

Invertebrate Handout

USE YOUR LAB MANUAL TO FILL OUT THE BOXES:

Members of the Domain Eukarya can be multicellular, have a nucleus and have organelles

Members of the Kingdom Animalia are ingestive-feeding heterotrophs (meaning they eat others by ingesting them).

Phylum: Members of the Kingdom Animalia belong to the following Phyla; Porifera, Cnidaria, Platyhelminthes, Nematoda, Mollusca, Annelida and Arthropoda, are considered Invertebrates (no spine). Members of each Phyla share certain characteristics. Use your lab manual to fill out what they have in common.

Body Plan: **Asymmetrical** (No way to cut into two equal halves)
 Radial (Many different ways of cutting into two equal halves ex: Pizza)
 Bilateral (Only one way to cut in two equal halves ex: Fork)

Tissue (germ) layers: **No tissues**
 2 Tissues (Endoderm and Ectoderm)
 3 Tissues (Endoderm, Mesoderm, Ectoderm)

Body Cavities: **2 Tissue Organism** Gastrovascular cavity
 3 Tissue Organism Acoelomate (No space between the tissues)
 Pseudocoelomate (A small space between the tissues)
 Coelomate (A large space between the tissues)

Development of Body Openings: Protostome: Mouth developed before anus
(COELOMATES ONLY) Deuterostome: Anus Developed before mouth

Phylum Porifera:

All members of this phylum: are sessile and sedentary and grow like plants.



Organism: SPONGE

Domain: Eukarya

Kingdom: Animalia

Phylum: Porifera

Species: Verongia

Body Plan: Asymmetrical

Germ Layers: No Tissues

Body Cavity: No True Body Cavity but does have an Osculum

All members of this phylum: Reproduction is asexual or sexual



Organism: _ Jellyfish _

Domain: Eukarya

Kingdom: Animalia

Phylum: Cnidaria

Species: Physalia

Body Plan: symmetrical

Germ Layers: Has a cup of cells

Body Cavity: has body cavity

Orientation: Medusa or **Polyp**



Organism: _ Hydra _

Domain: Eukarya

Kingdom: Animalia

Phylum: Cnidaria

Species: Coelenterata spp

Body Plan: symmetrical

Germ Layers: have germ layers

Body Cavity: Gastrovascular cavity

Orientation: Medusa or **Polyp**



Organism: _ Hydra _

Domain: Eukarya

Kingdom: Animalia

Phylum: Cnidaria

Species: Tubipora spp

Body Plan: eight-way symmetrical

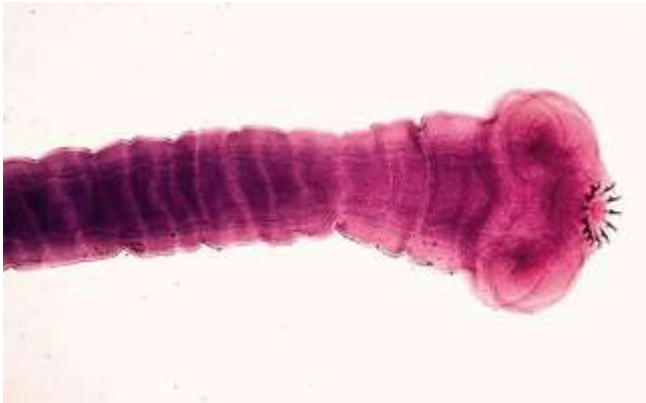
Germ Layers: have germ layers

Body Cavity: Organ pipe coral

Orientation: Medusa or **Polyp**

Phyla Platyhelminthes

All members of this phylum:



Organism: _ *Taenia solium* (tapeworm)_

Domain: Eukarya

Kingdom: Animalia

Phylum: Platyhelminthes

All members of this Phylum are:

dorsoventrally flattened, acoelomate flatworms with organ grade of construction without a definite anus, circulatory, skeletal or respiratory system

Species: The color of the body is opaque-white

Species: Solium

Body Plan: bilaterally symmetrical

Phylum Nematoda

All members of this phylum: are cylindrical in shape.



