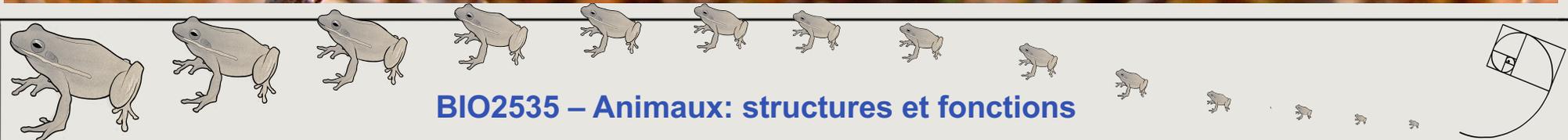


BIO2535 – Animaux: Structures et fonctions



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BIO2535 – Animaux: structures et fonctions

L'arbre de la vie

Multicellulaire

Unicellulaire (sans tissus)

Eukaryote

Prokaryote

Organique

Inorganique

Autotrophes

Ingestion

Absorption

Plantae

Animalia

Fungi

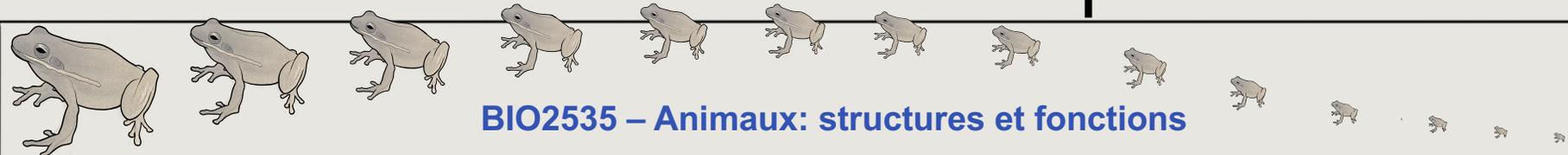
Protista

Domaine

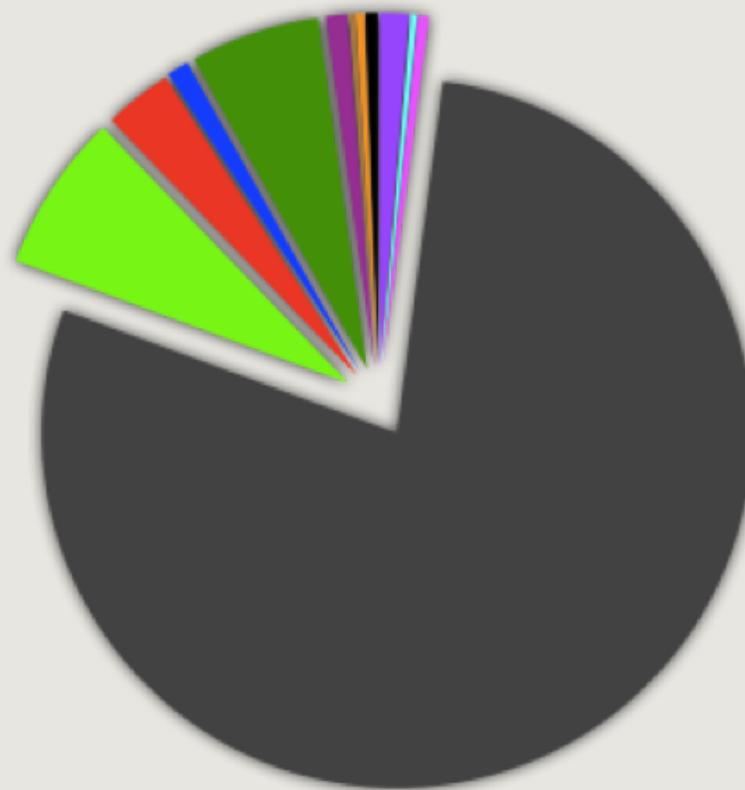
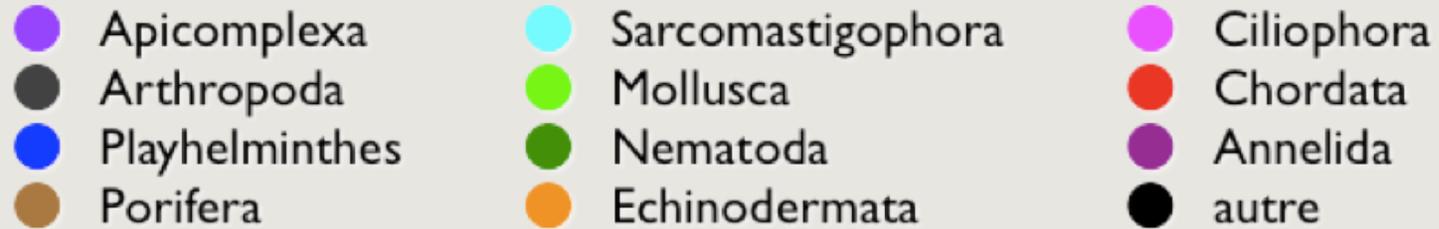
Domaine

