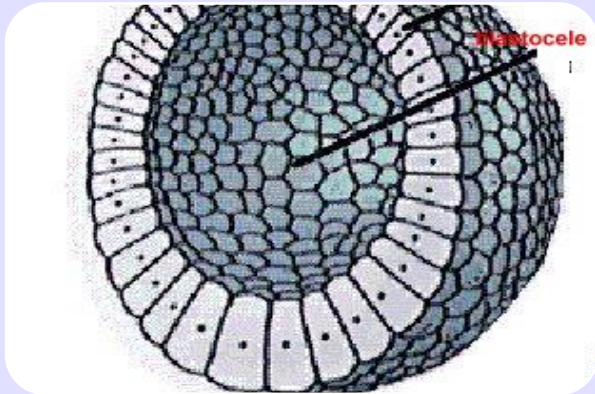


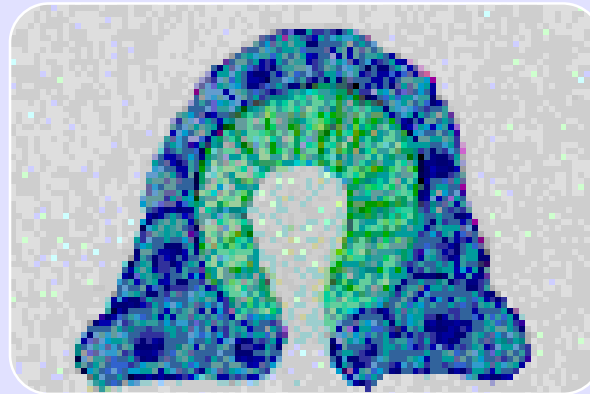
# Gastrulación





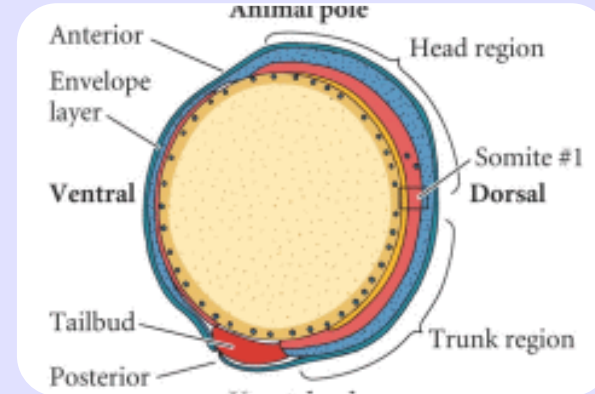
## Monoblásticos

Un solo tejido  
Nivel de  
mórula o  
blástula



## Diblásticos

Dos láminas de  
tejido:  
ectodermo y  
endodermo

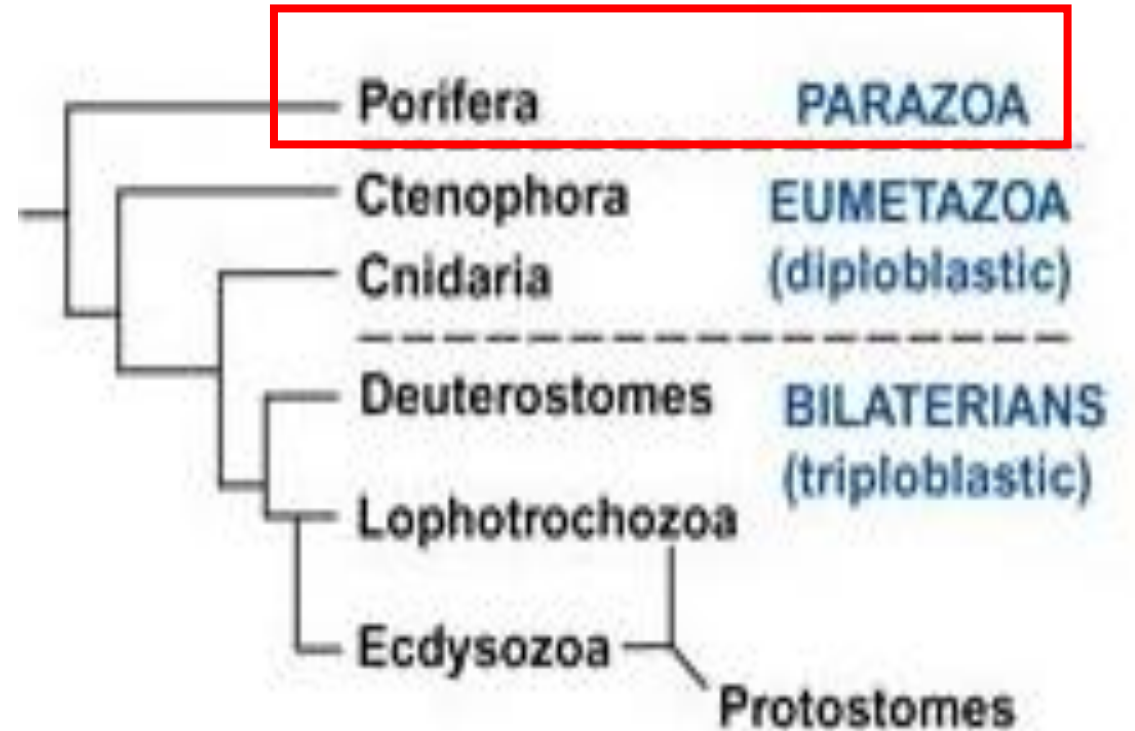
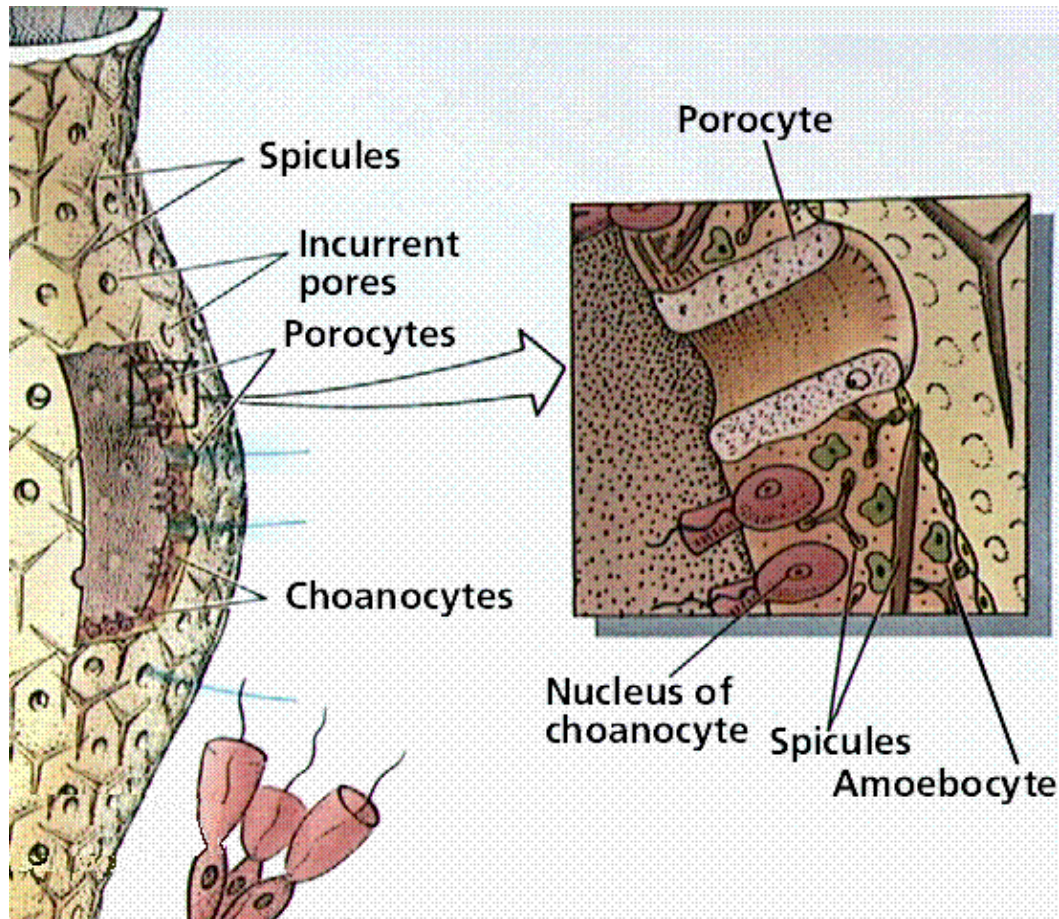


