

## Lower Invertebrate Study Guide

- For each phyla (Porifera, Cnidaria, Platyhelminthes and Nematoda) know the defining characteristics of each.
- Be able to explain how each phyla gets more complex and better adapted than the previous phyla:
  - Tissue layers and organization
  - Levels of organization – colonial vs multicellularity
  - Cephalization
  - Development of a coelom
  - Symmetry
  - Reproduction
  - Life cycles
  - Body plans and any specialized structures
    - Feeding
    - Excretion
    - Response and motility
    - Reproduction
  - Classes and examples of each
- For the parasitic worms, know how they enter the human body, what the intermediate hosts are, where they live and how they affect humans.
- Describe the physical changes that were necessary for flatworms and roundworms to become parasitic
- Describe ecological roles of Poriferans, Cnidarians, Platyhelminthes and Nematodes

### HINTS:

- Use the Kingdom Animalia comparison chart to scaffold your understanding
- Use the chart to understand how each phyla is more complex than the previous
- Use colour to co-ordinate your studying (each phyla a different colour?)
- Use tables/t-charts to compare the phyla
- Practice drawing the example animals to remember the body plans/structures/life functions/life cycles

## Practice Questions – Do the short and long answer questions on another sheet of paper.

### PHYLUM PORIFERA

#### WHAT DO THE FOLLOWING TERMS MEAN?

epidermis  
choanocyte  
gemmule  
sessile  
filter feeding

#### WHAT IS THE CORRECT TERM FOR THE FOLLOWING?

The large opening for the outflow of water at the top of a sponge  
The large cavity in the middle of a sponge's body  
The support structures in a sponge

#### SHORT QUESTIONS

1. Draw and label a choanocyte cell to show how it works and what it does.
2. List the functions of amoebocyte cells.
3. List the cell types in a sponge and explain where they occur and their functions.
4. Explain how sponges sexually reproduce and how they asexually reproduce.

#### LONG QUESTIONS

1. Draw and label a longitudinal cross section through a sponge showing the cell layers and cell types. Indicate the path of water flow. Annotate the diagram to explain what each cell type does.

### PHYLUM CNIDARIA

#### WHAT DO THE FOLLOWING TERMS MEAN?

gastrodermis  
diploblastic  
mesoglea  
endoderm  
ectoderm

#### WHAT IS THE CORRECT TERM FOR THE FOLLOWING?

The motile stage of a cnidarian  
The large water-filled cavity inside a sea anemone body  
The middle cellular (not tissue) layer in a jellyfish  
The type of larvae that cnidarians produce  
The gravity detection organ in a jellyfish

#### SHORT QUESTIONS

1. Explain the difference between diploblastic and triploblastic animals and the advantages and disadvantages of each body form.
2. Draw the life cycle of a typical cnidarian.
3. List the classes of cnidarians, give a characteristic of each, and give an example of an animal in each class.

#### LONG QUESTION

1. Draw and label a diagram of a cnidocyte. Where are they found? What are they used for? **How do they work?**
2. How is a cnidarian more advanced than a poriferan?

## PHYLUM PLATYHELMINTHES

### WHAT DO THE FOLLOWING TERMS MEAN?

cephalization

cilia

ventral/dorsal

anterior/posterior

triploblastic

pharynx

### WHAT IS THE CORRECT TERM FOR THE FOLLOWING?

The class of Platyhelminthes to which flukes belong

The species name of the pig-human tapeworm

The segments of a tapeworm

The Planarian light detectors

### SHORT QUESTIONS

1. Draw and label a reproductive proglottid of a tapeworm.
2. Discuss the structure and function of the head of a tapeworm.
3. Explain the lifecycle of the pig-human tapeworm.
4. Describe the excretory system of a planarian and explain how it works.

### LONG QUESTION

1. Discuss how the Planarian is more advanced than the Cnidarian
2. Draw and discuss the life cycle of the liver fluke including the correct vocabulary for each life stage

## PHYLUM NEMATODA

### WHAT DO THE FOLLOWING TERMS MEAN?

pseudocoelom

parasitic

mesoderm

cyst

trichinosis

### WHAT IS THE CORRECT TERM FOR THE FOLLOWING?

The common name for nematodes

The species name of the common large human gut nematode

The disease caused by filarial worms that infect the lymph nodes in humans

The name of the worm that needs to be slowly wound out of the victim

### SHORT QUESTIONS

1. Discuss the nematode digestive system and how it is more advanced than the previous phyla.
2. Discuss the role of most terrestrial nematodes.
3. Explain (or draw/label) the life cycle of the hookworm. Why is it referred to as the "itch worm"? How could you prevent infection?
4. Explain (or draw/label) the life cycle of the pinworm. How could you prevent infection?
5. How could you get the disease trichinosis and what would happen to you?

### LONG QUESTIONS

1. Explain (or draw/label) the life cycle of ascaris worms. How could you prevent infection?
2. Discuss the filarial worm.
3. Discuss the guinea stick worm.