

Classification of Eggs and Types of Cleavage

Classification by yolk content

- Isolecithal - little yolk, evenly distributed
- Mesolecithal - moderate yolk
- Telolecithal - large amounts of yolk

Classification of Eggs and Types of Cleavage

Yolk content affects how cells divide

- Holoblastic cleavage - complete division
- Meroblastic cleavage - incomplete division

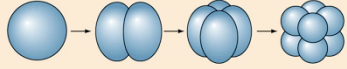
Figure 8.4(1) Patterns of Cleavage

Last classification: Cleavage symmetry

I. HOLOBLASTIC CLEAVAGE

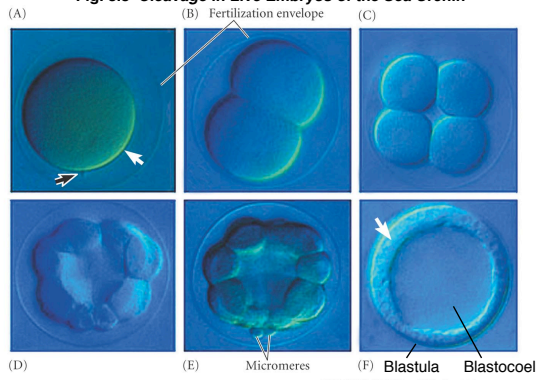
A. Isolecithal

- 1. Radial cleavage
Echinoderms,
amphioxus



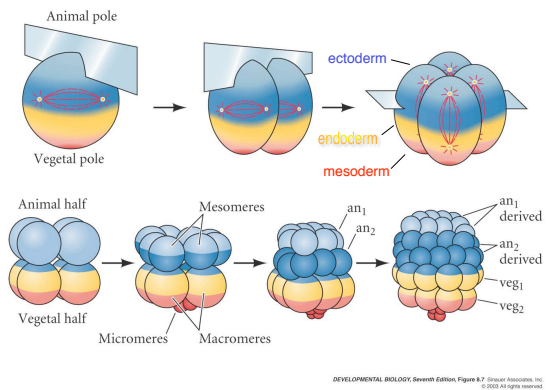
Echinoderms: radial cleavage

Fig. 8.8 Cleavage in Live Embryos of the Sea Urchin



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Figure 8.7 Cleavage in the Sea Urchin



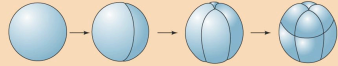
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Figure 8.4(2) Summary of the Main Patterns of Cleavage

I. HOLOBLASTIC CLEAVAGE

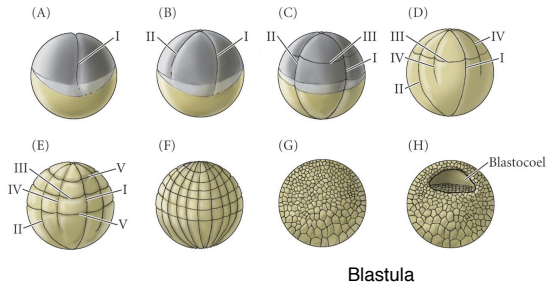
B. Mesolecithal

Displaced radial cleavage
Amphibians



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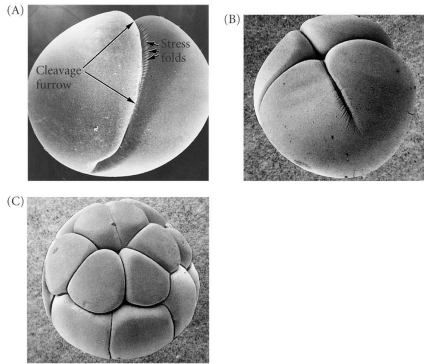
Figure 10.1 Cleavage of a Frog Egg



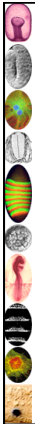
Blastula

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Figure 10.2 Scanning Electron Micrographs of Cleavage of Frog Egg

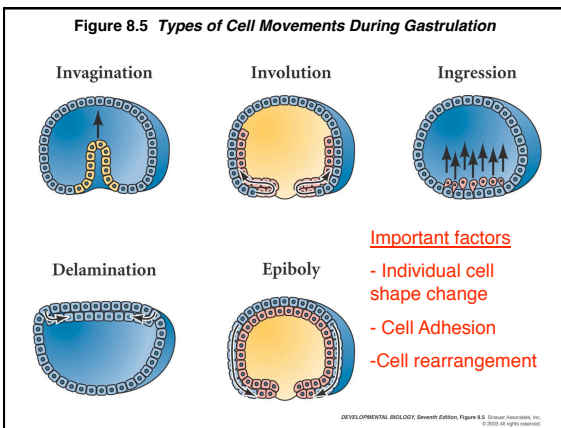


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It is not birth, marriage, or death, but gastrulation which is truly the most important time in your life.

