Mesozoic:
Triassic, Jurasic and Cretaceous

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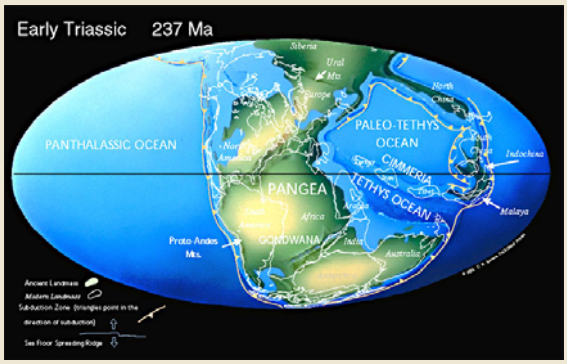

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Pangea then came into place cause the triassic

Mass extinctions

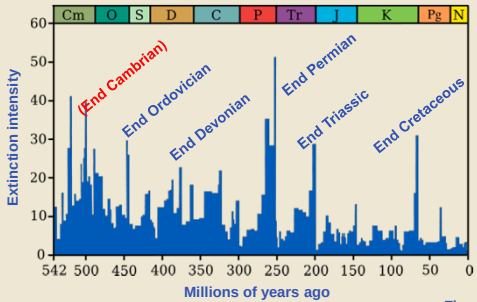

Figure 27-14

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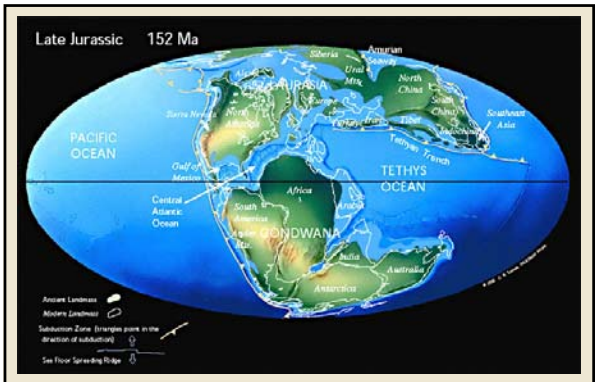

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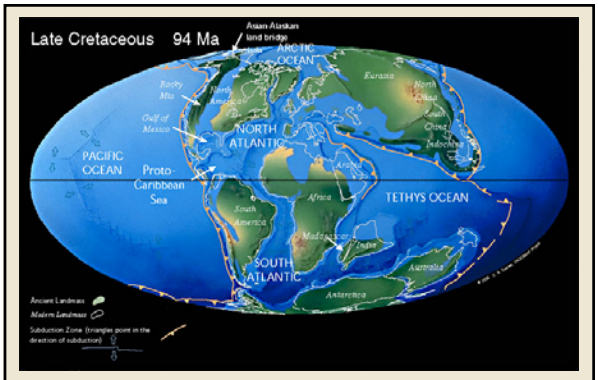

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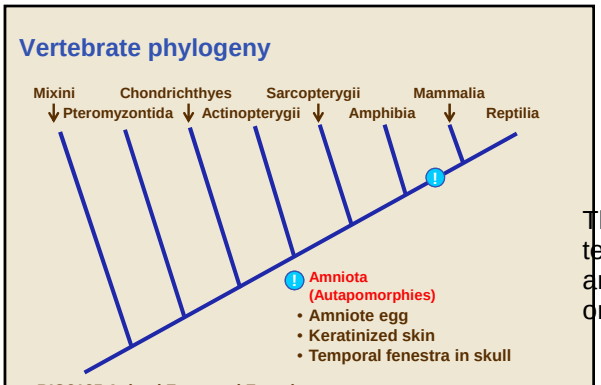
In the end the continents began to drift again



