

REVISION: INVERTEBRATES

26 MARCH 2014



Lesson Description

In this lesson, we revise:

- Biodiversity of Animals: Invertebrates
- Importance of Invertebrates



Summary

Importance of invertebrates

Type of Animal	Body Plan	Importance
Porifera – Sponge	<ul style="list-style-type: none"> • Asymmetrical with two layers (epidermis and an inner layer) • Acoelomate • No cephalisation • No blood system to speak of 	<p>Sponges form part of a habitat for many organisms.</p> <p>Act as filters removing bacteria and minerals from the water in which they are found.</p>
Cnidaria	<ul style="list-style-type: none"> • Acoelomate • Radial symmetry • diploblastic (outer ectoderm and inner mesoderm with jelly-like mesoglea between) • no blood system 	<p>Source of biomedical compounds that have anti-cancer properties.</p> <p>Corals provide habitats for fishes that are commercially consumed.</p>
Platyhelminthes	<ul style="list-style-type: none"> • bilateral symmetry • definite anterior end (cephalisation) • Triploblastic and acoelomate • Parasitic have poorly developed digestive tracts • Free-living have well developed, branched digestive tracts 	<p>Flat worms can be carnivores or scavengers and feed mainly on bacteria, small invertebrates and protozoans. A few species are herbivores.</p> <p>Many flatworms are parasitic and this affects agriculture and human health.</p> <p>Some common human and animal flatworm parasites are liver flukes and tapeworms but bilharzias is a parasite that affects humans only.</p>
Annelida	<ul style="list-style-type: none"> • metameric segmentation • bilateral symmetry • Coelomate • Through-gut • coelom lined with mesoderm • Segments formed by partitions in mesoderm • Cephalisation 	<p>Earthworms eat decomposing organic material and dig tunnels in the soil aerating the soil.</p> <p>They act as decomposers and as fertilizers too. Leeches suck blood and are parasitic but this has been used medicinally.</p> <p>The water based annelids biomonitor the marine environment.</p>
Arthropoda	<ul style="list-style-type: none"> • bilateral symmetry • exoskeleton made of chitin • true cephalisation • specialised sense organs 	

notes for...

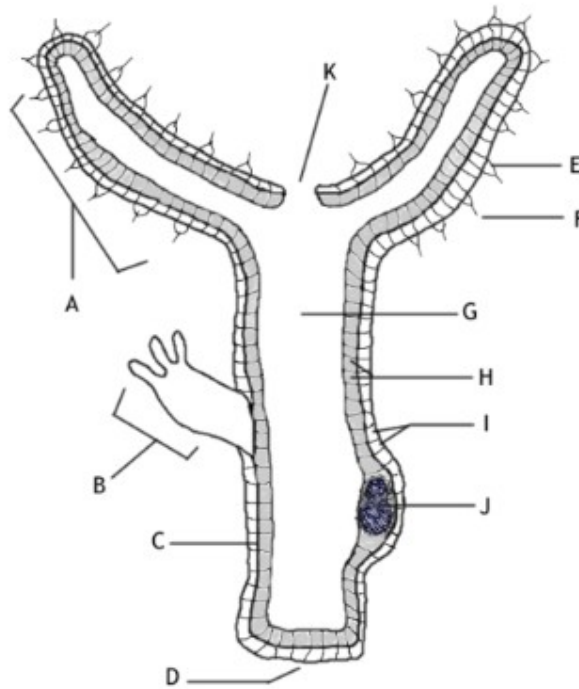
	<ul style="list-style-type: none"> • Crustaceans – Marine and Fresh water habitats <ul style="list-style-type: none"> ○ Body plans - jointed exoskeleton ○ Not segmented internally • Arachnida <ul style="list-style-type: none"> ○ Body plans – 2 body sections ○ Anterior section has head and thorax ○ Posterior section has abdomen ○ Waterproof cuticle • Insects – Three-quarters of all known species on land and in air. There are very few marine insects <ul style="list-style-type: none"> ○ Body plans – 3 body sections ○ Head, thorax and abdomen ○ The head has two antennae, compacted eyes and a series of mouth parts (maxilla, labium and biting mandibles) ○ Most have one or two pairs of wings but some are wingless • Myriapods - two classes Centipedes and Millipedes <ul style="list-style-type: none"> ○ Centipedes – flattened segmented body one pair of legs per segment ○ single pair of antenna ○ poison claw and strong mouthparts • Millipedes – flattened segmented body one pair of legs per segment <ul style="list-style-type: none"> ○ single pair of antenna ○ strong mouthparts 	<p>Because there are so many arthropoda on earth, their roles and functions are many and varied. Some are vectors that carry diseases such as ticks, tsetse flies and mosquitoes. Others are pollinators such as bees and still others are pests that affect crops such as locusts, termites, aphids and rose beetles. Finally there are those arthropods that have a positive impact on the environment such as dung beetles and other insects that 'clean up' in nature.</p>
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Improve your Skills

