

Introduction to Biology. Lecture 21

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Outline

- 1 Questions and answers
 - Where we are?
- 2 Animals
 - Basic principles of animal body construction

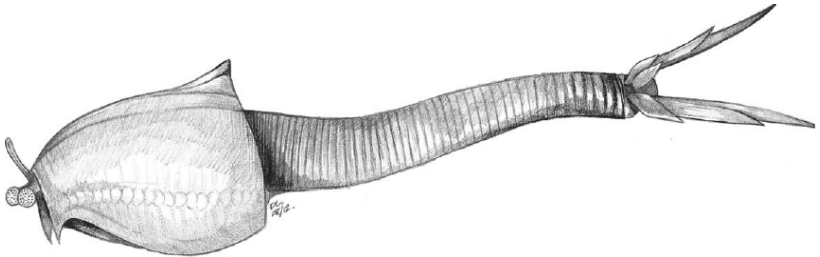
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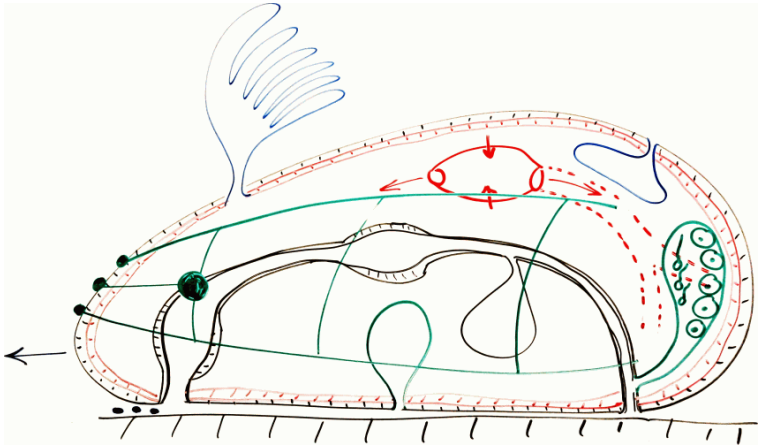
Questions and answers

Where we are?

Neocaris—fossil Orsten filtrator, ancestor of arthropods



Generalized animal



Animals

Basic principles of animal body construction

Body parts

- Cup-shaped whole body
- Vermicular body
- Segmented body
- Body with appendages
- Head and tail

Locomotion

- Peristaltic motion: crawling without appendages (vermicular motion)
- Bending motion (nematode worms)
- Swimming with appendages
- Crawling with appendages
- Walking with appendages
- Walking with water-vascular system
- Jet motion

Animal motion (strings below are links, try them)

Peristaltic: earthworm

Bending: nematode

Swimming upside down: horseshoe crab

Swimming: horseshoe crab

Walking: crab

Swimming: ray

Water-vascular: starfish

Jet: jellyfish

Jet: squid

Skin

- One- or multi-layered epithelium
- Basal membrane with collagen
- Skin-muscular bag

Muscle system

- Muscle layer
- Separate muscles
- Water-vascular system

Body cavity

- Mesoderm, no cavity
- Primary cavity
- Secondary cavity (coelom)

Digestion

- Closed or open gut
- Pharynx
- Jaws and teeth
- Stomach, esophagus etc.
- Digestion glands: liver etc.

Blood system

- Open and closed
- Heart
- Hemoglobin and hemocyanin

Respiration

- Gills
- Lungs
- Tracheas

Osmoregulation

- Nephridia
- Kidneys

Summary

- Basic organ systems of animals are responsible for
 - locomotion and support;
 - feeding, excretion and osmoregulation;
 - circulation and gas exchange;
 - signaling and reception;
 - reproduction.

For Further Reading



Animal.

<http://en.wikipedia.org/wiki/Animal>