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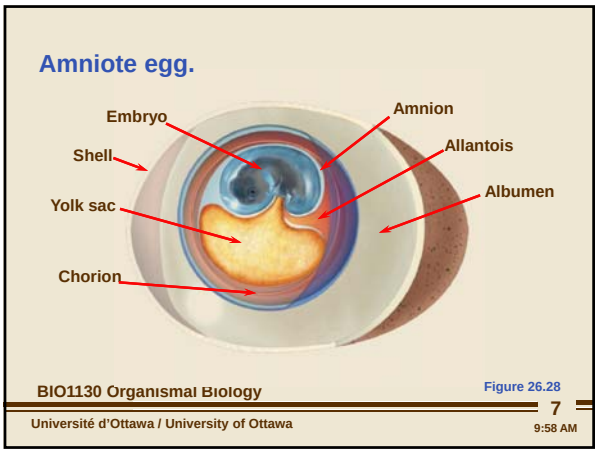
They all get the amniote egg. They can also lay eggs in the terrestrial environment now. You now have a water filled sac and a sac filled with nutrients. They also have a waste sac and one more sac that is a water reserve.



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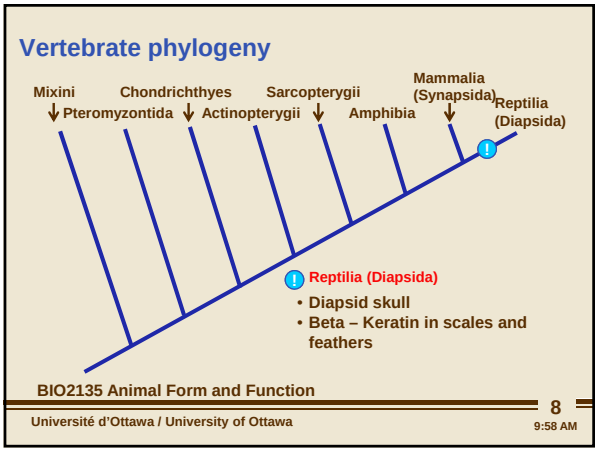
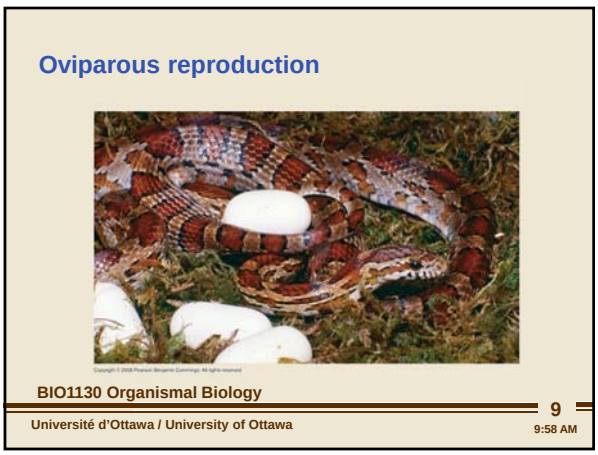
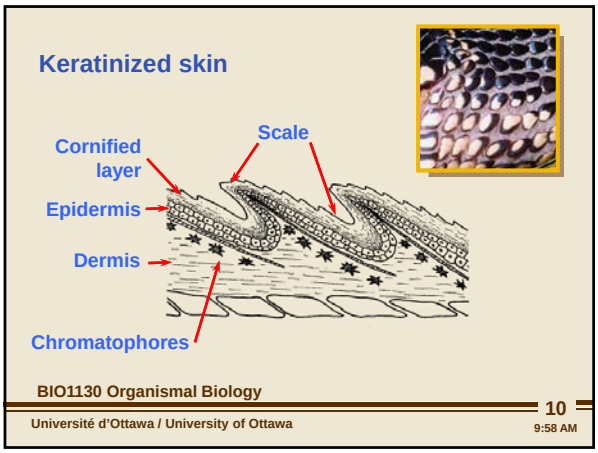


