

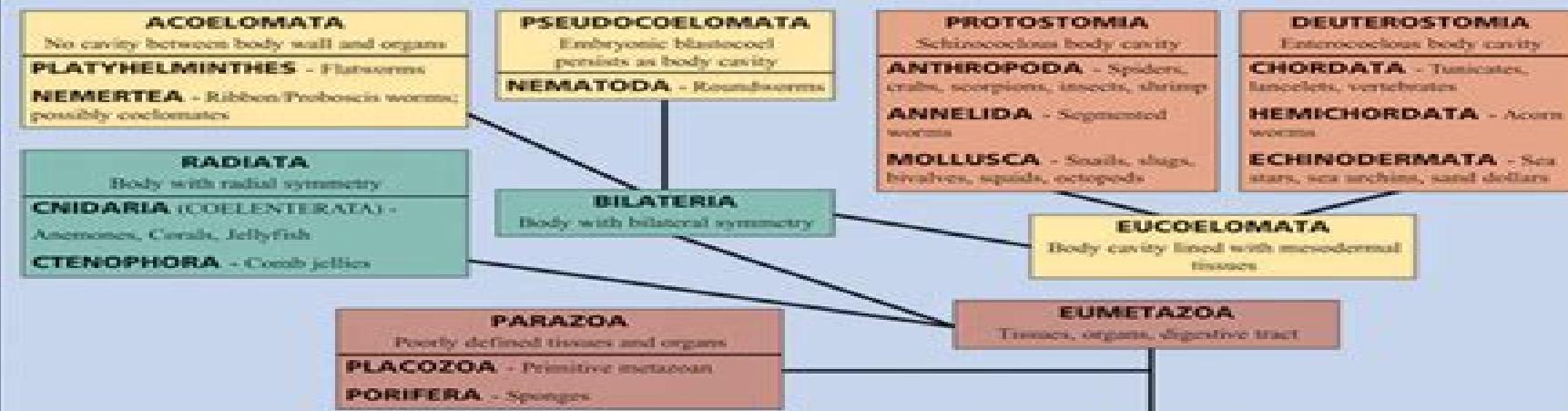
# ZOOLOGY



parazoa

What is an animal? A multicellular, eukaryotic, heterotrophic organism lacking cell walls.

## CLASSIFICATION OF THE METAZOAN KINGDOM



## METAZOAN CHARACTERISTICS

- Advantages
  - Larger size
  - Increased mobility
  - Internal homeostasis
  - Relative independence from environment

### Symmetry

- Radial - Circular arrangement with numerous planes creating equal halves; no front/back or left/right sides; possesses top/bottom or oral/aboral surfaces (1).
- Sessile or pelagic forms.
- Bilateral - Possess left/right sides (2).
  - "Cephalization" or concentration of sensory structures in the head
  - Unidirectional, active movement using front for orientation

### 1. RADIAL



### 2. BILATERAL



## Embryology

- Zygote  $\rightarrow$  2 cell  $\rightarrow$  4 cell  $\rightarrow$  8 cell  $\rightarrow$  16 cell  $\rightarrow$  Morula (solid ball of cells)  $\rightarrow$  Blastula  $\rightarrow$  Blastocoel chamber  $\rightarrow$  Gastrula with blastopore and archenteron (embryonic gut) (3).



- Three germ layers (from which all tissues develop) in place during gastrula phase: Endoderm, Mesoderm, Ectoderm
- Diploblastic - Organisms produce only ectoderm and endoderm
- Triploblastic - organisms produce all three layers
- Protostomes/deuterostomes classification

- Cleavage patterns
  - Spiral cleavage** - New cells placed at juncture between previous cell; protostomous feature (4)
  - Radial cleavage** - New cells placed directly beside or on top of previous cell; deuterostomous feature (5)

### 4. SPIRAL CLEAVAGE (TOP VIEW)



### 5. RADIAL CLEAVAGE (TOP VIEW)



- Developmental fate of cells
  - Determinate** - Fate of cells determined early; separated early cells incapable of developing into entire organism; protostomous feature
  - Indeterminate** - Fate of cells determined relatively late; separated early cells can develop into entire organism; allows for "twins" or genetically identical individuals; deuterostomous feature
  - Cochlear formation** - Body cavity lined by mesodermal tissues
  - Schizocoely** - Derived from split in mesoderm; protostomous feature (6)
  - Enterocoely** - Derived from outgrowth of archenteron; deuterostomous feature (7)