Bacteria

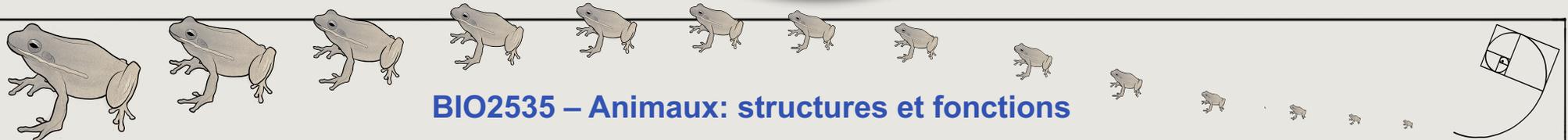
Archaea



Nombre d'espèces

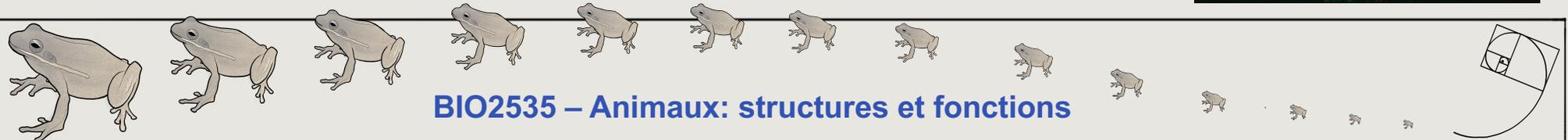
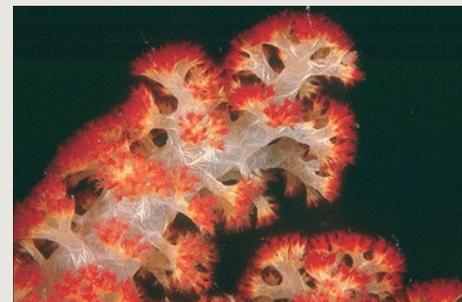


