Part 4 Kingdom Animalia

Name:

Part 4 Lesson 1 Animalia

Characteristics of Animalia.

-No_____.

-Animals have a period of _____ development.

-Animals have _____life cycle. Genetic information can come from a mother and father. (Many species)

-Animals eat _____.

-Animals _____.

-Animals have _____and _____ tissue.

Circle the members of the Kingdom Animalia below

Find two that aren't animals and tell me why below?

_____ reproduction: A mode of reproduction by which offspring arise from a single parent.

The offspring inherit the genes of that parent only, it's reproduction which does not involve meiosis or fertilization.

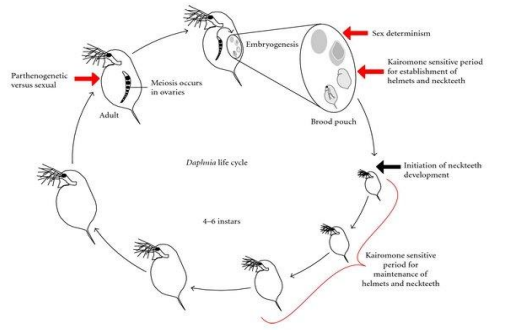
Budding: Offspring develop as a _____on the body of the parent.

Fragmentation: As certain tiny worms grow to full size, they spontaneously _____ into 8 or 9 pieces.

Each of these fragments develops into a mature worm, and the process is repeated.

Parthenogenesis ("virgin birth"), the females produce eggs, but these develop into young without ever being _____.

Name the type of asexual reproduction

Animals have three types of symmetry.

-Bilateral symmetry.

_____ on both sides.

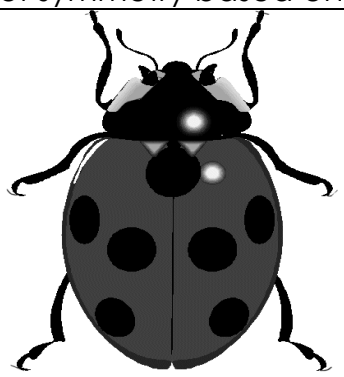
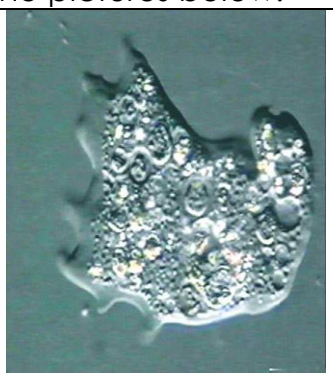
-Radial Symmetry.

Arranged _____ in all directions from a central point.