Lewis Wolpert



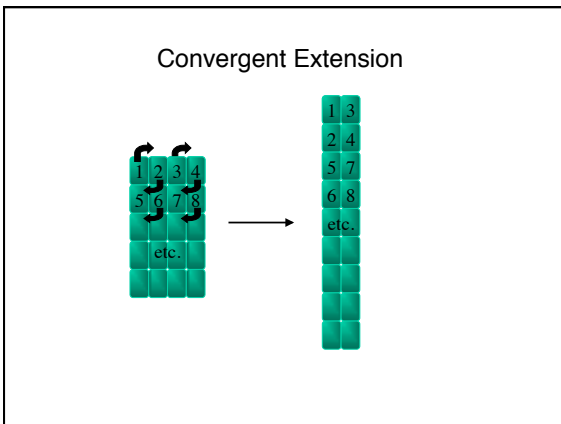
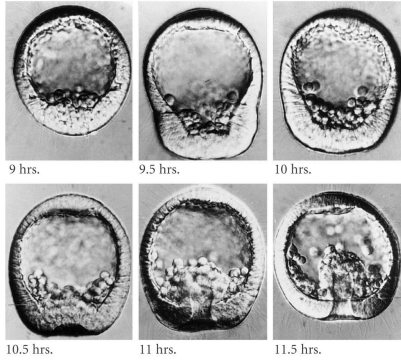
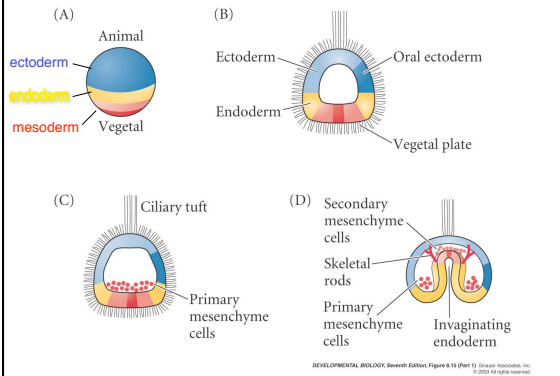


Figure 8.16(1) Entire Sequence of Gastrulation in Lytechinus variegatus



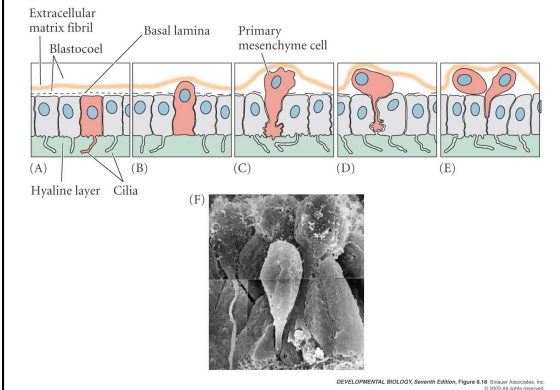
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Figure 8.15(1) Normal Sea Urchin Development, Following the Fate of the Cellular Layers of the Blastula

