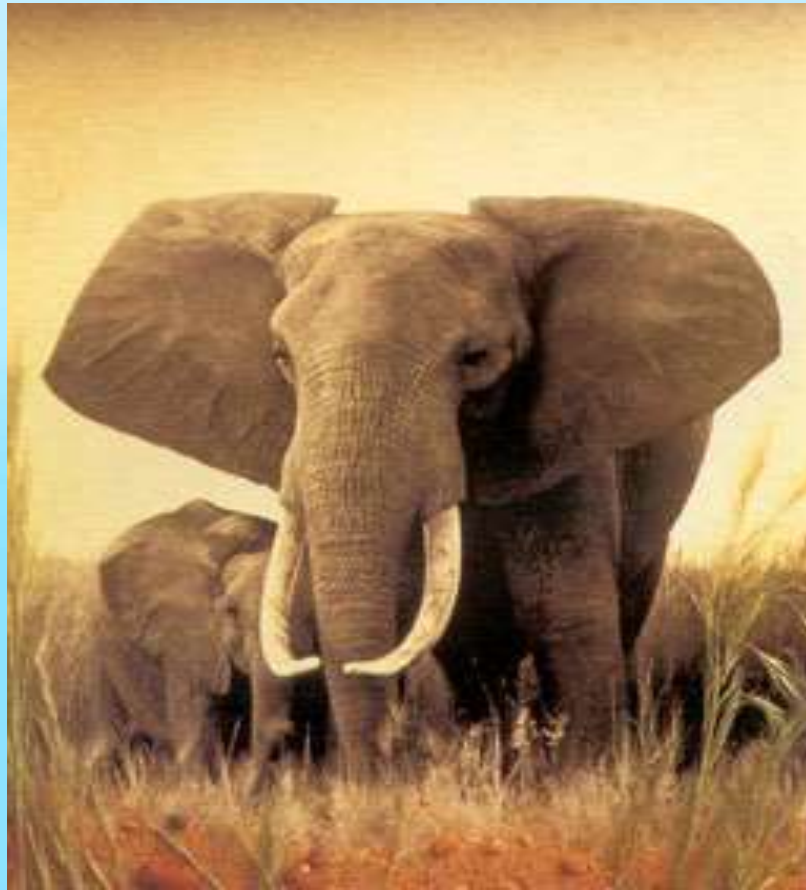


Proboscidea

- Characterized by a boneless nose or proboscis
- Elephants are the largest land dwellers alive today, weighing more than 6 tons.

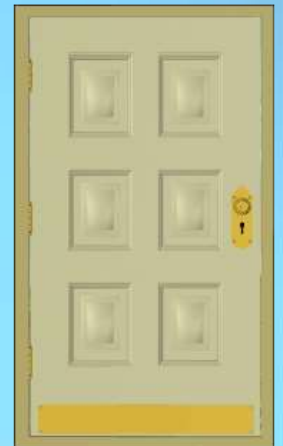


It has modified incisors, called tusks, for digging up roots and stripping bark from branches.



Primates

- 200 living species of primates classified as prosimians.
- Including lemurs, tarsiers, and lorises, or anthropods



- A complex brain has enabled anthropoids to develop behaviors and to live in highly organized social groups.



THE END

