

## CHAPTER 32: MAMMALS

### I. **Mammal Characteristics**

#### A. Definition of ...

1. Endotherms- constant body temperature.
2. Hair- made of keratin protein, it insulated, water proofs.
3. Sweat Glands- to cool the body temperature.
4. Nurse young- females have mammary glands that produce milk.
5. Diaphragm - horizontal muscles that control breathing by expanding chest.
6. Double loop circulatory system- oxygenated and deoxygenated blood are in separate systems.
7. Mammal Teeth- the types of teeth are specialized for varying functions. incisors for cutting. canines for puncture and holding. premolars for shearing. molars for grinding.

8. Hoofed mammals use intestinal bacteria to breakdown cellulose in plant cell walls.  
“cud” is chewed grass.
9. Limbs are highly modified. Bats have wings.  
Primates have thumbs.

## II. Diversity of Mammals ( the mammal orders )

### A. Subclasses

1. **Placental**- fetus develops in the uterus until birth. Placenta is a network of blood vessels that supplies oxygen and nutrient to the fetus, and removes wastes. Gestation is the time in the uterus. 95% of mammals are placental.
2. **Marsupial** - pouched mammals. A short period of development in the uterus and second period of development in a pouch or on fur.  
Most found in Australia. Example: Opossum

3. **Monotremes**- egg laying mammals. After hatching young are fed milk. Only 3 species.  
Example: duckbilled Platypus

## B. Placental Orders Descriptions

1. **Lagomorpha**- Rabbits, Hares, Pika  
4 chisel like front teeth. Large hind legs and ears.
2. **Primates**- Chimps, gorillas, humans  
well developed fore brains and thumbs.
3. **Carnivora**- dog family, cat family, bears  
large canine teeth to grasp prey. meat eaters
4. **Cetacea**- dolphins, killer whales  
all marine animals, large complex brains,  
breathe through a blow hole , not mouth
5. **Sirenia**- manatee, only 4 species  
slow moving plant eaters found in warm  
waters. Often injured by motor boats

6. **Insectivora**- moles . eats insects, poor eyesight, well developed sense of smell. Enlarged front legs and claws for digging.
7. **Perissodactyla**- Horse, Zebra. one single hoof. All plant eaters (herbivores).
8. **Artiodactyla**- Cow, Deer, Elk, Hippo. Even numbered hooves, usually 4 toes. 200 species. All herbivores.
9. **Edentata**- Armadillo, Anteater, Sloth.  
Plate like skin and dig well with large claws.
10. Proboscidea- Elephants. 2 species (African and Asian). Long nose, large ears for cooling, large tusks.
11. **Chiroptera**- Bats. Only flying mammal, can see average, echolocate their prey, eat many insects ( 50,000 per night) and pollinate some flowers.

12. Rodentia- rats, mice, beaver, porcupine.

Largest mammal order, 2 enlarged front teeth,  
all species are herbivore or omnivore.

### III. Mammal Origins

A. Oldest mammal fossils are found in rocks dated to be 270-180 mya. in the mesozoic era.

Therapid is the oldest mammal fossil.

B. Dinosaurs mass extinction was at the end of the mesozoic era.

C. Mammal fossils increase in number rapidly in the cenozoic era, just after the dinosaur extinction.