

- have blood vessels at shell allows gas exchange
- **cleidoic eggs**: have shells around egg, aka **internal fertilization**

- mother provides enough yolk to have them hatch past larval stage

- This frees them from need of aquatic habitat

- more established neck area: 2nd vertebra changes to rotate around axis, have 2 sacral vertebra

- water proof skin; scales keratinized, no more cutaneous breathing

- ectotherms

Subclass Anapsida: no temporal fenestra

Order Chelonia: turtles

- external protective shell

- have changed very little in 175 my.

Subclass Lepidosauria: two temporal fenestra

Order Rhynchocephalia: tuatara, Sphenodon

- lives in New Zealand; 60 years

Order Squamata: modern Reptiles

- have nictitating membrane

Suborder Lacertilia: lizards

Suborder Serpentes: snakes

Suborder Amphisbaenia: burrowing legless

Subclass Euryapsida: one upper temporal fenestra

Order Sauropterygia: plesiosaurs like the "Loch Ness"; aquatic; extinct

Order Ichthyosauria: extinct fishlike reptiles

Subclass Archosauria: two temporal fenestra

Order Crocodylia: only extant Archosaurs

Order Pterosauria: flying dinosaurs supported by batlike wings w/ elongated 4th finger

Order Saurischia: dinosaurs

- Gave Rise to Birds

Order Ornithischia: dinosaurs

- pelvic girdle differs from Saurischians

Order Therodontia - gave rise to other Archosaurs; deep rooted teeth

Subclass Synapsida: one lower temporal fenestra

Order Pelycosauria: extinct, oldest reptiles

Order Therapsida: anatomy of teeth/palate and jaw structure link to mammals.

- Gave Rise to Mammals

- two occipital condyles, secondary palate, heterodont definition

- dentary largest bone in lower jaw

Class Aves: bipedal & 1st

- scales on back and bill

- endothermic

- single occipital condyle, diapsid skull (modified)

- feathers allow flight

- bones hollow

- **pneumatophores** in bones; cavities inside that house extension of lungs

- **Archaeopteryx** and **Protoavis** species links had feathers

- sutures eliminated in skulls

- large intestine shortened, bones of arm/legs ↓, no urinary bladder

- **synsacrum**: fusion of most of the trunk vert

- **carina** allows for flight muscles

Subclass Archaeorintles

- **Protoavis** and **Archaeopteryx** (the "1st birds")

- found in Texas; closer link between

* except monotremata

Subclass Neorintnes: all other birds

Superorder Odontognathae: extinct toothed birds with beaks

Superorder Palaeognathae: ratites, no flight
- no carina

Superorder Neognathae: carinates, most modern birds; penguins are carinates, but wings modified flippers.

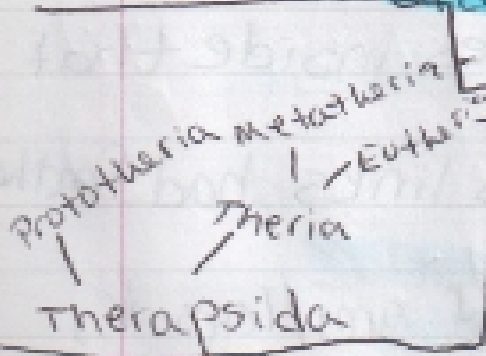
Class Mammalia

- muscular diaphragm
- synapsid
- sweat glands
- two sets of teeth
- heterodont teeth
- single dentary bone on each side of lower jaw articulating with squamosal bone
- relatively large cerebrum
- arose from therapsid reptiles
- 3 bones in middle ear cavity
- absence of adult cloaca
- loss of 4th aortic arch
- outer ear
- endothermic

Subclass Prototheria: oviparous shelled eggs, retains cloaca

Order Monotremata: platypus, Echidna

- quills & hair
- sticky tongue
- eat molluscs
- no pinna
- eggs similar to reptile eggs, no nipples but sweat glands that excrete nutrient rich onto fur
- malleus and incus larger than in other mammals resembling articular and quadrate
- webbed feet/bill
- male gonads inside
- primitive brain
- retain cloaca



Subclass Theria: placental mammals

Infraclass Metatheria: yolk sac placenta