

Sponges

Phylum Porifera

Characteristics of the Phylum

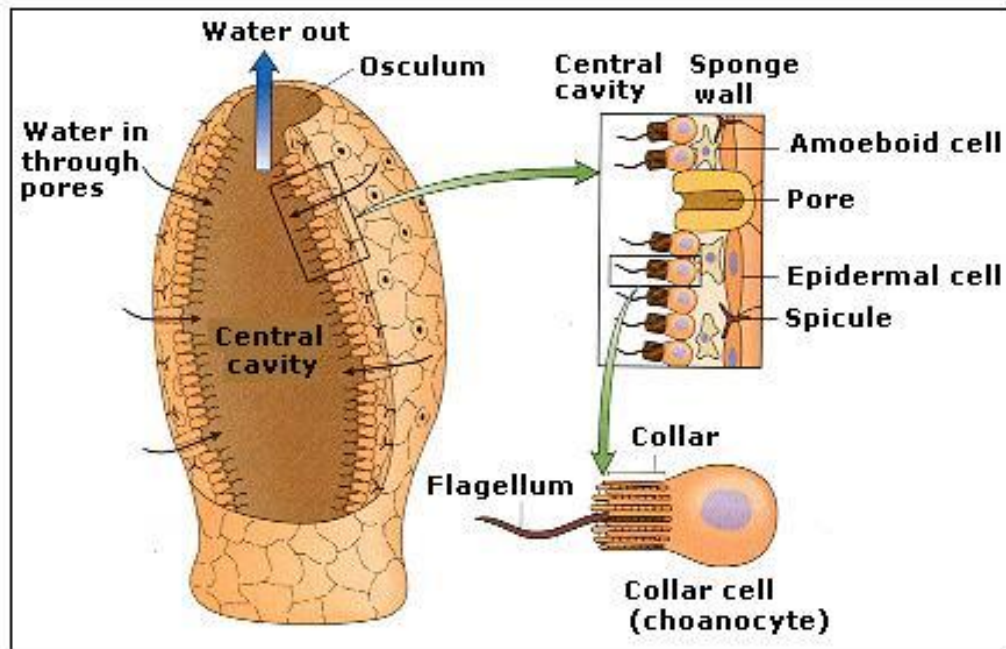
- Simple
- Lack Tissue
- Asymmetric
 - (Some Radial)
- Sessile
- Variety of Shapes and sizes



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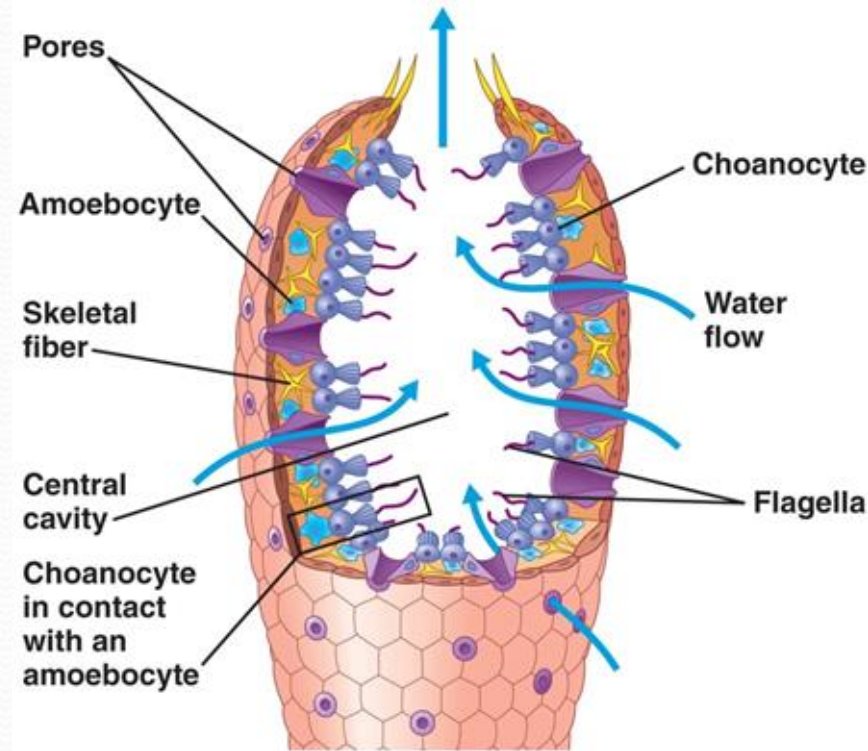
Sponge Structure and Function