## Triblásticos

Tres láminas de  
tejidos:  
ectodermo,  
mesodermo y  
endodermo



# Parazoa tejidos parcialmente diferenciados



Tejidos similares a endodermo y ectodermo pero muy poco diferenciados,

**Nivel celular** y no tisular de organización



No tissues

Parazoa



Sponges

Radial symmetry

Radiata



Cnidarians

Ctenophorans

Grow by increasing body mass, locomotion is ciliary, trochophore larvae

Lophotrochozoa

Protostomes



Lophophorates

Flatworms

Mollusks

Annelids

Grow by molting

Ecdysozoa



Nematodes

Arthropods

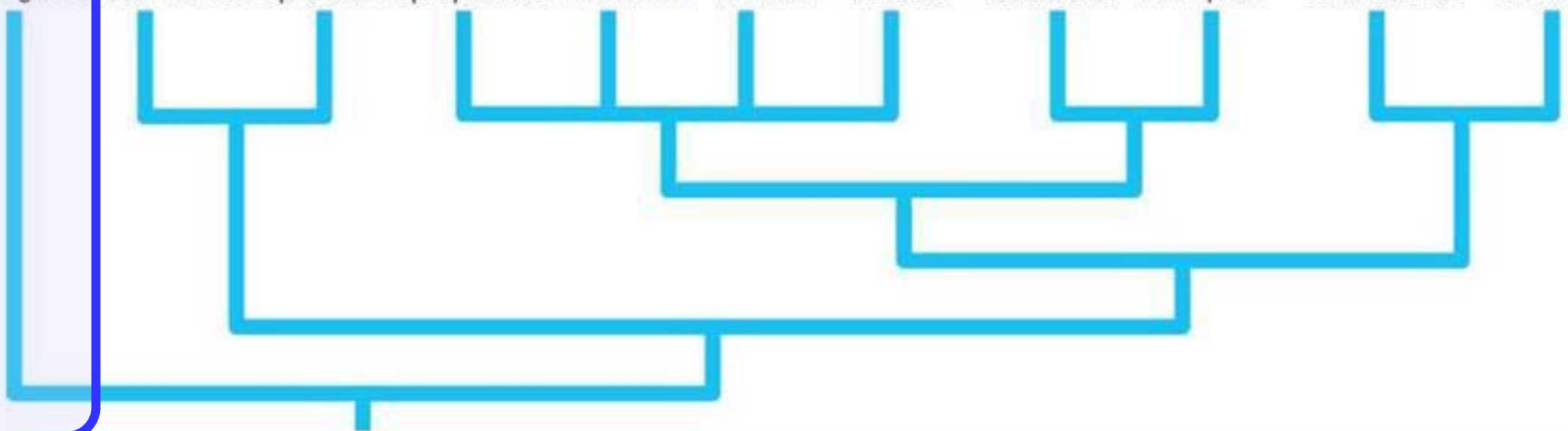
Coelom forms from embryonic gut

Deuterostomes

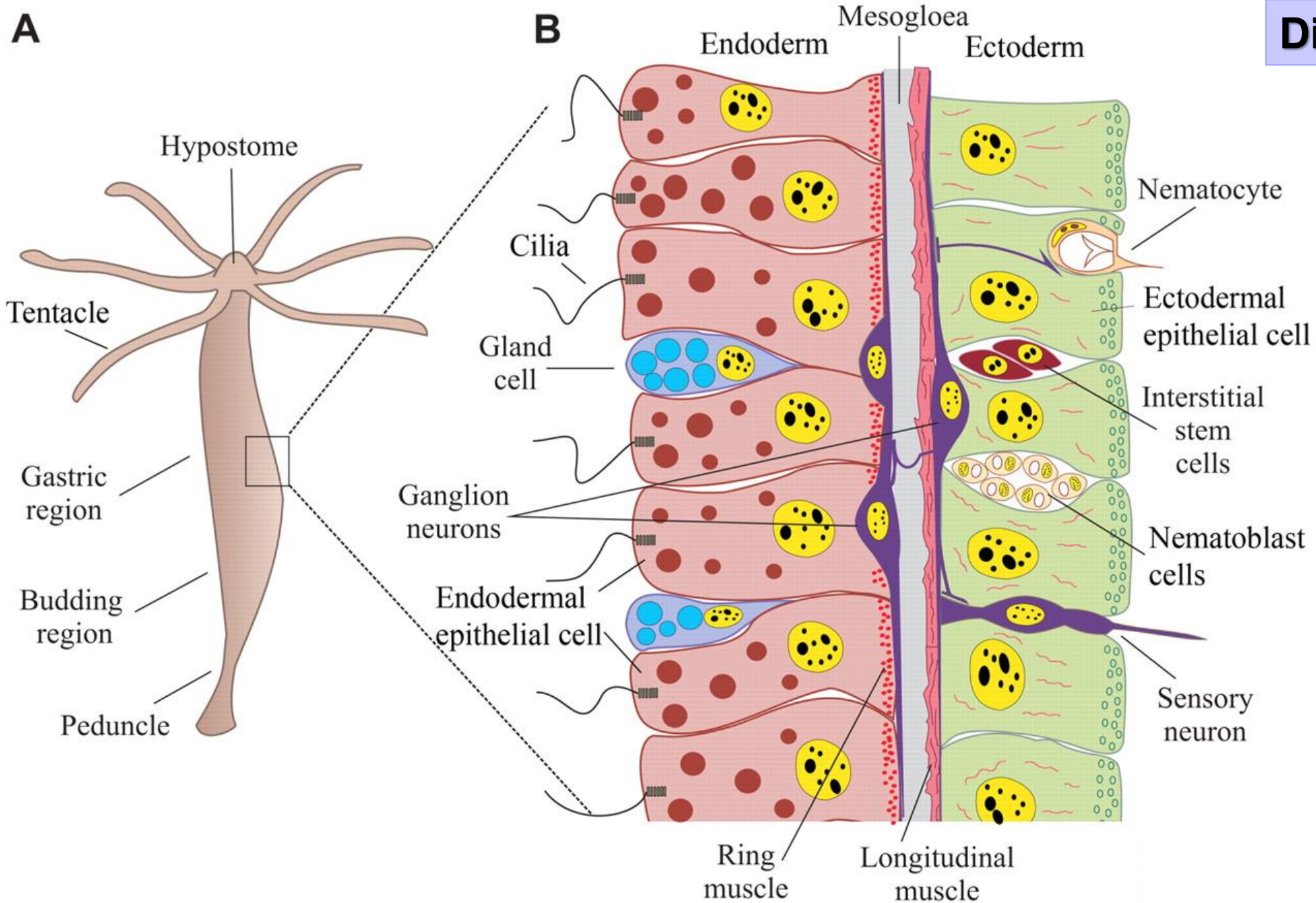


Echinoderms

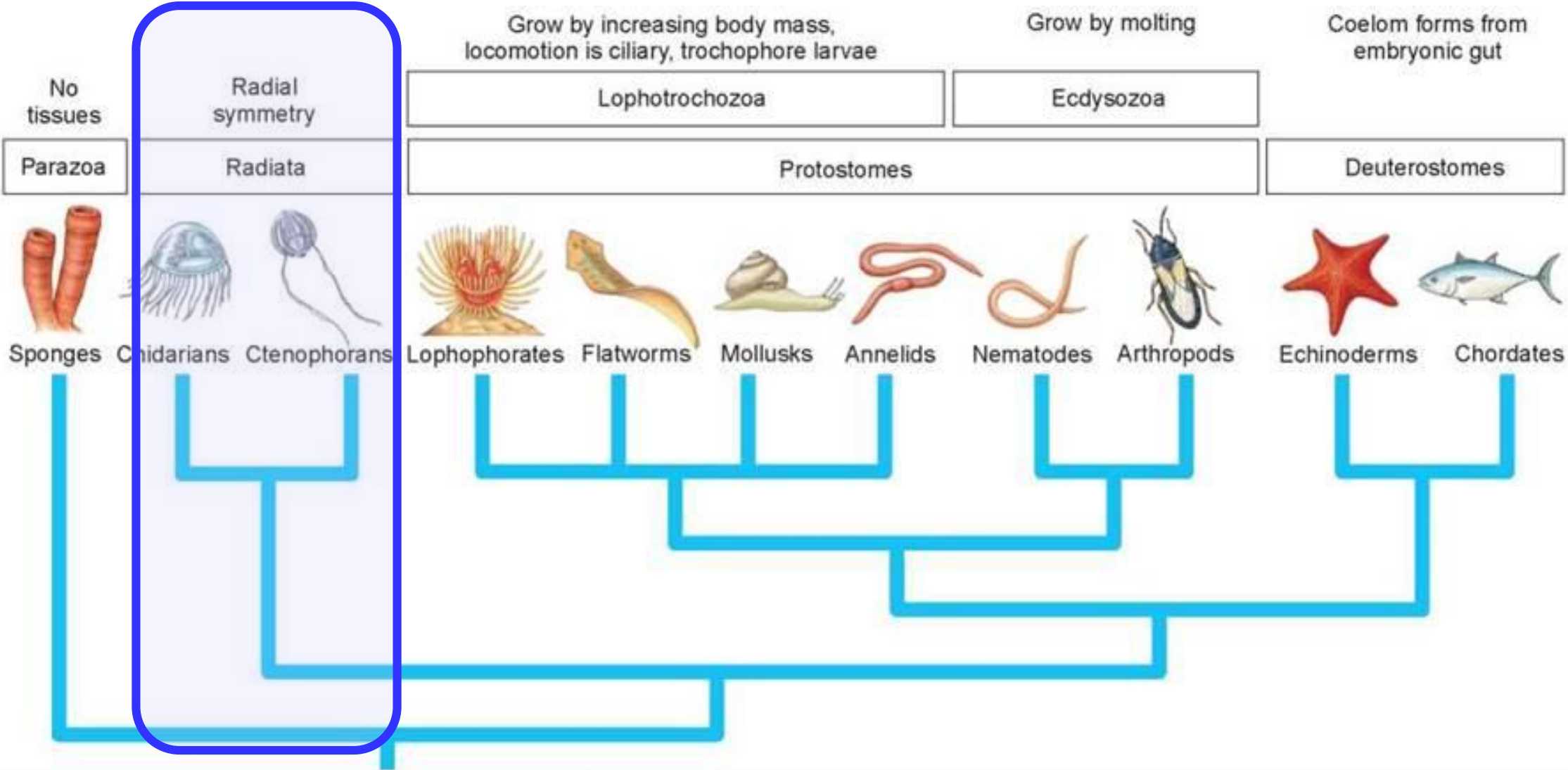
Chordates



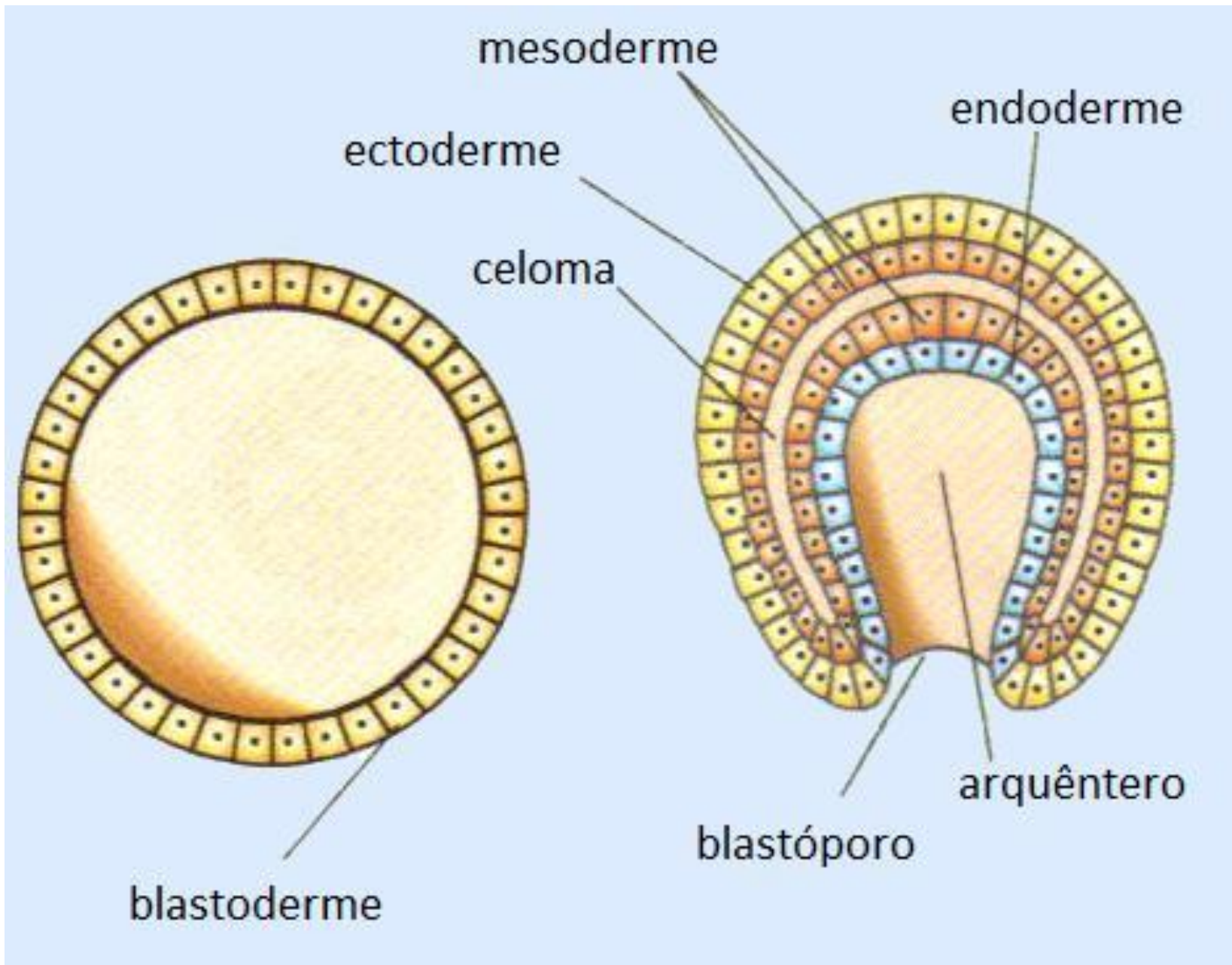
# Diblásticos

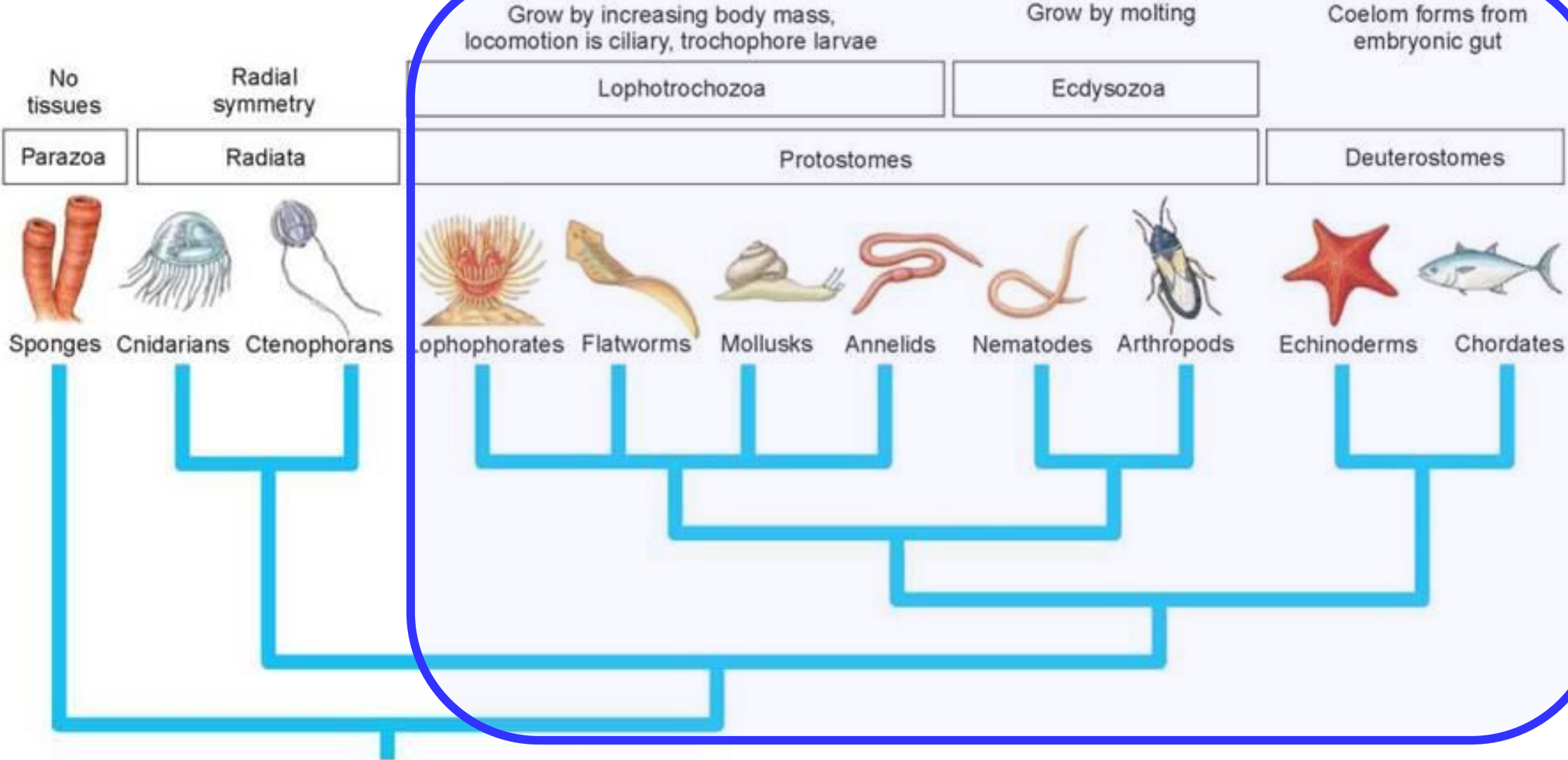


# Diblásticos



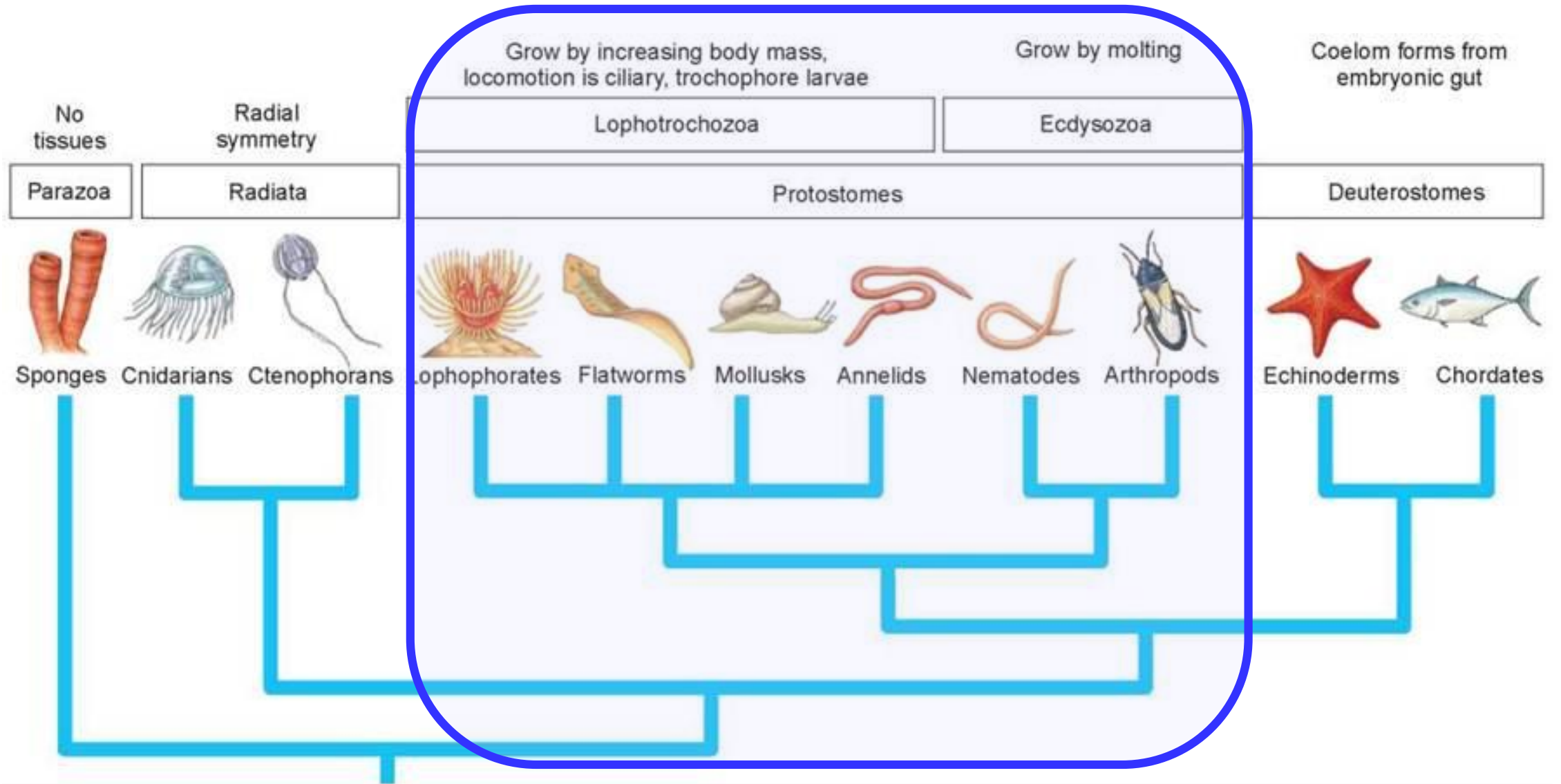
## Triblásticos



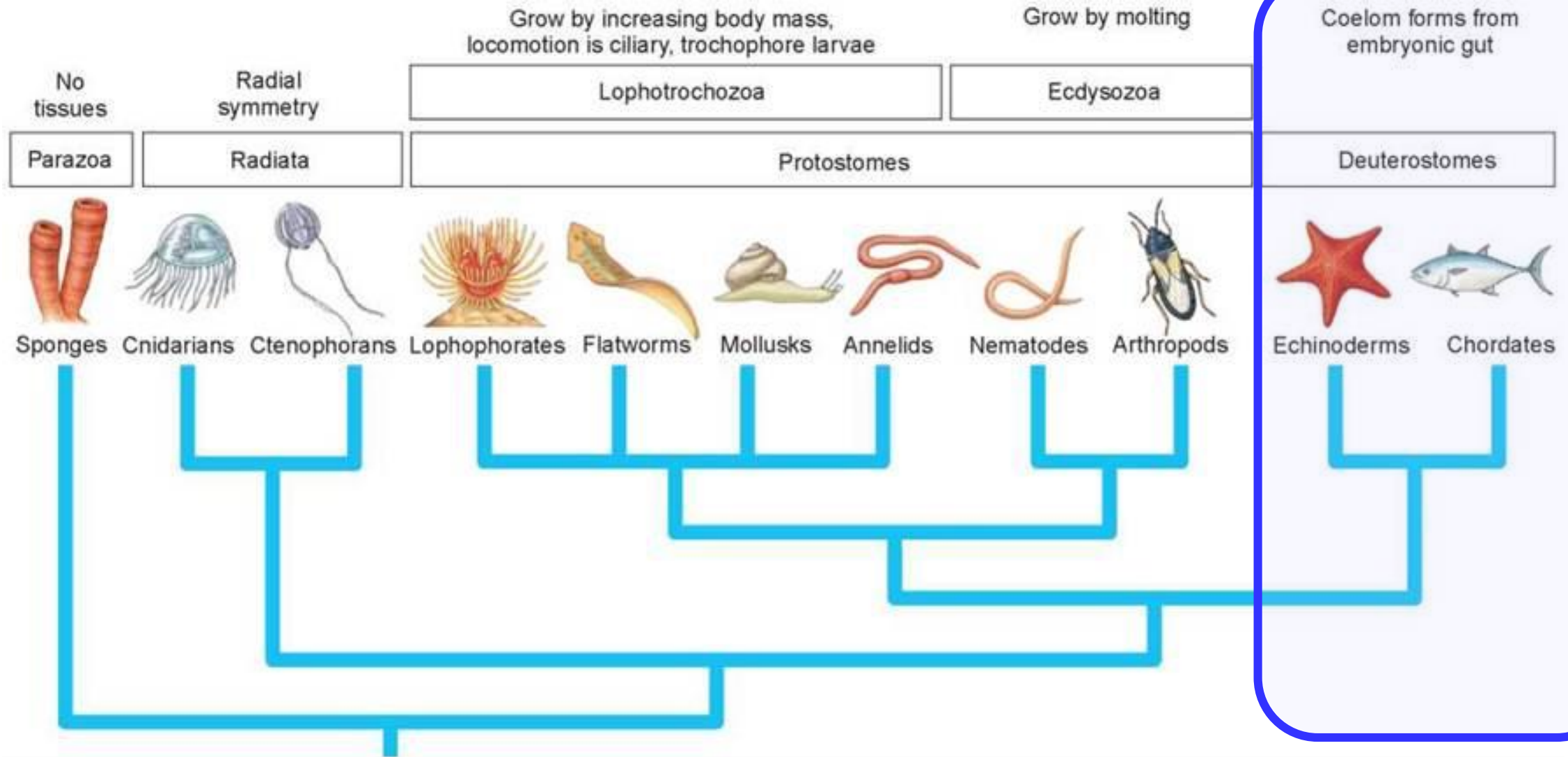


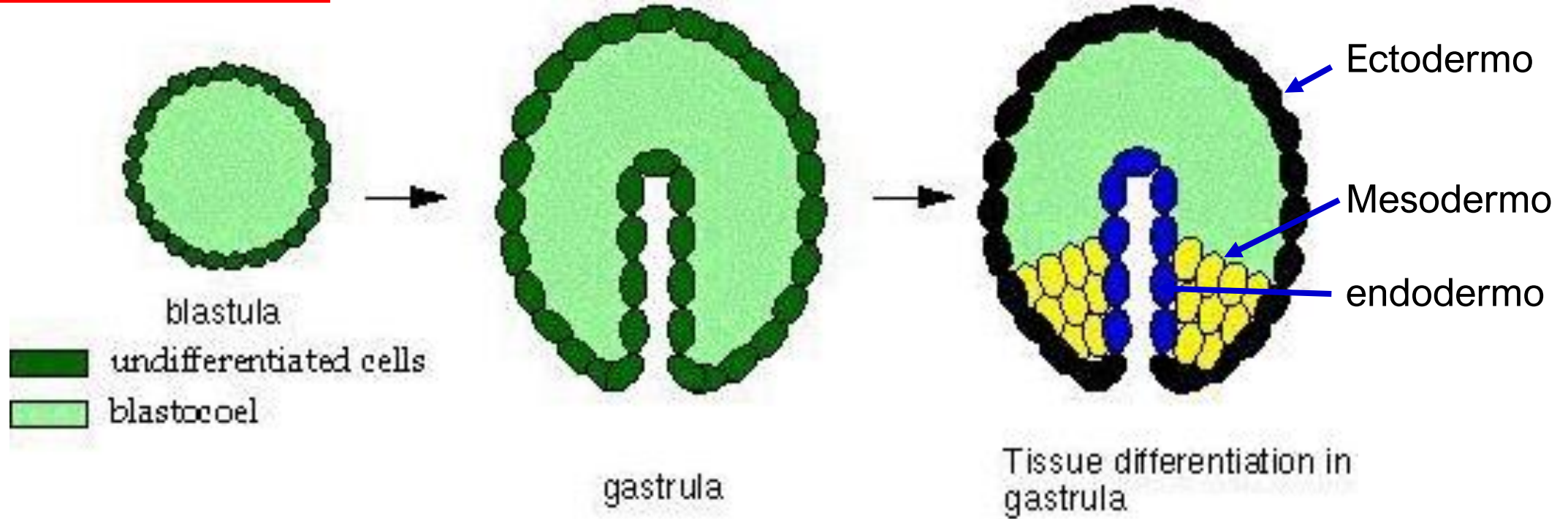
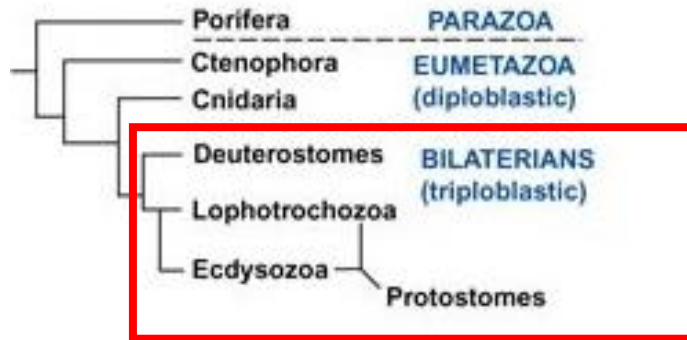


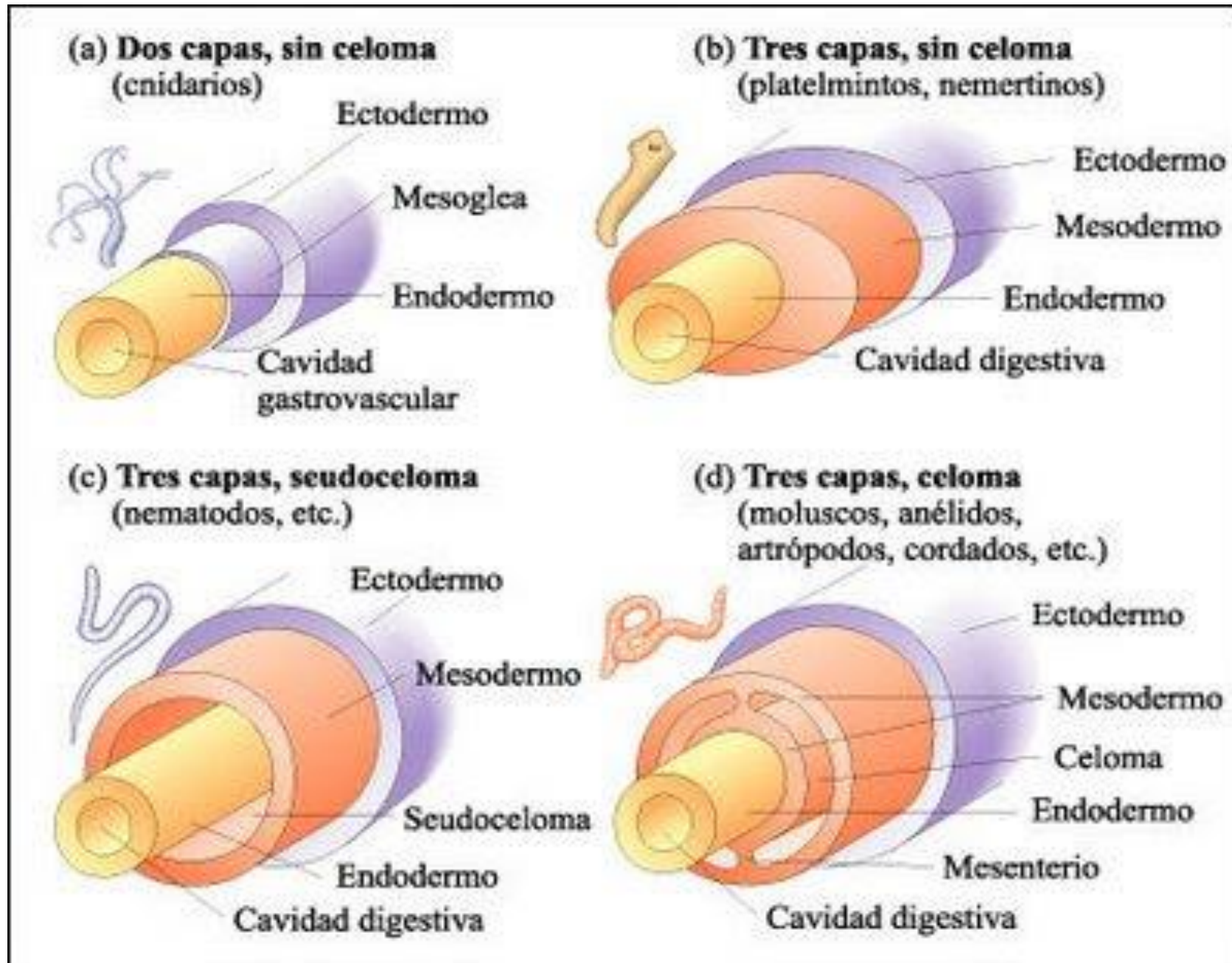
# Triblásticos



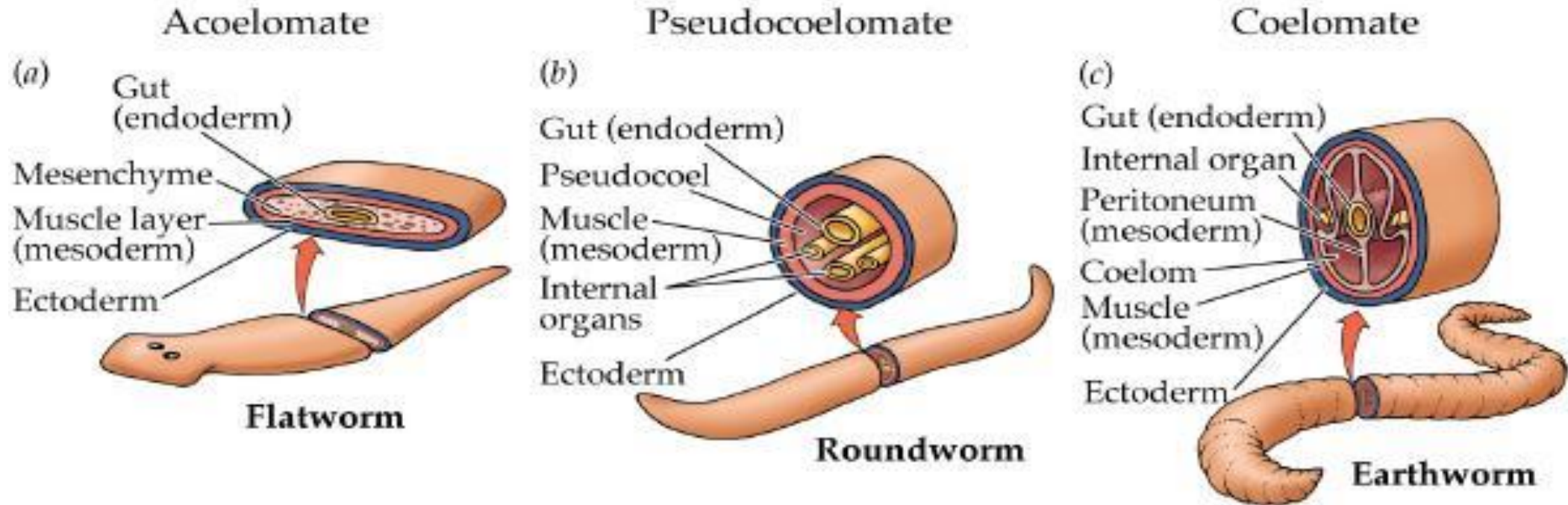
# Triblásticos

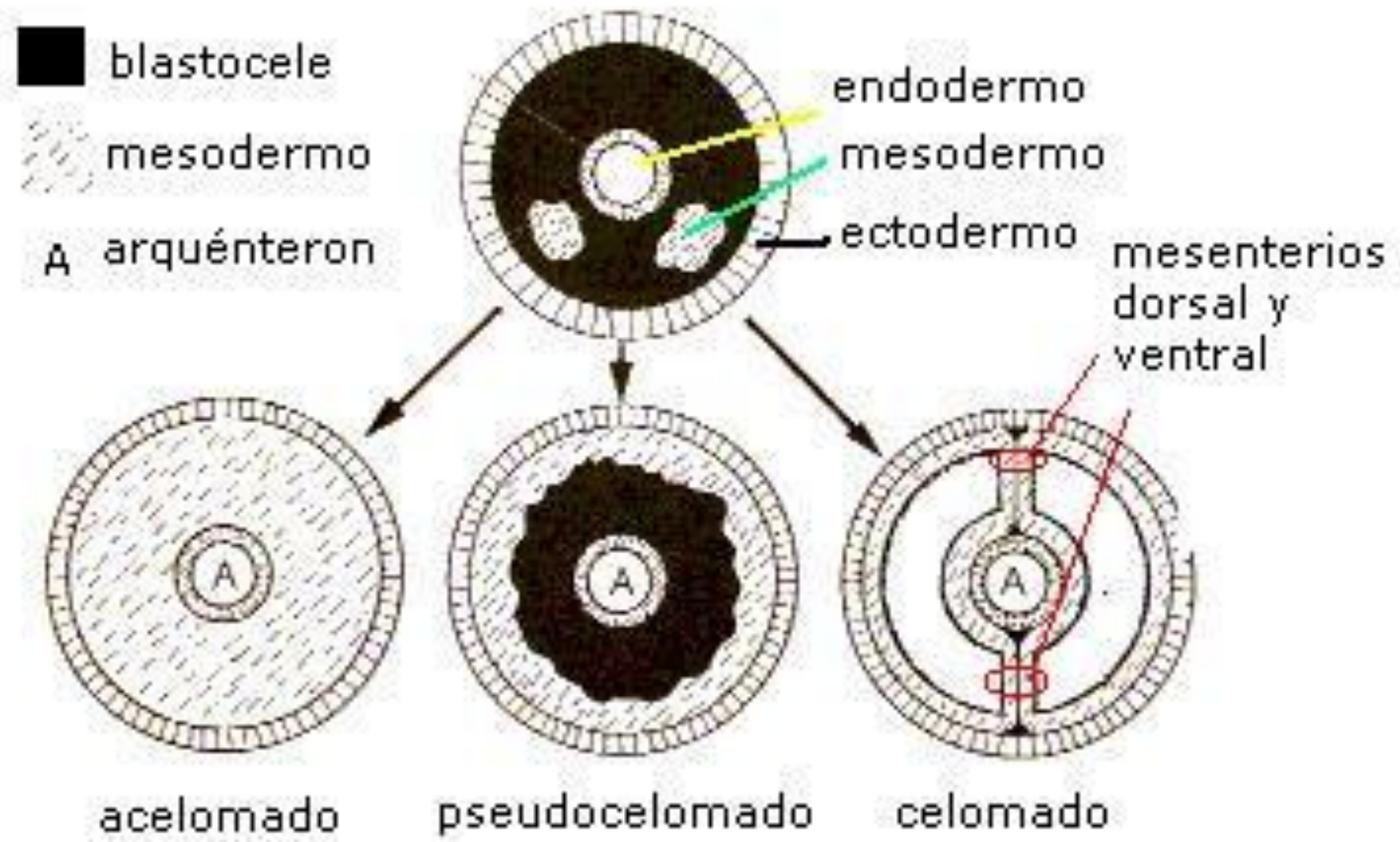




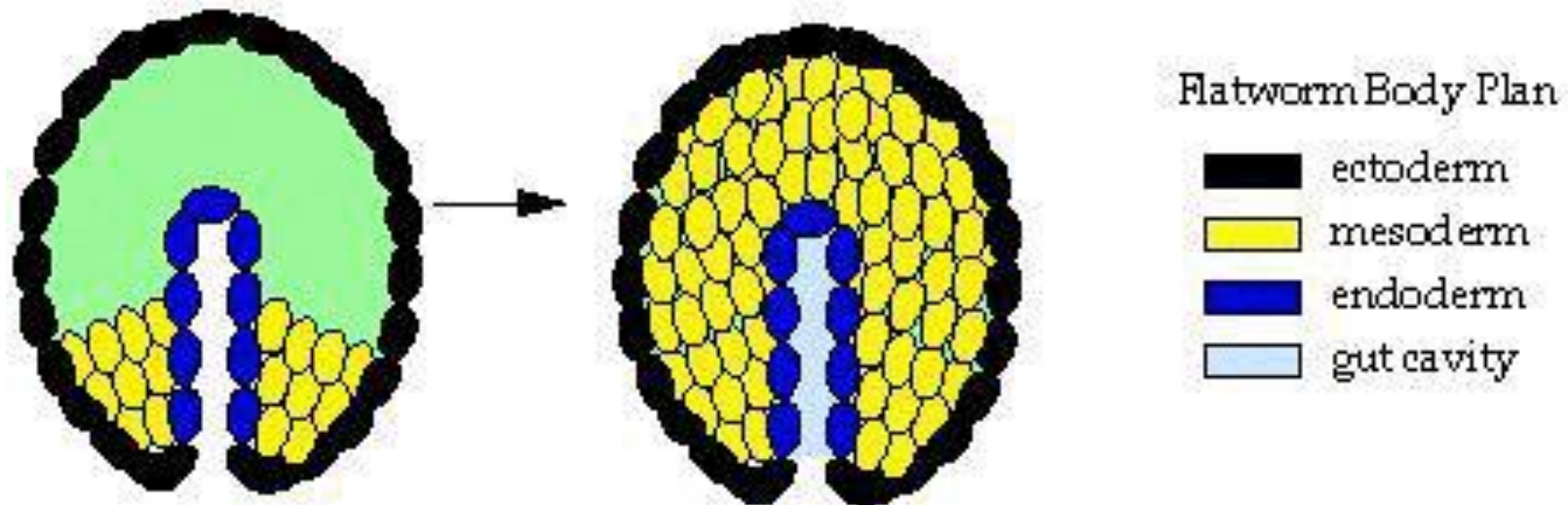
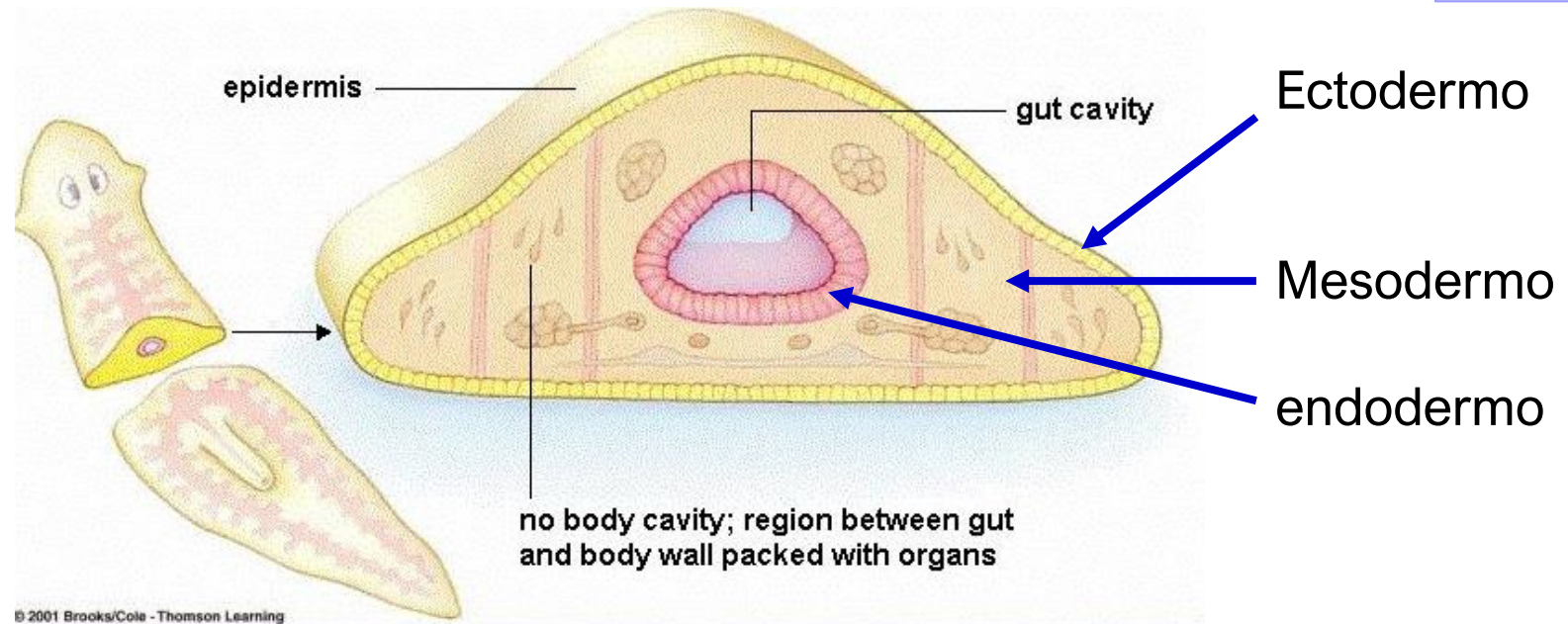


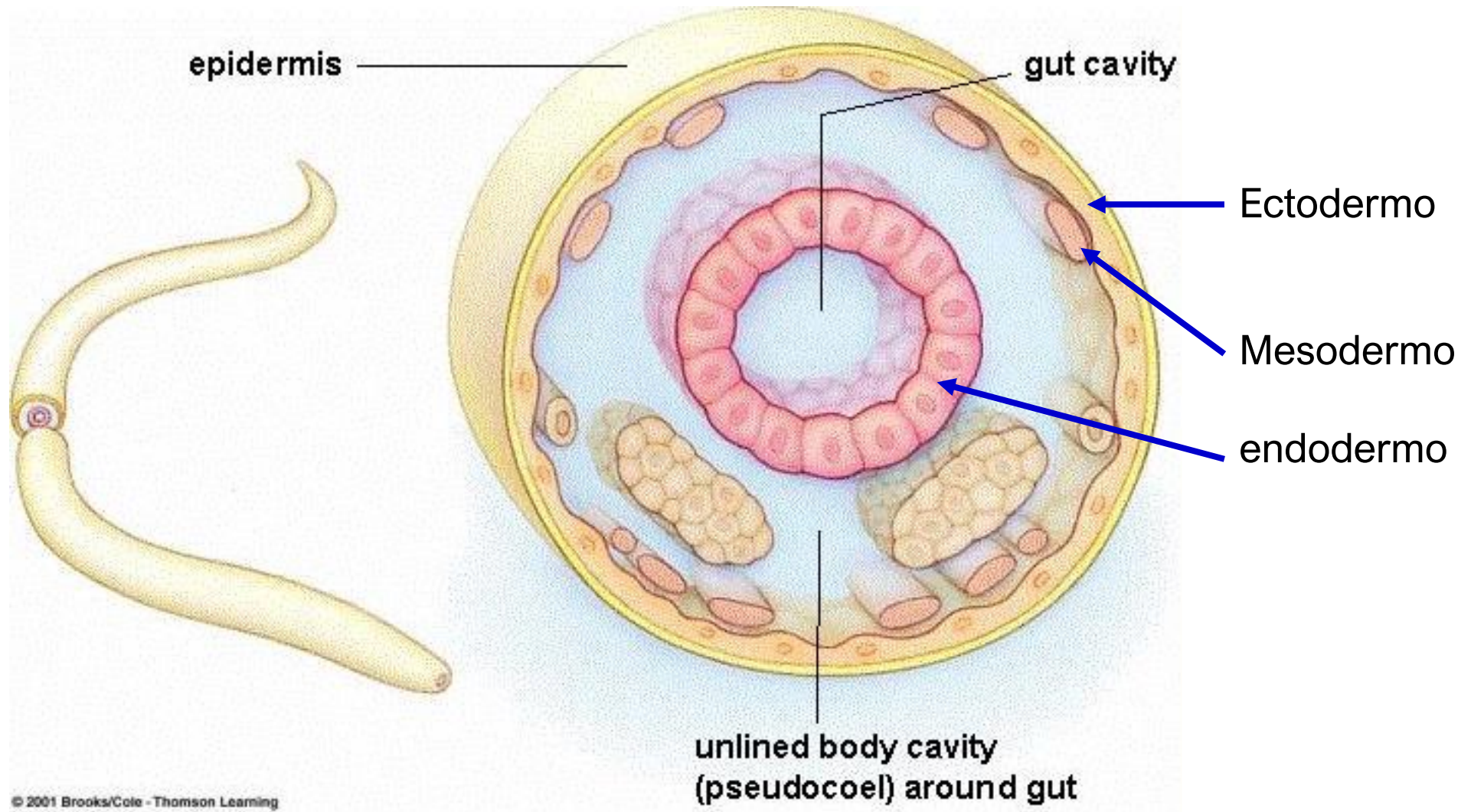
Los animales triblásticos pueden ser acelomados, pseudocelomados o celomados