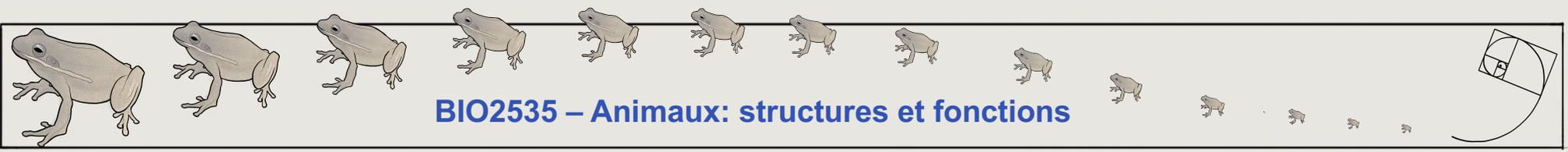
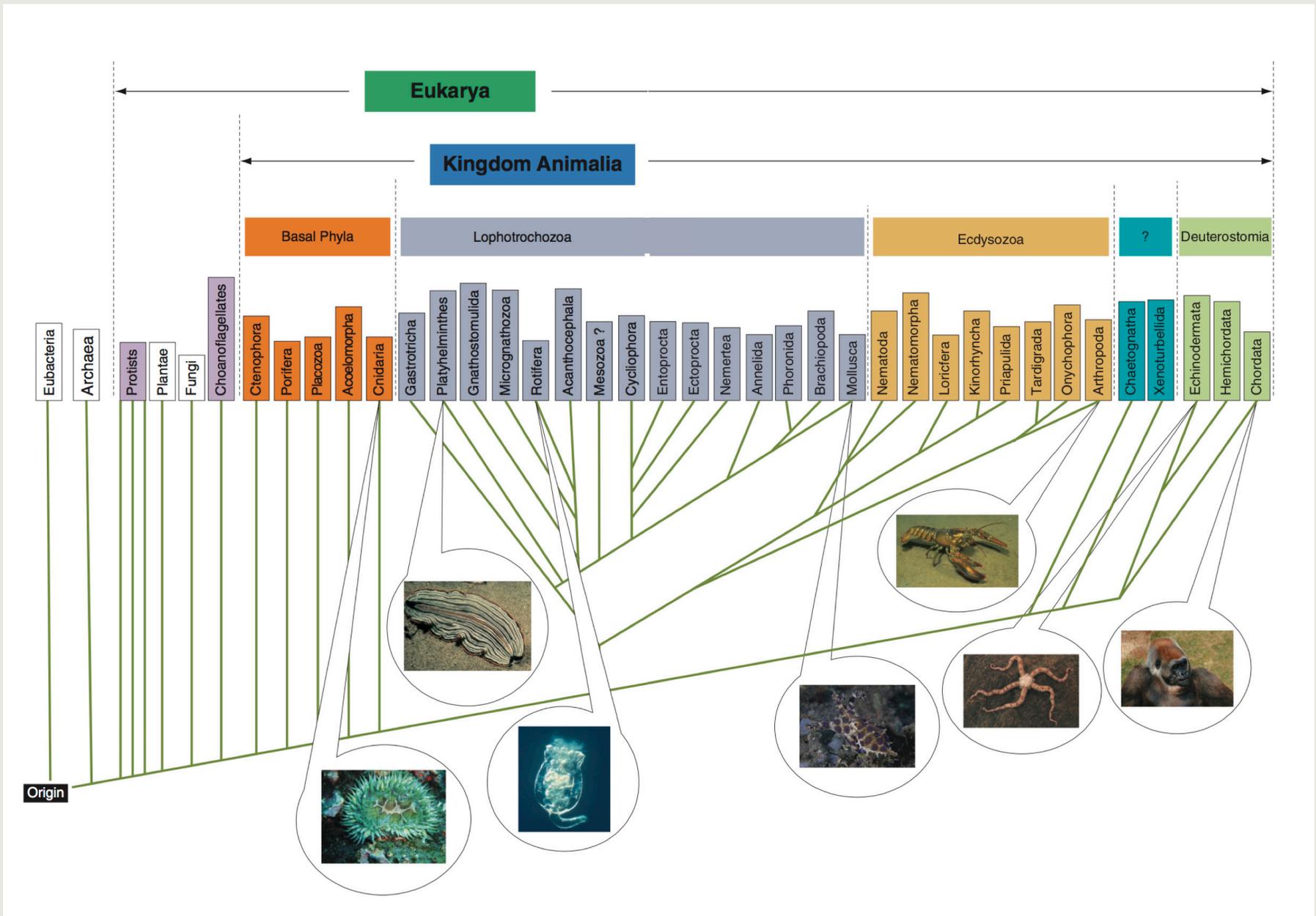
Approx.
1 500 000 !!



La diversité animale

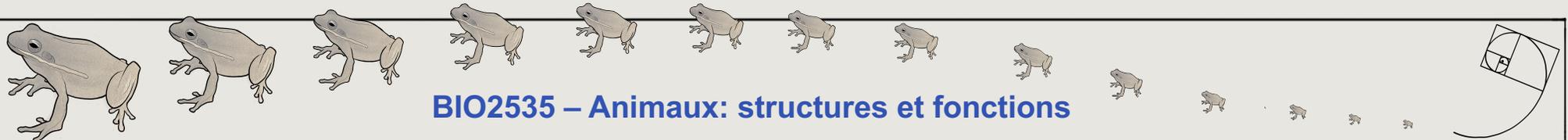
- **Loup (*Canis lupus*)**
 - Phylum Chordata
- **Étoile de mer**
 - Phylum Echinodermata
- **Moustique**
 - Phylum Arthropoda
- **Nautilus**
 - Phylum Mollusca
- **Ver Polychète**
 - Phylum Annelida
- **Corail**
 - Phylum Cnidaria
- **Éponge**
 - Phylum Porifera





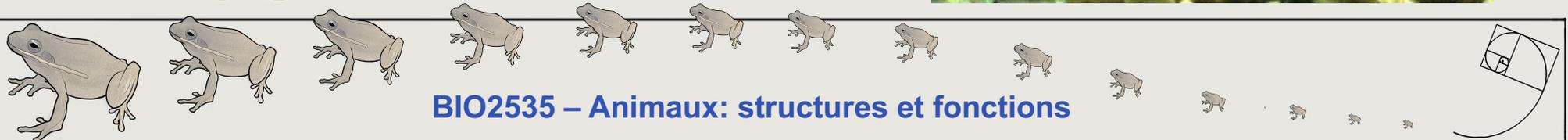
Milieu marin

- Étendu
- Ancien
- Dense
- Température tamponnée
- Pression osmotique neutre (isotonique)
 - Vertébrés sont généralement hypotoniques à l'eau
- Oxygène rare