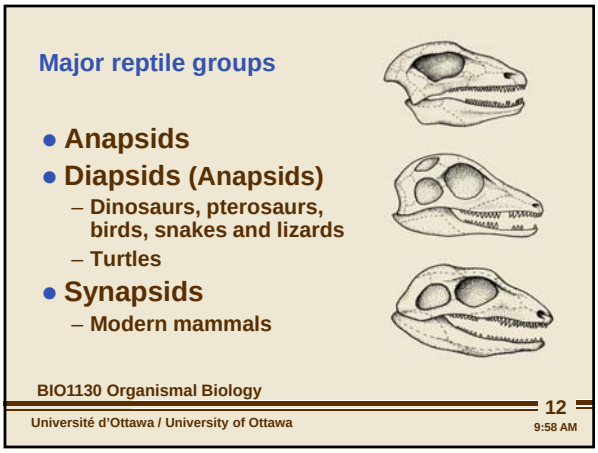


Eggs are laid in a variety of places.

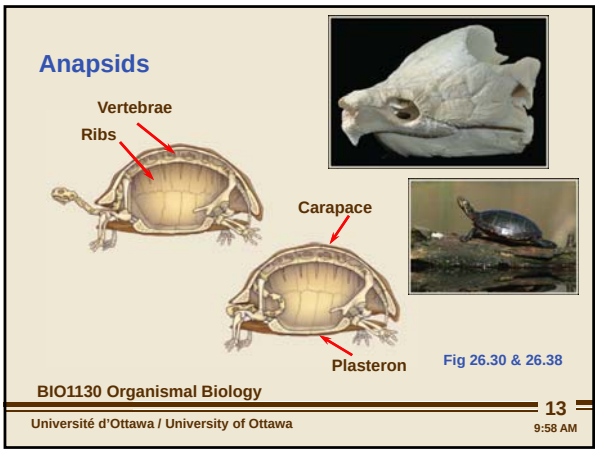


As skin cells mature they are pushed to the surface which have a layer of karatinized cells which mesh with the dead skin to create the waterproof layer. The plates of the karatinized skin are scales. Since its all dead it doesn't grow and still needs to be moulted.

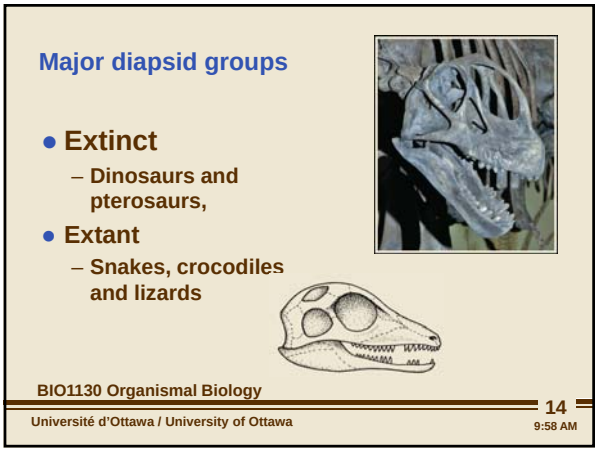
Mammals and reptiles are the first to have a very powerful jaw. They now are capable of grasping onto prey and clamp down tight. They have very strong muscles to close the jaw but very weak muscles to open them. The problem with their jaw was that this all expanding in the brain which limited brain expansion.



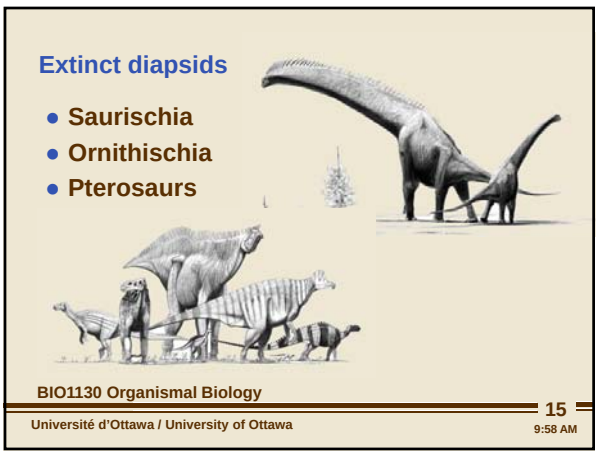
Temporal finestraae allow the muscles to expand up into these pass through the brain cavity and attached to the top in order to not limit the brain expansion.
Synapsid - one opening (1 opening)
Diapsid (2 holes)



The turtle body is basically a casing of fused bone. The turtle has also removed the teeth from its jaw and now use a beak. They then don't need those large powerful muscles and so the holes fused over in evolution to create turtles. modified diapsids.