Organism: _ *Ascaris*

Domain: Eukarya

Kingdom: Animalia

Phylum: Nematoda

All members of this Phylum are: sexually dimorphic and cylindrical in shape.

Species: The female worms are larger than the males and can measure 40 cm in length and 6 mm in diameter. Humans are primary hosts.

Species: Lumbricoides

Body Plan: Bilaterally symmetrical

Germ Layers: have three germ layers; ectoderm, mesoderm and endoderm.

Body Cavity: True coelom

Phyla Mollusca

All members of this phylum: have shells



Organism: *_ Land Snail _*

Domain: Eukarya

Kingdom: Animalia

Phylum: Mollusca

Class: Gastropoda

All members of this class move using: single appendage called muscular foot powered by muscles waves.

Species: *Fulica*

Body Plan: have body cavity

Germ Layers: Are triploblastic and so they have ectoderm, mesoderm, and mesoderm.

Body Cavity: Body cavity present

Development of body opening: Seal their opening with dry layer



Organism: *_ Anadonta Clam _*

Domain: Eukarya

Kingdom: Animalia

Phylum: Millusca

Class: Bivalvia

All members of this class move using: retractable foot and move by jet propulsion.

Body Plan: Bilateral symmetry

Germ Layers: Ectoderm, mesoderm and endoderm

Body Cavity: Have mantle for body cavity

Development of body opening: protostome coelomates



Organism: *_ Octopus _*

Domain: Eukarya

Kingdom: Animalia

Phylum: Mollusca

Class: Cephalopoda

All members of this class move using: Jet propulsion.

Species: *Octopoda*

Body Plan: Bilaterally symmetrical

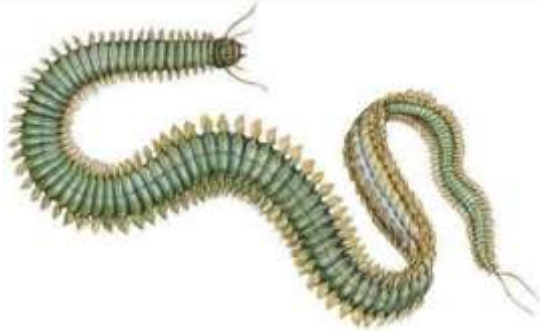
Germ Layers: Are triploblastic

Body Cavity: have body cavity.

Development of body opening: protostomes.

All members of this phylum: Have hydrostatic skeleton

Nereis or Neanthes (Clamworm)



Organism: *_ Nereis worm_*

Domain: Eukarya

Kingdom: Animalia

Phylum: Annelida

Class: Polychaeta

All members of this class are: metamerically segmented and have Chitinous setae called parapodia.

Species: pelegica

Body Plan: Bilaterally symmetrical

Germ Layers: have three germ layers

Body Cavity: Have body cavity

Development of body opening: p
rotostomes



Organism: *_ Earthworm_*

Domain: Eukarya

Kingdom: Animalia

Phylum: Annelida

Class: Clitellata

All members of this class have: have no lungs

Species: Lumbricina

Body Plan: Bilaterally symmetrical

Germ Layers: have three germ layers

Body Cavity: Schizocoelom

Development of body opening: protostomes



Organism: *_ Leech_*

Domain: Eukarya

Kingdom: Animalia

Phylum: Annelida

Class: Clitellata

All members of this class are: parasitic or predatory worms

Species: Hirudinea

Body Plan: Bilaterally symmetrical

Germ Layers: Triploblastic (Ectoderm, mesoderm, and endoderm)

Body Cavity: coelom

Development of body opening: Protosome

All members of this phylum:

Subphylum Chelicerata

All members of this subphylum have: two body organs; cephalothorax and abdomen



Organism: _ *Horseshoe Crab* _

Domain: Eukarya

Kingdom: Animalia

Phylum: Arthropoda

Subphylum (group): Chelicerate

All members of this subphylum have _2_ **body regions**

_____ **Prosoma** _____ &
_____ **opisthosoma** _____

Body Plan: Bilaterally symmetrical

Germ Layers: Triploblastic (Ectoderm, mesoderm, and endoderm)

Body Cavity: True Coelom

Development of body opening: Protostomes



Organism: _ *Black Widow Spider* _

Domain: Eukarya

Kingdom: Animalia

Phylum: Arthropoda

Subphylum (group): Chelicerata

Class: Arachnida

All members of this class are: four pairs of legs and specialized appendages.