Biodiversity of Animals: Invertebrates

Question 1



<http://www.docstoc.com/docs/4203488/HYDRA-DIAGRAM---DOC>

- 1.1 Write down the letter which represents the coelenteron. (1)
- 1.2 What type of digestion takes place in this cavity? (1)
- 1.3 What is the disadvantage of having only one opening to the digestive tract? (2)
- 1.4 Identify the part labelled B and state when this structure is produced in the lifecycle of *Hydra*. (2)
- 1.5 What type of nervous system is found in *Hydra*? (1)
- 1.6 What is meant by the term diploblastic?. (1)

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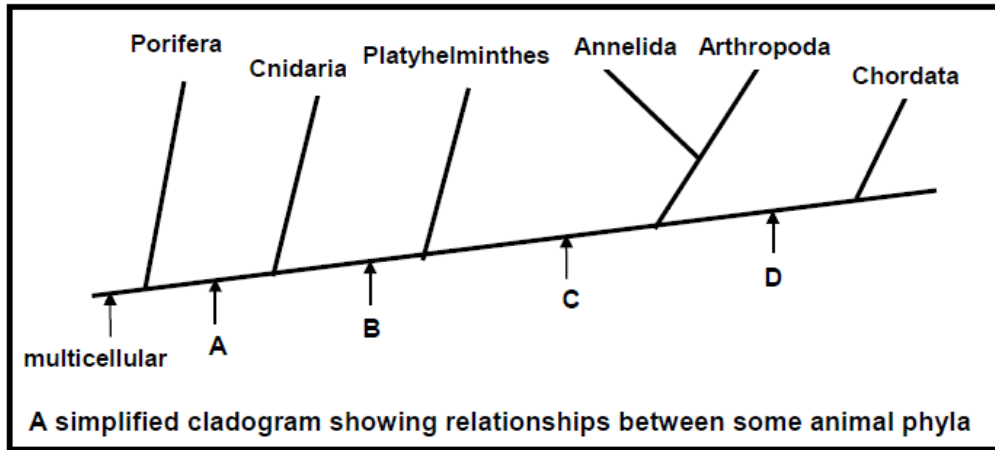
Question 2

- 2.1 Why is the earthworm said to have a through-gut? (2)
- 2.2 What is the nature of an earthworm's food and how is it taken in? (2)
- 2.3 Does the earthworm have an open or closed circulatory system? (1)
- 2.4 Tabulate three differences between an open and a closed blood circulatory system. (6)

Importance of Invertebrates

Question 1

The diagram below represents a cladogram (phylogenetic tree) showing relationships between animal phyla. The letters (A to D) indicate the characteristics shared by the different phyla of animals which follow the letter. The point where various phyla differ from each other is indicated by the branching off / split into new phyla.



(Taken from Grade 11 Paper 2 exemplar 2013)

<http://www.education.gov.za/LinkClick.aspx?fileticket=7qK6bDoPfaK%3d&tabid=1009>

- 1.1 Which characteristic is shared by all the organisms in the animal kingdom according to the cladogram? (1)
- 1.2 Which LETTER represents each of the following characteristics with respect to the body plan:
 - a) Cephalisation (1)
 - b) Triploblasty (1)
 - c) Coelom (1)
 - d) Bilateral symmetry (1)
 - e) Segmentation (1)
 - f) Vertebral column (1)
 - g) symmetry (1)