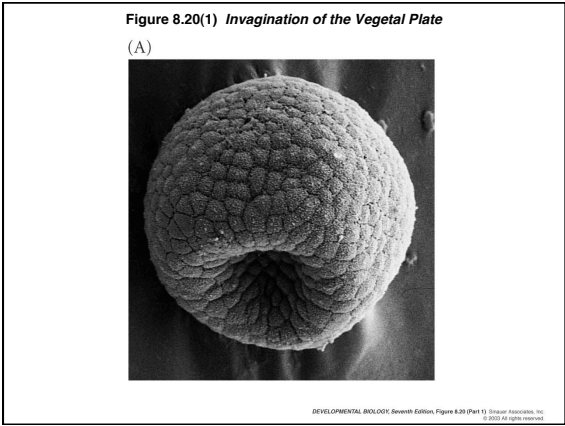


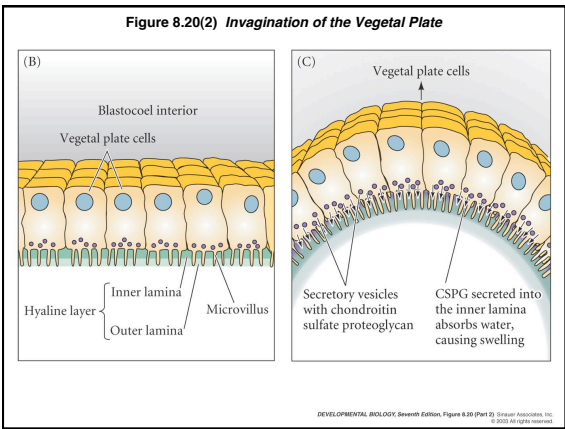
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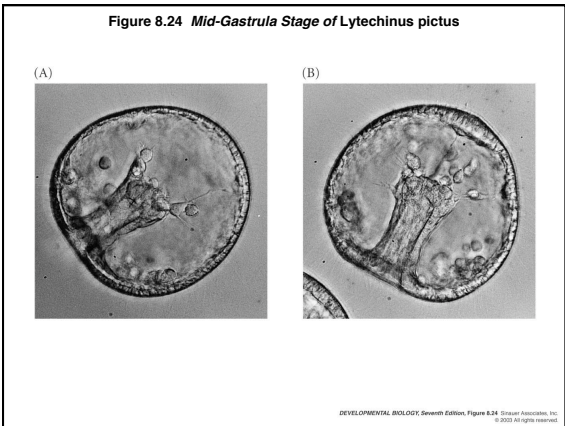
Figure 8.18 Ingression of Primary Mesenchyme Cells

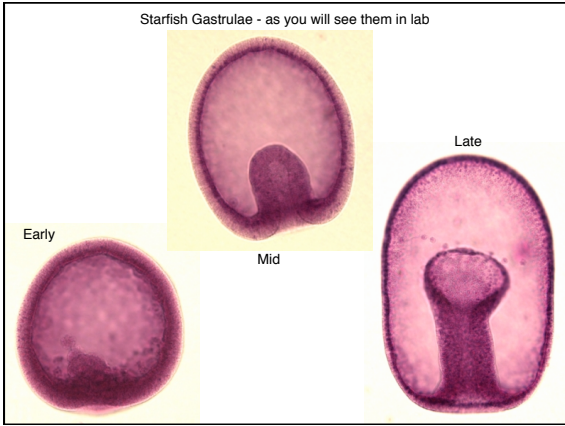


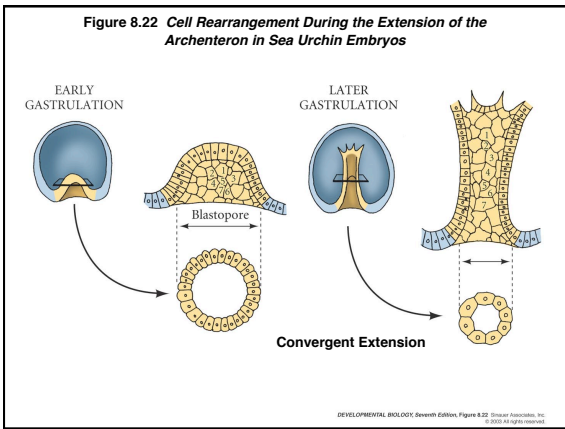
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Theories come and theories go.
The frog remains.