El plan corporal de los **gusanos planos** no incluye una cavidad corporal, son **acelomados**

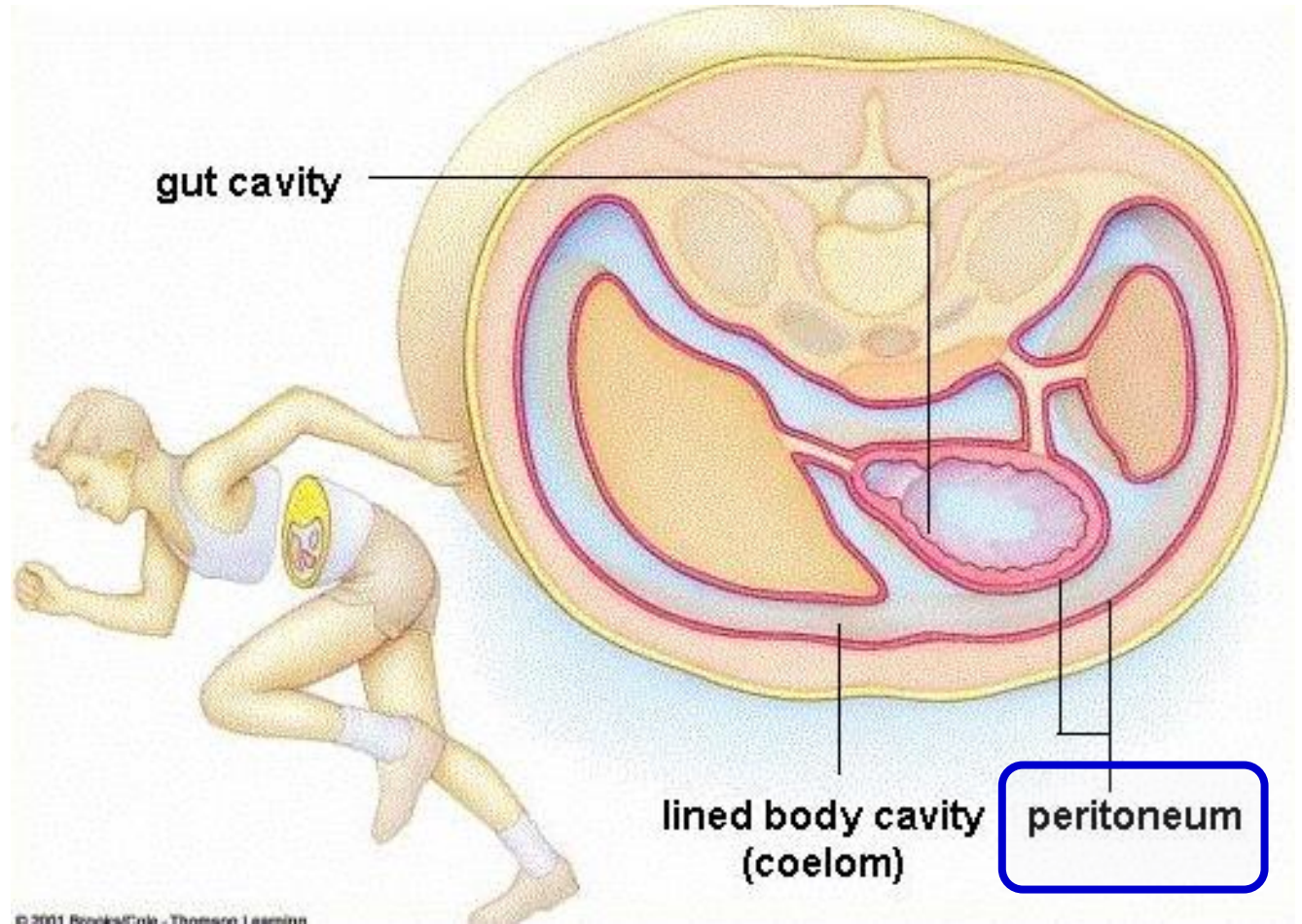
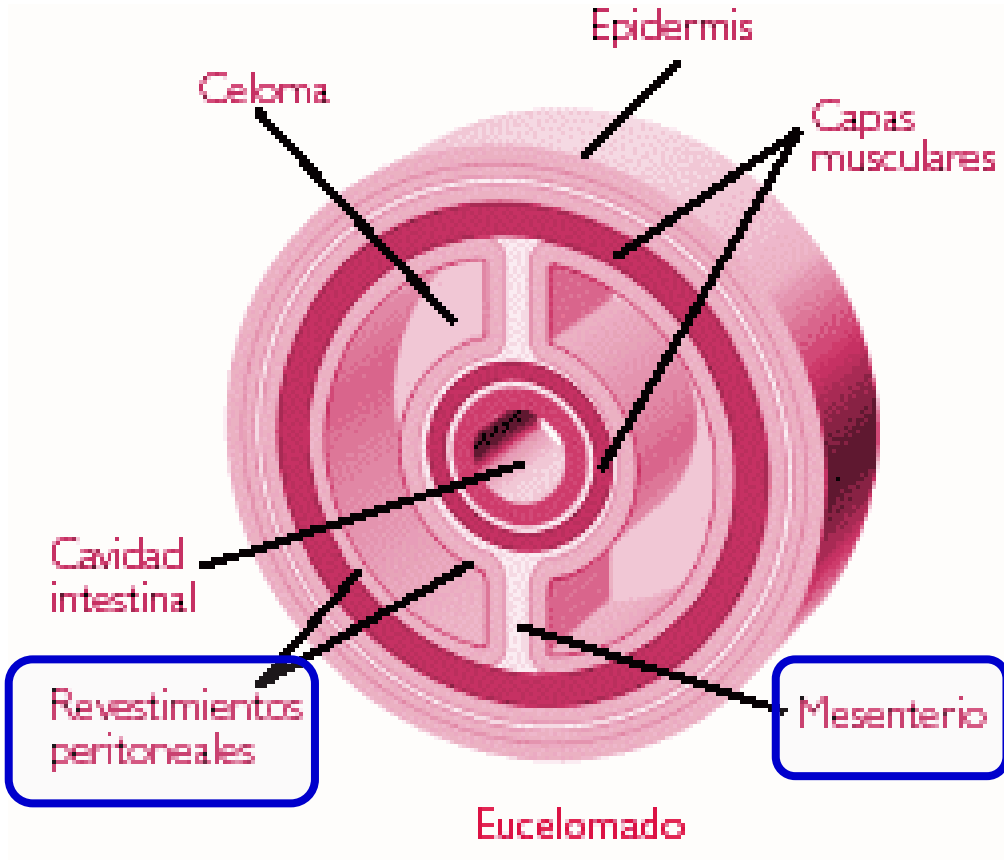


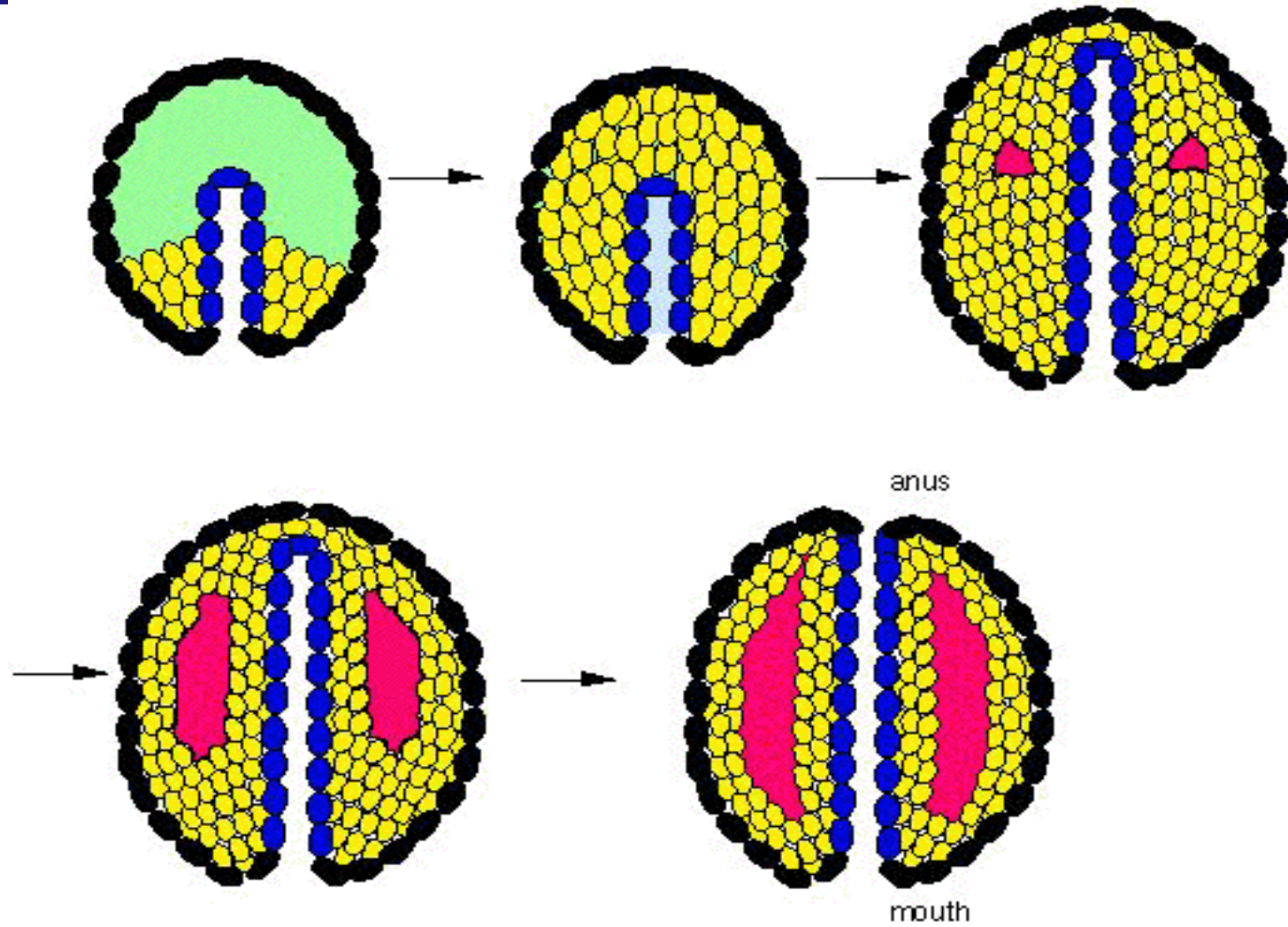


© 2001 Brooks/Cole - Thomson Learning







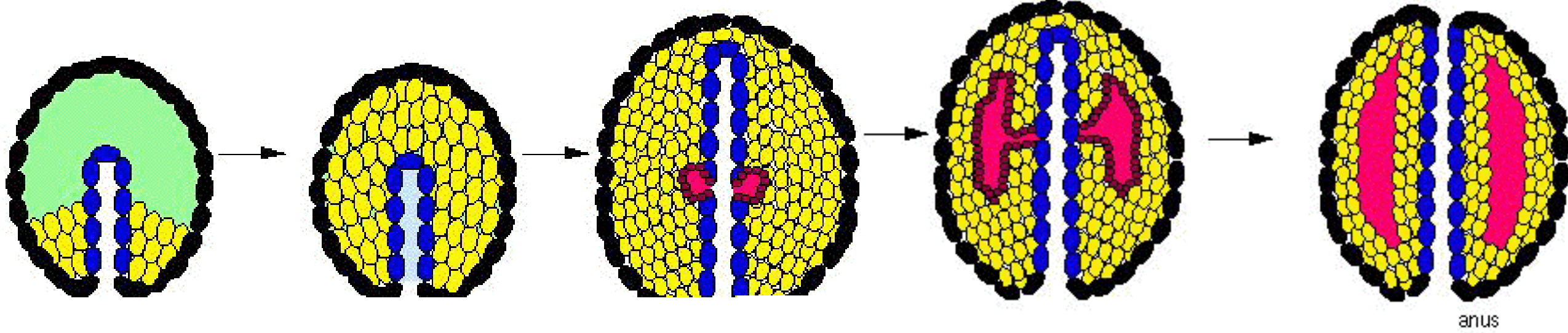


Protostome Body Plan

- ectoderm
- mesoderm
- endoderm
- coelom

En el plan corporal de los protostomados celomados el celoma se desarrolla dentro del mesodermo por **EZQUISOCELIA**





Deuterostome Body Plan

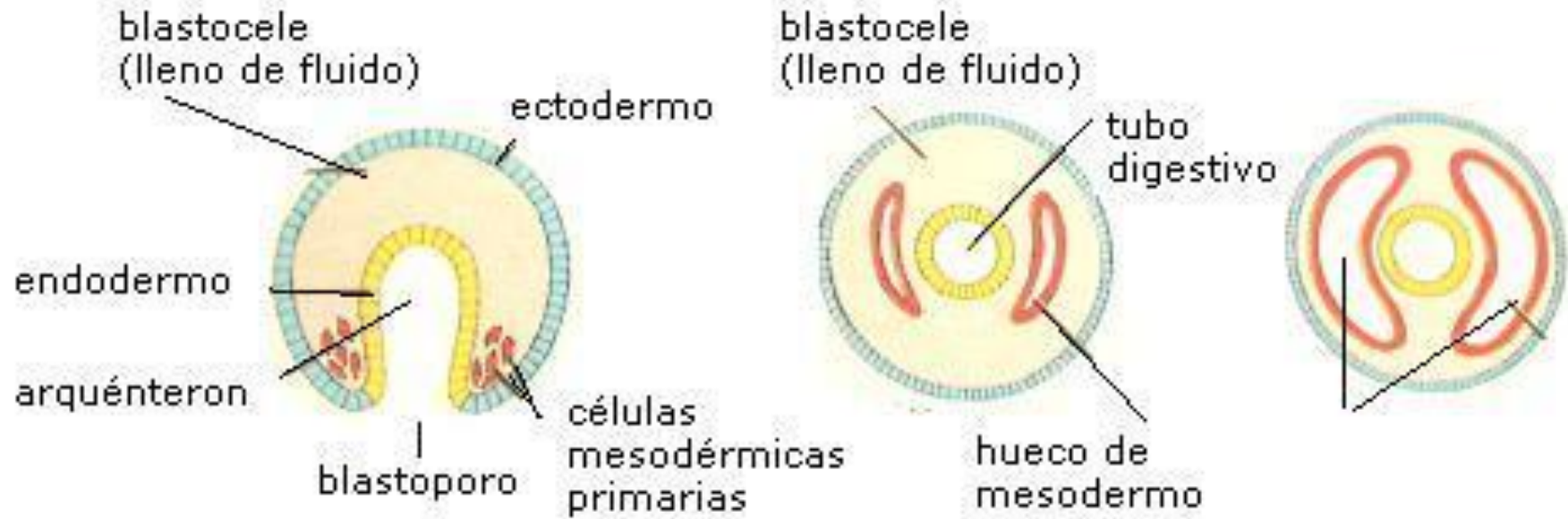
- ectoderm
- mesoderm
- endoderm
- coelom

En el plan corporal de **Deuterostomados** el celoma deriva por invaginación de bolsas endodérmicas

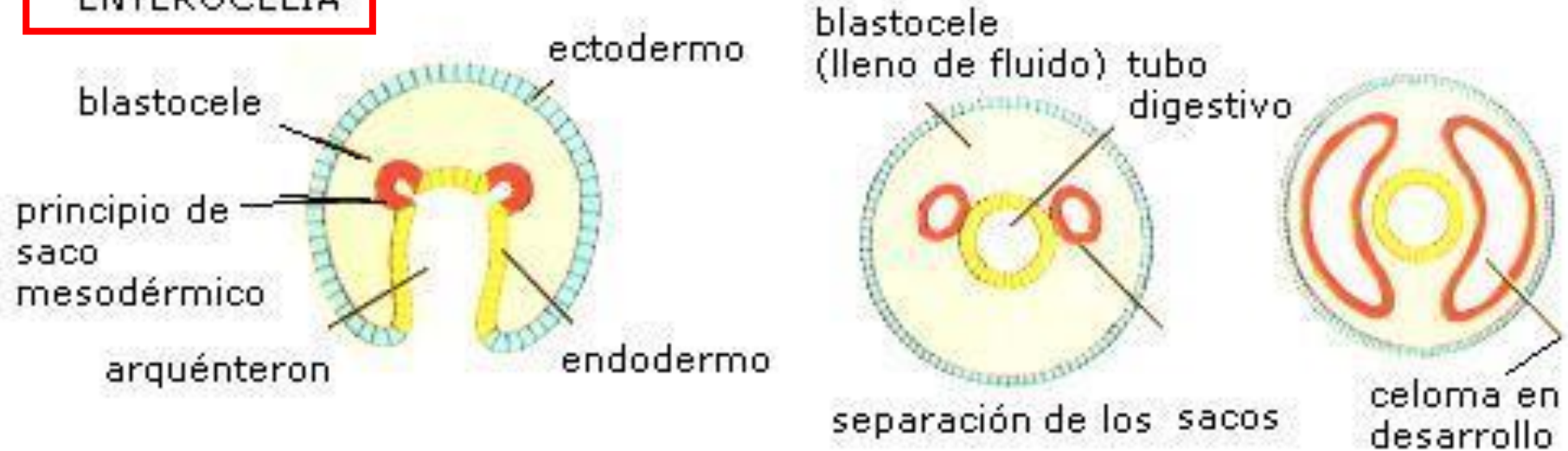
## ENTEROCELIA

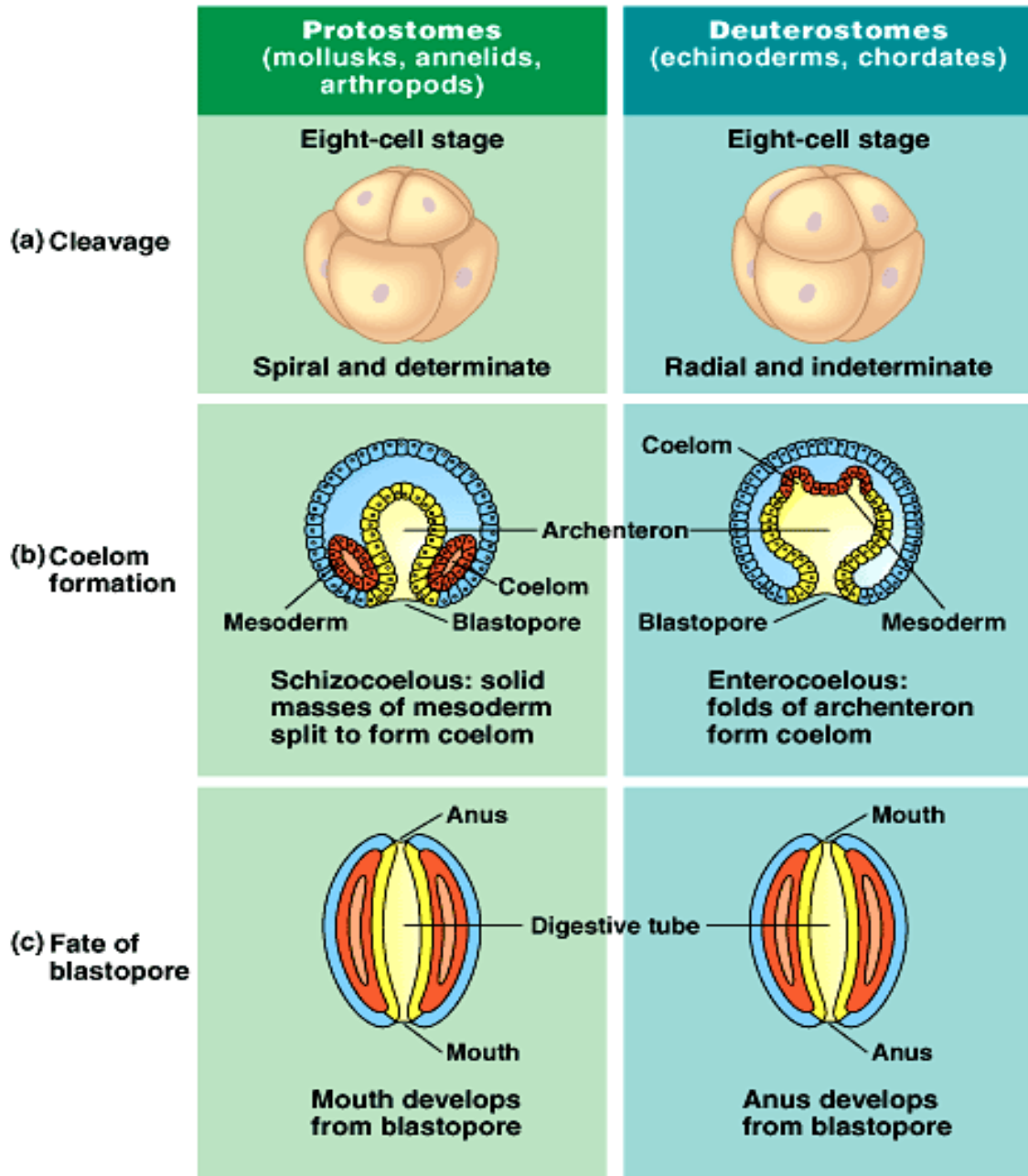


ESQUIZOCELIA



ENTEROCELIA





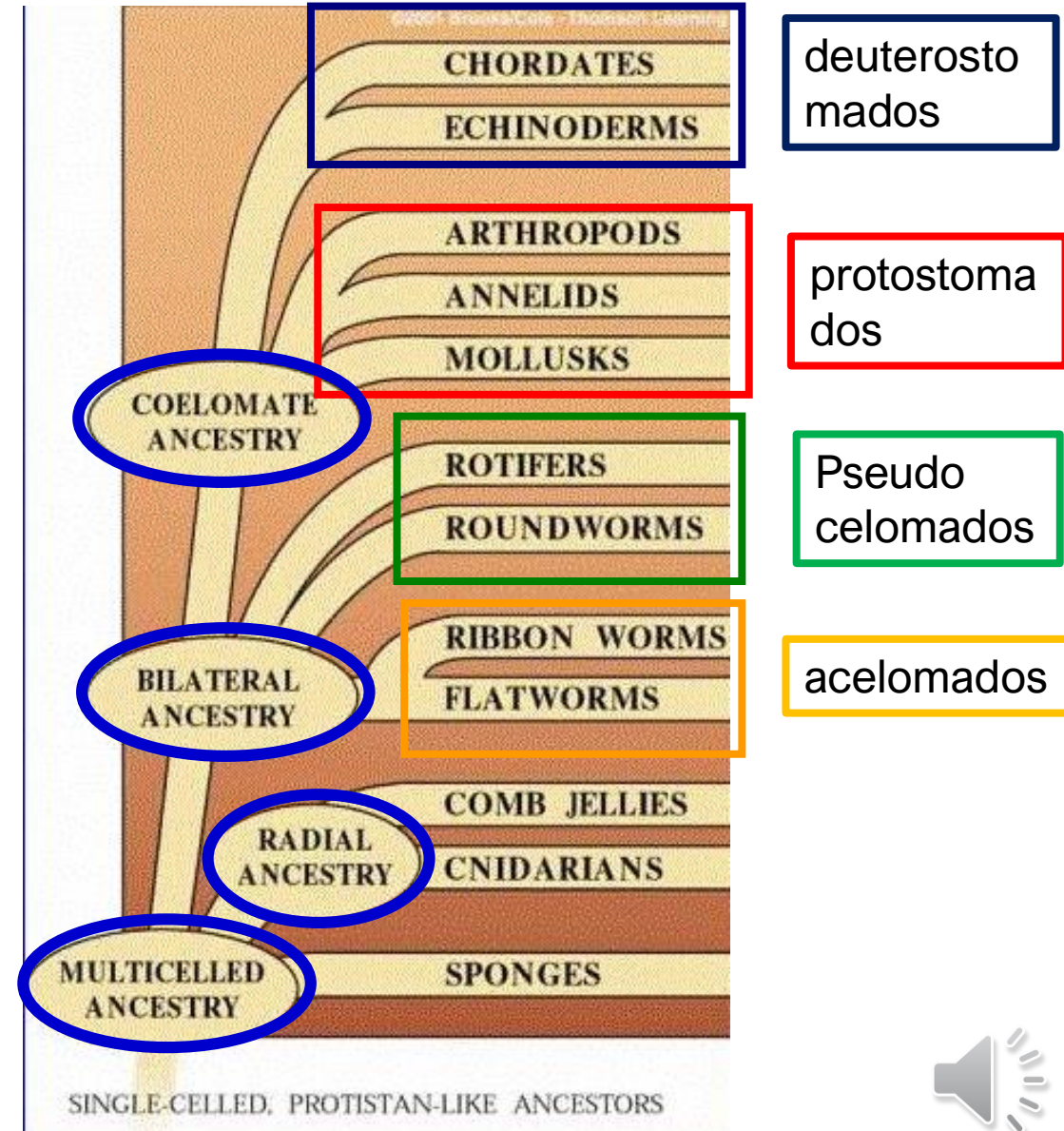
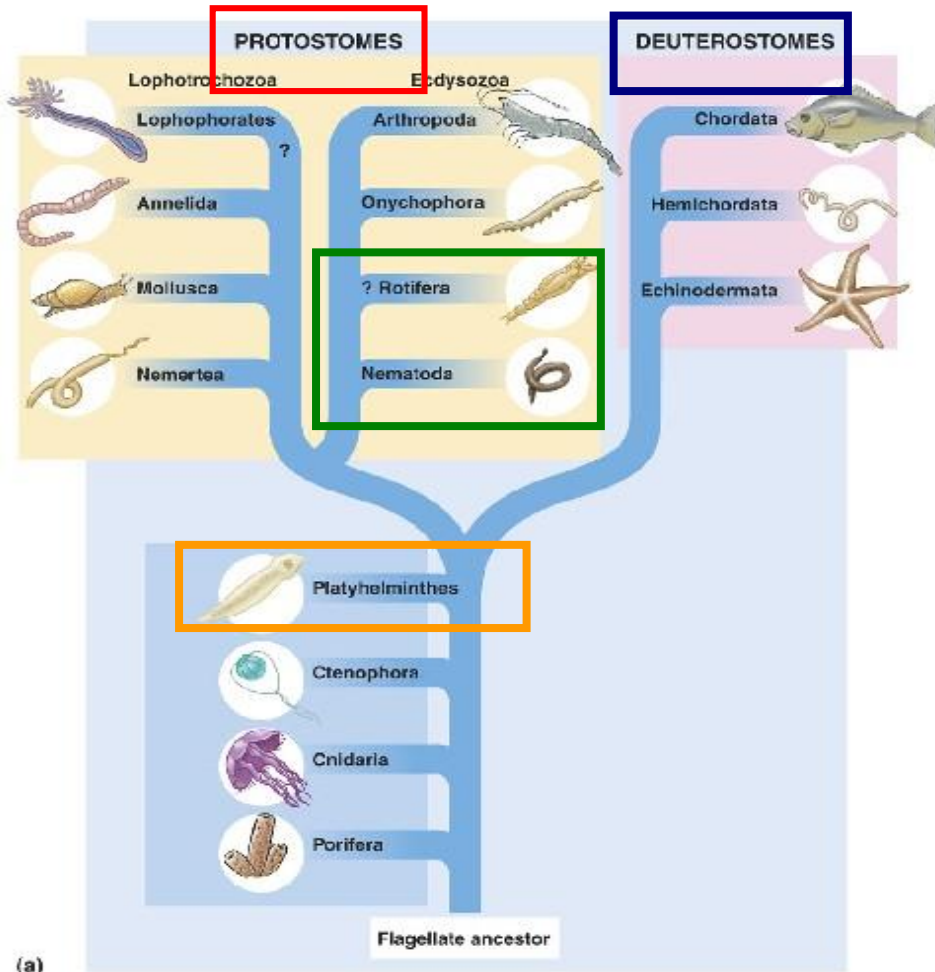
Los dos grandes grupos de celomados se diferencian por su **patrón de clivaje espiral vrs. Radial**  
**Determinación e indeterminación**