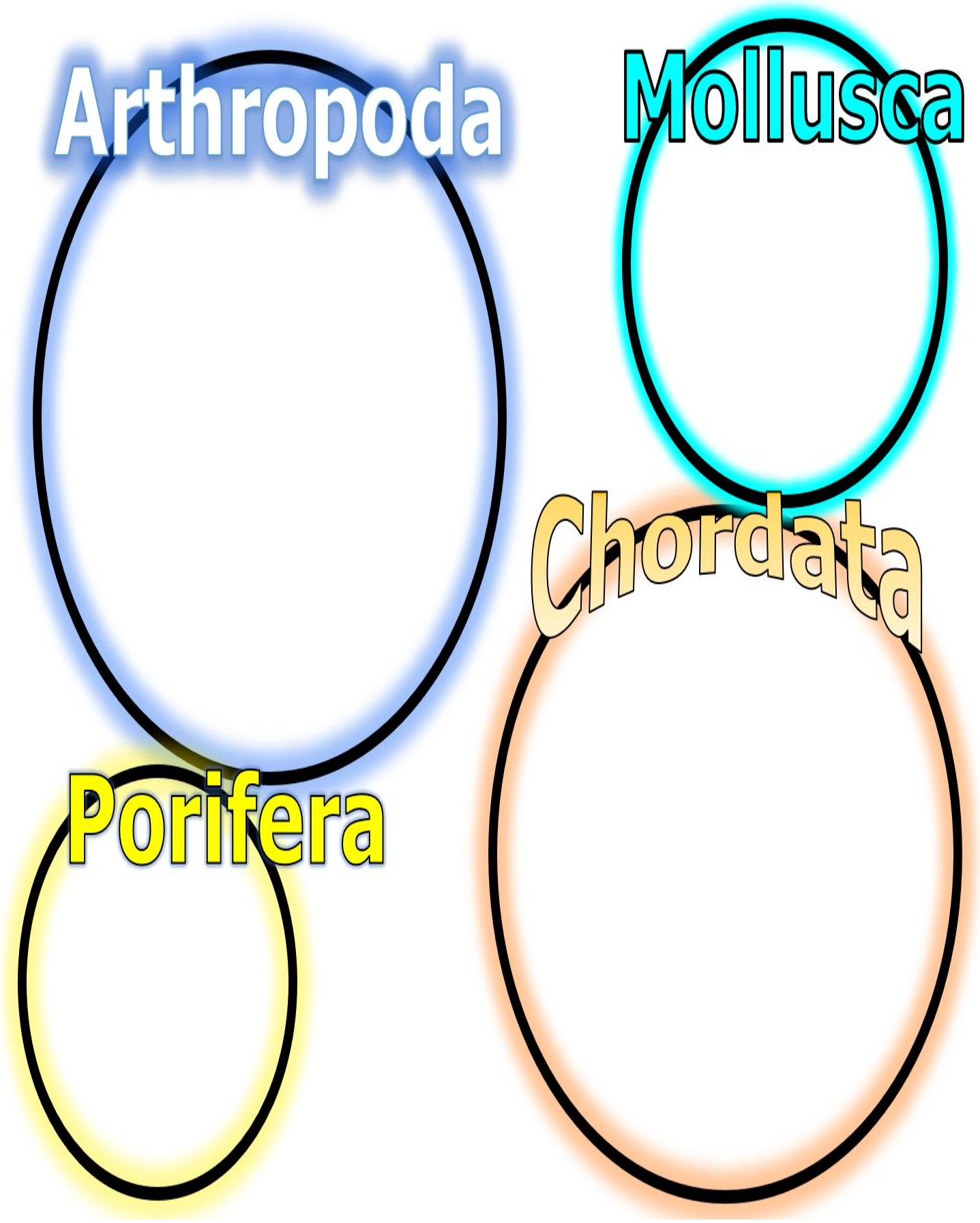
-Asymmetrical.

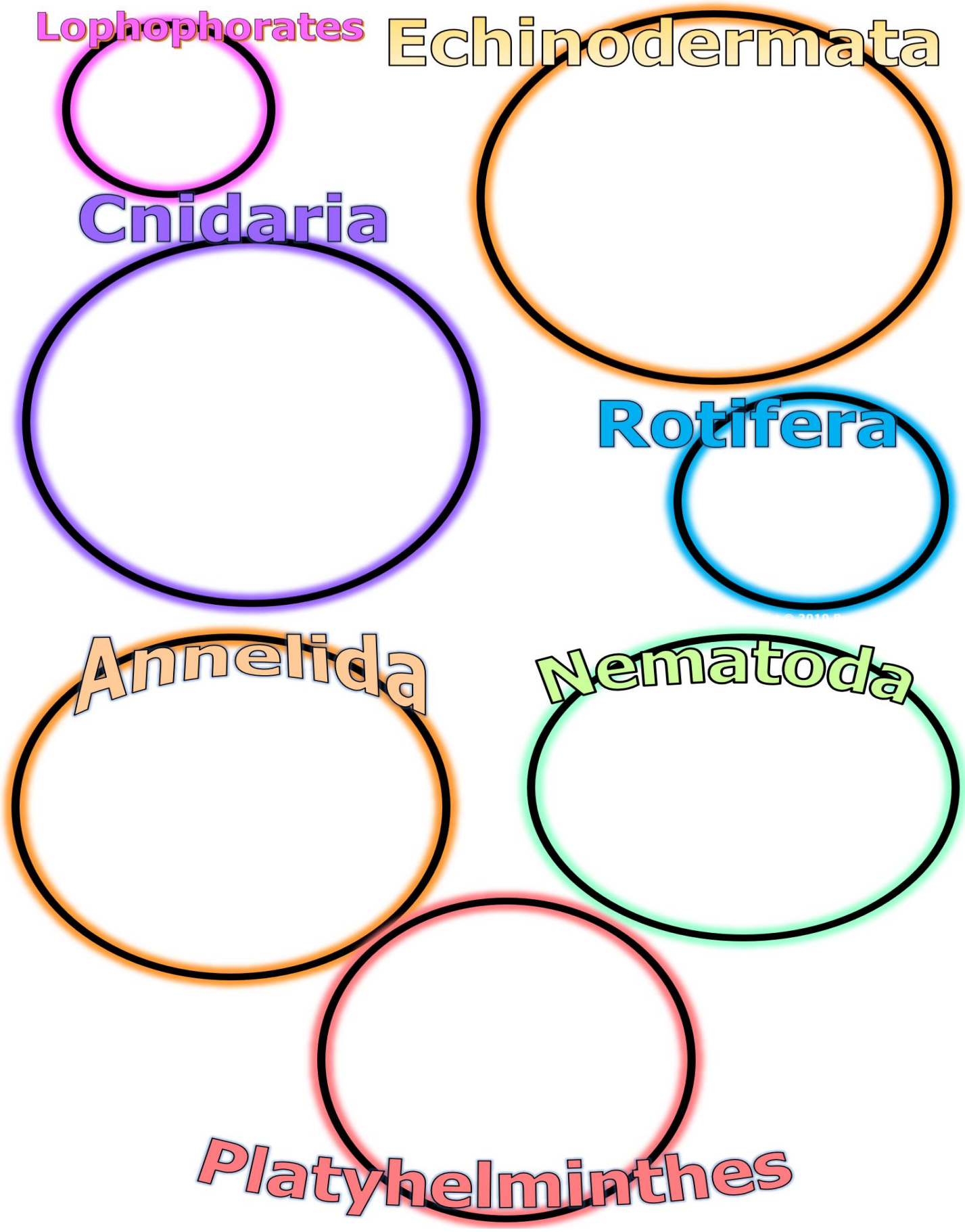
Having _____ symmetry.