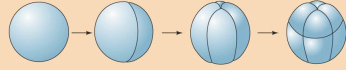
Jean Rostand

Figure 8.4(2) Summary of the Main Patterns of Cleavage

I. HOLOBLASTIC CLEAVAGE

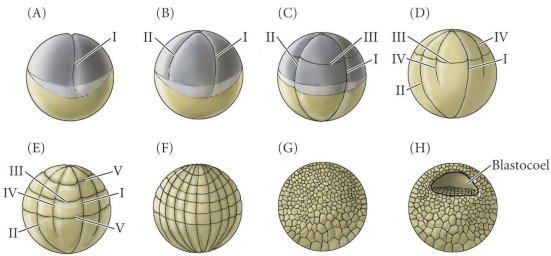
B. Mesolecithal

Displaced radial cleavage
Amphibians



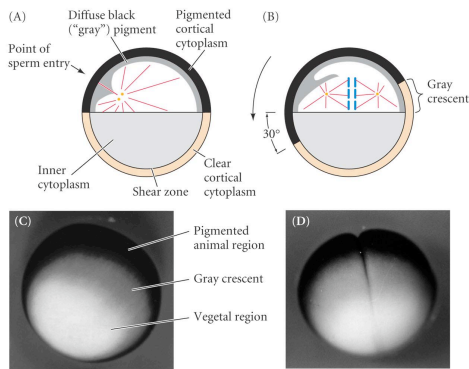
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Figure 10.1 Cleavage of a Frog Egg

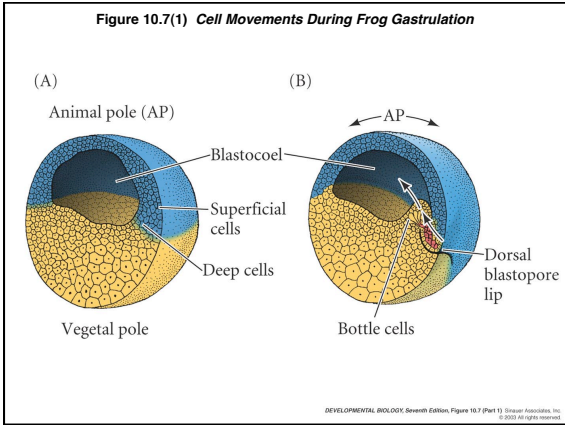


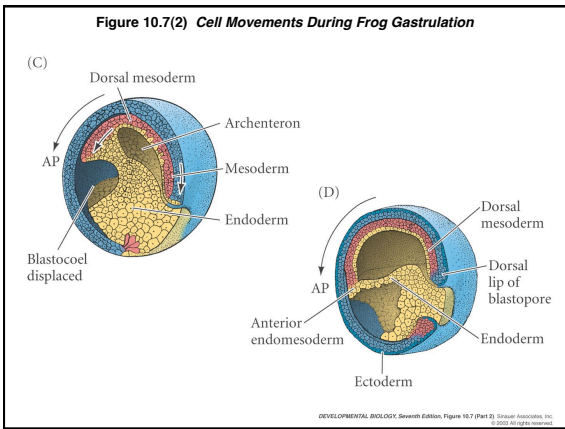
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Figure 7.33 Reorganization of Cytoplasm in the Newly Fertilized Frog Egg



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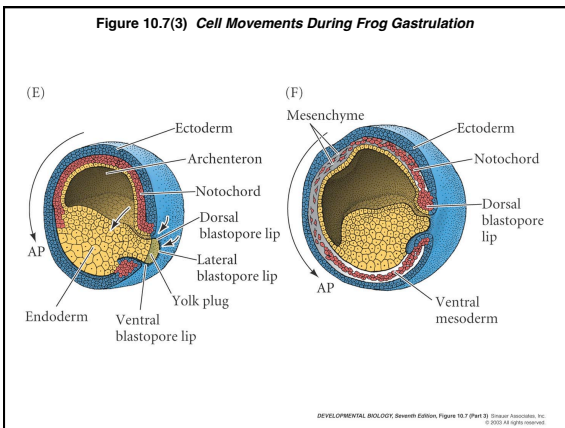
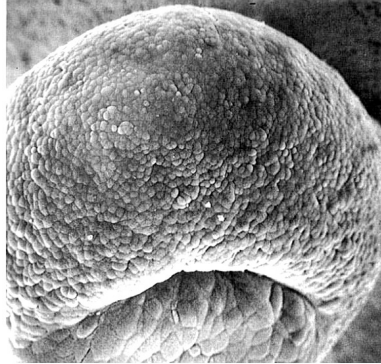
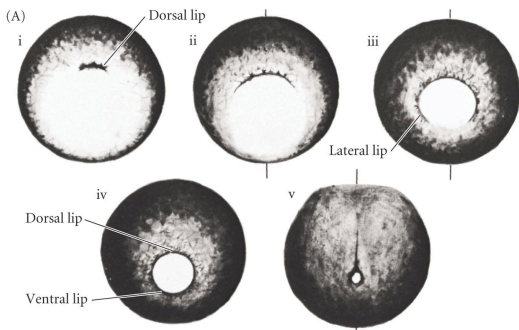


