

Mesozoic

**Mesozoic:
Triassic, Jurassic and Cretaceous**



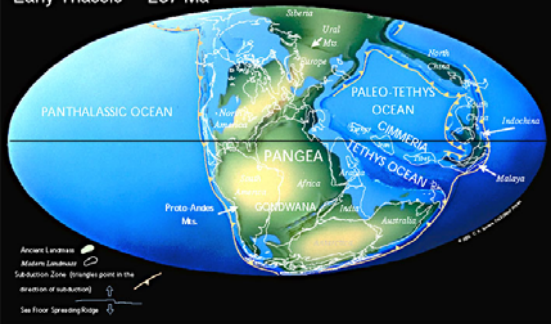
Amor's rendering of dinosaurs living in a Triassic-like world by G. S. Cooper

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Early Triassic 237 Ma



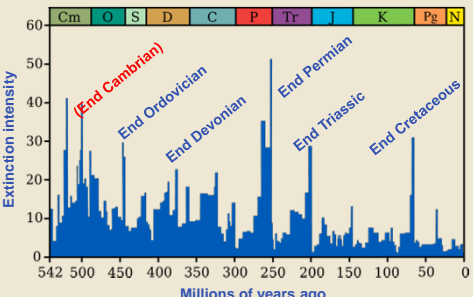
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Pangea: goes from north pole to south pole.

Mass extinctions



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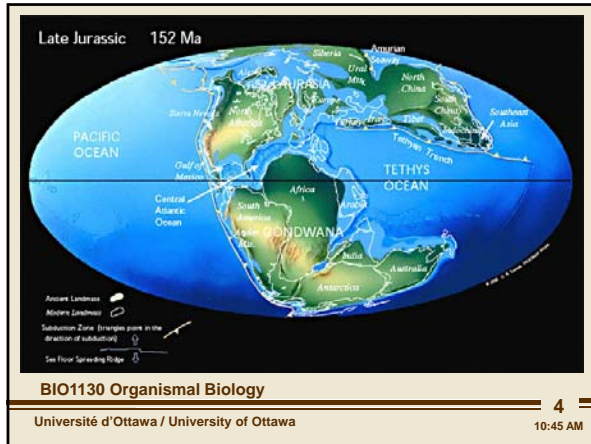
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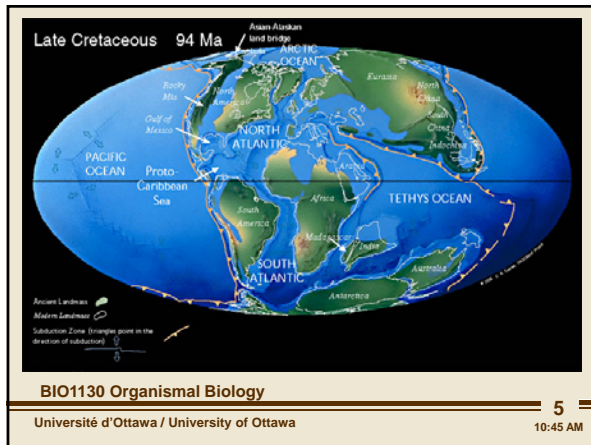
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another mass extinction in Triassic, mostly affects marine environment.

As pangea broke up caused mass geographic activity.

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Plesiosaurs Video

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reptiles feeding on bony fish that survived.

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Mollusc - Cephalopods
Crypsis Video 1:47




Figure 33-18

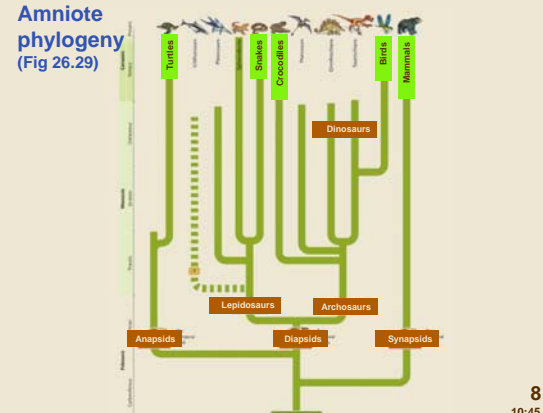
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removed the shell to keep up with the fish. with shell they were less mobile.

Amniote phylogeny
(Fig 26.29)




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Synapsids: mammals.

Diapsids: birds and reptiles

Anapsids: Turtles.

Oviparous reproduction



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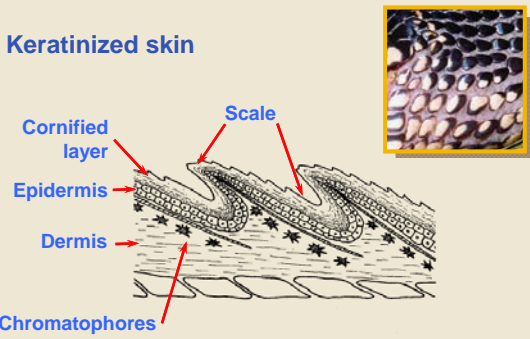
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have not waterproofed their skin.