These fossils are 65 million years old. When they disappeared, there we some that survived. There is a group that survived and they are so varient that its hard to put them together.



Top 2 are walkers on land.They took the amphibian body and migrated the bones under the body so that they stand.

Extinct Diapsids
Saurischian dinosaurs

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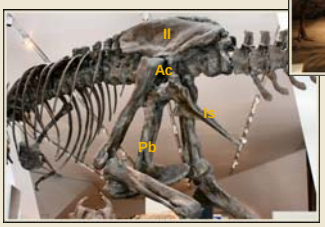
They swung the pectoral gurtle underneath and then attached the limbs to the outside of the axial skeleton on top.

Extinct Diapsids
Saurischian dinosaurs

Albertasauris, Tyrell



T rex, ROM

Pb pubis
Is Ischium
Il Ilium
Ac Acetabulum

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In the pelvis, there are 2 different ways that the bones can be attached and 3 elements to which they attached the limbs.

Extinct diapsids
Ornithischian dinosaurs

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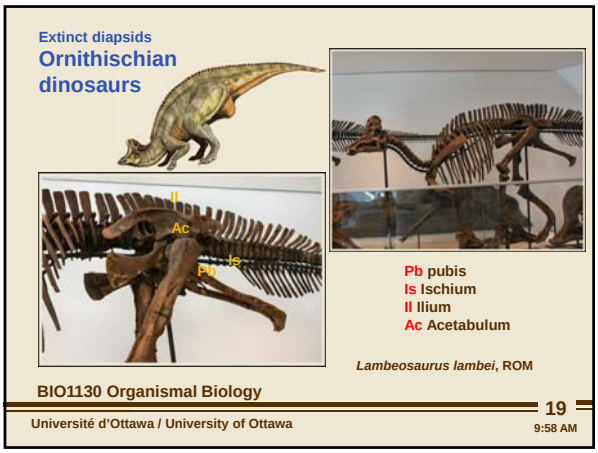
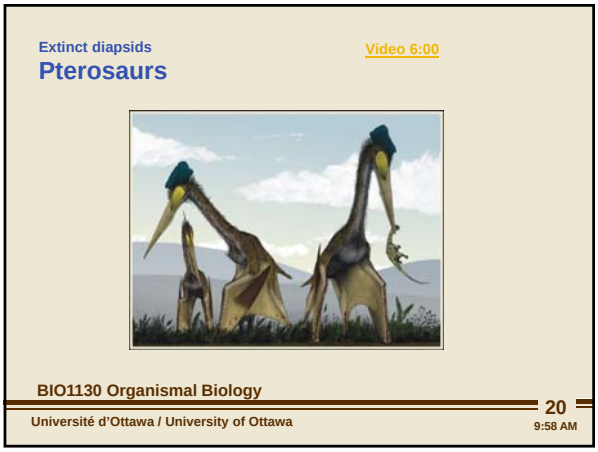
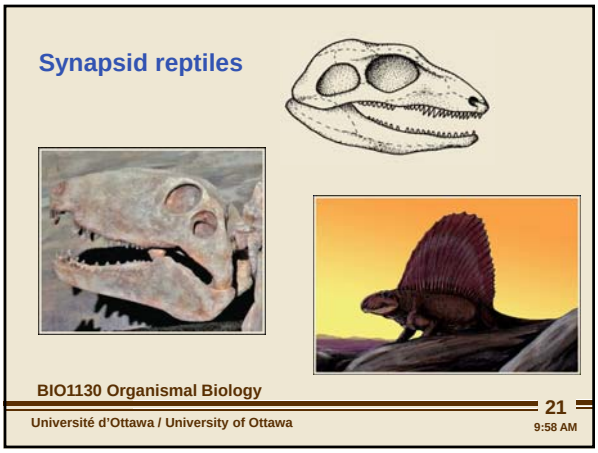
The pubic bone and the ischium bone are moved underneath. There are 2 solutions to move up on land



The ischium and the pubic bone are parallel to each other. There were 2 solutions in the diapsid lineage to support the weight of the body on land.