Figure 10.8 Surface View of An Early Dorsal Blastopore Lip of *Xenopus*



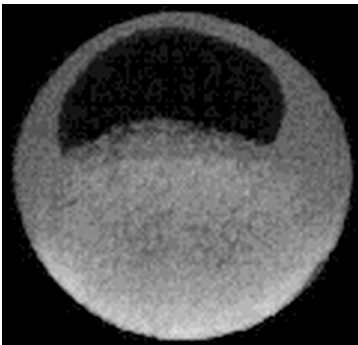
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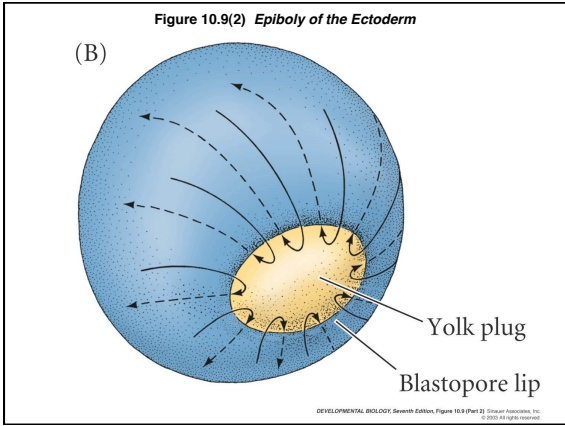
Figure 10.9(1) Epiboly of the Ectoderm

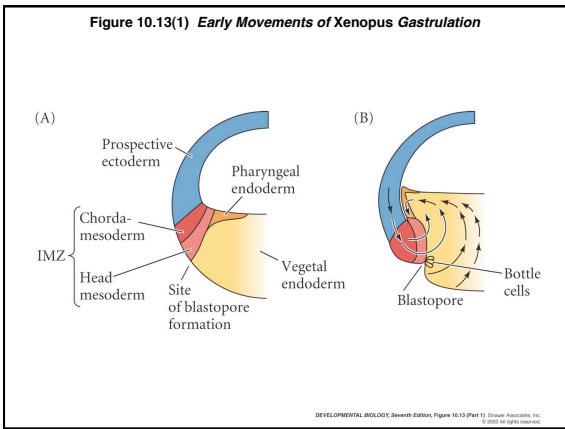


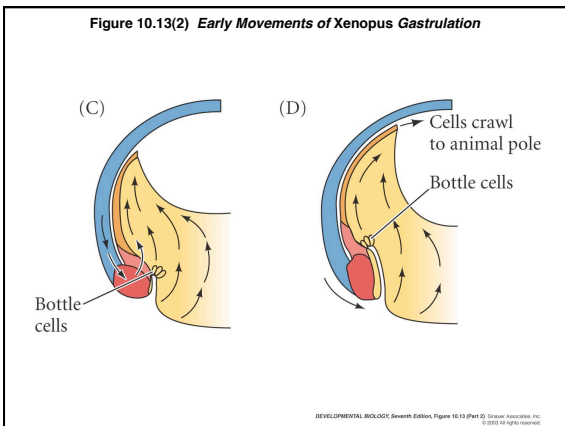
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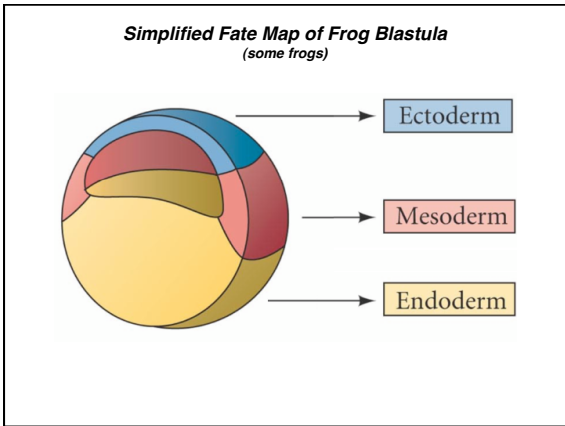
Internal Gastrulation Movie
(morph of sections at successive stages)