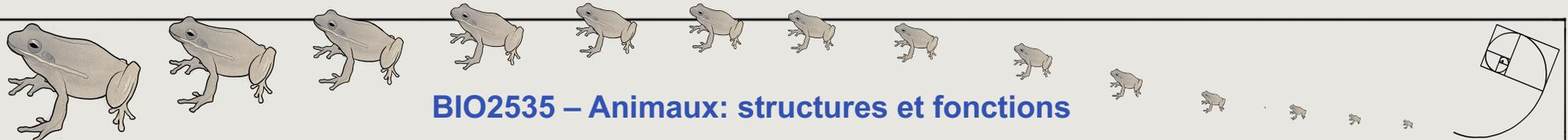
Milieu dulcicole

- Plus récent
- Stress osmotique
 - Animaux sont hypertoniques à l'eau
- Température peu tamponnée
- Microhabitats
- Oxygène rare



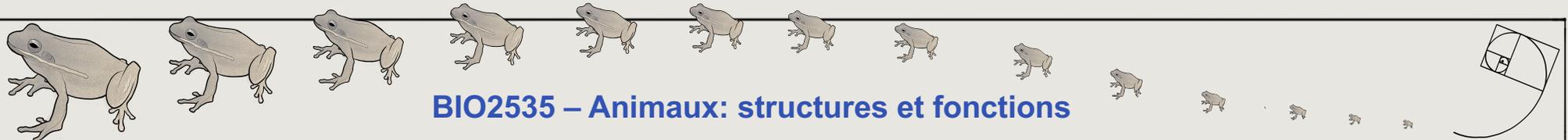
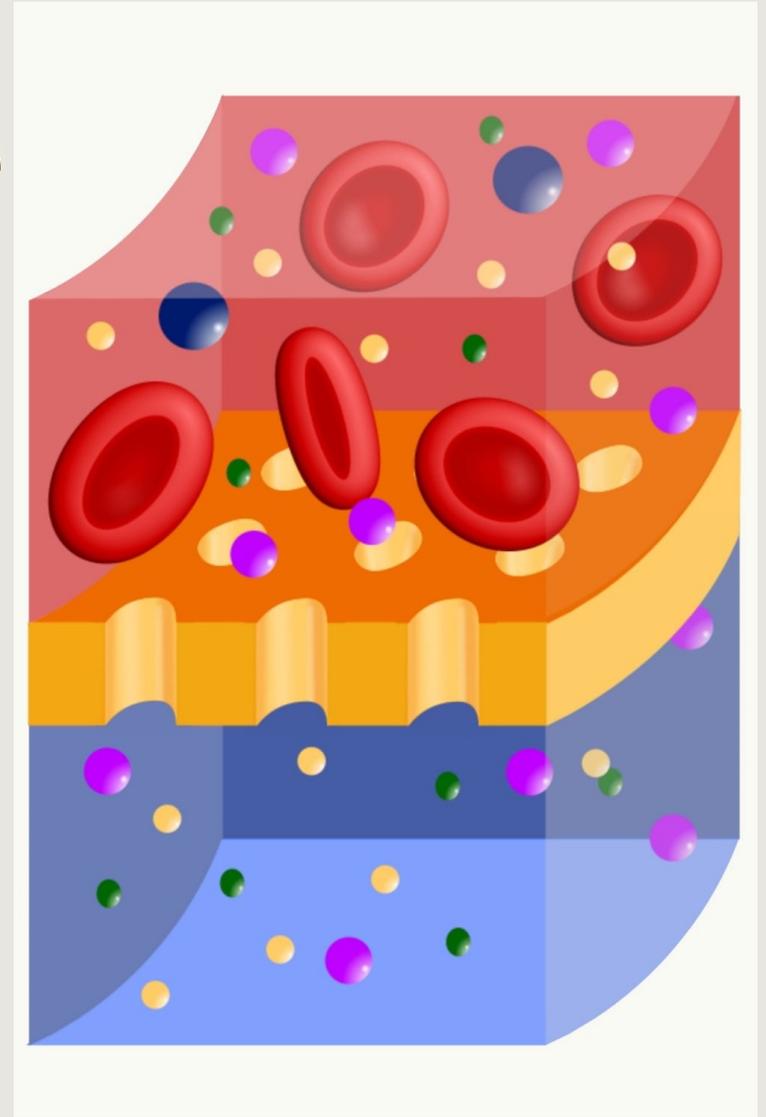
Milieu terrestre

