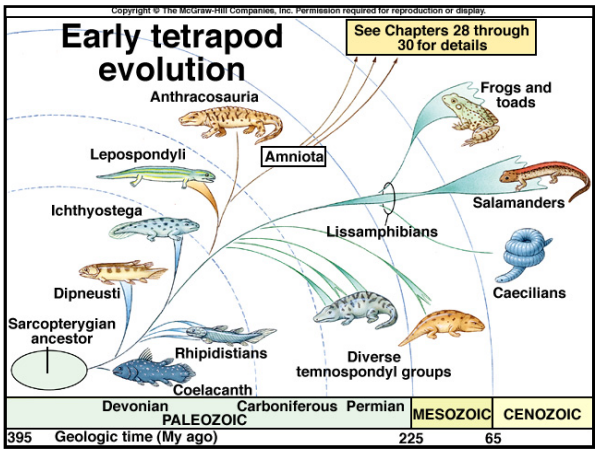


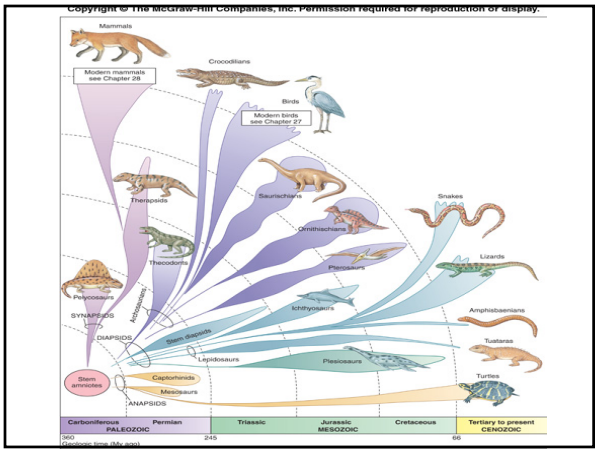
Vertebrates

Tetrapods

Class Reptilia (Reptiles)

Reptile evolution:

- **Mesozoic Era was '<u>Age of Reptiles</u>'**
- **Mass extinction at end of Cretaceous**
- **Birds, crocodilians, and dinosaurs most closely related**



Vertebrates

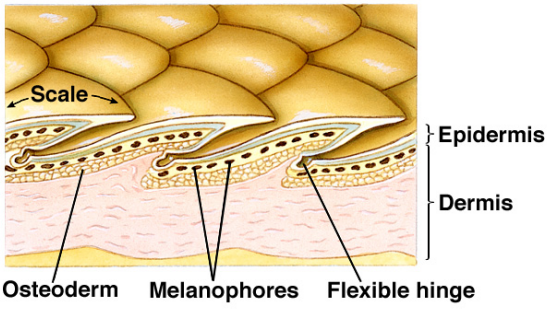
Tetrapods

Class Reptilia (Reptiles)

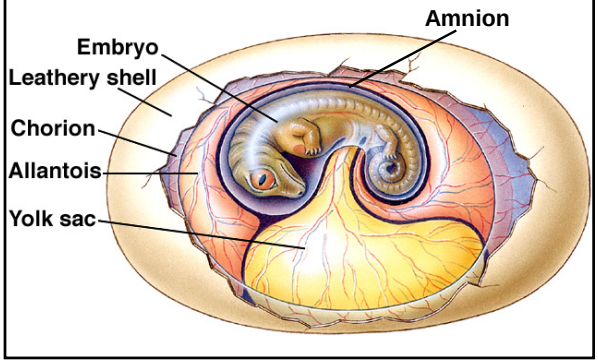
Defining traits of living reptiles:

1. **Tough, scaly skin**
   - Overlapping keratinized scales
   - Protect body and preserve water
2. **Amniotic egg**
   - 3 protective membranes
   - Support, gas and waste exchange
   - Removed dependence on water