- Body is full of ostia
- Water flows
 - Ostia → Spongocoel → Osculum



The No Tissue Alternative

- Specialized cells with specific functions
 - Collar Cells or Choanocytes
 - Move Water
 - Pinacocytes
 - Outer Covering
 - Protection
 - Archaeocytes or Amoebocyte
 - Repair and Regeneration
 - Distribute Food and Oxygen
 - Spicules
 - Support

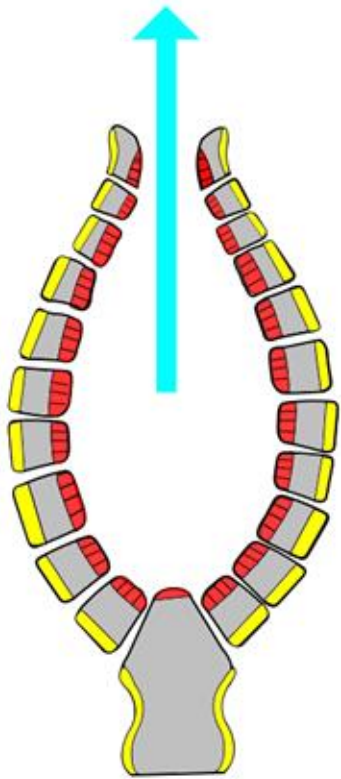


Examples of Different Classes

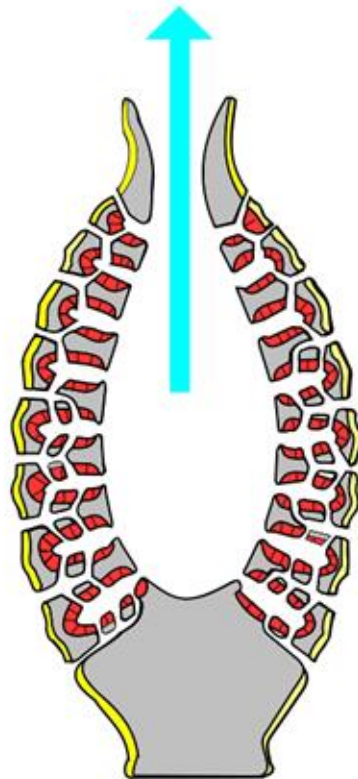
- Commercial Sponges
 - Class Demospongia
- Glass Sponges
 - Class Hyalospongia