- **Sec**
- **Oxygène abondant**
- **Gravité plus perceptible**
- **Température peu tamponnée**



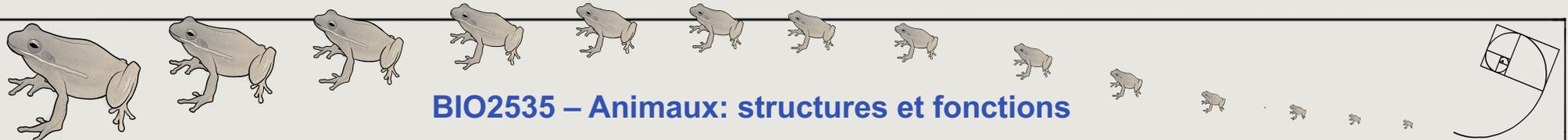
Diffusion

- **Processus à la base des échanges avec l'environnement**
 - **Gas**
 - **Éléments nutritifs**
 - **Déchets métaboliques**



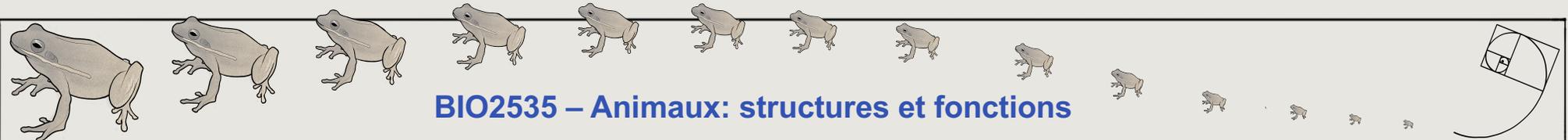
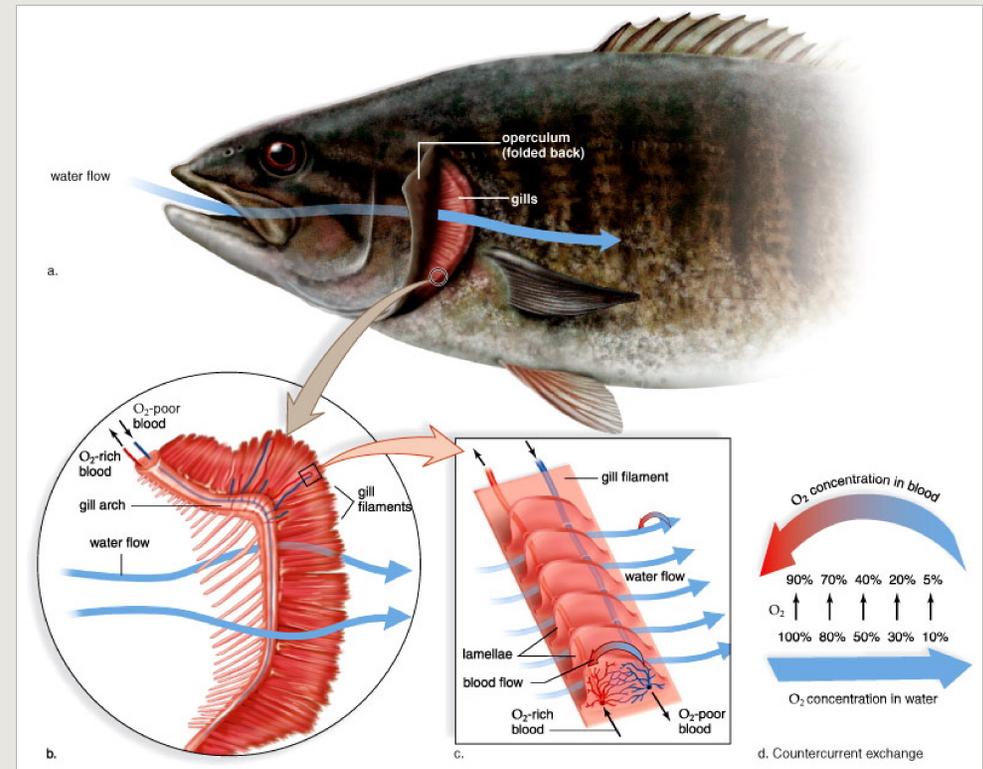
Loi de Fick