Epidermal scales of reptile skin



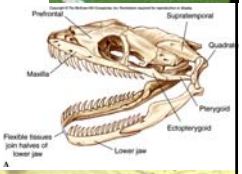
Amniotic egg



Vertebrates

Tetrapods

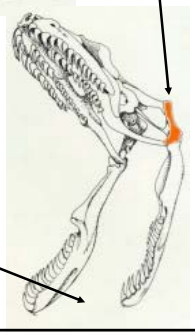
Class Reptilia (Reptiles)



Defining traits of living reptiles:

3. **Jaws designed for power**
   - **Larger muscles**
   - **Cranial kinesis in snakes and lizards**
4. **Internal fertilization**
   - **copulation**
5. **3-chambered heart**
   - **Similar to amphibians**

Quadrate



Elastic ligament

Vertebrates

Tetrapods

Class Reptilia (Reptiles)

Defining traits of living reptiles:

6. **Lungs with greater surface area**
   - **No cutaneous respiration**
   - **Enlarge thoracic cavity to breathe**
7. **Improved limb design and support**
   - **Although legs still positioned outwardly**

Vertebrates

Tetrapods

Class Reptilia (Reptiles)

Modern reptiles

- Turtles
- Snakes and Lizards
- Crocodiles and Alligators
- About 7000 species

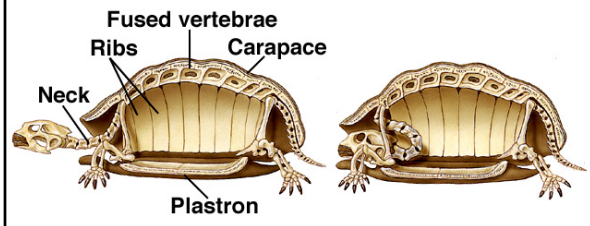
Vertebrates

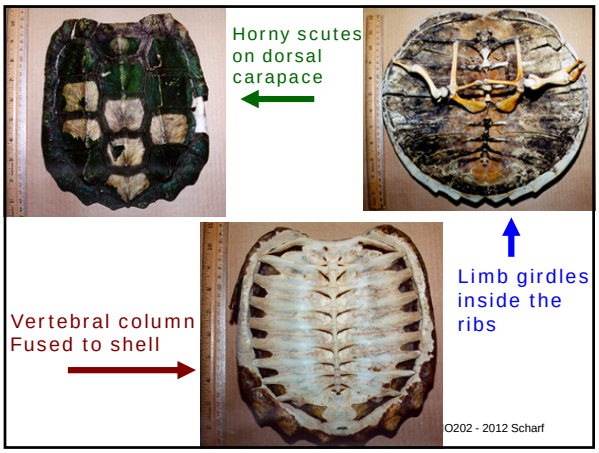
Modern Reptiles

Turtles

- First appear in Triassic, little change since
- Shell consists of dorsal carapace and ventral plastron
- Lung breathing and uptake of oxygen in water at pharynx and cloaca
- Shelled eggs are buried
- Environmental sex determination

Skeleton and shell of a turtle





Vertebrates

Modern Reptiles

Snakes and Lizards

- Majority of living reptiles, about 95%
- Evolution of viviparity in this group
- Varying degrees of cranial kinesis

Vertebrates

Modern Reptiles

Snakes and Lizards

- About 3300 lizard species
- Most with 4 limbs, but several legless
- Tail autotomy
- External ears and movable eyelids
- *Anolis carolinensis* and skinks most common locally

Vertebrates

Modern Reptiles

Snakes and Lizards

- About 2300 snake species
- No limbs or girdles
- Extreme elongation and displacement of visceral organs
- Vomeronasal organs for odor reception
- No external ear; transparent scale over eye

Vertebrates

Modern Reptiles

Crocodiles and Alligators

- Share common ancestry with dinosaurs and modern birds
- Active predators with powerful jaw closing muscles
- Evolved secondary palate similar to mammals
- Have 4-chambered heart like birds and mammals

Fossil skull of giant African crocodile believed to have lived 100 MY ago