**Esquizocelia vrs. Enterocelia**

Desarrollo a partir del **blastoporo de la boca vrs. desarrollo del ano**

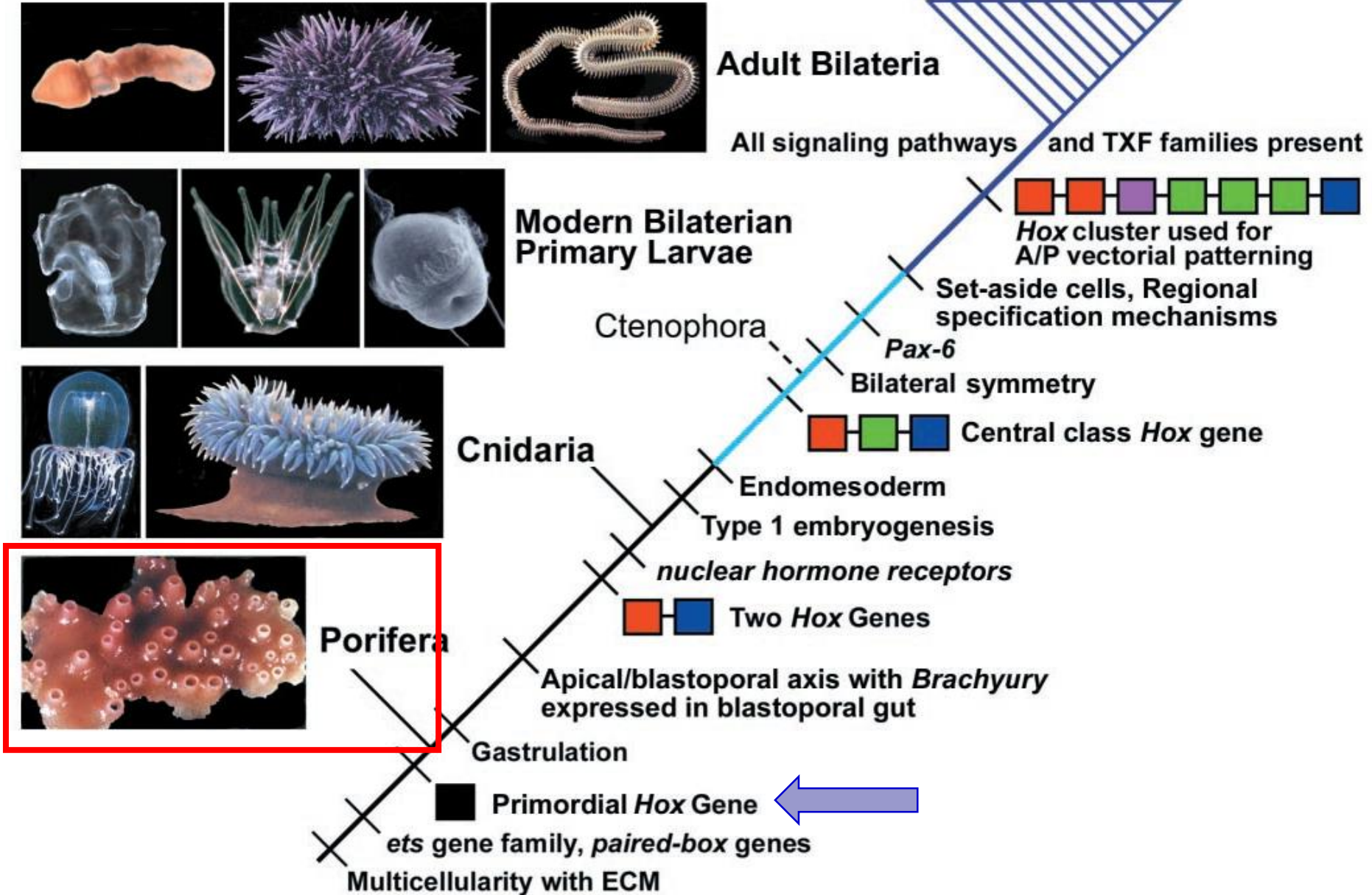


Filogenia de metazoa mostrando los grupos animales definidos por las características embrionarias



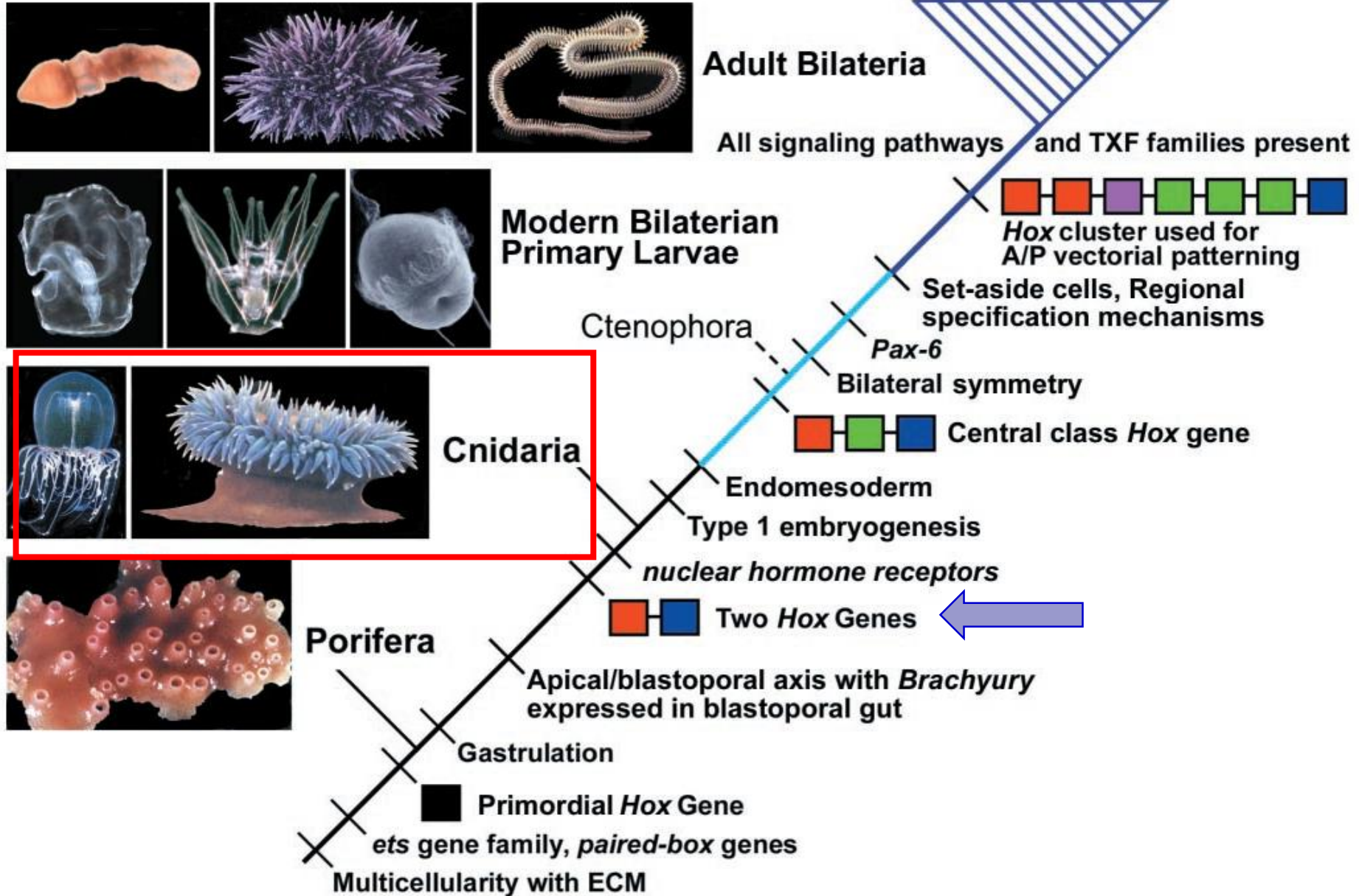
# Grade of Organization

# Cladogram



# Grade of Organization

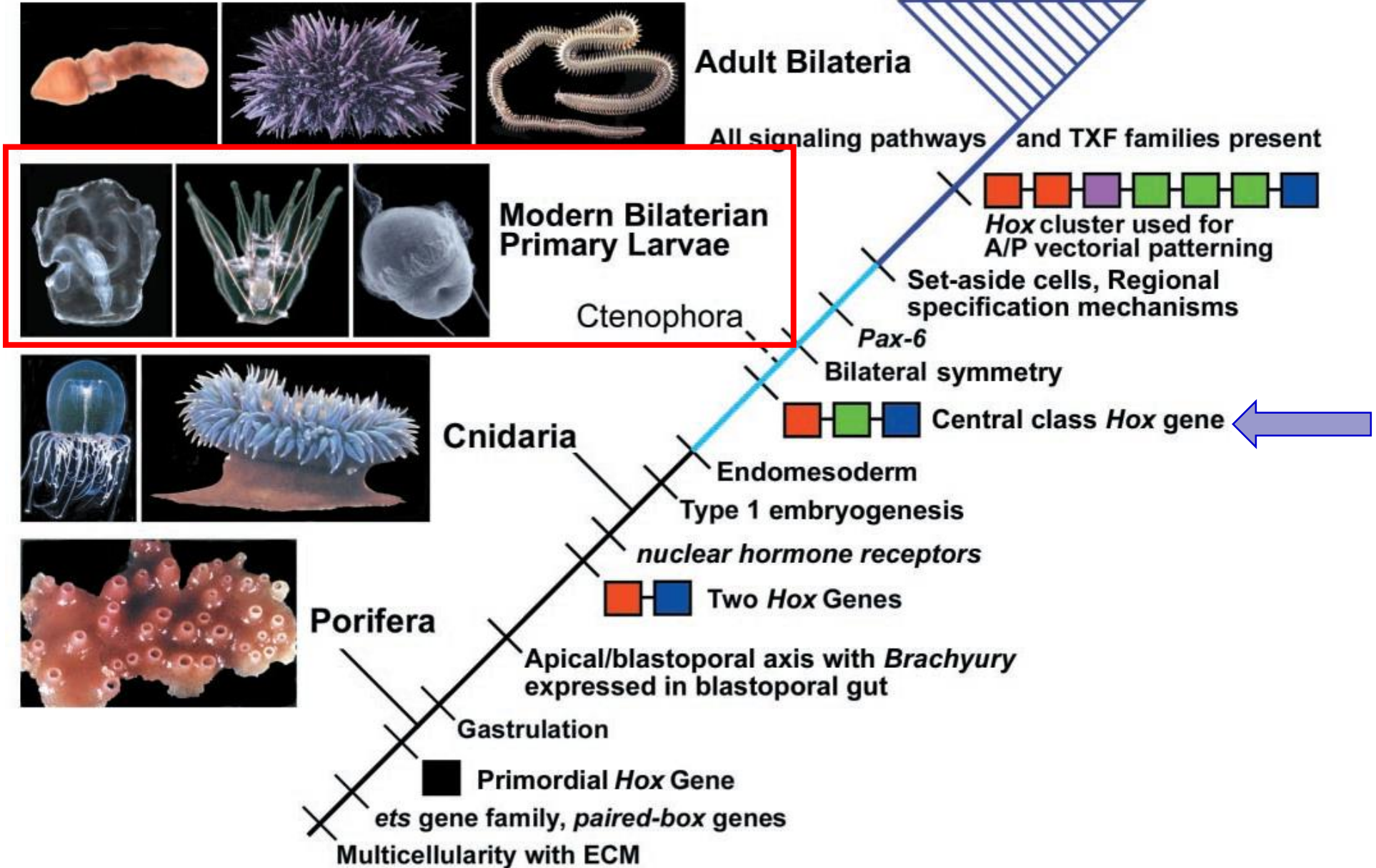
# Cladogram



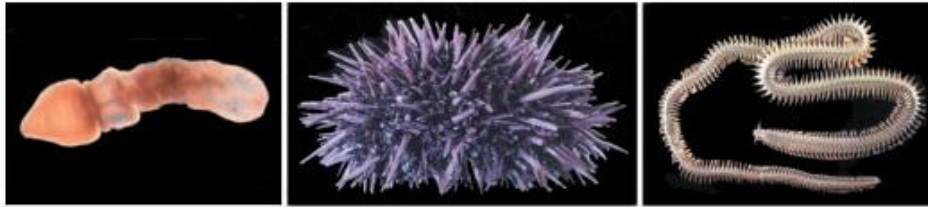


# Grade of Organization

# Cladogram

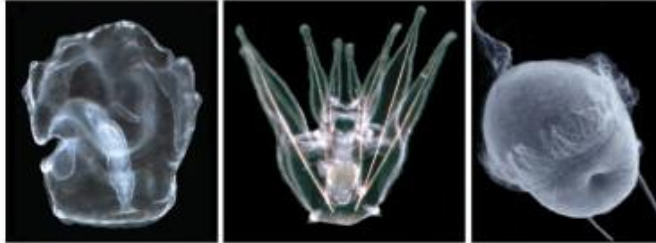


# Grade of Organization

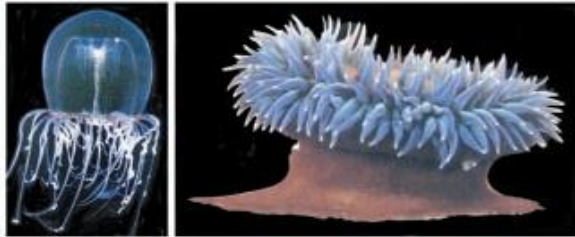


Adult Bilateria

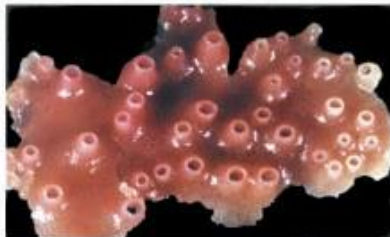
All signaling pathways and TXF families present



Modern Bilaterian Primary Larvae

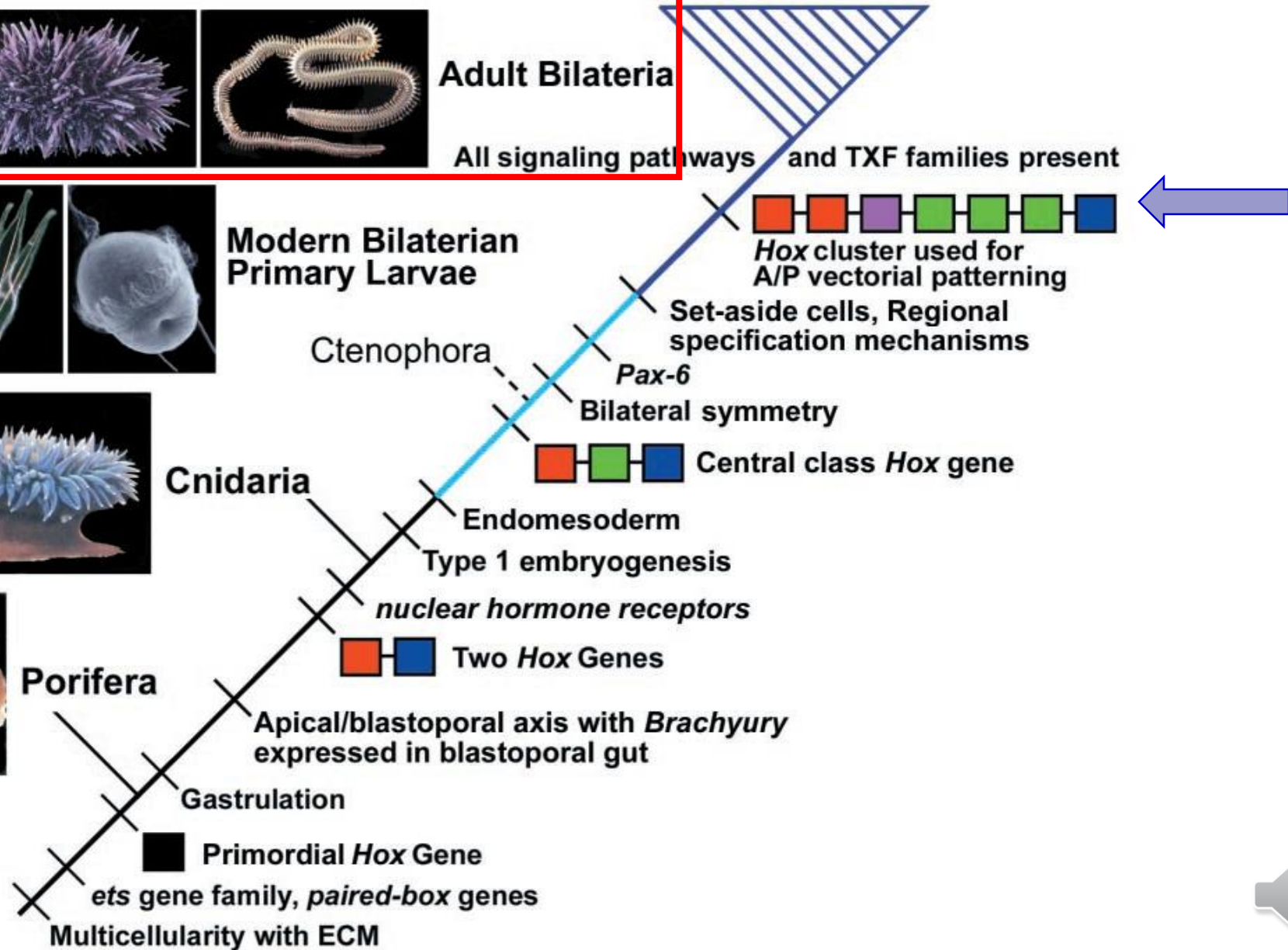


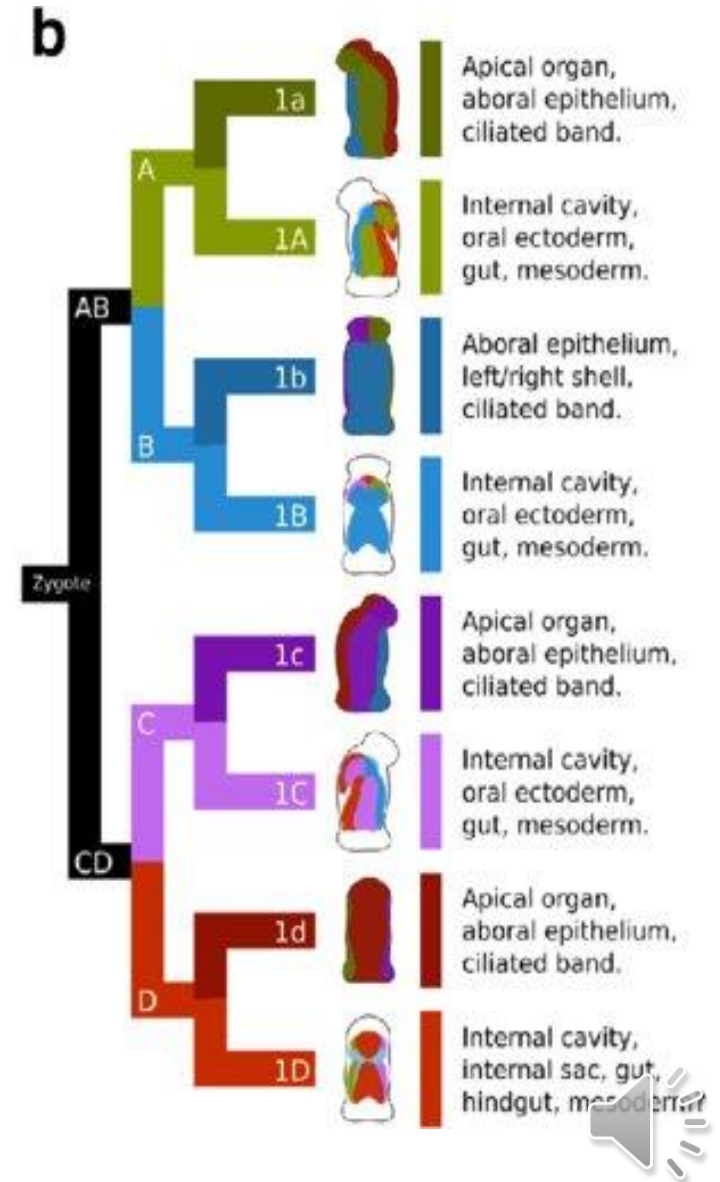
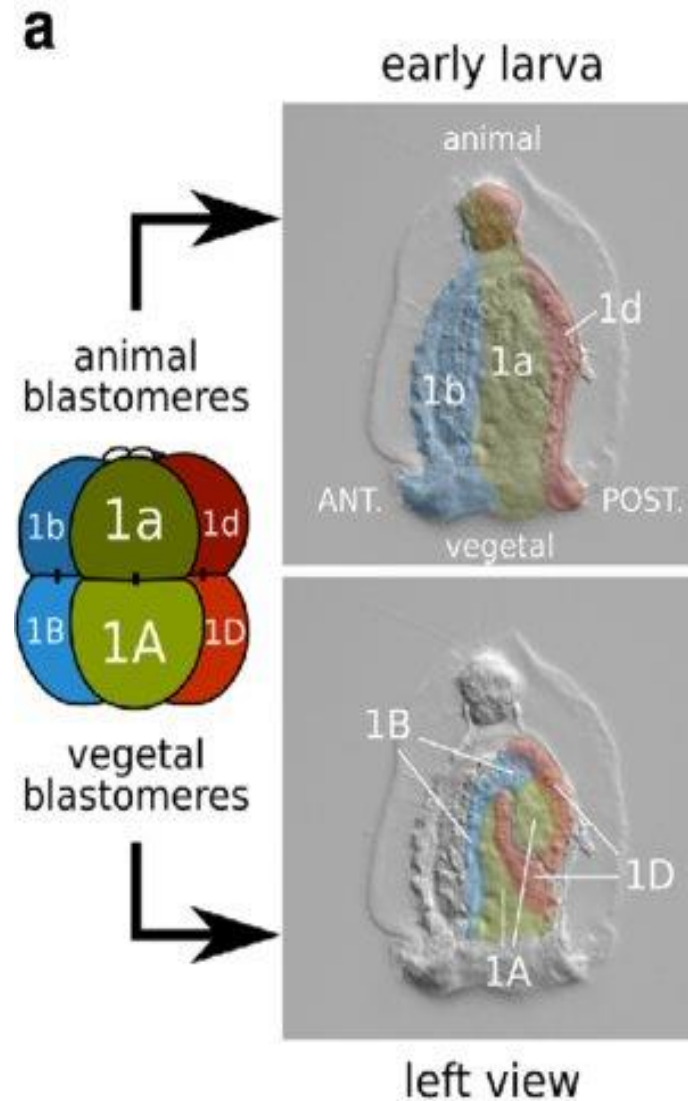
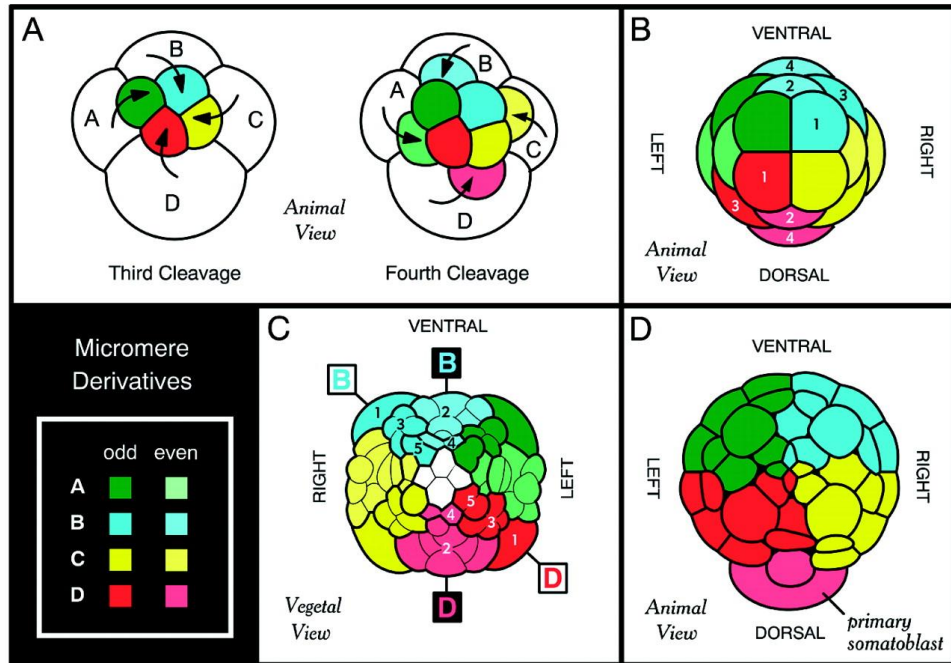
Cnidaria