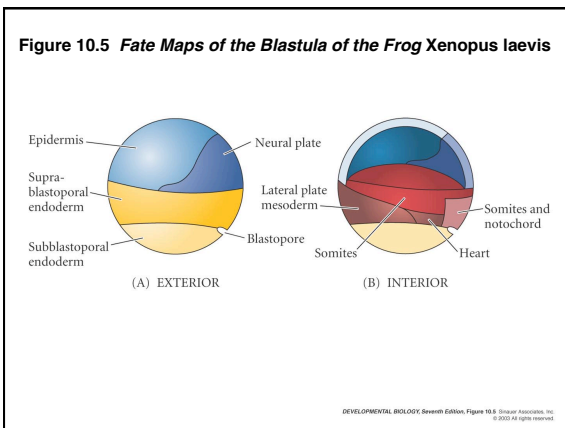












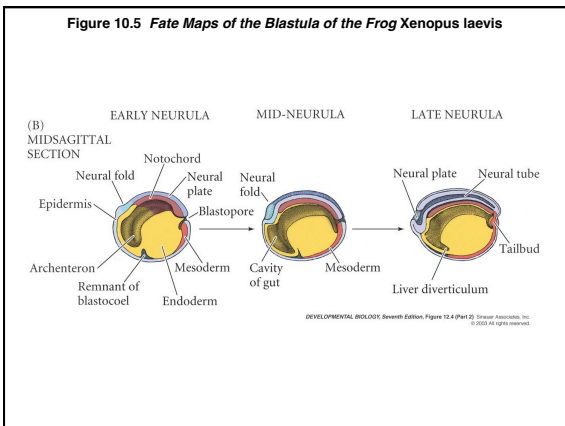
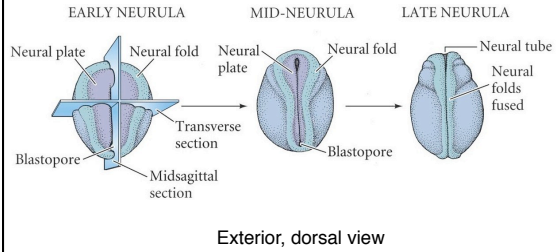
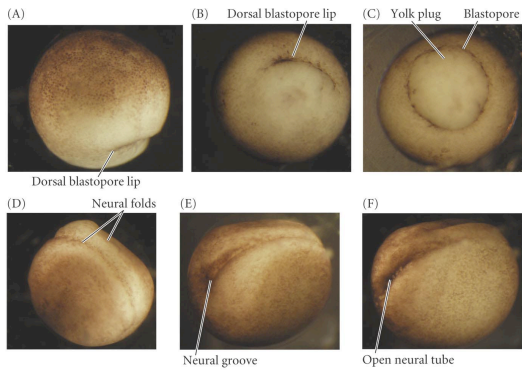