### 6. ACOELOMATE



### 7. PSEUDOCOELOMATE



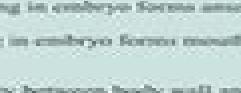
### 8. COELOMATE



### 9. NEMERTEA



### 10. ANELIDA



### 11. MOLLUSCA



### 12. CHORDATA



### 13. DEUTEROSTOMIA



### 14. PROTOSTOMIA



# Zoology Study Guides

**Charles Benedict Davenport**

## **Zoology Study Guides:**

**Student Study Guide to Accompany General Zoology** Jane Alois, Gina Erickson, 1999 Provides students with a tool for self study and can be used with any zoology text    **Zoology Study Guide** Arshad Iqbal, 2018-02-09 Zoology study guide has 510 MCQs Zoology quick exam prep quiz questions and answers MCQs on DNA hormones biological catalysts human endoskeleton immunity exoskeletons fertilization fundamental unit of life genetic unity glycolysis homeostasis invertebrates circulatory system nervous system digestive system muscular system and neurons MCQs and quiz are to practice exam prep tests Zoology multiple choice quiz questions and answers Zoology exam revision and study guide with practice tests for online exam prep and interviews Zoology interview questions and answers to ask to prepare and to study for jobs interviews and career MCQs with answers keys Behavioral ecology quiz has 14 multiple choice questions Cell division quiz has 20 multiple choice questions Cells tissues organs and systems of animals quiz has 35 multiple choice questions Chemical basis of animals life quiz has 54 multiple choice questions Chromosomes and genetic linkage quiz has 30 multiple choice questions Circulation immunity and gas exchange quiz has 23 multiple choice questions Ecology communities and ecosystems quiz has 19 multiple choice questions Ecology individuals and populations quiz has 15 multiple choice questions Embryology quiz has 30 multiple choice questions Endocrine system and chemical messenger quiz has 44 multiple choice questions Energy and enzymes quiz has 19 multiple choice questions Inheritance patterns quiz has 13 multiple choice questions Introduction to zoology quiz has 19 multiple choice questions Molecular genetics ultimate cellular control quiz has 27 multiple choice questions Nerves and nervous system quiz has 20 multiple choice questions Nutrition and digestion quiz has 11 multiple choice questions Protection support and movement quiz has 61 multiple choice questions Reproduction and development quiz has 10 multiple choice questions Senses and sensory system quiz has 19 multiple choice questions Zoology and science quiz has 27 multiple choice questions Zoologist jobs interview questions and answers MCQs on acids bases and buffers amoeboid movement amphibian embryology an introduction to animal muscles animals and their abiotic environment animals strategies for getting and using food applications of genetic technologies approaches to animal behavior asexual reproduction in invertebrates atoms and elements building blocks of all matter birth of modern genetics bones or osseous tissue chemical messengers ciliary and flagellar movement classification of animals community structure and diversity compounds and molecules aggregates of atoms control of gene expression in eukaryotes development of behavior DNA genetic material echinoderm embryology embryonic development cleavage and egg types endoskeletons enzymes biological catalysts evolutionary mechanisms evolutionary oneness and diversity of life exoskeletons fertilization fundamental unit of life genetic unity glycolysis first phase of nutrient metabolism historical perspective homeostasis and temperature regulation hormones and their feedback systems hormones of invertebrates hormones of vertebrates birds and mammals human endoskeleton immunity integumentary system of invertebrates integumentary system of vertebrates integumentary systems

internal transport and circulatory system interspecific competition interspecific interactions invertebrates nervous system invertebrates sensory reception mammalian digestive system meiosis basis of sexual reproduction mineralized tissues and invertebrates mitosis cytokinesis and cell cycle molecules of animals muscular system of invertebrates muscular system of vertebrates mutations neurons basic unit of nervous system non muscular movement organization of DNA and protein scientific methods sex chromosomes and autosomes sexual reproduction in vertebrates zoology worksheets for competitive exams preparation

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**Human Physiology - Zoology 2420** ,2015

**Introduction to Zoology; a Guide to the Study of Animals, for the Use of Secondary Schools** ,1900

Introduction to Zoology; a Guide to the Study of Animals, for the Use of Secondary Schools; Charles Benedict

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**Elementary Lessons in Zoology** James George Needham,1895

**Zoology** ,1966 **Study Guide to Accompany Villee/Walker/Barnes Introduction to Animal Biology** W. Holt

Harner,1979 **Study Guide for Principles of Zoology** Kate Blackler,1969 Introduction to Zoology Charles Benedict Davenport, Gertrude Anna Crotty Davenport,1900 **Introduction to Zoology** Charles Benedict Davenport,2017-10-20

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*Zoology 1* Alfred Marlyn Elliott,1957     *INTRO TO ZOOLOGY A GT THE STUD* Charles Benedict 1866-1944 Davenport,2016-08-28     *Human Physiology Study Guide for Zoology 2420 - EBook* Heather Wilson

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**2420 - Answers - EBook** Heather Wilson Ashworth, 2015-08-06

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