Species: *Latrodectus*

Body Plan: Bilaterally symmetrical

Germ Layers: Triploblastic (Ectoderm, mesoderm, and endoderm)

Body Cavity: Coelom

Development of body opening: Protostomes

Subphylum Crustacea



Organism: _ Crayfish

Domain: Eukarya

Kingdom: Animalia

Phylum: Arthropoda

All members of this Phylum have: segmented body

Subphylum (group): Crustacea

All members of this subphylum have _3_ body regions

_Head, cephalothorax _____ &

_____Abdomen_____

Species: Cambarus sp

Body Plan: Bilaterally symmetrical

Germ Layers: Triploblastic

Body Cavity: coelom

Development of body opening: protostome

Subphylum Myriapoda



Organism: _ Centipede _

Domain: Eukarya

Kingdom: Animalia

Phylum: Arthropoda

Subphylum (group): Myriapoda

All members of this subphylum have: Respiratory exchange occurring through a tracheal system.

Species: Chilopoda

Body Plan: Radial symmetry

Germ Layers: Three germ layer present

Body Cavity: Hemocoel

Development of body opening: Protostomes



Organism: _ millipede

Domain: Eukarya

Kingdom: Animalia

Phylum: Arthropoda

Subphylum (group): myriapoda

Species: Diplopoda

Body Plan: Radial symmetry

Germ Layers: ectoderm, endoderm, and mesoderm

Body Cavity: hemocoel

Development of body opening: Protostomes.

Class Insecta:



Organism: _ ***Grasshopper***

Domain: Eukarya

Kingdom: Animalia

Phylum: Arthropoda

Class: Insecta

All members of this class: have three body parts and three pairs of walking legs.

Species: *Schistocerca americana*

Body Plan: Bilaterally symmetrical

Germ Layers: Triploblastic with ectoderm, mesoderm and endoderm.

Body Cavity: Have body cavity filled with haemolymph

Development of body opening: Protostomes.

Dichotomous Key: Use the following Dichotomous Key to identify the order of the insects listed below:

DICHOTOMOUS KEY TO SOME MAJOR ORDERS OF INSECTS

1. Insects with two wings (flies) **Diptera**
Insects with four wings, a pair of forewings, and a pair of hindwings. 2
2. Fore- and hindwings are not alike in texture and color. One pair may be hard and dense while the other may be light and transparent 3
Fore- and hindwings similar, usually clear, thin, and transparent. 5
3. Forewings thick and leatherlike at base, tips much thinner and may be transparent; mouthparts pointed and beaklike to puncture prey and suck body fluids (bugs) **Hemiptera**
Forewings same texture throughout, biting mouthparts with opposing mandibles 4
4. Forewings leathery and with veins (grasshoppers, crickets) **Orthoptera**

- Forewings hard, without veins (beetles) **Coleoptera**
5. Wings of same length, antennae usually shorter than head 6
Wings not of same length, antennae long or enlarged toward end 7
6. Large insects (usually > 3 cm), wings long, transparent, and with many strong veins; abdomen long and slender (dragonflies) **Odonata**
Smaller insects, wing venation faint, wings extending posterior to the abdomen (termites) **Isoptera**
7. Wings covered with fine, opaque scales; tubular, coiled, sucking mouthparts (butterflies, moths) **Lepidoptera**
Wings thin, transparent, and not covered with scales; mandibles well developed (ants, bees, wasps) **Hymenoptera**

House Fly: ORDER _____

Ant: ORDER _____

Cockroach: ORDER _____

Grasshopper: ORDER _____

Butterfly: ORDER _____