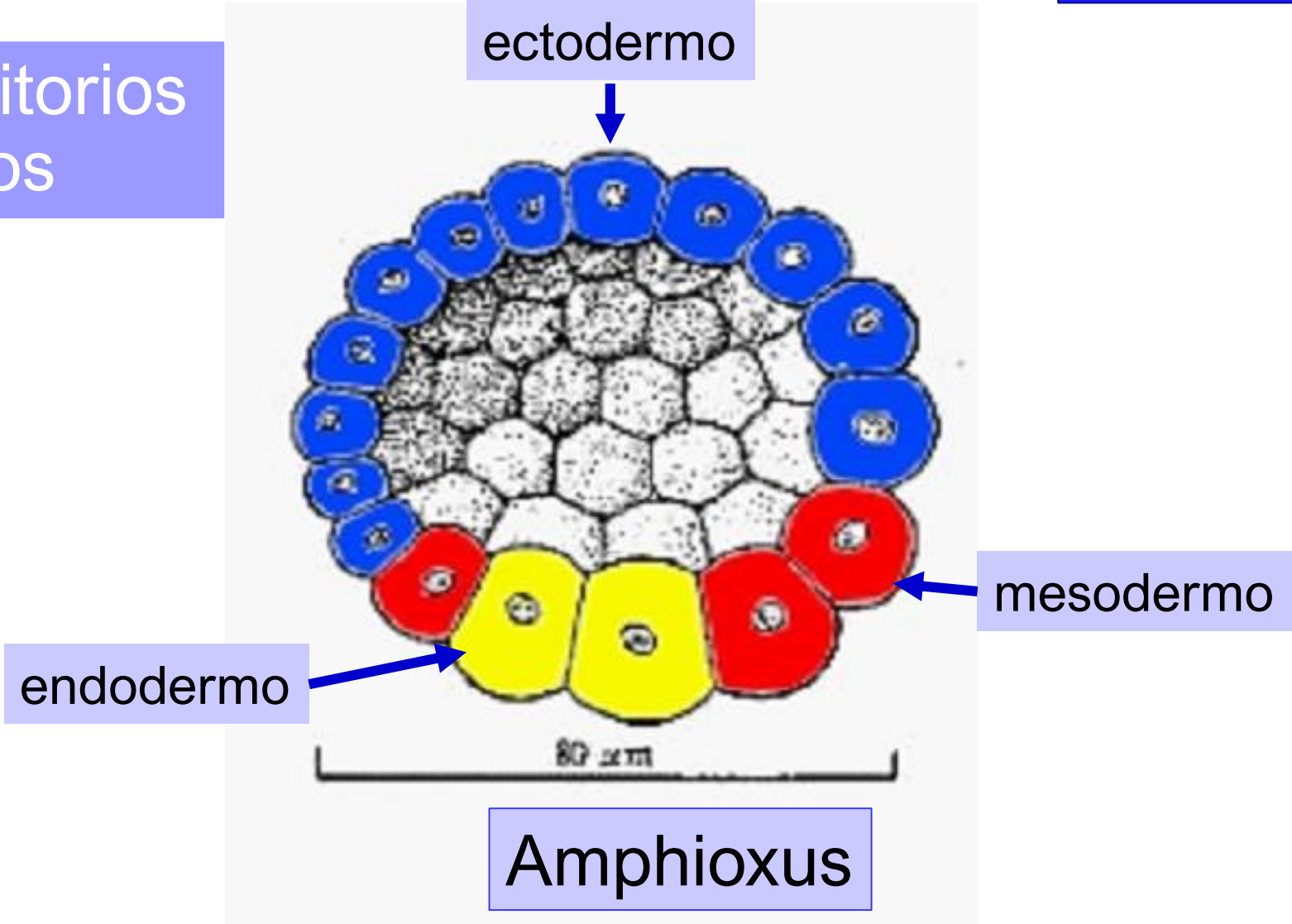
Porifera

# Cladogram

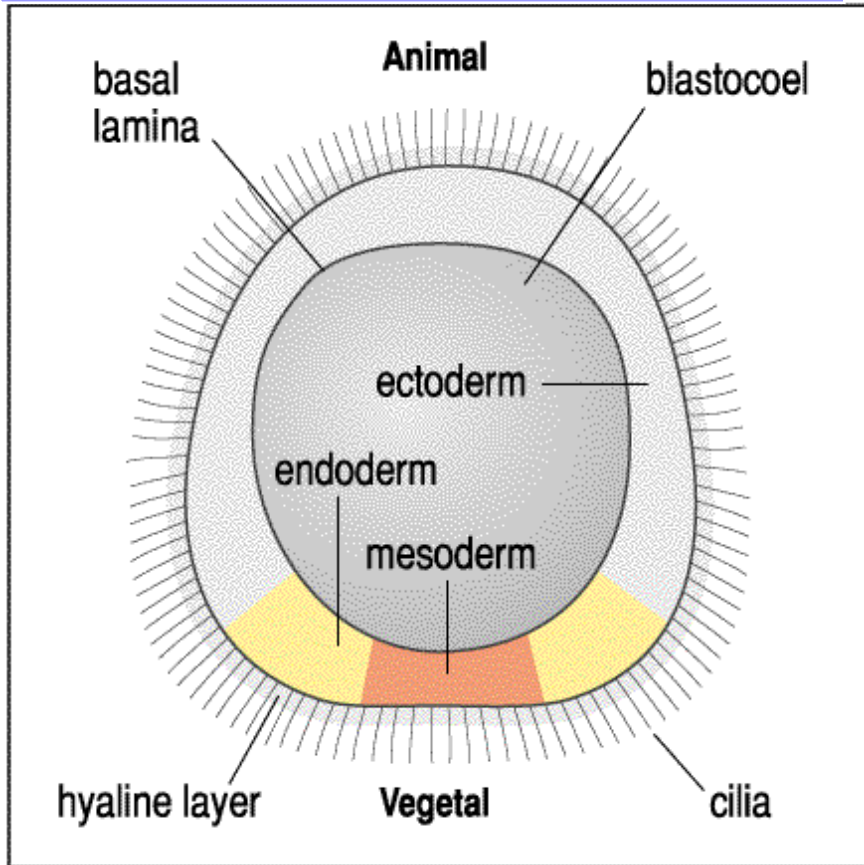




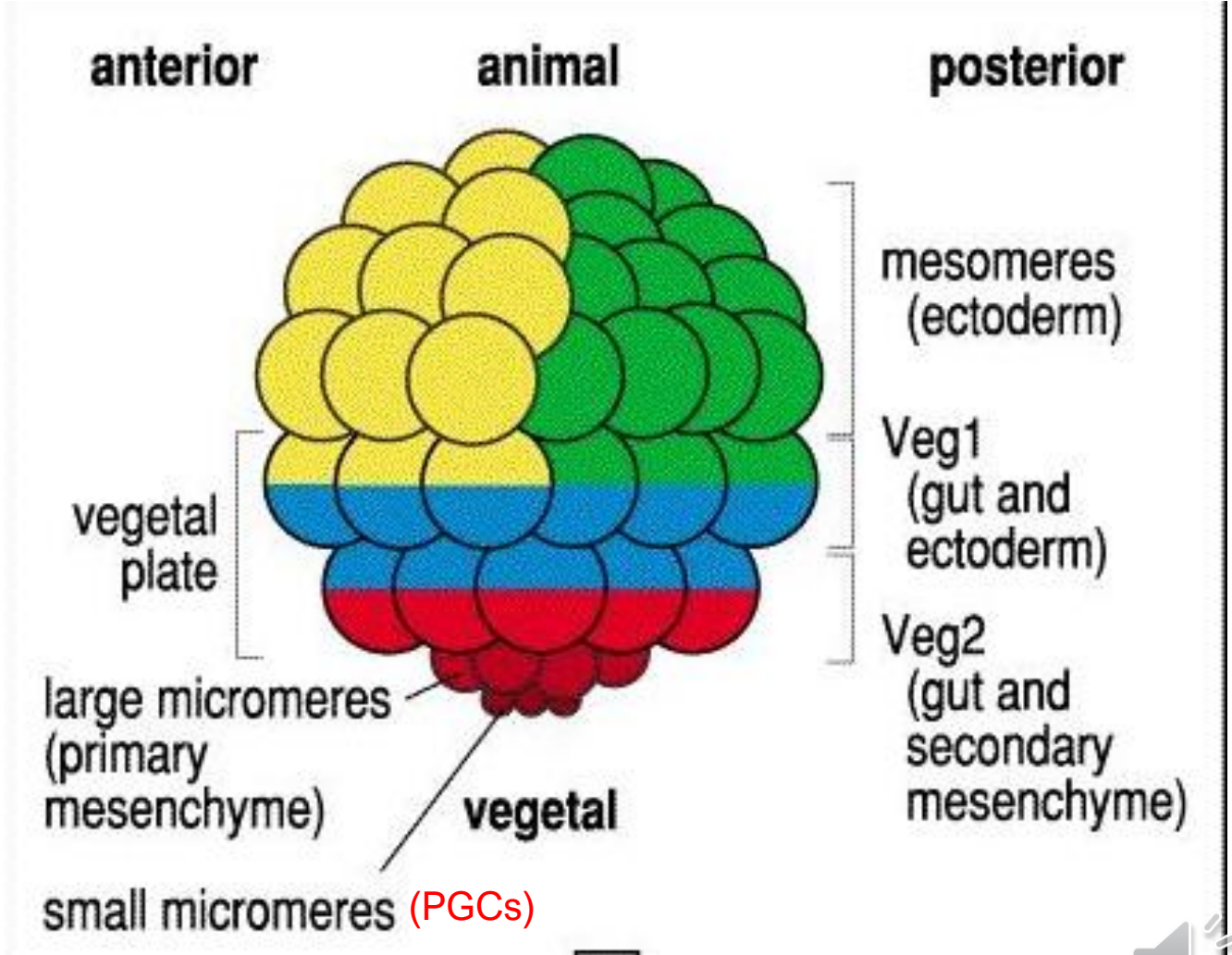
Mapas de territorios presuntivos



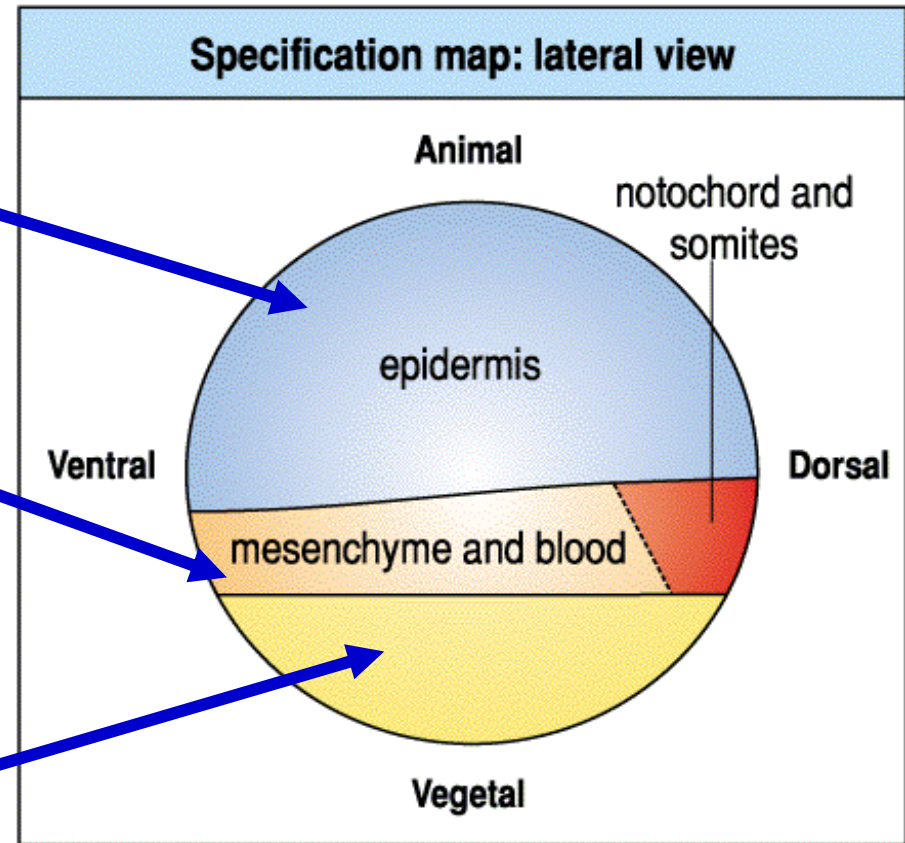
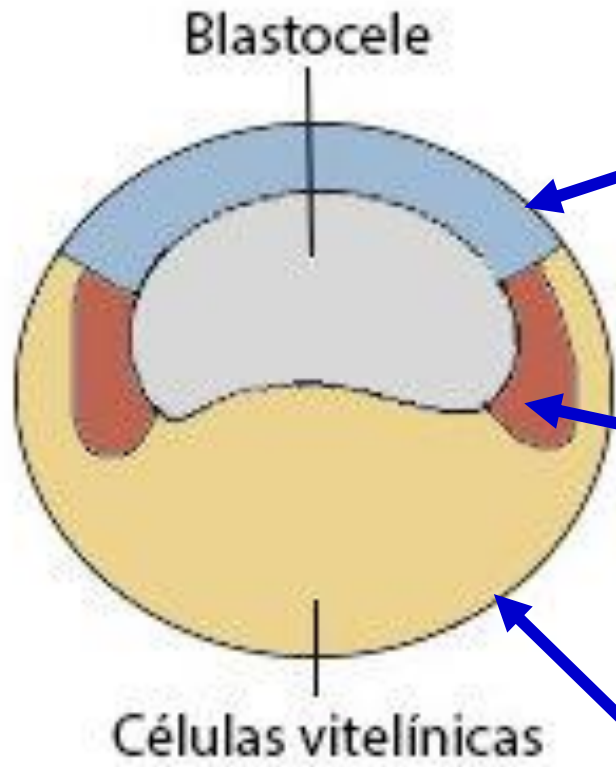
# Mapas de territorios presuntivos



Erizo



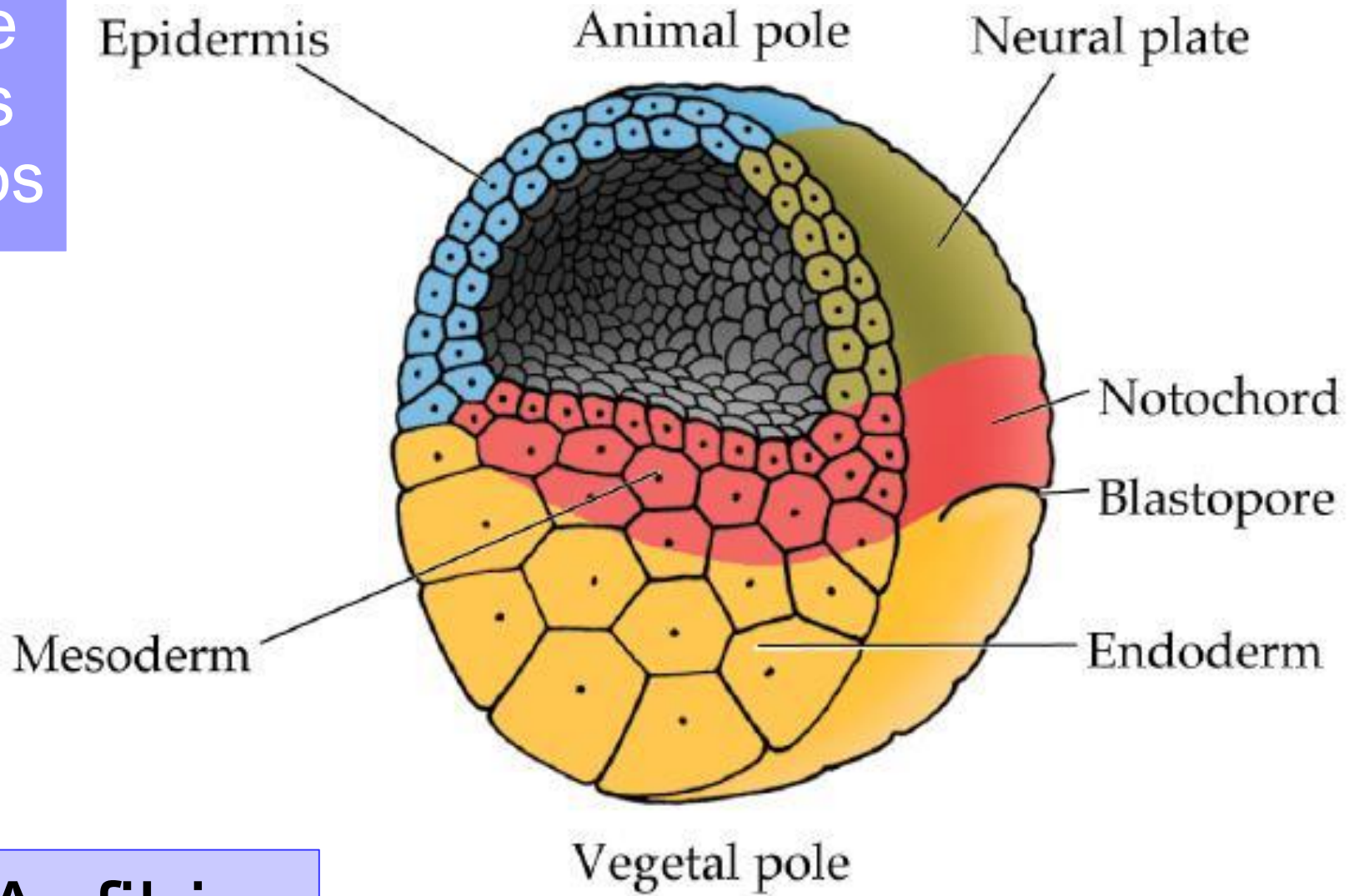
# Mapas de territorios presuntivos



Anfibios



Mapas de territorios presuntivos

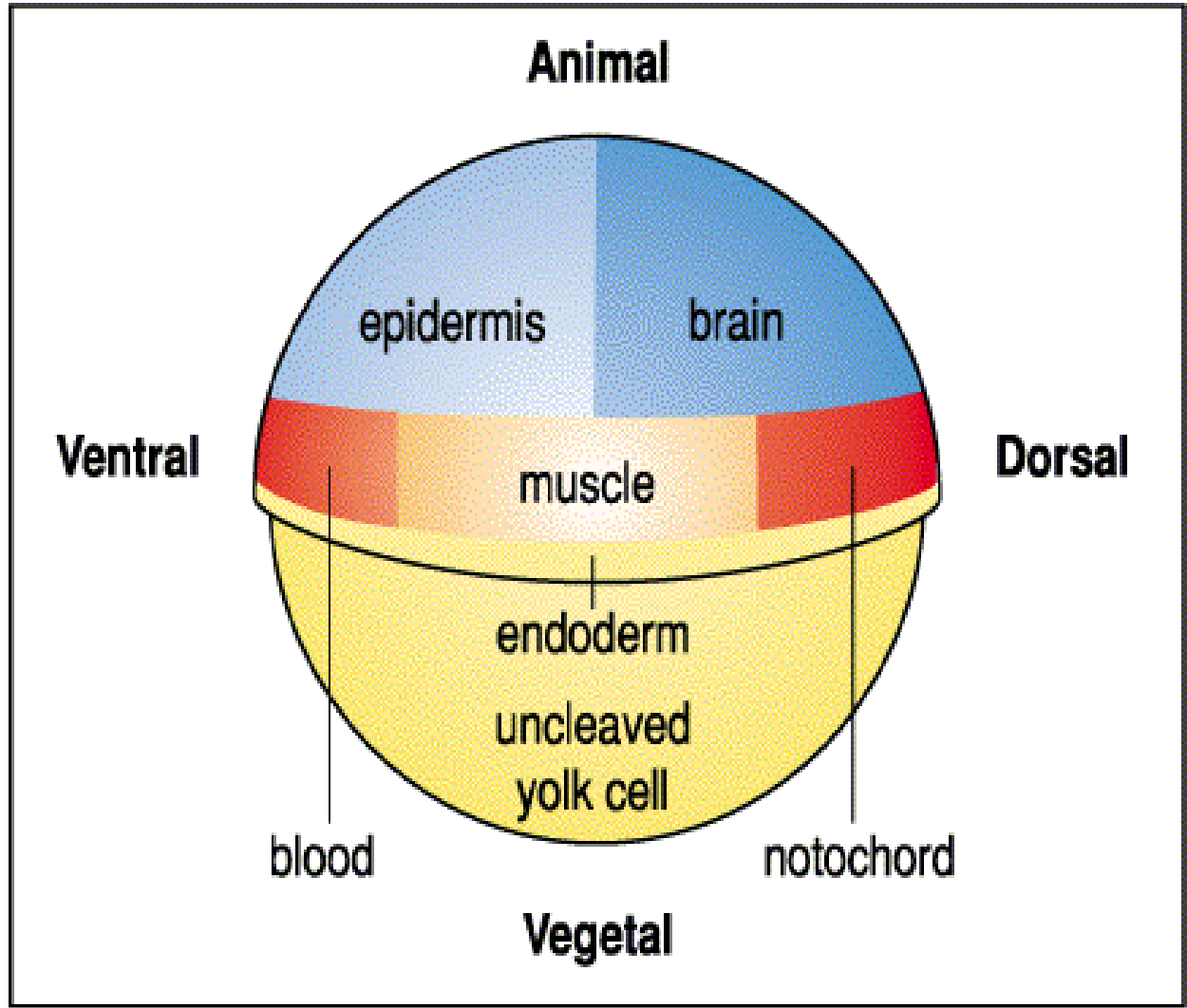


Anfibios



# Mapas de territorios presuntivos

Peces



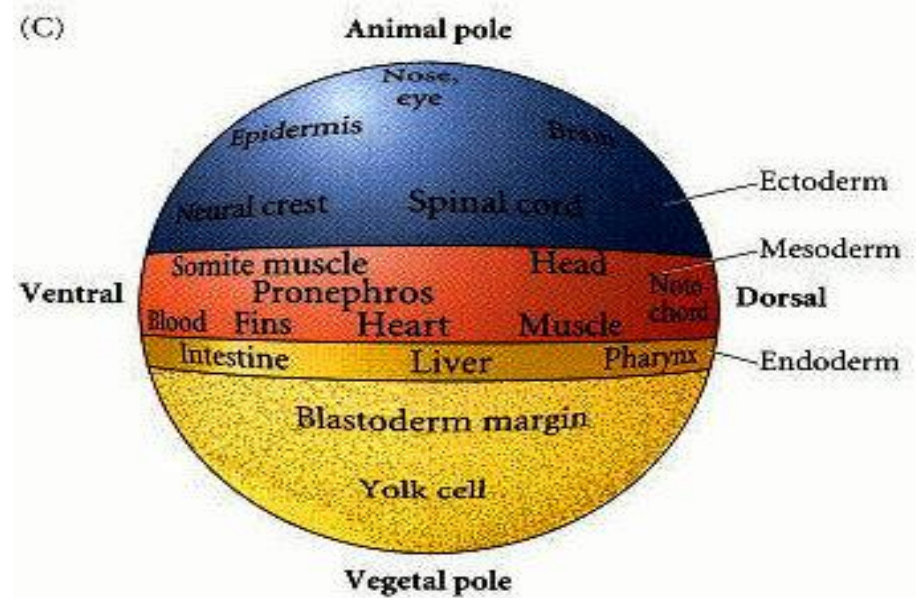
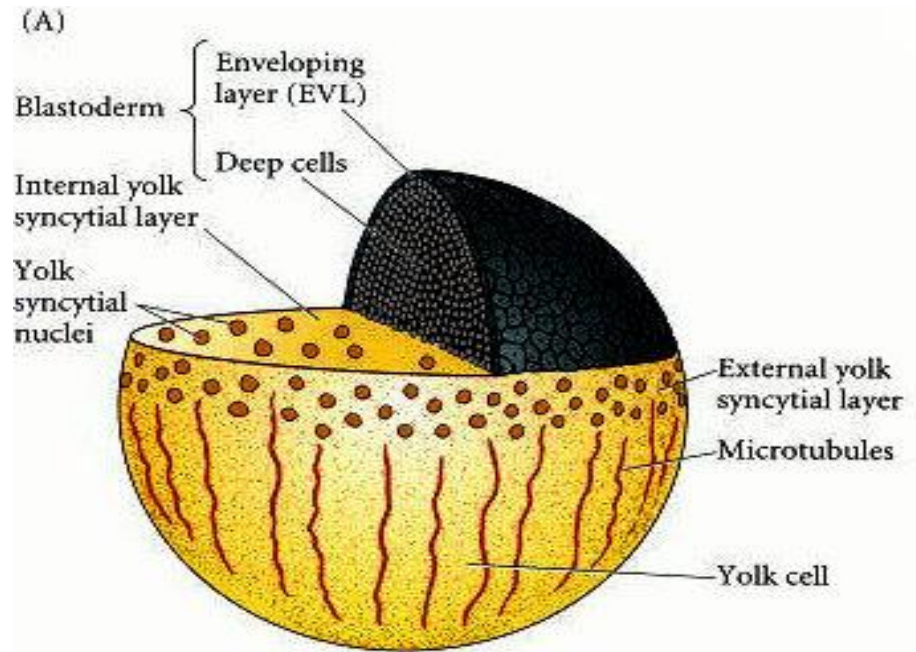
Ectodermo  
Mesodermo  
endodermo