- **D = diffusion ($\text{g} \times \text{s}^{-1}$)**
 - **k = constante**
 - **S = Surface d'échanges**
 - **ΔC = différence de concentration de chaque coté de la membrane ($\text{g} \times \text{L}^{-1}$)**
 - **L = épaisseur de la membrane**
- $$D = \frac{kS\Delta C}{L}$$



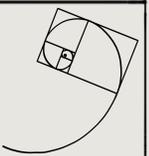
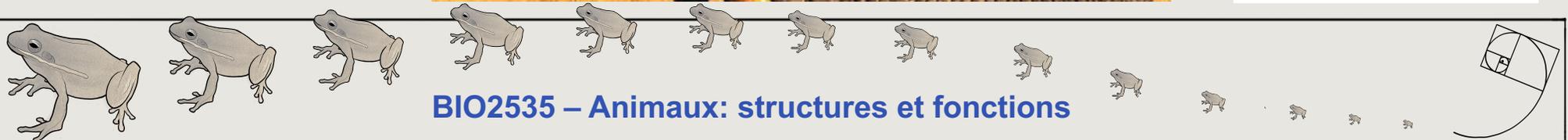
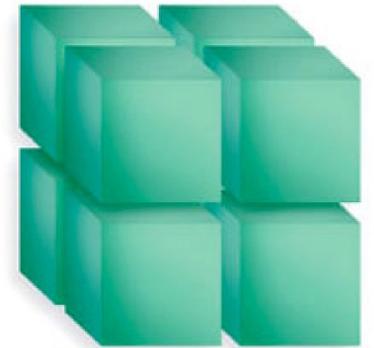
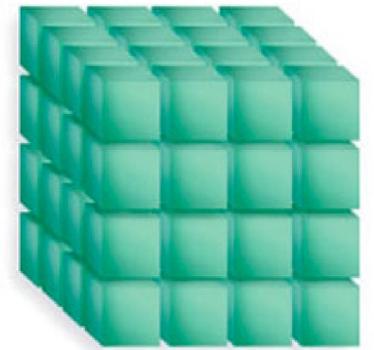
Ex. Ventilation des surfaces

- Maintient le gradient de la concentration et maximise la diffusion
- Ventilation des poumons
- Opercules des poissons