They walk on their front knuckles and their little finger creates the flight surface of the wings. Quadrupeds. They do get locomotion but it is evolutionarily not related to birds.



Reptiles - Therapsids

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

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Their bodies are warm and their teeth are specialized to be heterotrophs. Their advantage is that while the other reptiles of their size, are slower due to temperatures and darkness at night, they are adept and can see and warm body to hunt at night.

Angiosperms (Flowering plants)

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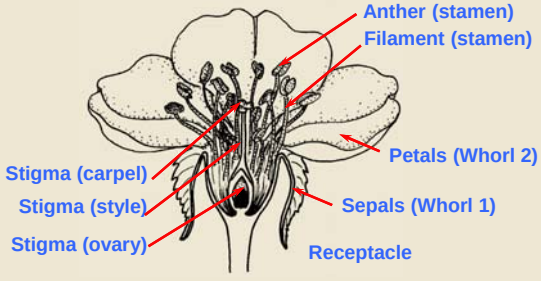
Flower anatomy



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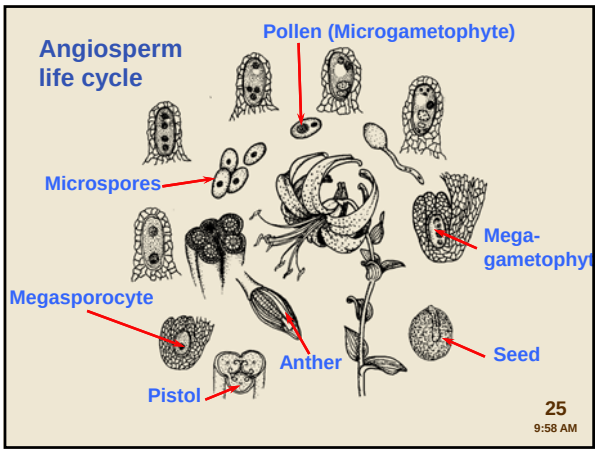
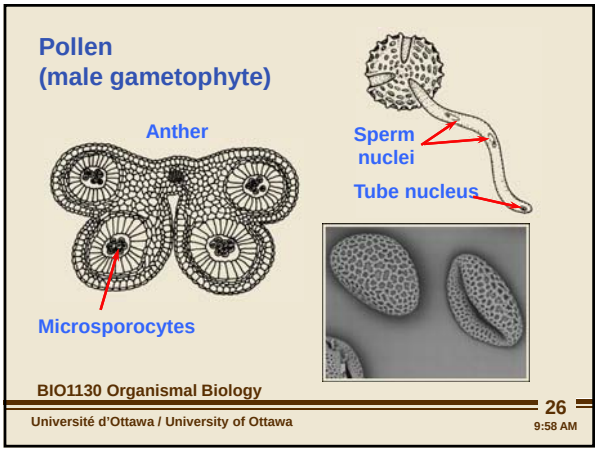
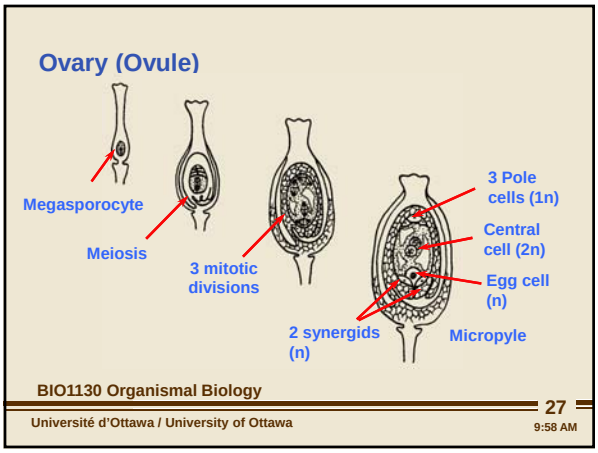
they recruit insects to help them by offering rewards. This is a male reproductive structure that contains pollen. The female contains the egg and has become rapped in tissue.