# Mapas de territorios presuntivos

## Peces

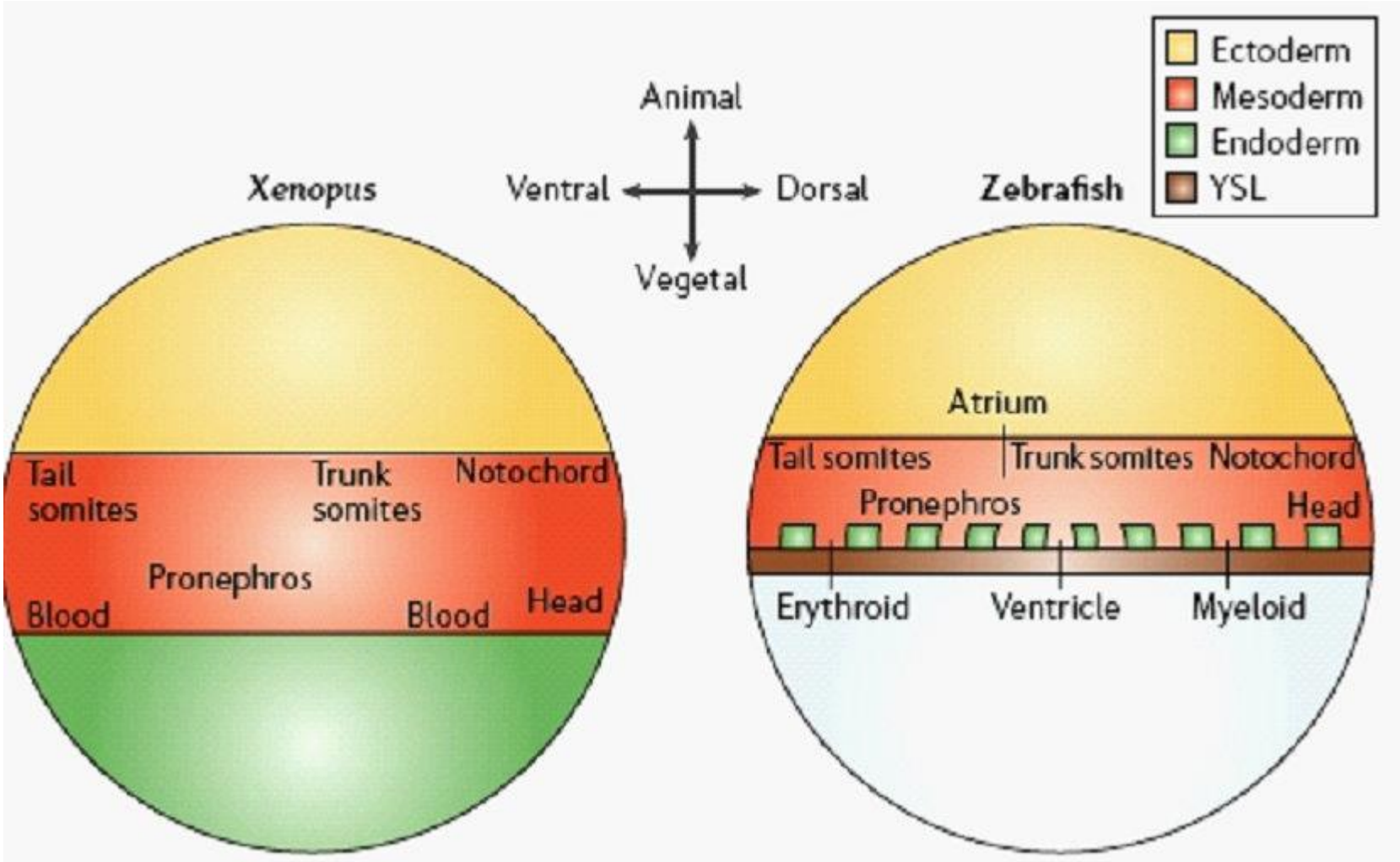


Ectodermo  
Mesodermo  
endodermo



# Mapas de territorios presuntivos

Anfibios



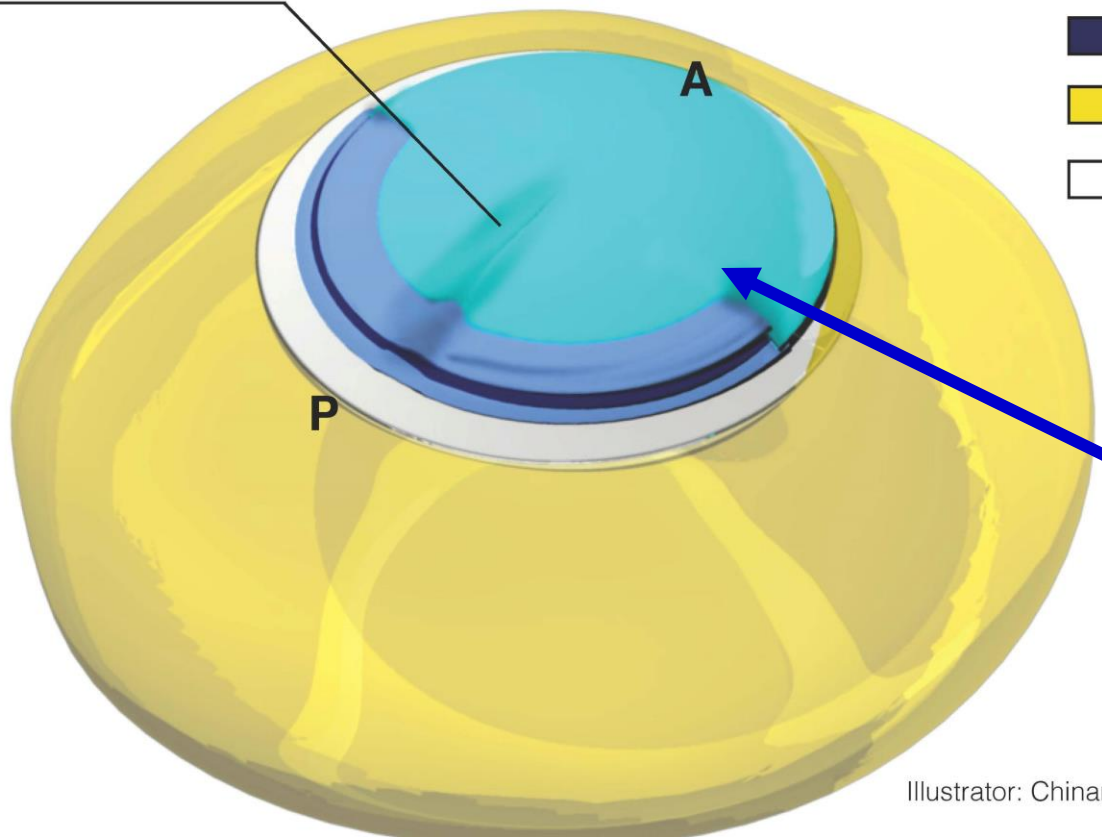
Peces



# Mapas de territorios presuntivos

Prospective Primitive Streak

- Ectoderm
- Mesoderm
- Endoderm
- Yolk
- Extraembryonic Area



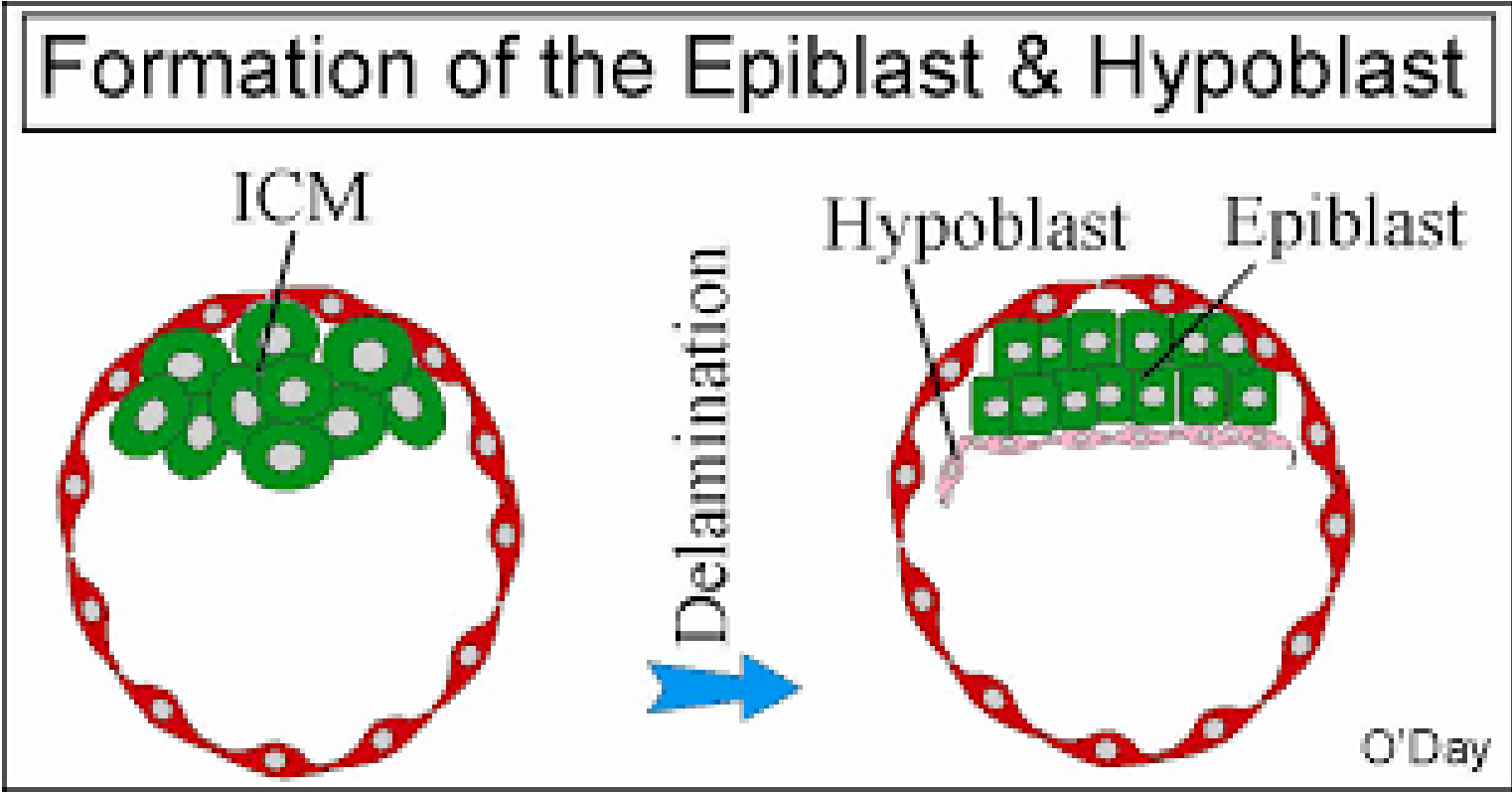
Reptiles,  
elasmobranchios,  
monotremas

El cuerpo del embrión deriva completamente del epiblasto

Illustrator: Chinami Michaels



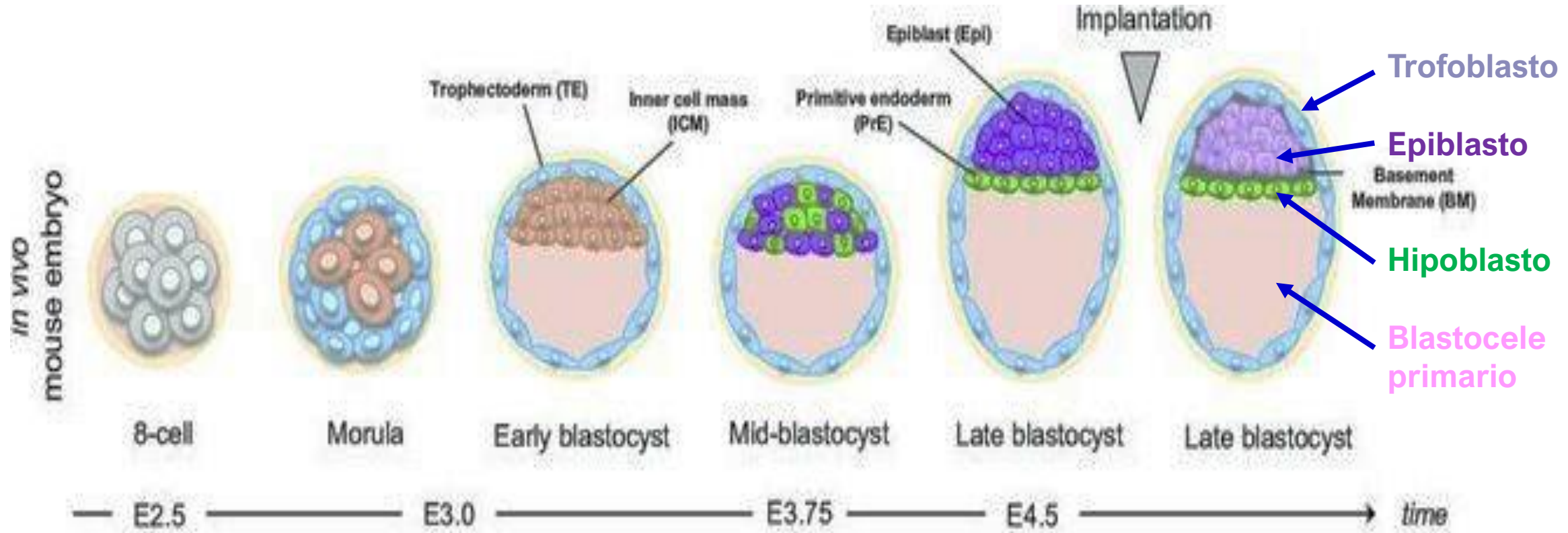
Mapas de territorios presuntivos



Mamíferos



# Mapas de territorios presuntivos

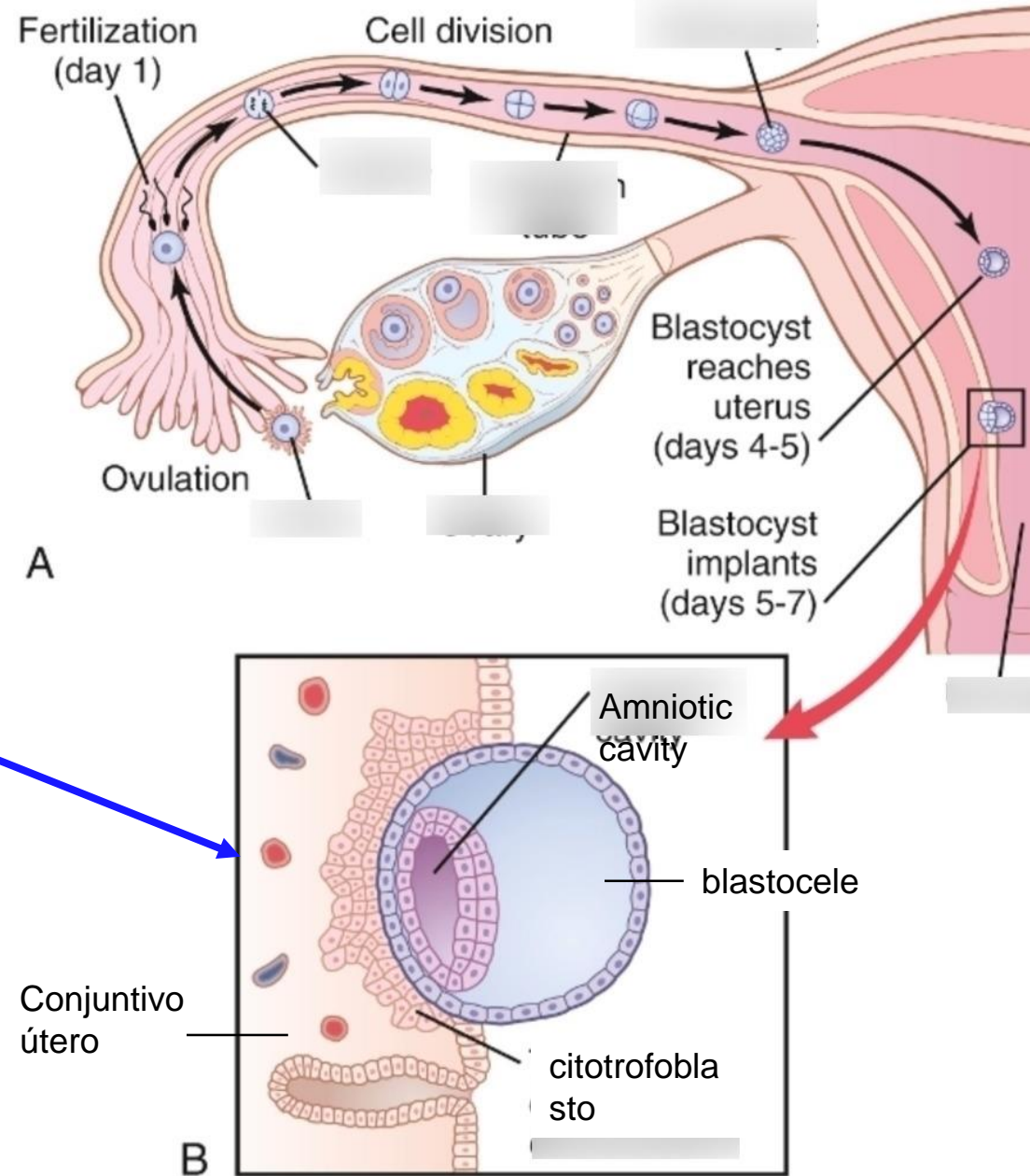


# Mamíferos

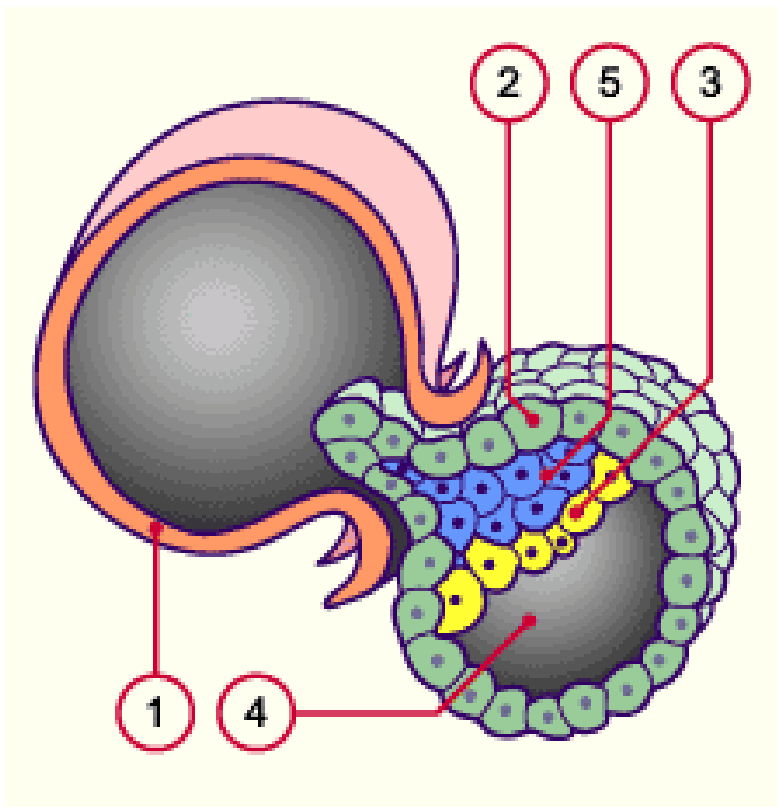


# Implantación

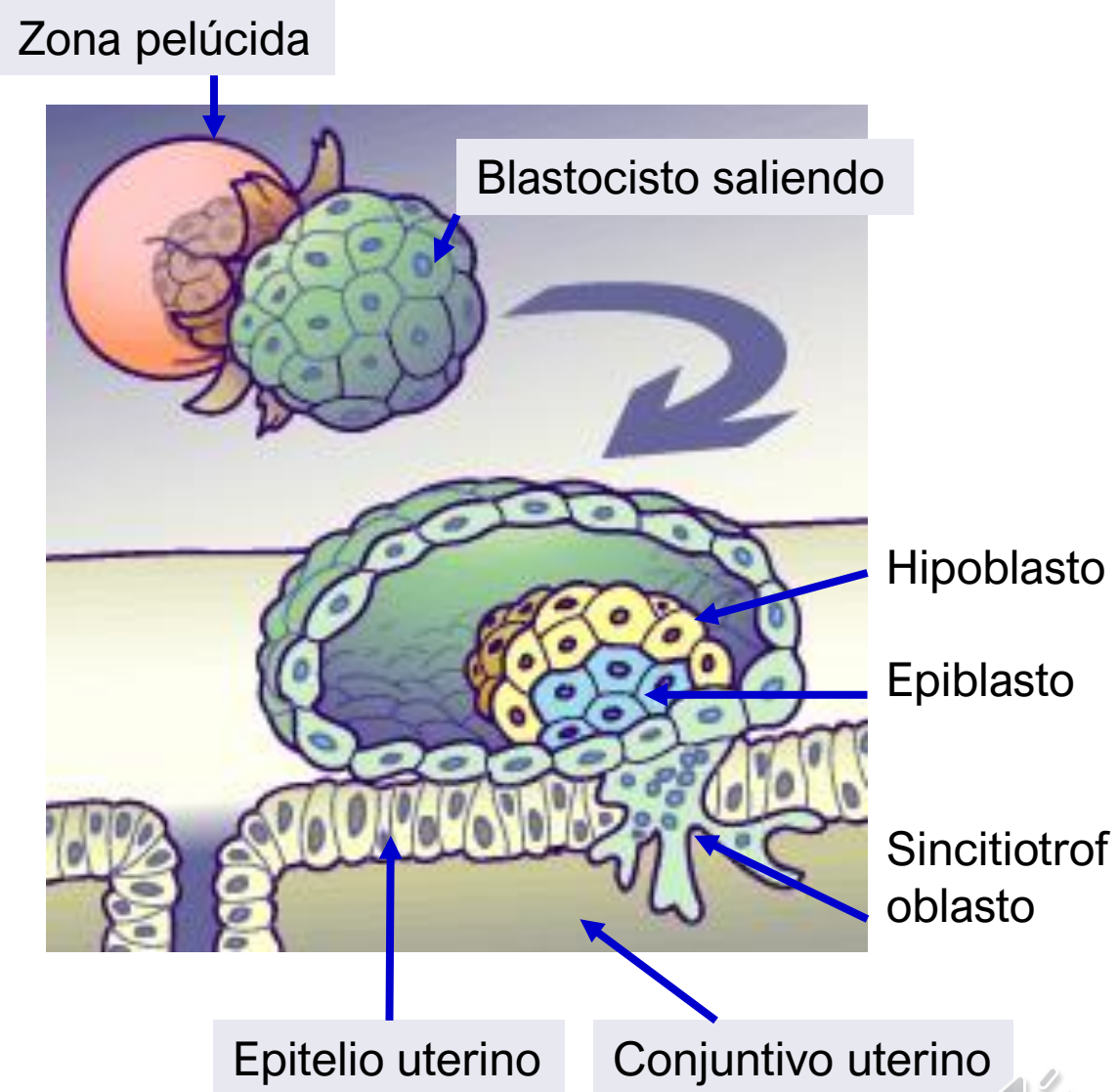
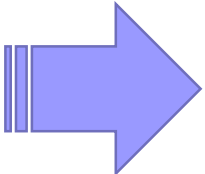
Hacia el día 5 – 7 en humanos el blastocisto se implanta (introduce) en el endometrio



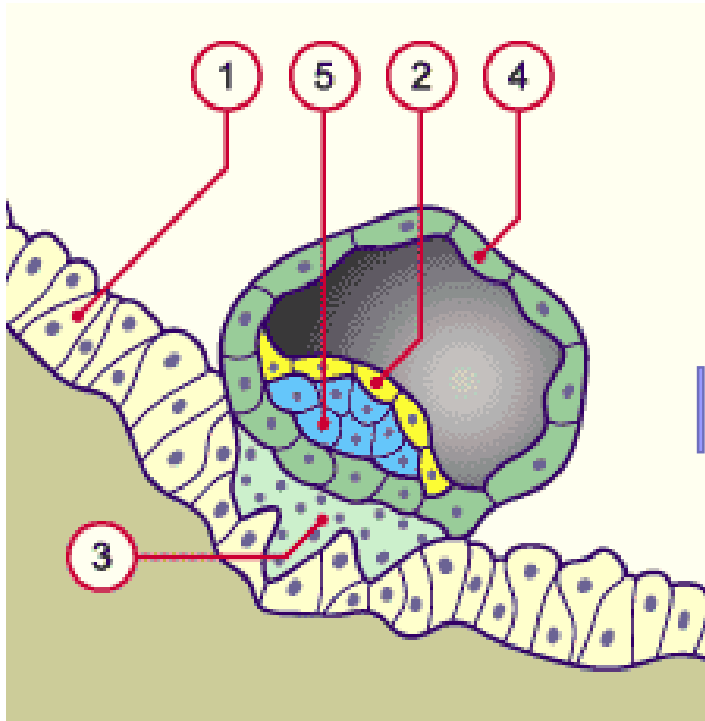
# Implantación



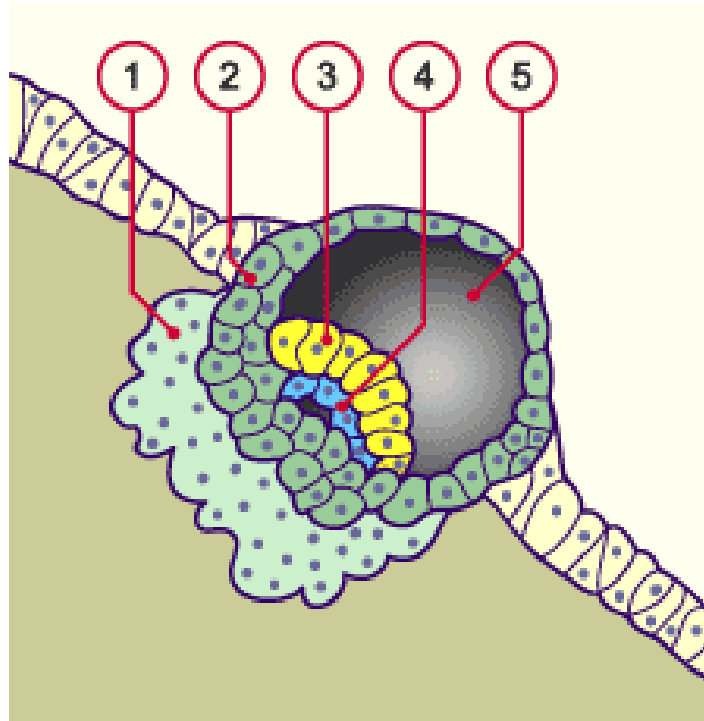
1. Membrana de fertilización / zona pelúcida
2. Trofoblasto
3. Hipoblasto
4. Blastocelo primario
5. Epiblasto



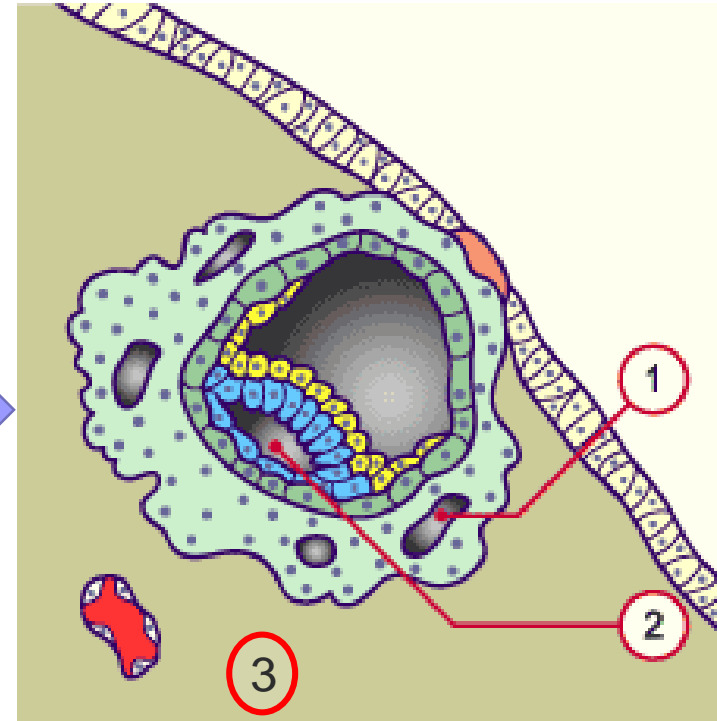
# Implantación



- 1. Epitelio uterino
- 2. hipoblasto
- 3. Sincitiotrofoblasto
- 4. Trofoblasto
- 5. Epiblasto



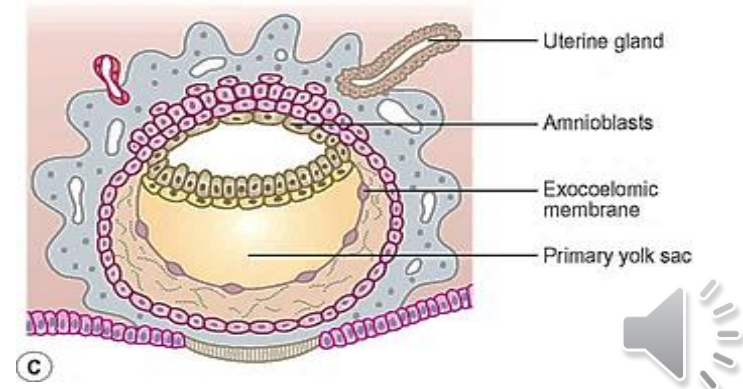
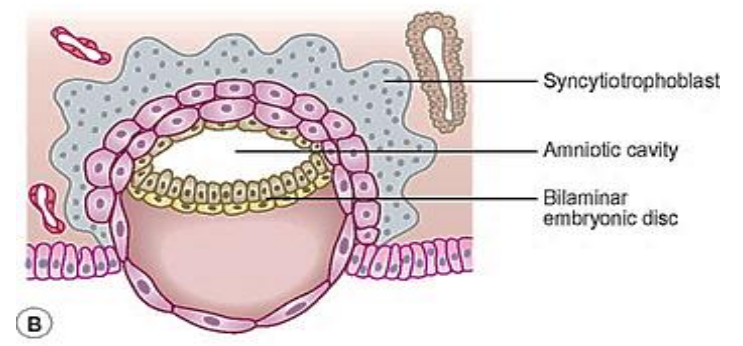
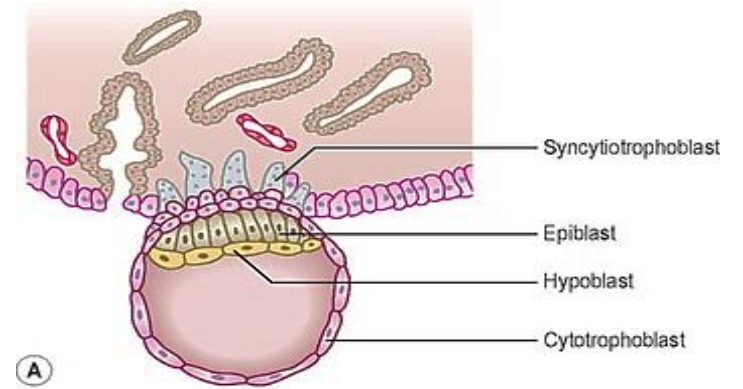
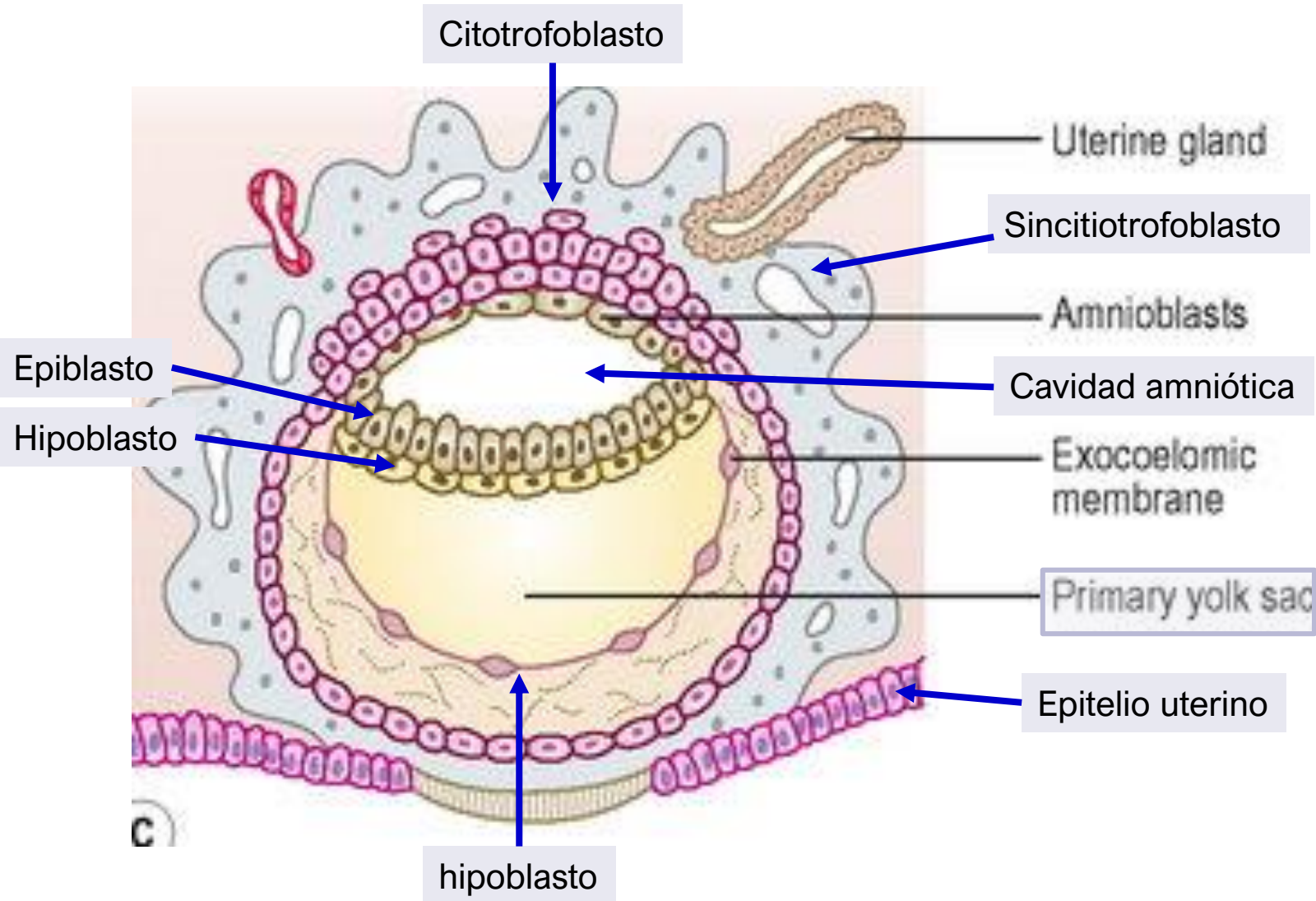
- 1. Sincitiotrofoblasto
- 2. Citotrofoblasto
- 3. Hipoblasto
- 4. Epiblasto
- 5. Blastocelo primario



