

Chordata

Urochordata

Cephalochordata

Craniata

infraphylum Hyperotreti

infraphylum Vertebrata

Petromyzontida

Chondrichthyes

Sarcopterygii

Actinopterygii

Amphibia

Reptilia

Aves?

Mammalia

Amphibia

Anura = Salientia

Gymnophiona

Caudata = Urodela

Reptilia

Crocodylia

Testudines

Sphenodontida (Rhynchocephalia)

Squamata

Aves?

Aves

Anseriformes: swan, duck, goose

Apodiformes: hummingbird, swift

Charadriiformes: gull, plover, avocet

Ciconiiformes: heron, egret, stork, ibis,

N.W. vulture

Columbiformes: dove, pigeon

Falconiformes: hawk, O.W. vulture,

eagle, falcon, osprey, kestrel

Galliformes: peafowl, quail, chicken

Passeriformes: wren, crow, tit, sparrow,

finch, robin

Piciformes: toucan, woodpecker, flicker

Psittaciformes: parrot, cockatoo, lori,

parrakeet, budgirigar

Strigiformes: owls

Mammalia

Prototheria Ornithodelphia

Theria

Metatheria: marsupials

Eutheria: placentals

Insectivora: shrew, mole

Chiroptera: bats, flying fox

Carnivora: dog, bear, otter, skunk,

raccoon, cheetah; sea lion, walrus,

Perissodactyla: ass, zebra, tapir

Cetartiodactyla: deer, camel, giraffe,

bison, cattle, goat; whale, porpoise

Lagomorpha: rabbit, hare, pika

Rodentia: rat, porcupine, beaver,

gerbil, coypu, hamster, capybara,

Primates: lemur, loris, monkey, Paris

Hilton, gorilla, chimp

Afrotheria: elephant; sea cow,

dugong, manatee, aardvark

airfoil, alula

ammocoetes

Amniota vs. nonamniote

amniotic eggs

anapsid

Archaeopteryx

atriopore, atrium

barbule, hamulus

basking

buccopharyngeal exchange

carapace plastron

carnassial apparatus

carnivores sanguivores frugivores

gramnivores scavengers

cecum

chromatophores

cloaca

collagen

conduction radiation convection

countercurrent exchange mechanism

Cretaceous-Tertiary Extinction

crop / gizzard

cutaneous respiration

diastema

eccrine sebaceous sudoriferous apocrine

musk mammary (glands)

embryonic diapause

endostyle

endothermic ectothermic

estrus

gestation period

hemocoel

hermaphroditism, parthenogenesis

heterodont dentition

homothermic vs. poikilotherm

incubation period

incus malleus stapes

keratin

larynx syrinx

mammae mammary

marsupium

metamorphosis

migration

monogamous polygynous polyandrous

monotremes marsupials placental

mammals

mucus glands

nitrogenous waste: ammonia urea uric

acid

notochord

omnivores insectivores sanguivores

herbivores carnivores

osmoregulation

pelage vs plumage

pharyngeal gill slits

photoperiod

placentals (Eutheria)

polyandrous/polygynous

post-anal tail

precocial altricial

preening

premolars molars incisors canines

quadruped

ram ventilation

rete mirabile

ruminant

salt glands vs. metanephric kidneys

secondary palate

swim bladder

synapsids

synsacrum

syrinx

tetrapod

therapsids

thyroid gland

torpor

tubular nerve cord

tunicate, salp

tympanic membrane

urostyle

ventricular septum

vertebrae

vibrissae

viviparous ovoviviparous oviparous

It has been argued that lungs originally evolved not as a device for invading the land but as a means of staying in the water. Explain.

Enumerate the major problems confronting a formerly aquatic animal on land. Describe how amphibians have adapted to the land.

Describe how reptiles have completed the successful invasion of the land begun by amphibians.

What features of reptiles have enabled them to be the first real conquerers of dry land among the vertebrates? What features prevent them from exploiting all terrestrial habitats?

Contrast the cursorial origin of avian flight with the arboreal origin of avian flight.

Flight has contributed enormously to the success of birds — but at a high cost. What features of birds are imposed by the requirements of flight? What limitations does flight impose on birds?

Describe the critical adaptations of mammals that have enabled them to dominate the planet since the end of the Age of Reptiles.

Identify the unique characteristics of mammals and describe how each has contributed to the evolution of endothermy in this class of vertebrates.