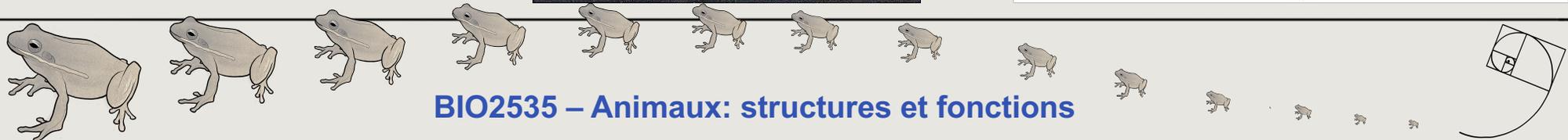
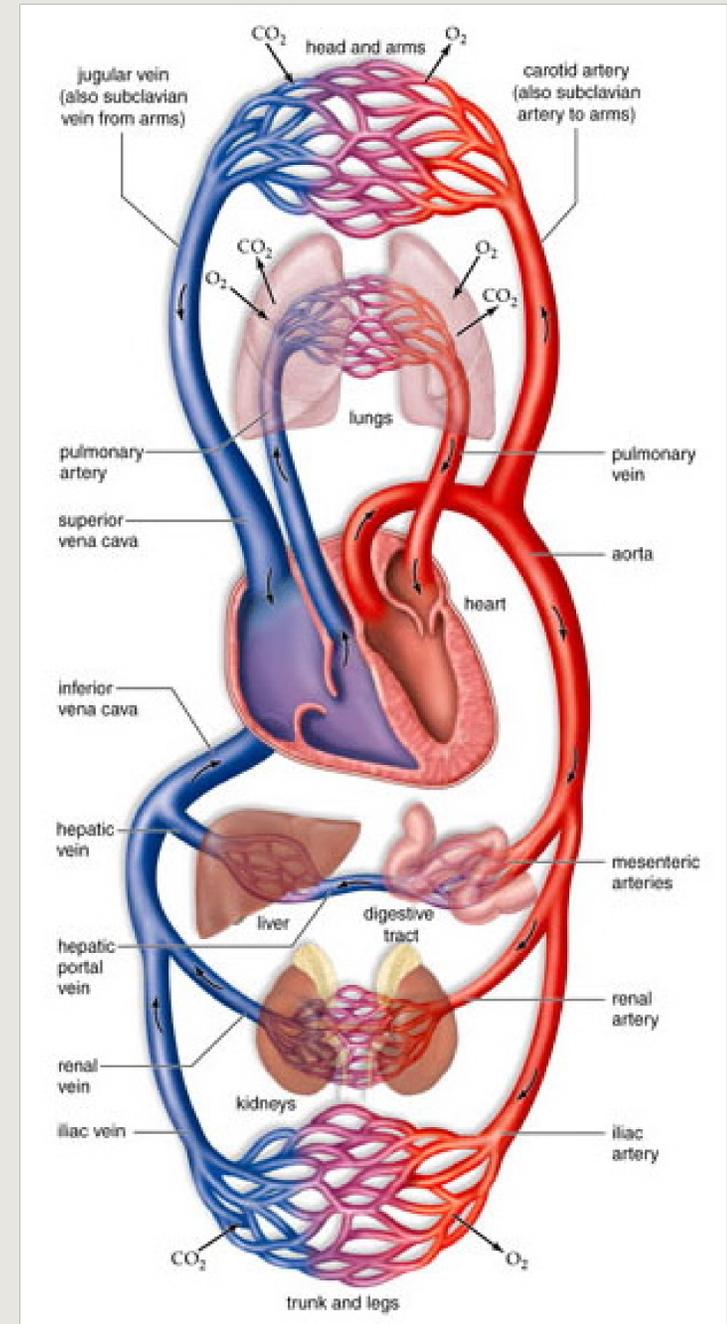
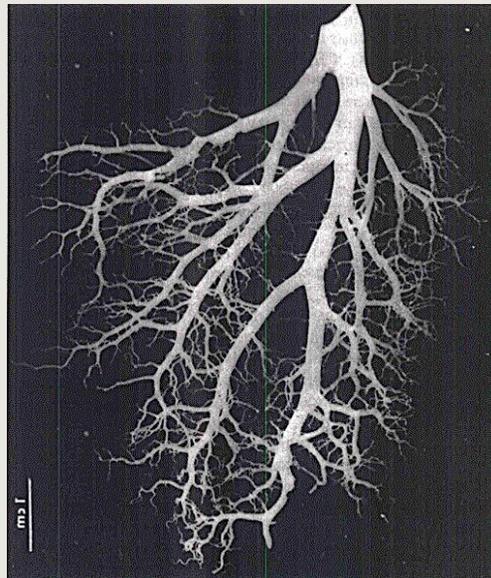
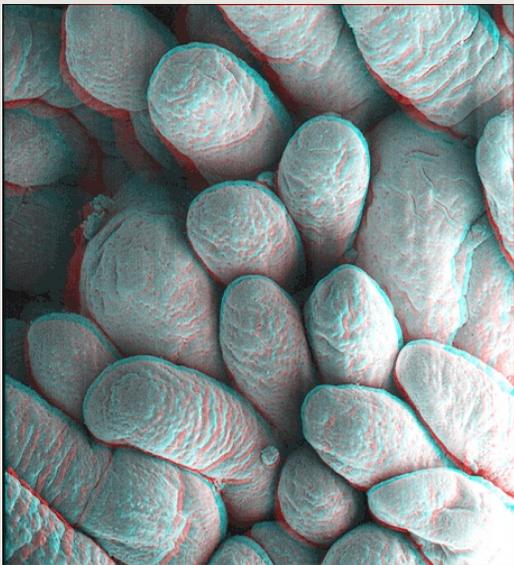
Rapport surface:volume