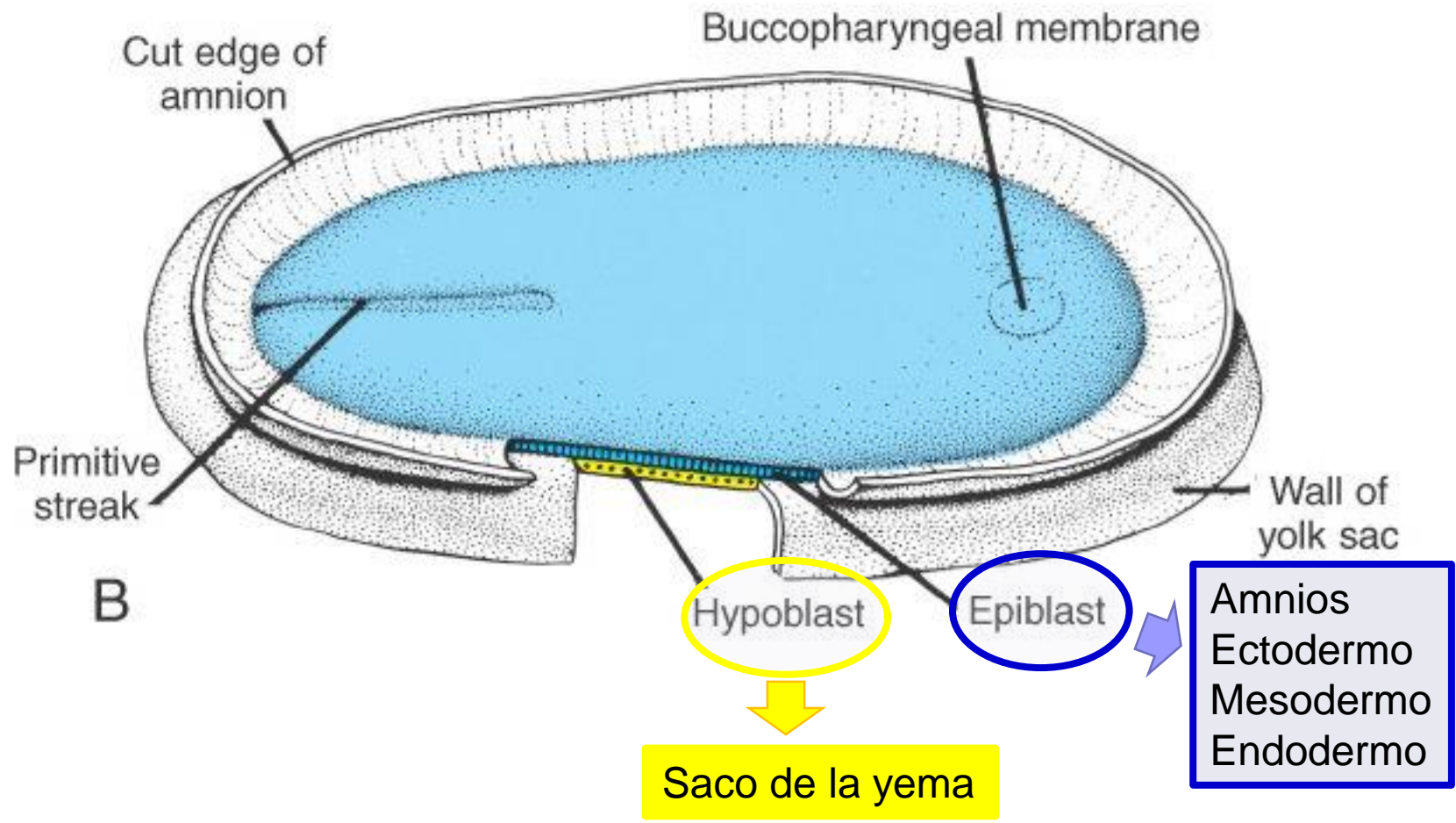
- 1. Sincitiotrofoblasto
- 2. Cavidad amniótica
- 3. Conjuntivo coriónico con vasos sanguíneos



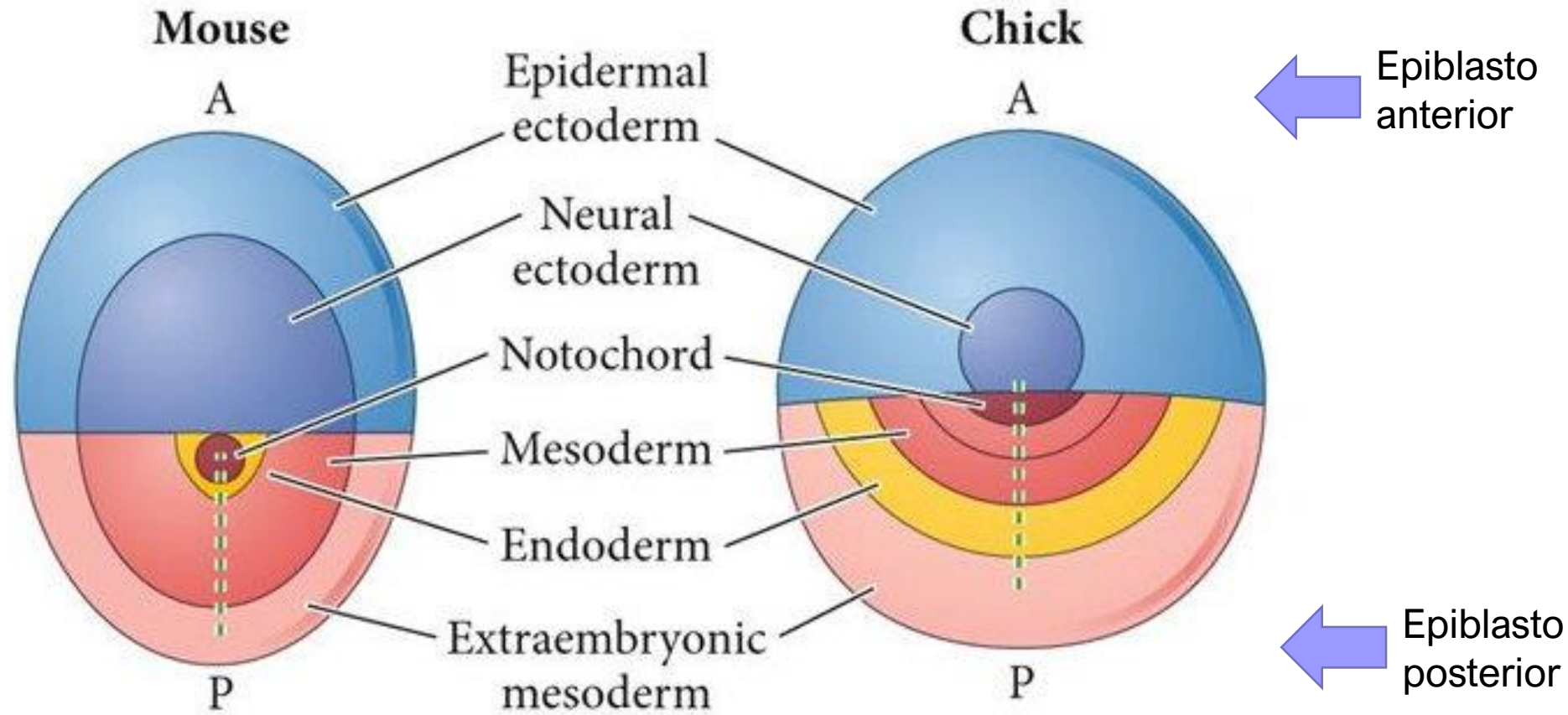
# Implantación



# Mapas de territorios presuntivos



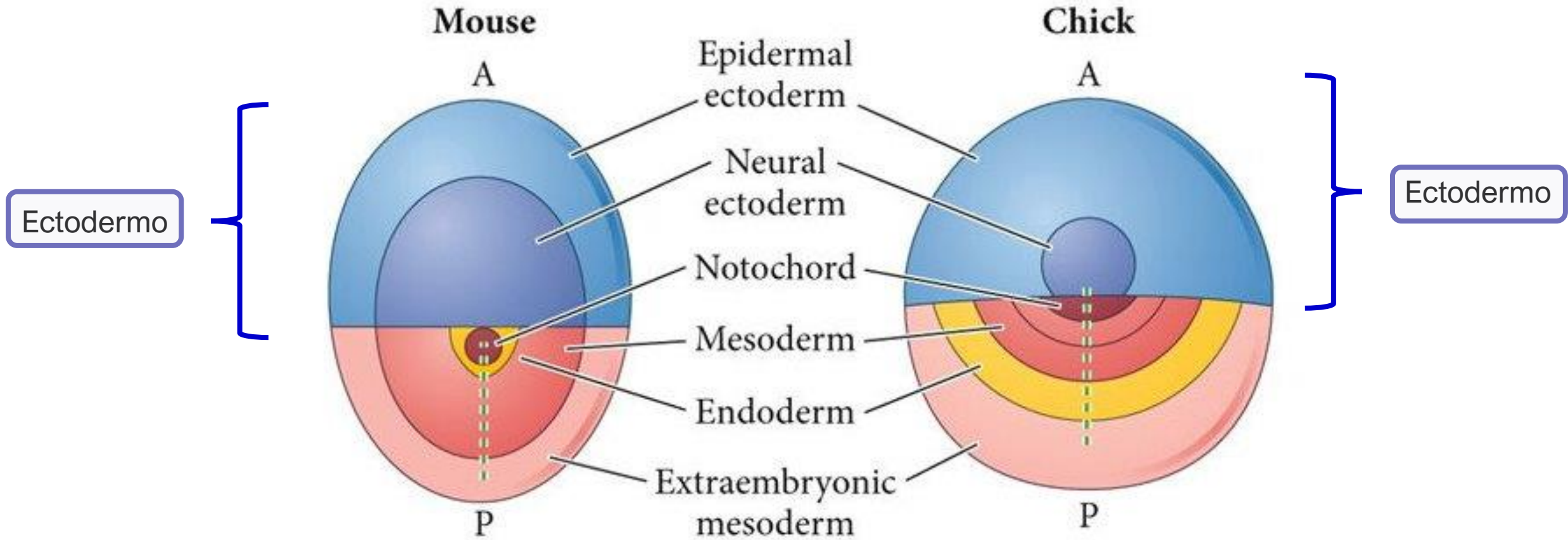
# Mapas de territorios presuntivos



**DEVELOPMENTAL BIOLOGY 10e, Figure 1.11**  
© 2014 Sinauer Associates, Inc.



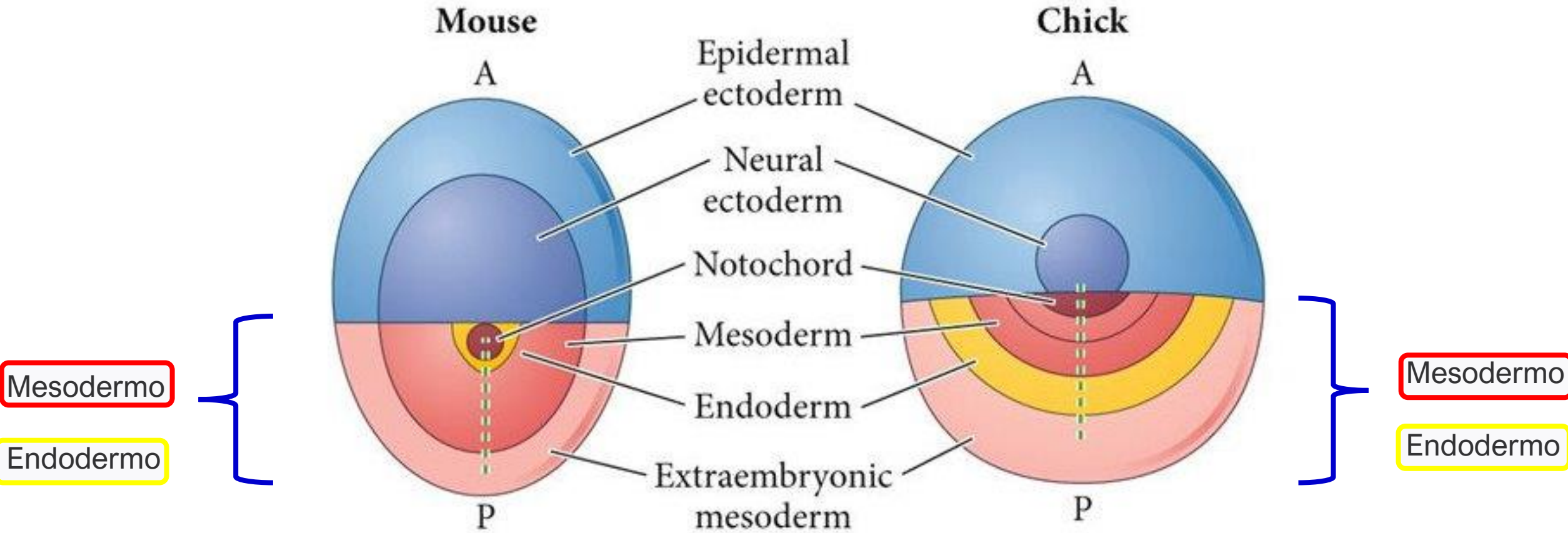
# Mapas de territorios presuntivos



DEVELOPMENTAL BIOLOGY 10e, Figure 1.11  
© 2014 Sinauer Associates, Inc.



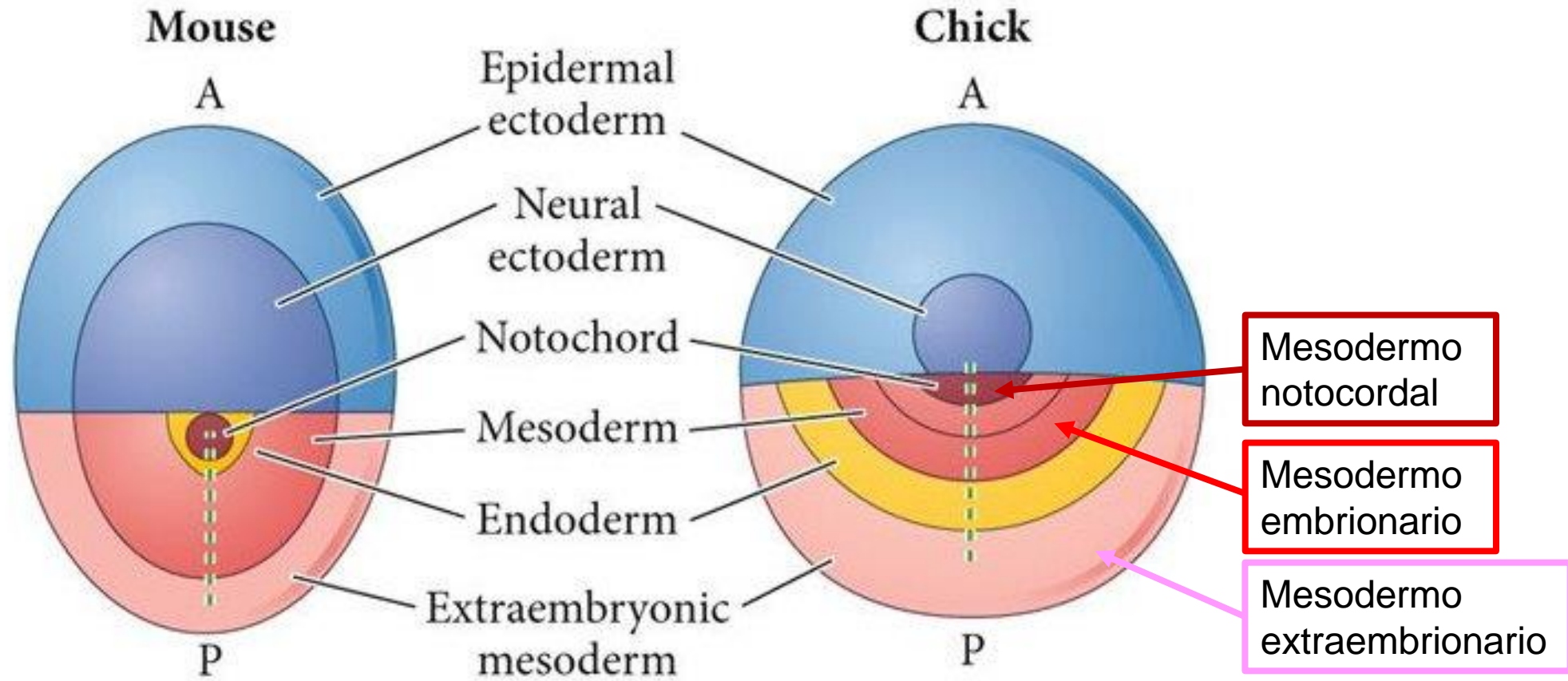
# Mapas de territorios presuntivos



DEVELOPMENTAL BIOLOGY 10e, Figure 1.11  
© 2014 Sinauer Associates, Inc.



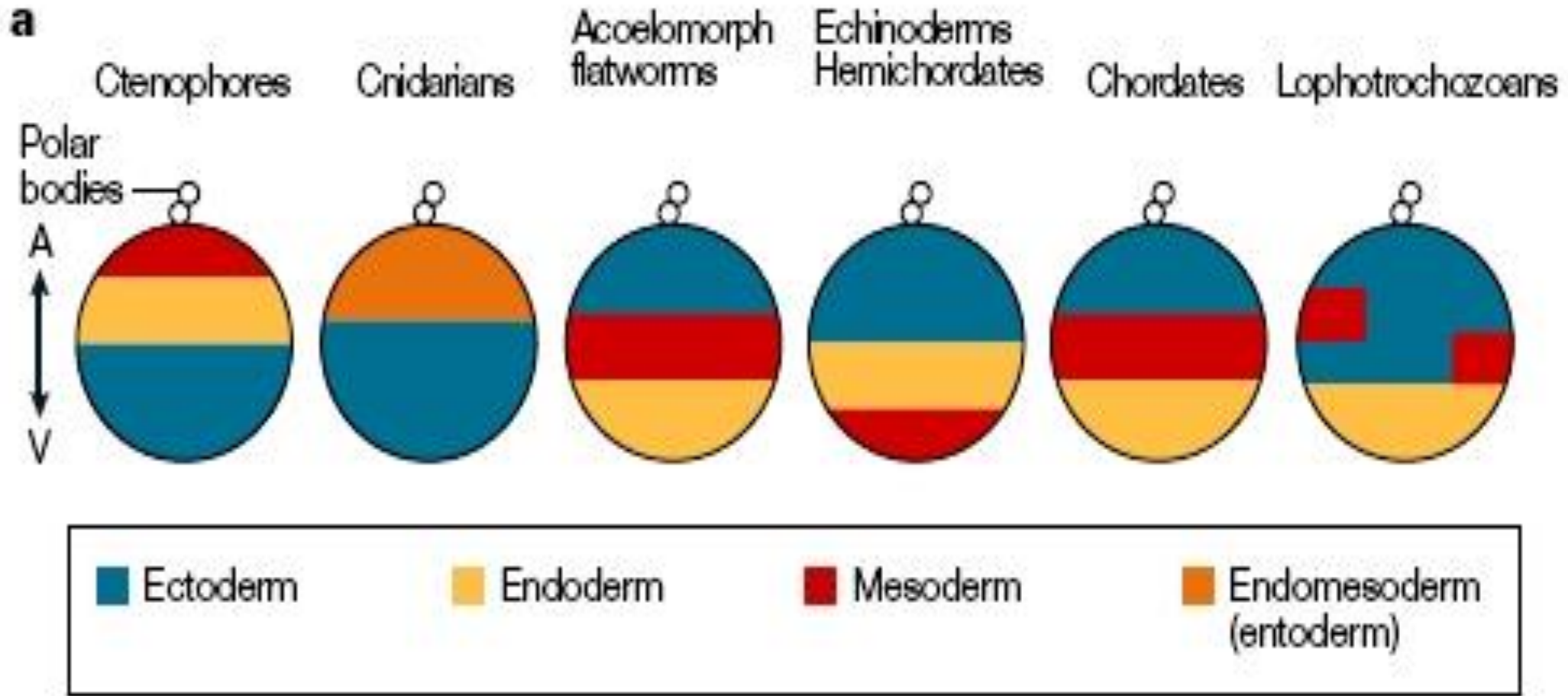
# Mapas de territorios presuntivos



DEVELOPMENTAL BIOLOGY 10e, Figure 1.11  
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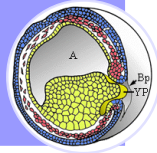


# Mapas de territorios presuntivos



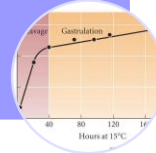
- Rearreglo posición de las células

Movimientos morfogénéticos



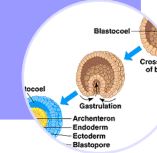
- El ritmo de las mitosis se hace lento

División celular



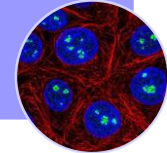
- Mínimo crecimiento

Crecimiento embrionario



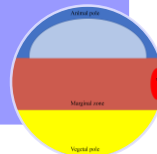
- Se incrementa notablemente

Metabolismo



- Se expresan los genes embrionarios

Control genético embrionario



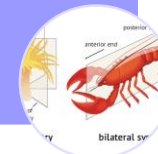
- Síntesis de proteínas propias de cada tejido