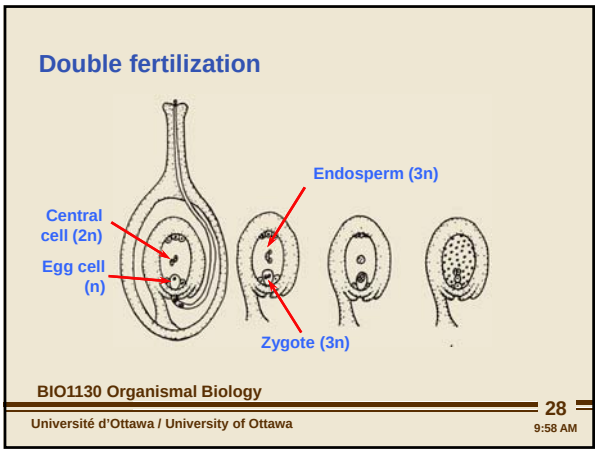




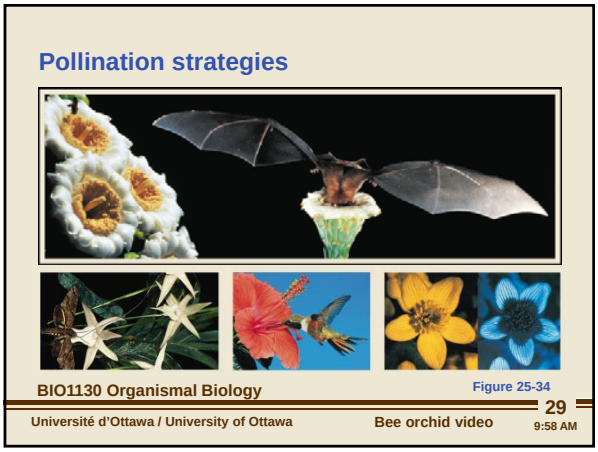
You get a spore mother cell that becomes a haploid cell and is covered in a wall of pollen. This is 3 cells of a male gametophyte. When it arrives at the plant it germinates.



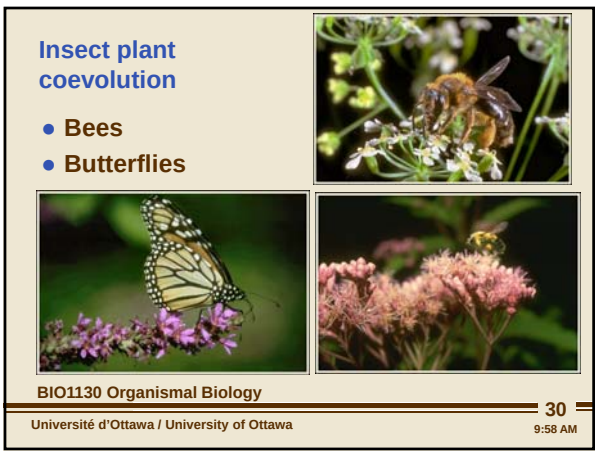
A spore mother cell goes through meiopsis to create a haploid which goes through mitosis to create the male gametophite. When the pollen arrives at the new plant, it lands on the top and the last cell that remains undergoes 3 mitotic divions. 3 of those cells migrate to the pole opposite of the micrphile, 3 to the one right beside it, and 2 migrate to the middle. When fertilization occurs, the pollen tube extends down containing 2 nuclei. One fuses with the egg and the other 2 with the 2 in the middle. This then grows into the egg.