Figure 12.4(1) Three Views of Neurulation in an Amphibian Embryo



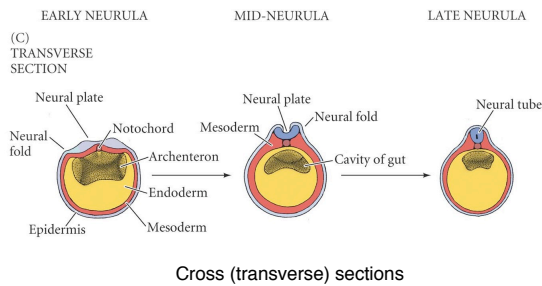
Exterior, dorsal view

Exterior views of *Xenopus* Embryos

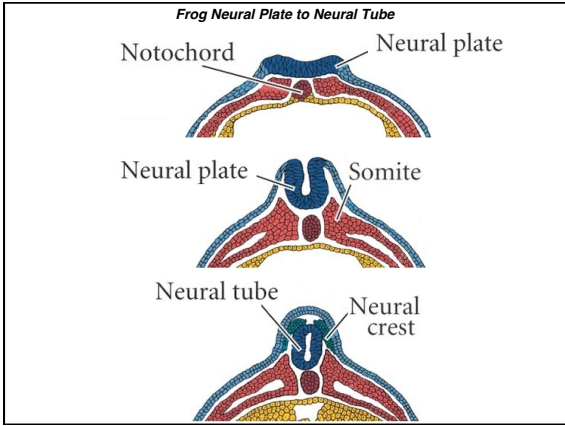


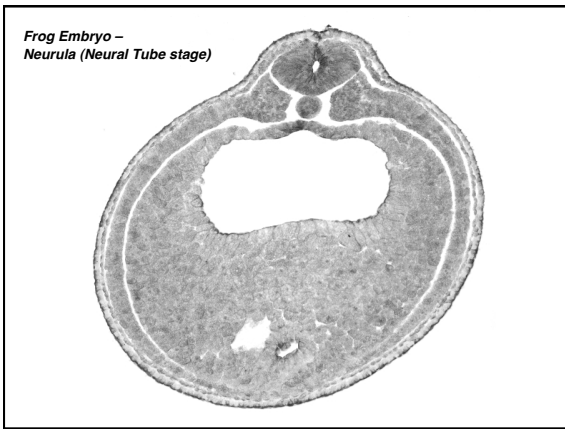
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Figure 12.4(2) Three Views of Neurulation in an Amphibian Embryo



Cross (transverse) sections





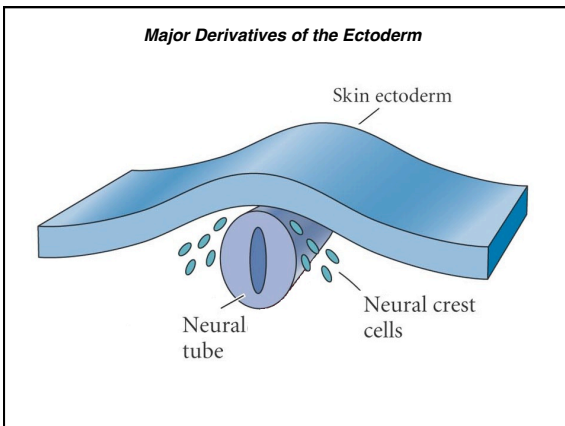
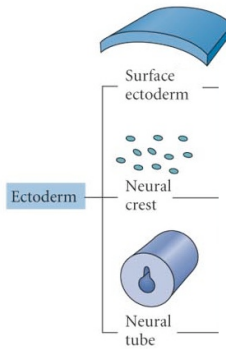
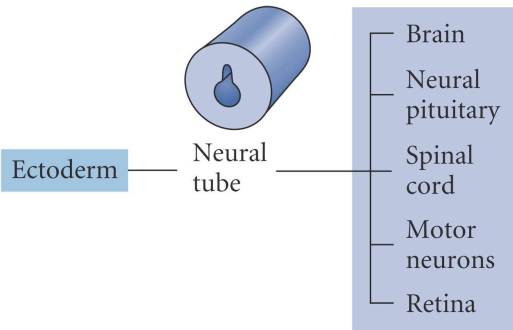


Figure 12.1(mod) Major Derivatives of the Ectoderm



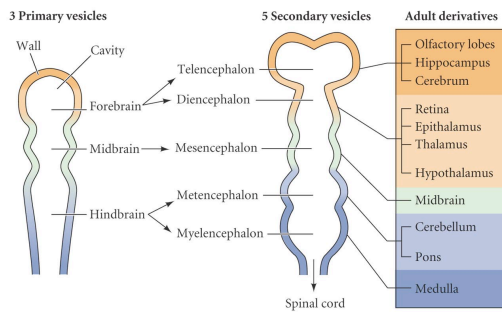
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Figure 12.1(4) Major Derivatives of the Ectoderm Germ Layer