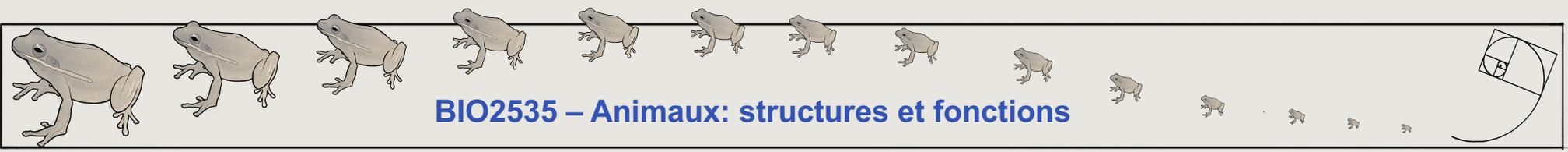
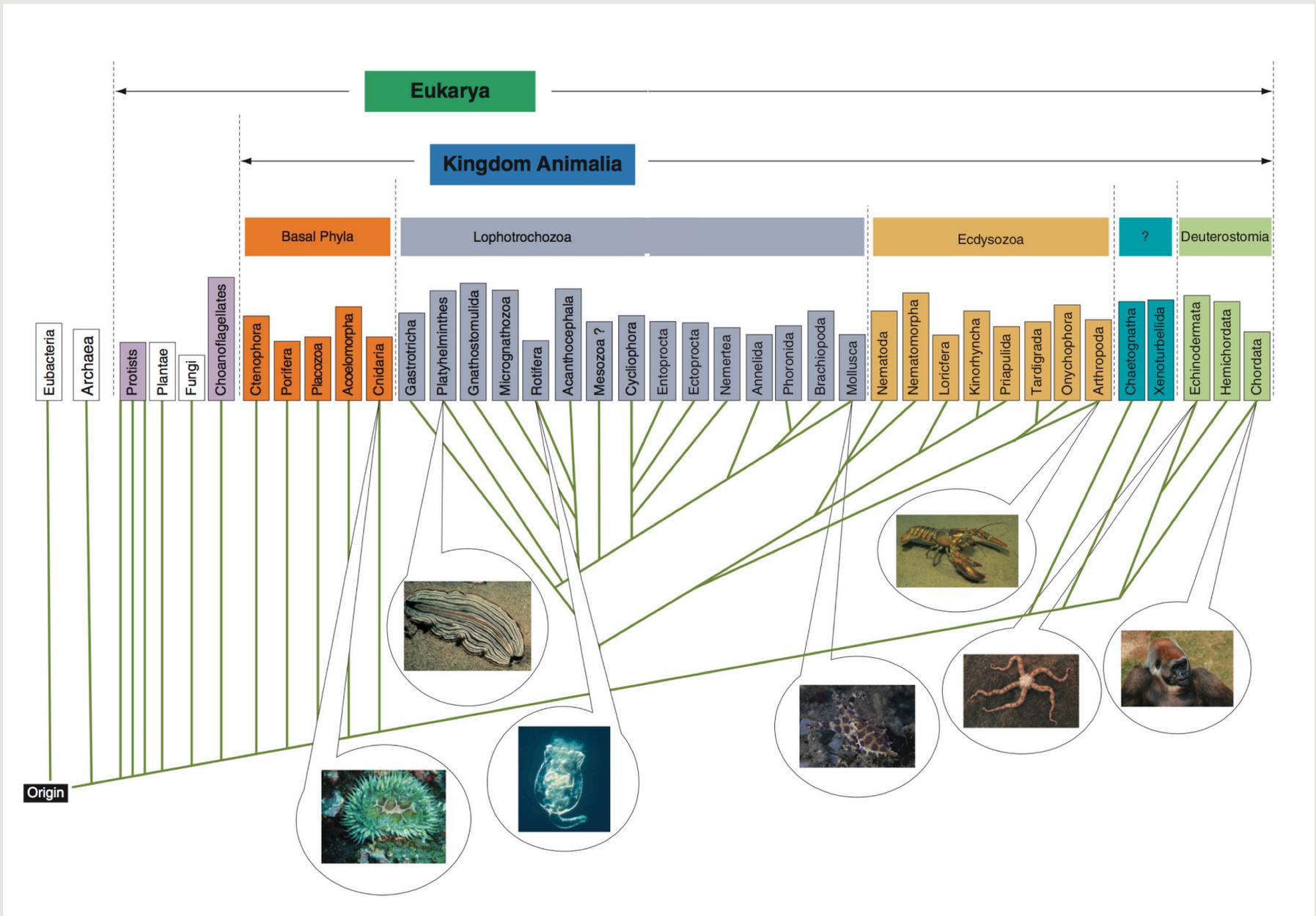
- Quand taille augmente, le rapport diminue
- Diffusion proportionnelle à la surface d'échange
- Besoin proportionnel à la masse (volume)



Solution:

- Systèmes circulatoires, compartmentalization des organes
- Replis des surfaces, bifurcation des conduits

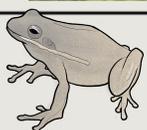
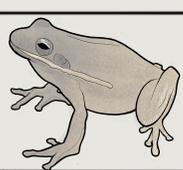




Questions?



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