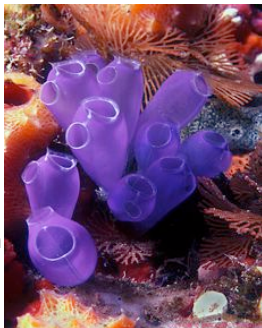


Chordates 1

- Origin of Chordates
- Tunicates etc
- Sharks etc
- Bony "fish"
 - Osteichthans
 - Lobe fins and lungfish



Feb 25, 2013

Chordates

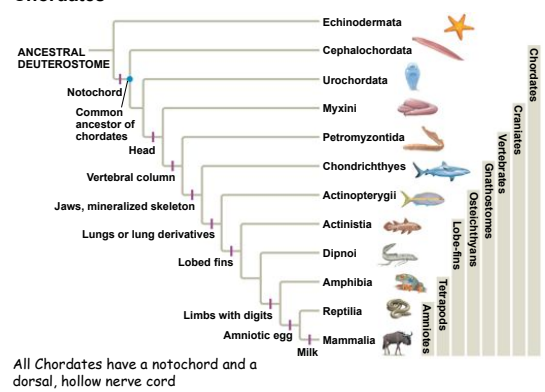
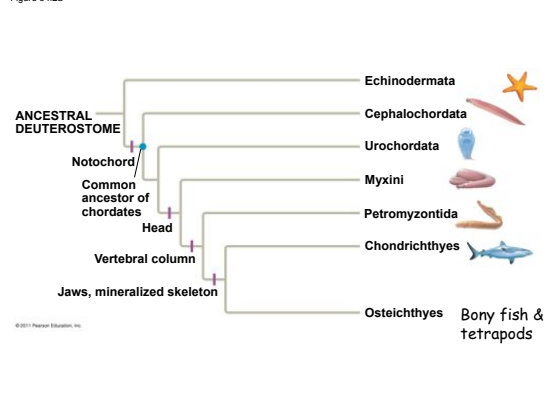


Figure 34.2a



Derived features of Chordates

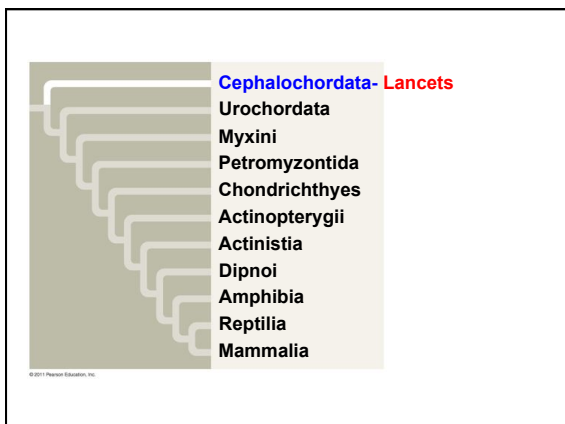
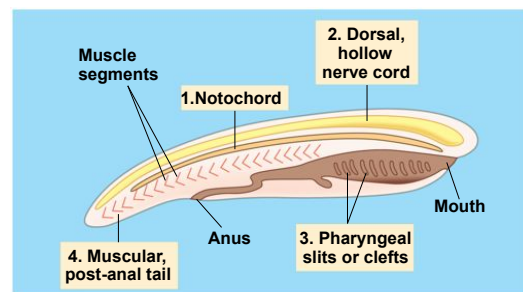
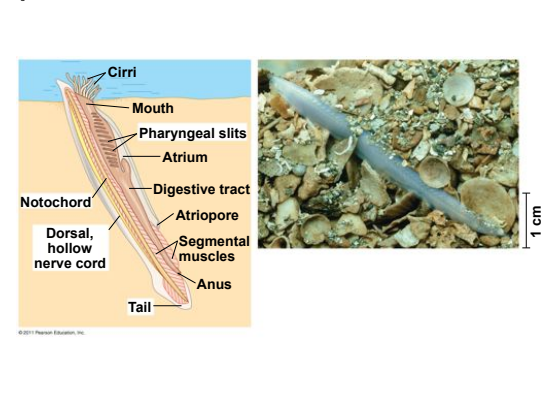