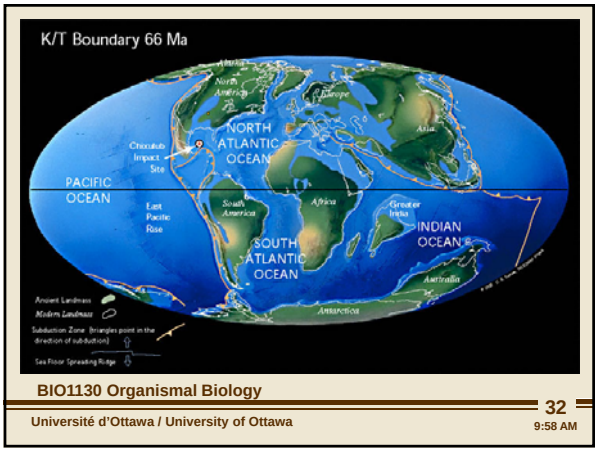
When fertilization occurs, the pollen grain germinates and the pollen tube extends down. Inside it are 2 nuclei which one fuses with the egg and 2 fuse with the centre. Then you have a triplontic zygote that will grow into the nutrients to supply the embryo for the fertilized egg. It has an outer tissue which becomes fruit. This can be a nut or like an apple.



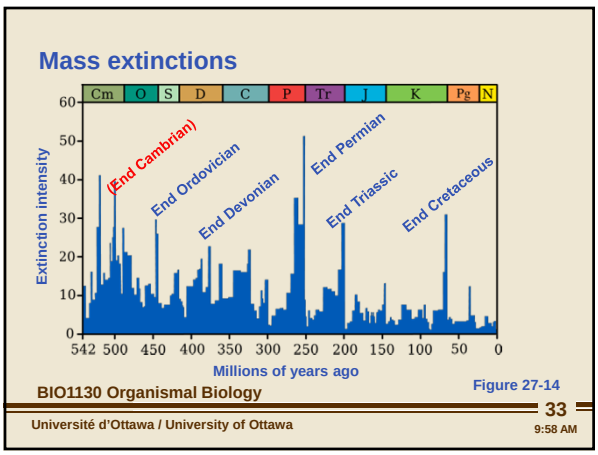
They have extremely efficient pollen transfer and only takes 2 days.



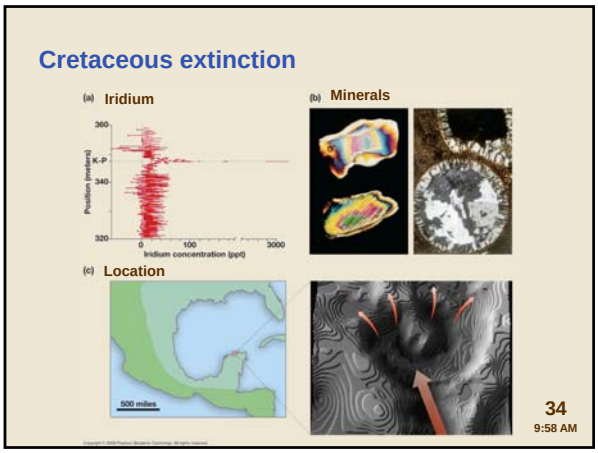
The animals move the fleshy pieces as food. when the process it and it comes out the other end they spread it as well of passing it in their fur.



Then the giant meteor comes and knocks out everything on the face of the planet.



They can see now that this might not be true. We probably over estimated what happened at that occasion.



If you model the meteor impact its not as bad as it seemed. The plants, insects, and animals in the oceans all just sat back and watched the vertebrates disappear. This was basically an event that killed off the upper invertebrates that were living in the environment. They were huge and clear cutting the planet and killing the resources that were available. At the time of the astroid they dominated to the point where there would be 13 t-Rex's per ecosystem. They killed the environment to the point