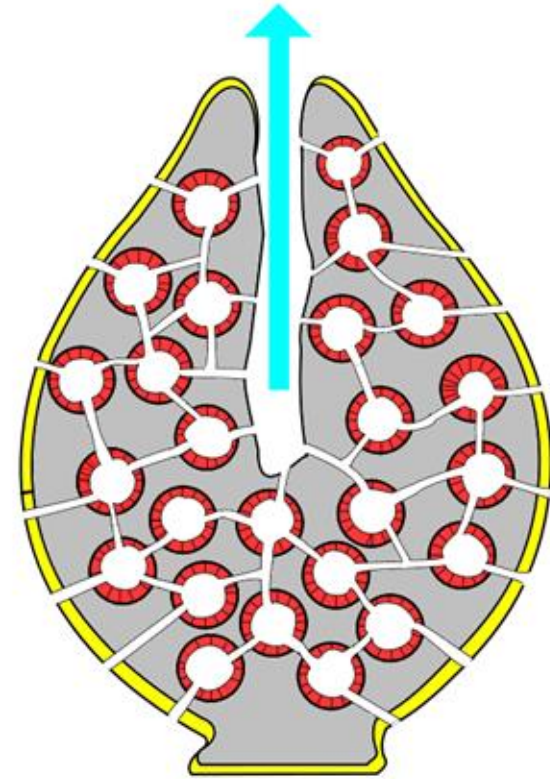
Sponge Body Form



Asconoid



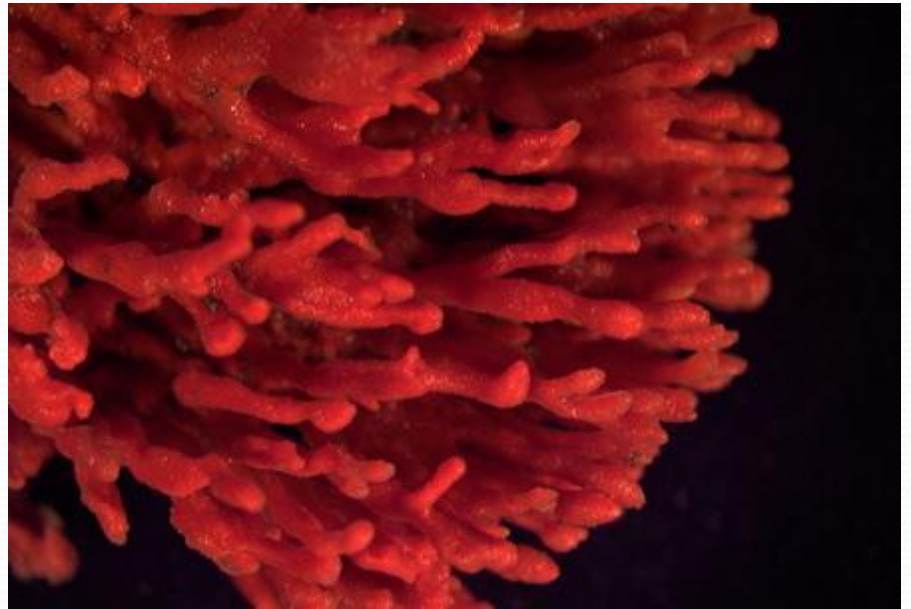
Syconoid



Leuconoid

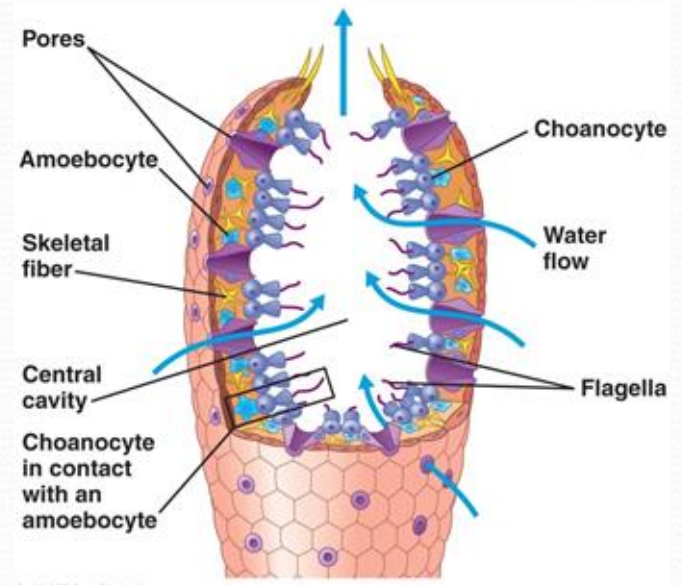
Leuconoid Example

- *Microciona prolifera* – Leuconoid
 - 10,000 chambers per cubic millimeter



Nutrition and Digestion

- Suspension Feeders
- Filter Feeders
 - Large particles are engulfed and digested by pinacocytes and archaeocytes
 - 80% is trapped by collar cells



Reproduction

- Sexually
 - Most hermaphrodites
 - Do Not usually produce both male and female gametes at the same time.
 - Sperm – Modified collar cell
 - Eggs – Usually develop from archaeocytes
 - Trigger is water temperature or photoperiod depending on species.
- Asexual
 - Budding , Regeneration/Fragmentation and Gemmules

Ecological Role

- Competition
 - Corals and bryozoans
 - What do you think they are competing for?



Ecological Role Continued

- Pedator – Prey
 - Yuck! Spicules
 - Chemicals as defense
 - Hawksbill Turtle
- Symbiotic Relationships
 - Mutualism
 - Bacteria
 - Sponge Crab