Figure 34.4



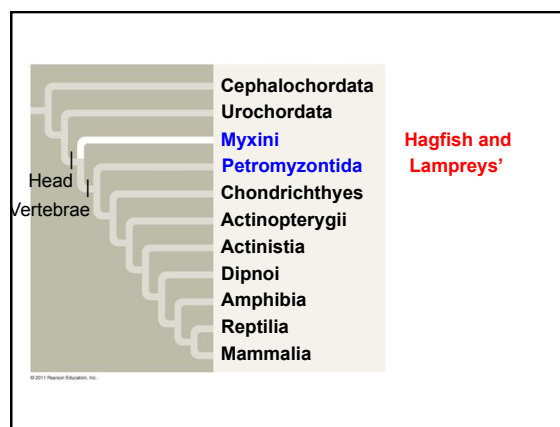
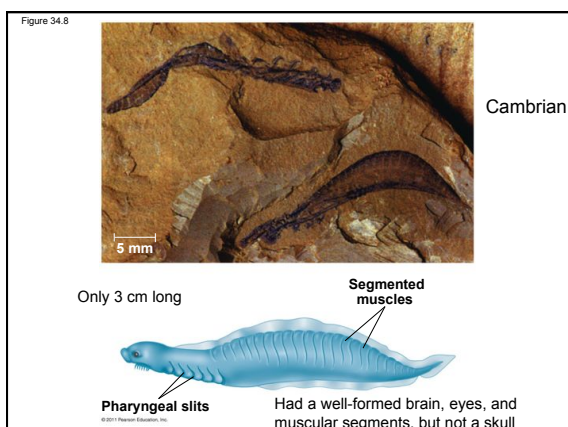
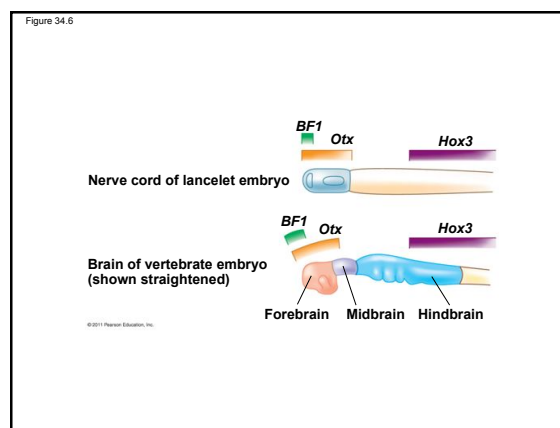
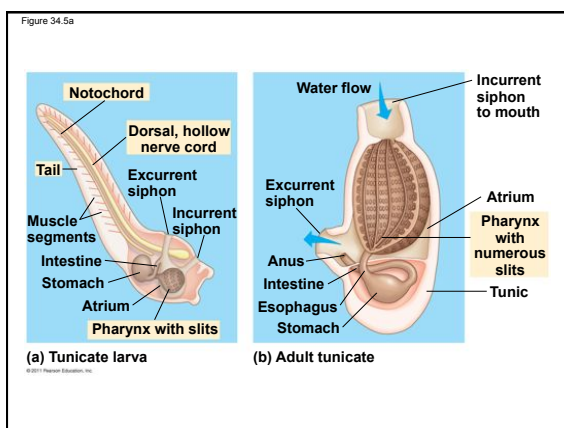
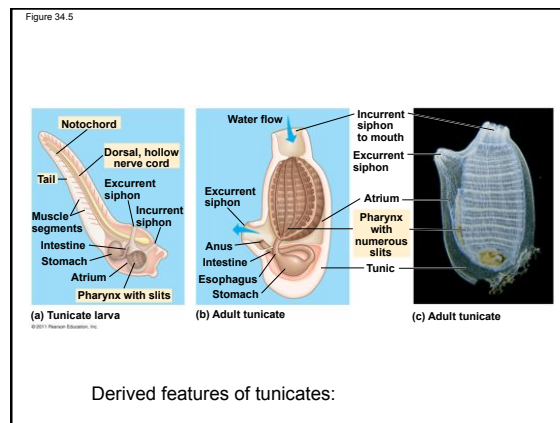
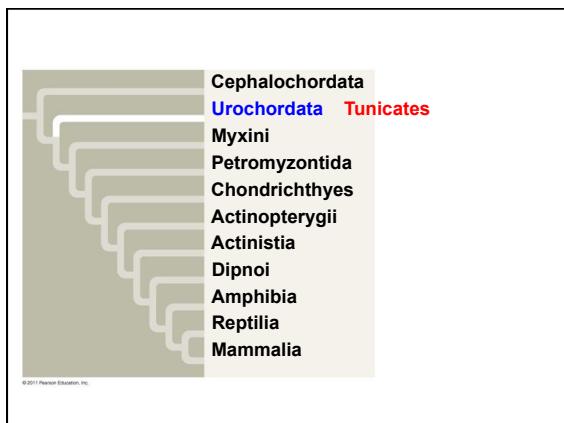
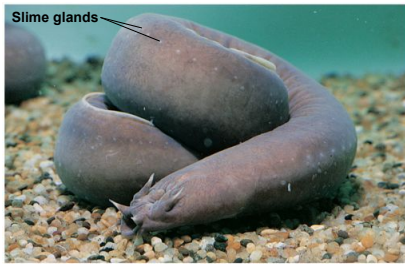
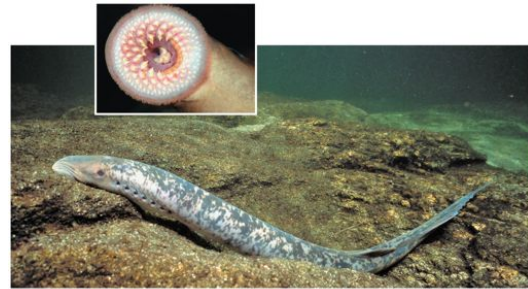