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Keratinized skin



Cornified layer
Epidermis
Dermis
Chromatophores
Scale

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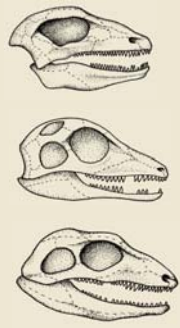
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Use protein Karatin. used to waterproof skin. Can be thin like ours,
develop more into scales, hair, nails, horns.

Major reptile groups

- **Anapsids**
- **Diapsids (Anapsids)**
 - Dinosaurs, pterosaurs, birds, snakes and lizards
 - Turtles
- **Synapsids**
 - Modern mammals



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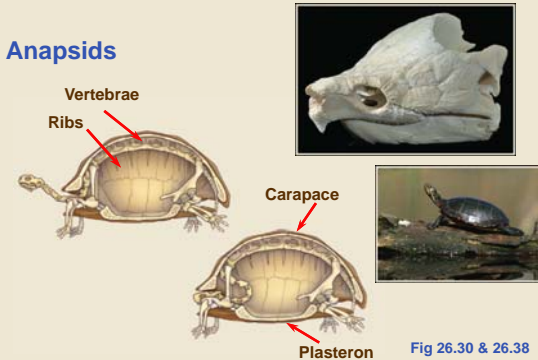
with the lower skull going into the skull cavity, it limits brain
development.

Synapsis: muscle outside skull. 1 opening.

Diapsids: have 2 openings. allows for more powerful jaw for feeding.

Anapsids: lost their opening.

Anapsids



Vertebrae
Ribs
Carapace
Plastron

Fig 26.30 & 26.38

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Fuses bone. also fuse bone in the skull and lost the opening in the
head. Appear to be Diapsids that lost their opening for jaw muscle.

no teeth, less demand for jaw muscle

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Major diapsid groups

- **Extinct**
 - Dinosaurs and pterosaurs,
- **Extant**
 - Snakes, crocodiles and lizards



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Extant: all and the birds. Shared the same common ancestor.

Extinct diapsids

- Saurischia
- Ornithischia
- Pterosaurs



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solved moving problem with amphibians had.

Realignment of bones in pectoral and pelvic girdles.

perfectly aligned with the center of gravity, better movement and agility.

Extinct Diapsids

Saurischian dinosaurs



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long necked dinosaurs

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Extinct diapsids
Ornithischian dinosaurs



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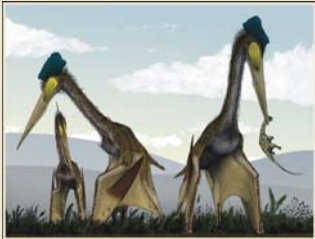
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short herbivores.

Extinct diapsids
Pterosaurs

Video 6:00



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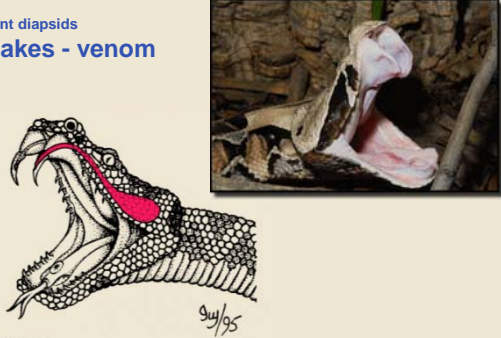
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develop flight. unusual wings.

Membrane attached to 5th digit (small finger) all the way down to side.

Walk on 4 digits.

Extant diapsids
Snakes - venom



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snakes lost legs. paired limbs.

since they have no hands to hold them down, they have to immobilize

prey. 1) Use poison to shut down nervous system, 2) wrap around prey and strangle it.

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Extant diapsids
Snake's jaw




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swallow prey whole. Can open their mouths very wide.

Extant diapsids
Crocodiles crushing jaws



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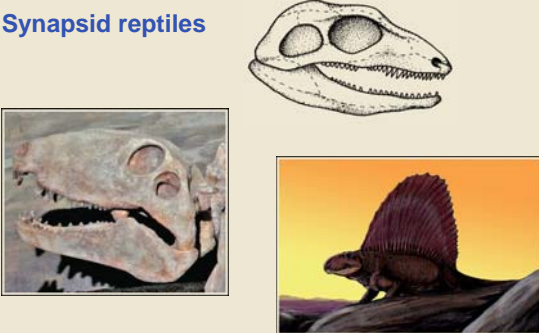
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they are living fossils. have not changed over time.

crushing jaws: can hold onto prey and crush it, thrash around to tear prey limbs off.

Synapsid reptiles



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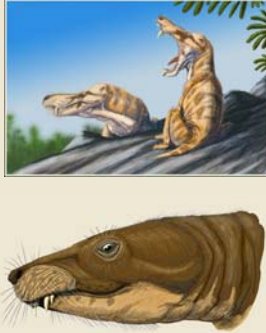
most reptiles are ectothermic (cold blooded)

fans positioned toward sun to regulate temperature.

