18 - Mesozoic Vertebrates

Therapsids

Herbivorous

- Dicynodonts ("Double-dog-tooth")
- Beaked snouts, sometimes with tusks
- …

Carnivorous

- Theriodonts ("Beast-tooth")
- …
- Gorgonopsid

Cynodonts

- Evolved in Permian from Theriodonts
- More complex structure of inner ear
- Size of jaw and complexity of teeth
- Chewed food
- double-rooted teeth, two sets per lifetime

Mammals

- Warm-blooded
- Feed young with milk (mammary glands)
- Usually has fur or hair
- Three bones in inner ear
- Jaw is one bone (not multiple)
- Usually have sweat glands
- Usually have ear flaps
- Breathes air (has lungs)

Earliest Mammals

- Evolved from Cynodonts in the Late Triassic
- Predominantly the size of rats until the end of the Mesozoic
- Transition away from reptile-like features occurred slowly throughout the period

    - Even today, the tails of rats, armadillos, and opossum show features (dermal scutes) left over from the Pelycosaurs (think of the "plates" beneath a snake)

Adelobasileus

- …

Divergence of Mammals

Triconodonts

- Evolved into Monotremes

Eupantotheres

- Evolved into Marsupials and Placentals

Archosaurs

Crocodiles

Pterosaurs

Dinosaurs

- Branched off from stem reptiles
- Socketed teeth (thecodont dentition)
- Hip bone structure
- Upright posture
- Can reach large sizes

Ornithischians

- Bird hipped
- Ankylosaurs
- Stegosaurs
- Ceratopsians
- Pachycephalosaurs
- Ornithopods

Saurischians

- Lizard hipped
- Sauropods
    - Long necks

    - Long tails
- Theropods
    - "Beast foot"
    - Predatory
    - Reduce forelimbs
    - Mostly bipedal
    - Tyrannosaurids
        - Tiny arms
            - Holding on during mating
            - Became smaller as heads became larger
    - Maniraptoriforms
        - Omnivores
        - Large brains
        - Small teeth
        - Dromaeosaurids
            - Includes velociraptors
            - Evolved into birds

Birds

- Early birds
    - Archaeopteryx is the earliest bird
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