Figure 34.9



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Figure 34.10

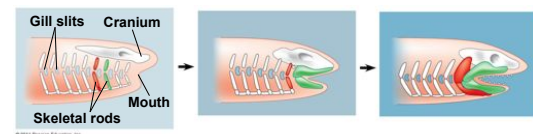


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Sea Lamprey parasitize fish in Lake Champlain

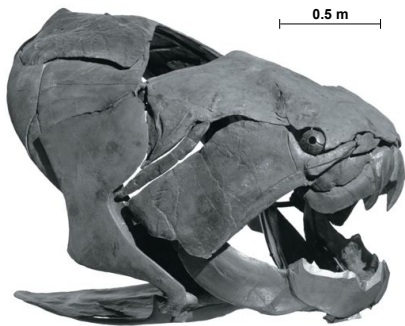
Gnathostomes have jaws that might have evolved from skeletal supports of the pharyngeal slits



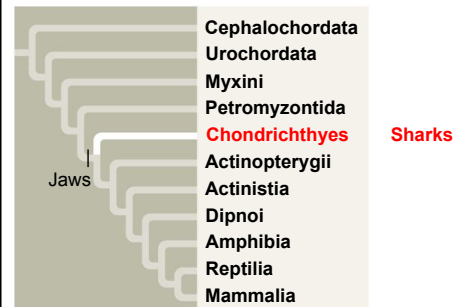
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Gnathostome fossil

Ordovician



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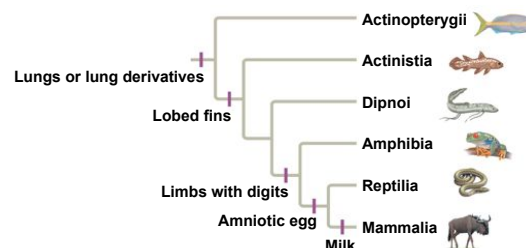


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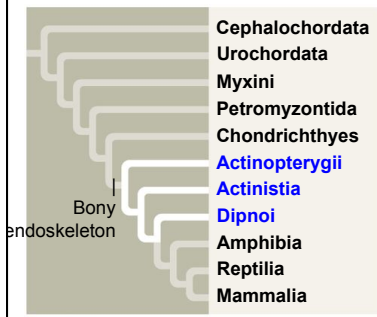
Sharks and Rays (about 470 species)



Figure 34.2b



“Fish”

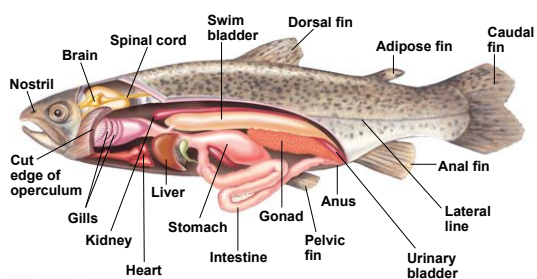


Ray-finned fish
Lobe fin fish
Lungfish

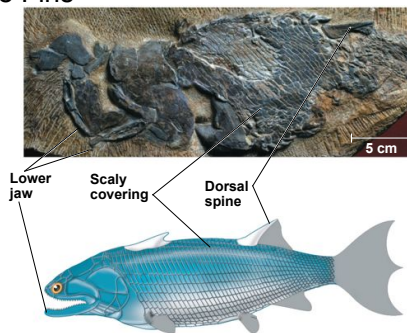
Ray-finned fish (about 30,000 species)



Figure 34.16



Lobe Fins



Coelocanth

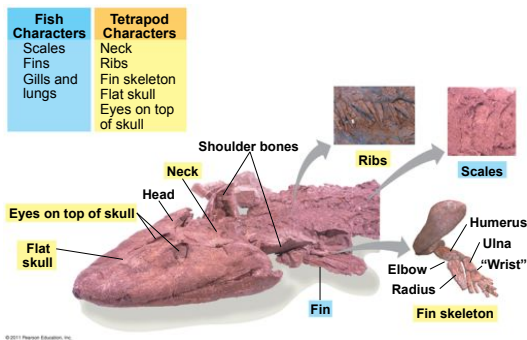


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Derived Characters of Tetrapods

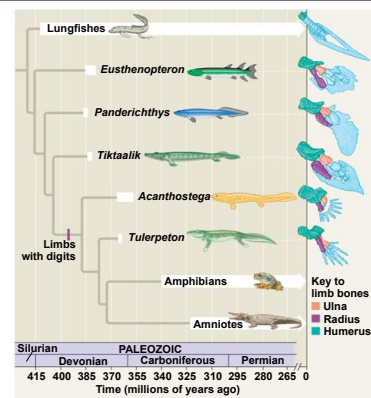
- **Tetrapods** have some specific adaptations
 - Four limbs, and feet with digits
 - A neck, which allows separate movement of the head
 - Fusion of the pelvic girdle to the backbone
 - The absence of gills (except some aquatic species)
 - Ears for detecting airborne sounds

Tiktaalik: a fossil with both fish and tetrapod characteristics



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Figure 34.21



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