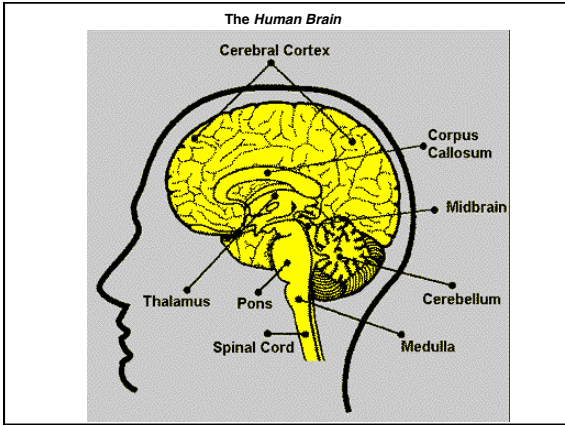


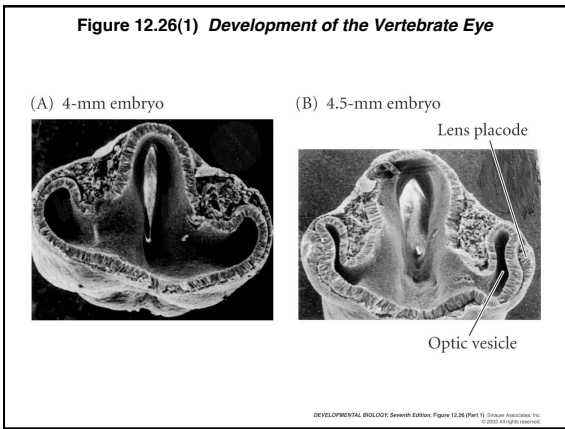
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Figure 12.9 Early Human Brain Development



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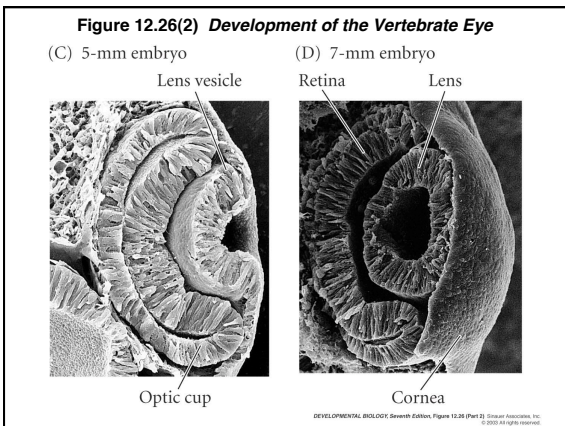
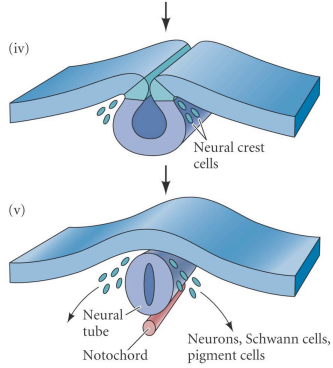
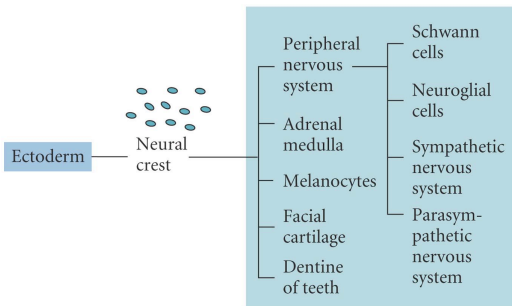


Figure 13.1(2) Neural Crest Formation in a Chick Embryo



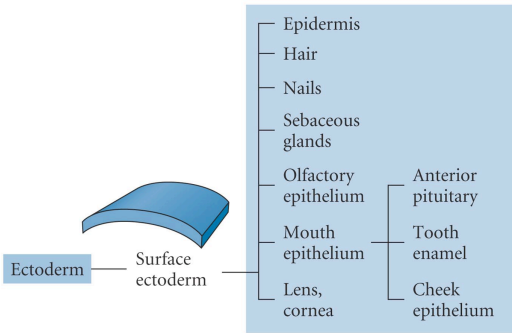
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Figure 12.1(3) Major Derivatives of the Ectoderm Germ Layer



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Figure 12.1(2) Major Derivatives of the Ectoderm Germ Layer



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Fig. 15.1(1) Comparison of Mesodermal Development in Frog & Chick Embryos

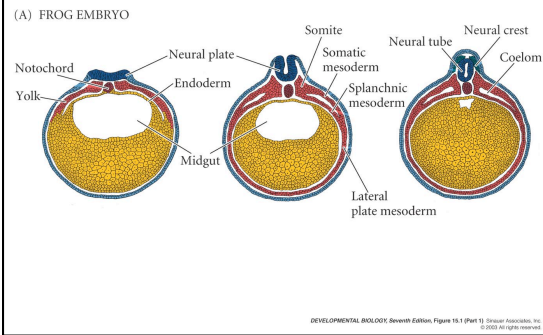


Fig. 15.1(2) Comparison of Mesodermal Development in Frog & Chick Embryos