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Reptiles - Therapsids

- Warm-blooded
- Noturnal
- Glandular skin
- Specialized teeth and chewed their food



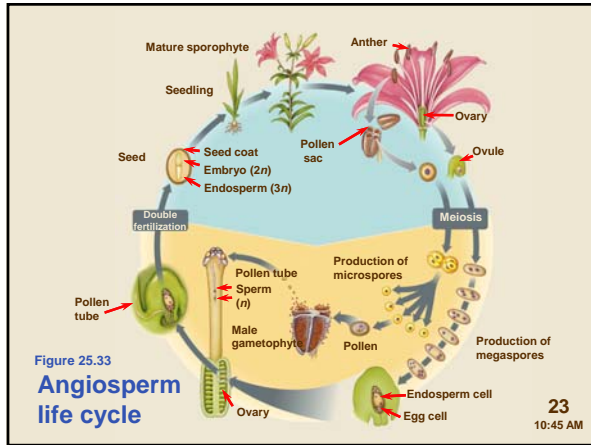
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endothermic.

if ectothermic, digestion relies on warm blood.

active at night when ectotherms were asleep.

specialized teeth so they could chew prey rather than just hold .



invest alot of energy and effort in megaspores that may not be

pollinated.

only develop nutrient for pollinated embryos unlike gymnosperms.

Archegona: only produced 1 metabolic product.

from egg, 1 spore turn into egg, 2 from opposite sides join in middle

and the rest shutdown. only 1 opening in megaspore.

2 nucleus- tube and sperm.

tube- nuclear material.

sperm- 1 mitotic division - 1 fuses with egg forming zygote, other

joins 2 in the middle of megaspore (3n)

Pollination strategies



BIO1130 Organismal Biology Figure 25-34
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 Bee orchid video 10:45 AM

relationship between insects and flowering plants create a diversity


changing the world. Plants dont require wind for polination, insects will

do it for them.

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Insect plant coevolution

- Bees
- Butterflies



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when flowering plants come along, bees and butterflies will come with them.

they develop fruits. fruits are there for invertebrates to eat them and digest the seeds. this causes seed dispersal.

Seed dispersal



Wind

Water

Animals

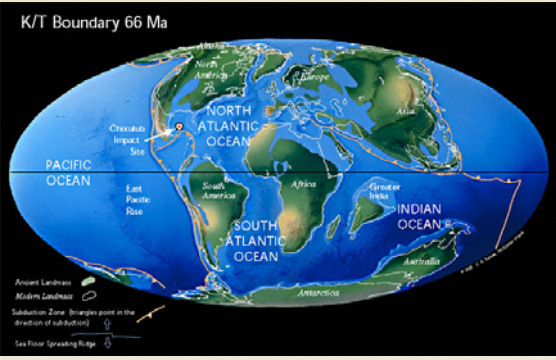
Figure 30-20b

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K/T Boundary 66 Ma



PACIFIC OCEAN

NORTH ATLANTIC OCEAN

SOUTH ATLANTIC OCEAN

INDIAN OCEAN

North America, South America, Africa, Eurasia, Australia, Antarctica

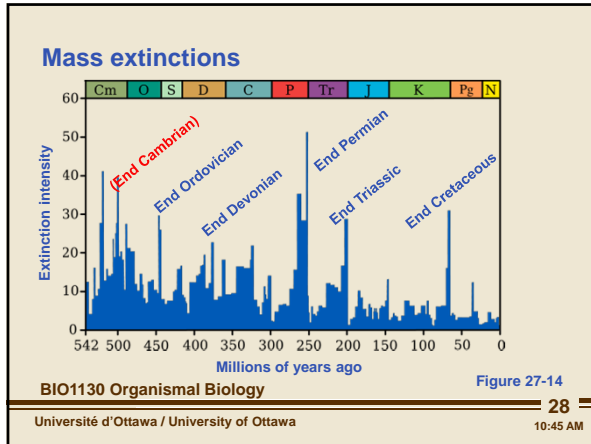
East Pacific Rise, Chicxulub Impact Site, Subduction Zone, Sea Floor Spreading Ridge

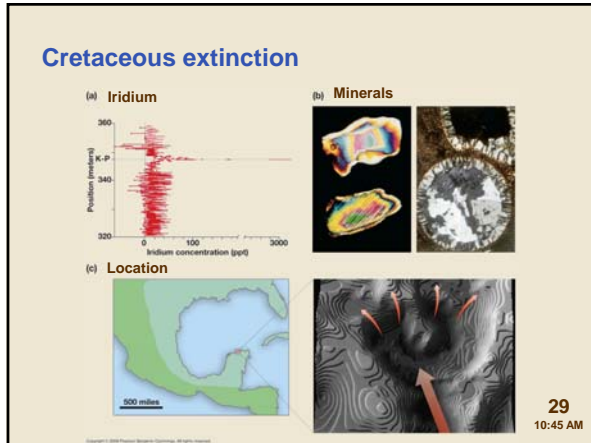
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large meteorite impact.

Caused meteorite winter, temperate fell and dinosaurs went extinct.

carnivores went disappearing. food chain collapses.

dinosaurs so abundant, have large impact on plants when they fed.

ate all the plants, insects died, insect predators died, etc...

ecologically destroyed the planet.