Diferenciación

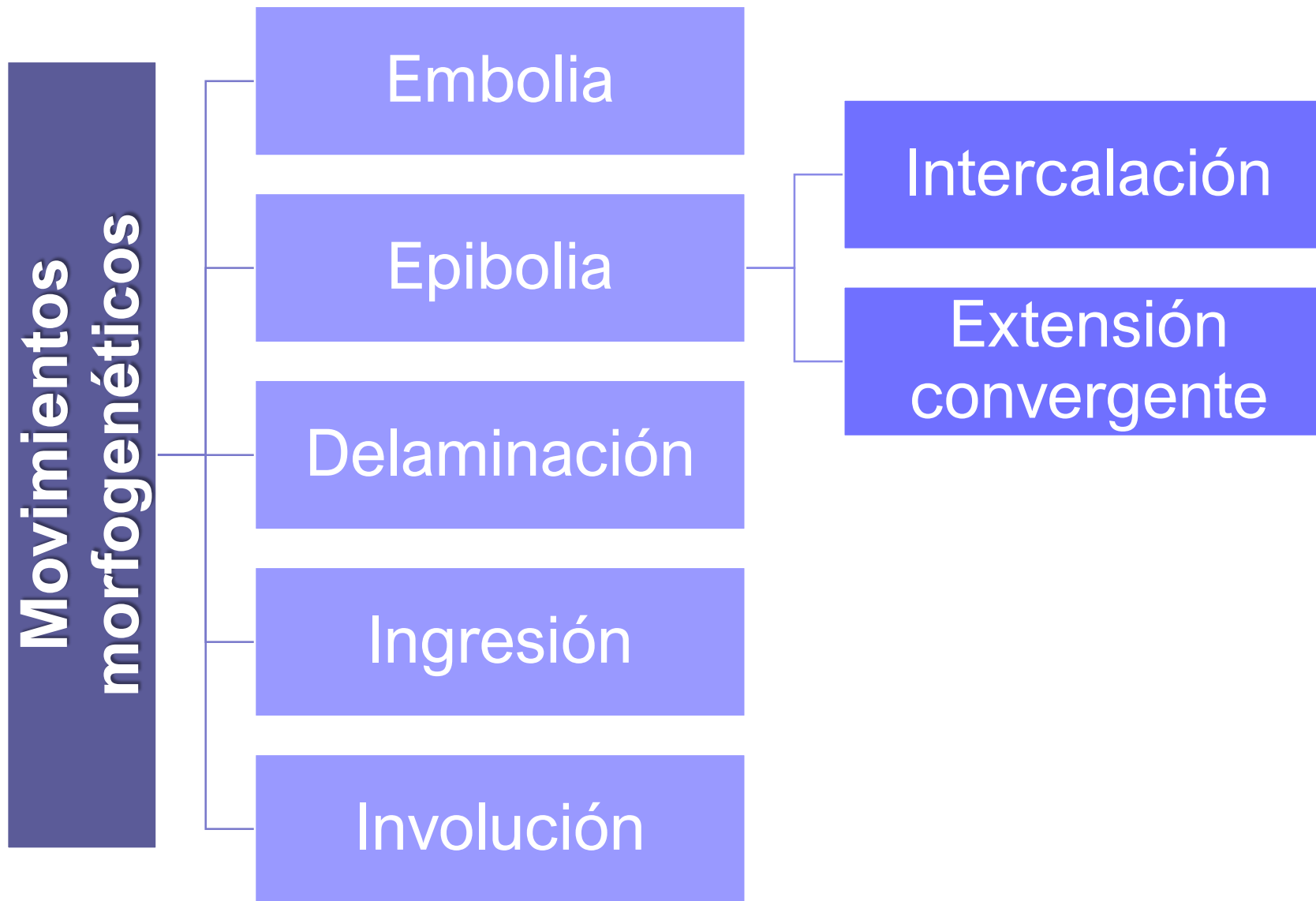


- Cambio en la estructura del embrión
- Definición simetrías

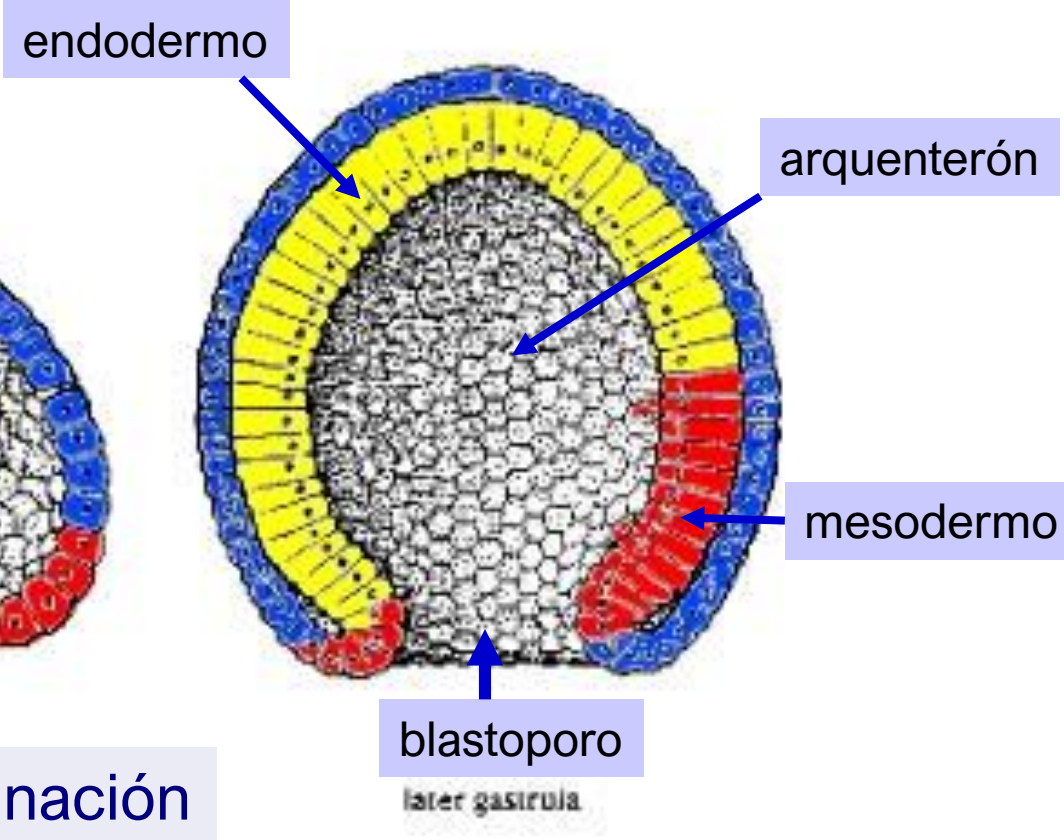
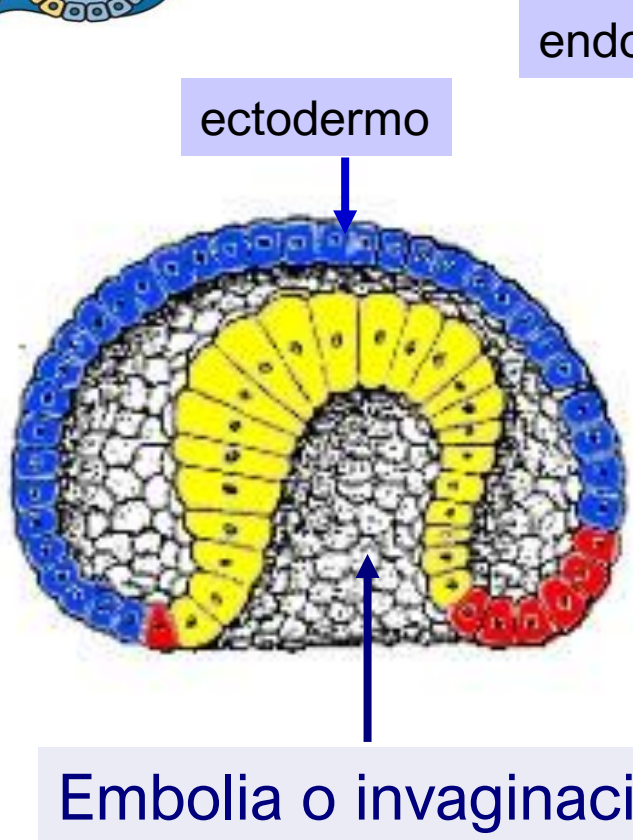
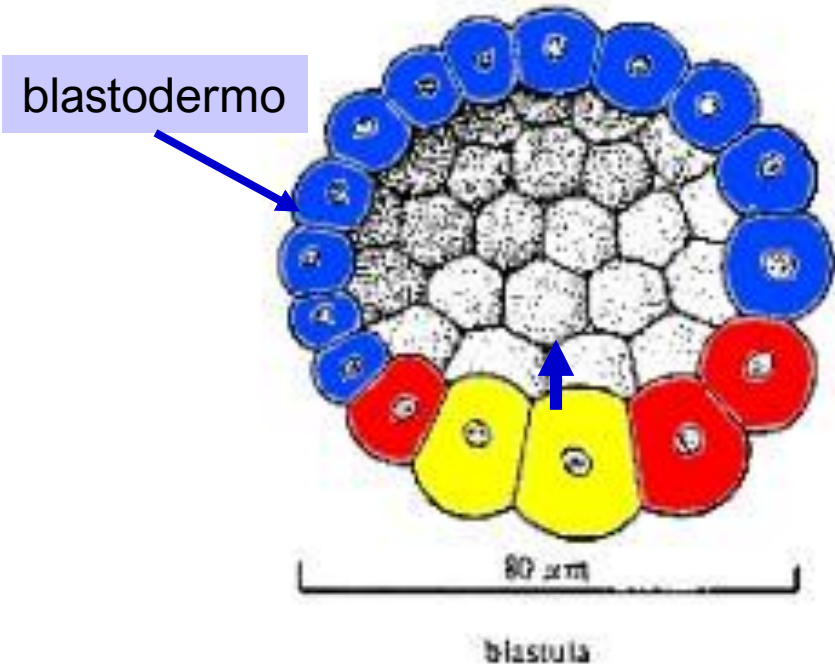
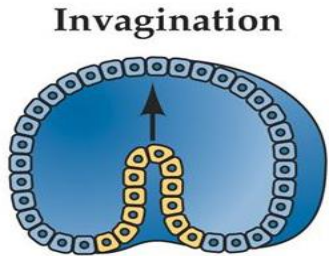
Estructura del embrión







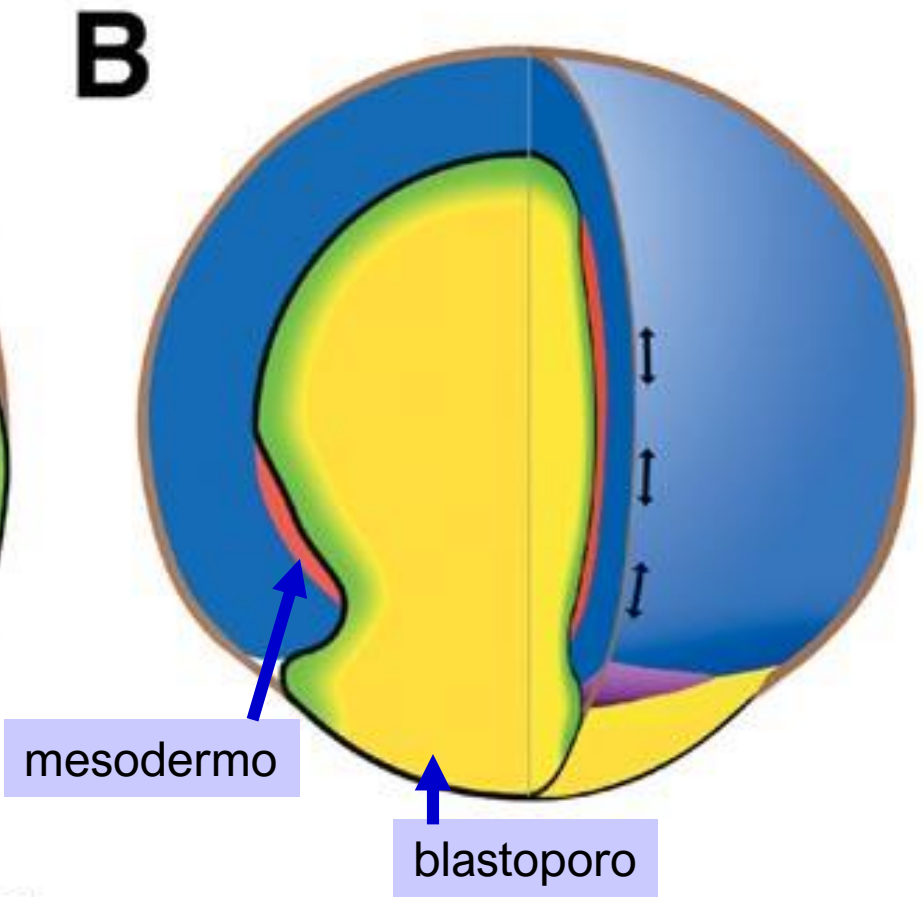
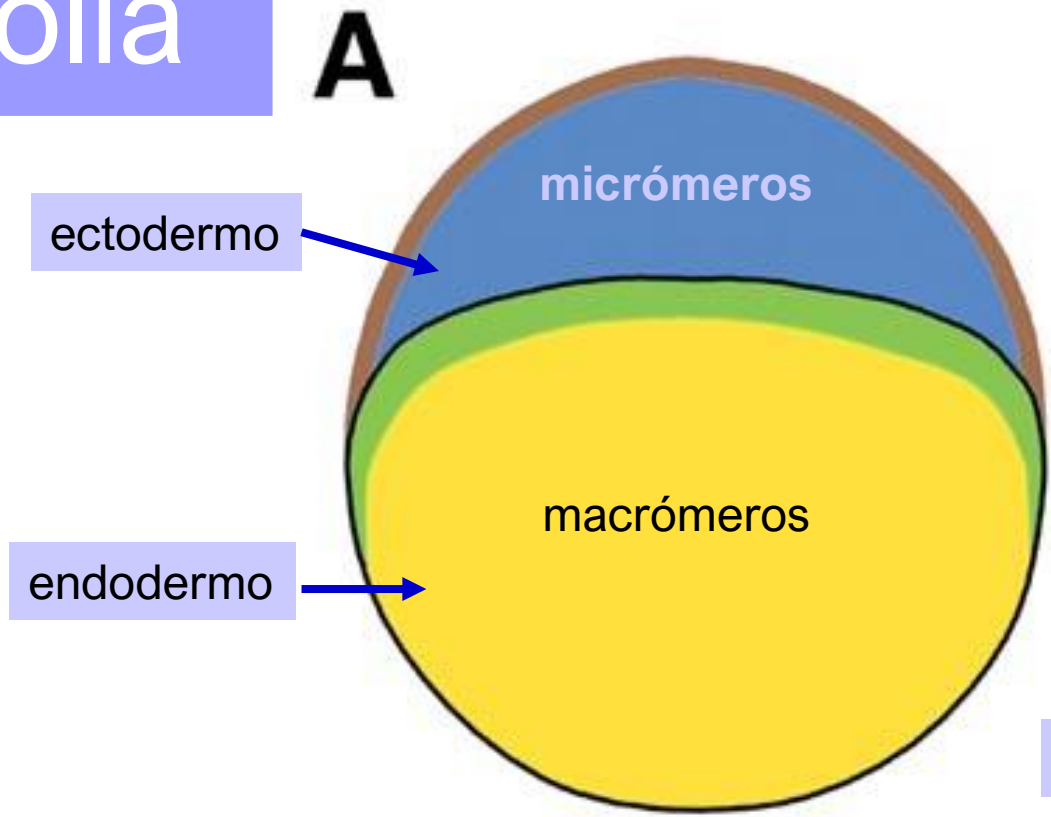
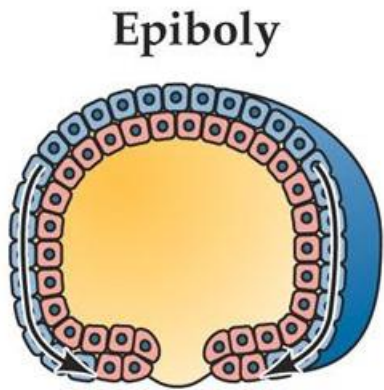
# Embolia



Gastrulation  
(Development of Amphioxus)



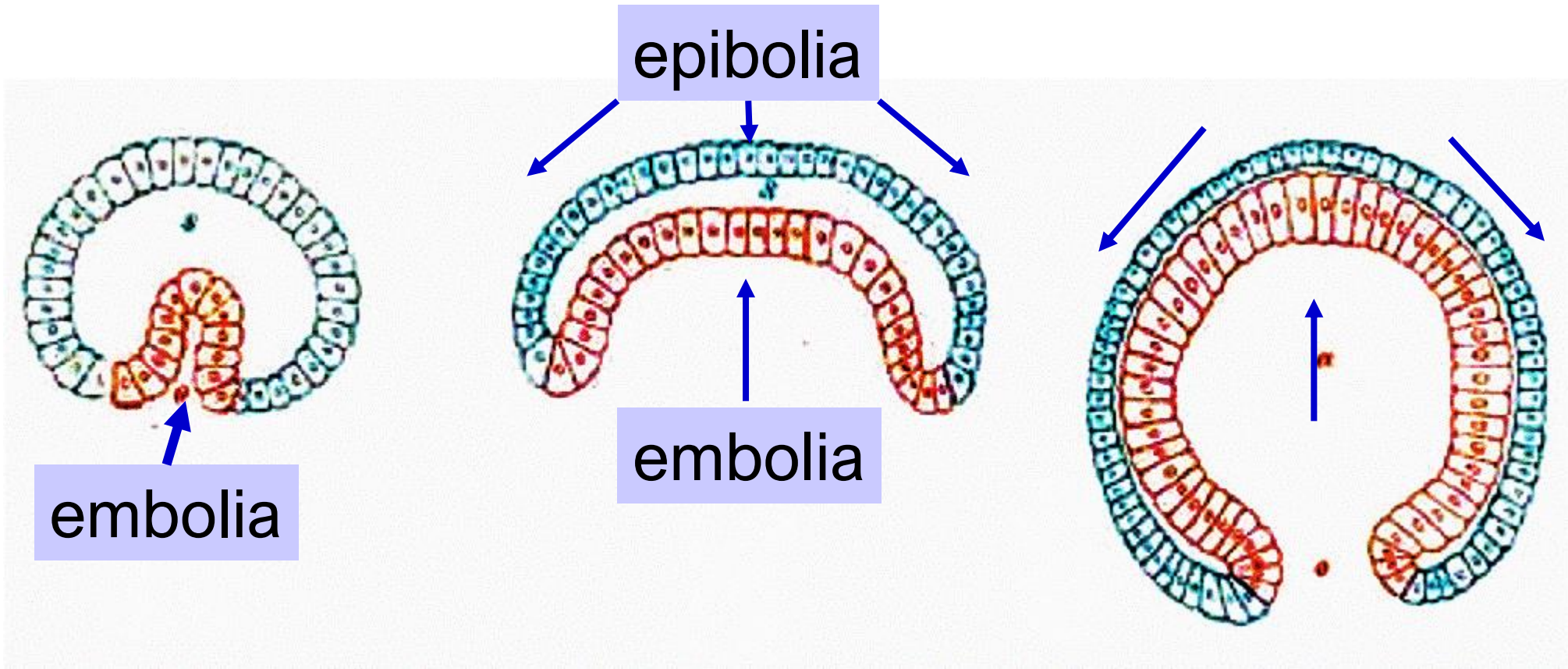
# Epibolia



Los micrómeros finalmente envuelven a toda el embrión dejando a los macrómeros internamente



# Epibolia y embolia



# Epibolia

## Epiboly



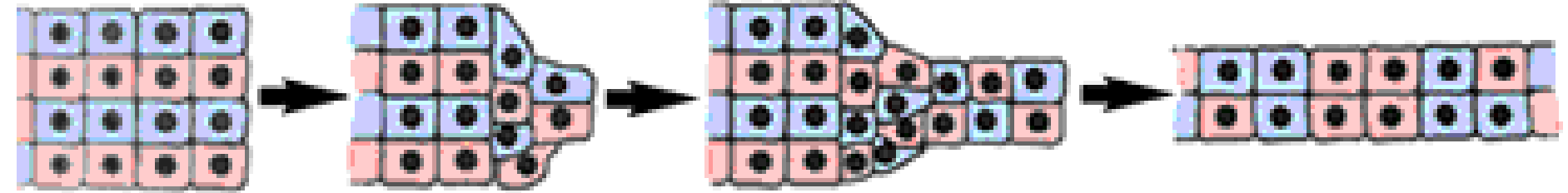
Cambio de forma celular

## Intercalation



Intercalación

## Convergent extension

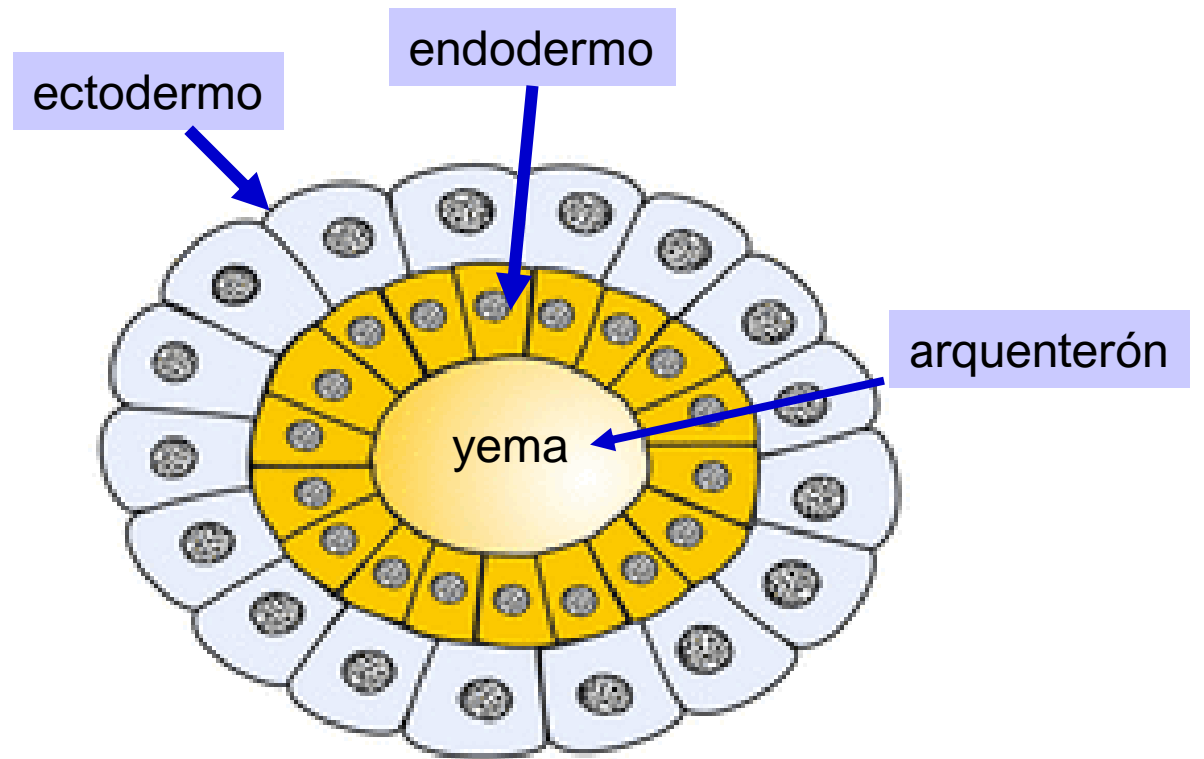


Extensión convergente



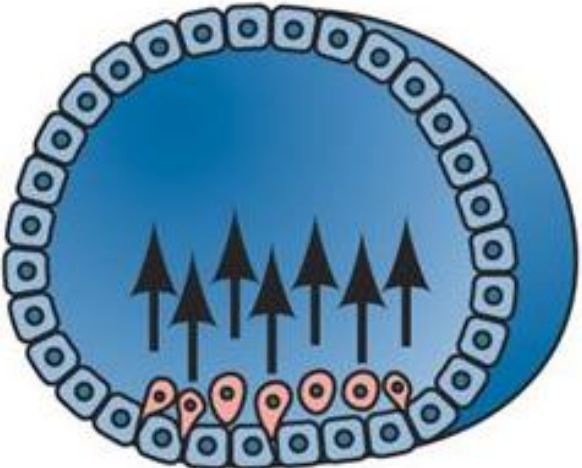
# Delaminación

Delamination

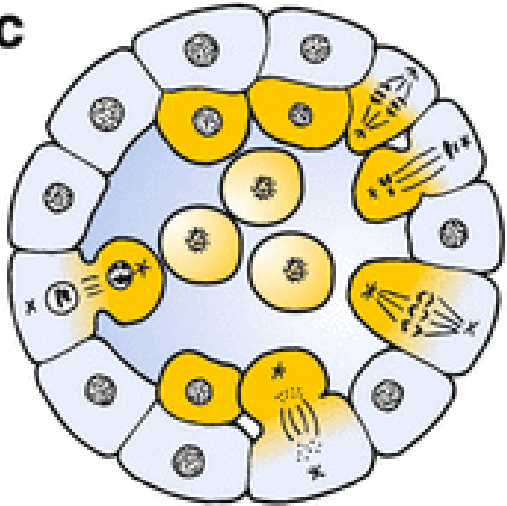


# Ingresión

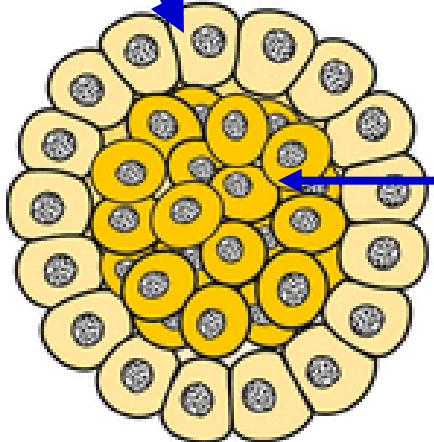
Ingression



c

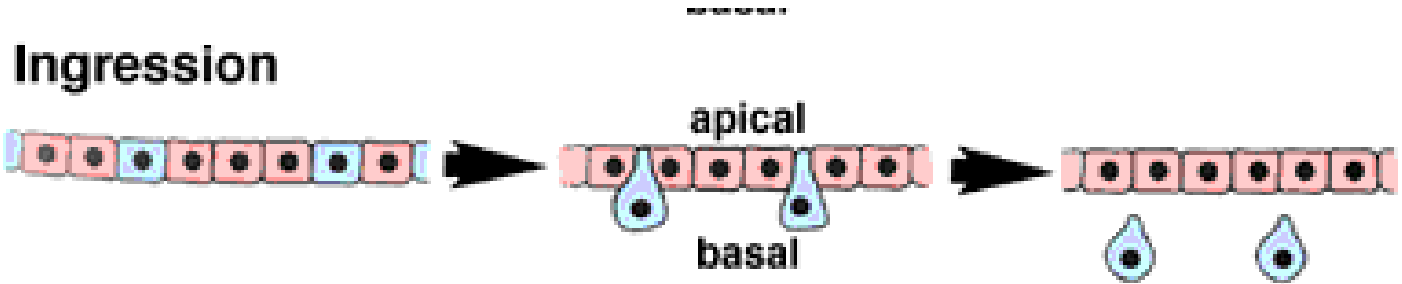


ectodermo

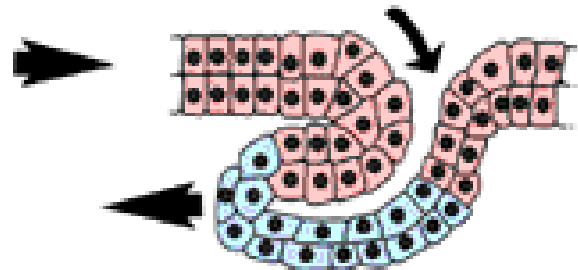
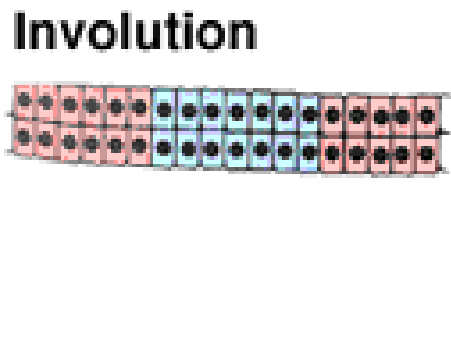
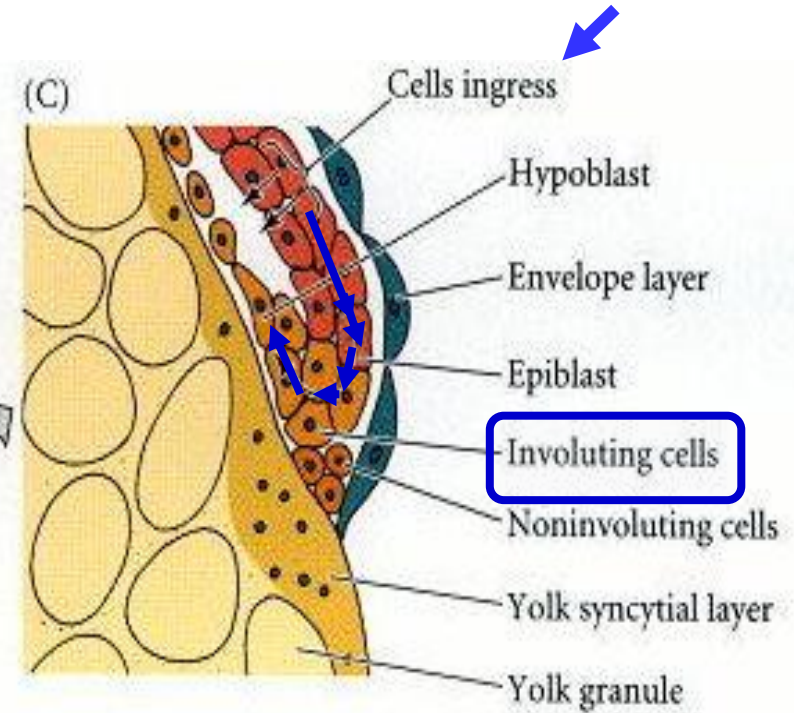
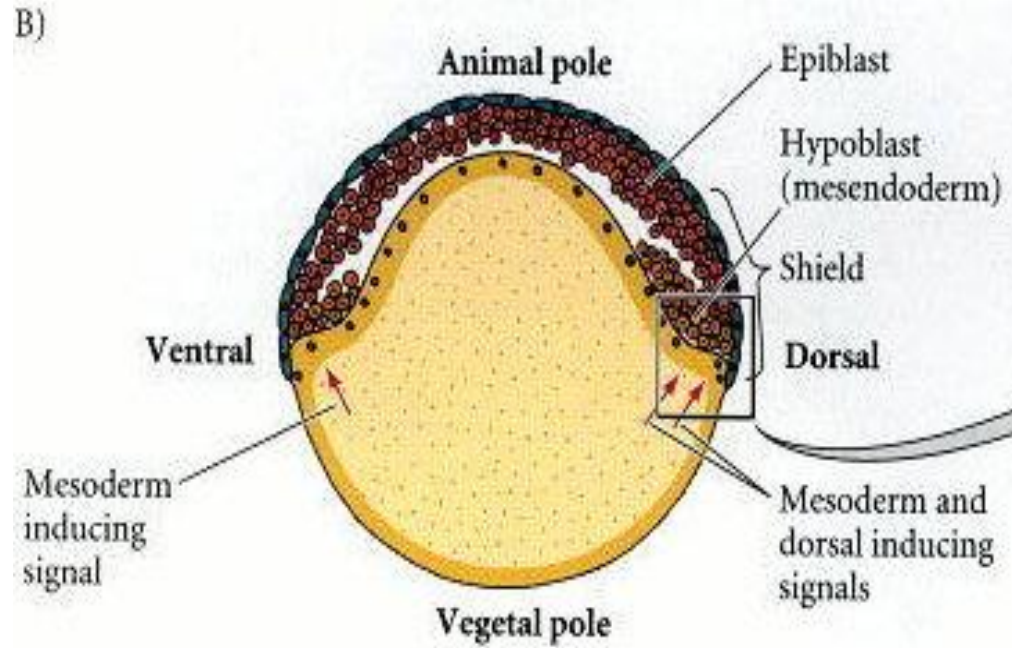
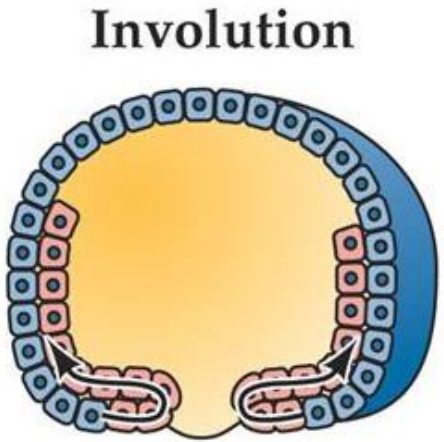


endodermo

Ingression



# Involución





# Movimientos morfo genéticos