Please describe the type of symmetry based on the pictures below.

Part 4 Lesson 2 Animalia Phylums




Lophophorates
Echinodermata
Cnidaria
Rotifera
Annelida
Nematoda
Platyhelminthes

Part 4 Lesson 3 Cndaria and "Worms"

_____animals: They are multicellular, mitochondrial eukaryotes with differentiated tissues, including nerves and muscles.

They evolved from the protists approximately _____million years ago.

Phylum Porifera "_____" Asymmetrical. They are a basal animal clade as a sister of the Diploblasts.

They are multicellular organisms that have bodies full of _____ and channels allowing _____ to circulate through them, consisting of jelly-like mesohyl sandwiched between two thin layers of _____.

Phylum Cnidaria –_____cells.

Silent C (ni dérree ən). Radial symmetry.

-Cnidarians have two distinct body plans known as _____ which are attached to the bottom, and _____, which are mobile

-The have two membrane layers in the body: the epidermis and the gastrodermis.

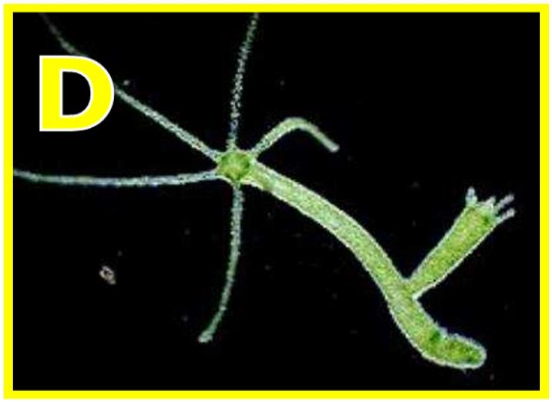
-Cnidarians carry out extracellular digestion, where enzymes break down the food.

-They have an incomplete digestive system with only _____ opening; _____and an _____.

The nervous system moves captured prey (tentacles) to the mouth.

-Anthozoa, Scyphozoa, Cubozoa, and Hydrozoa make up the four different classes of Cnidarians.

- Which is a...
  - Coral (Anthozoa)
  - Box Jelly (Cuboza)
  - Hydra (Hydrozoa)
  - True Jelly (Scyphozoa)



Phylum Nematoda "The _____"

Roundworms (nematodes) are _____symmetrical, surrounded by a strong, flexible noncellular layer called a cuticle.

Their body plan is simple. Near the body wall but under the epidermal cells are muscle cells; they run in the _____only.

A true coelom is lacking, instead, nematodes have a "pseudocoel" formed directly from the cavity of the blastula.

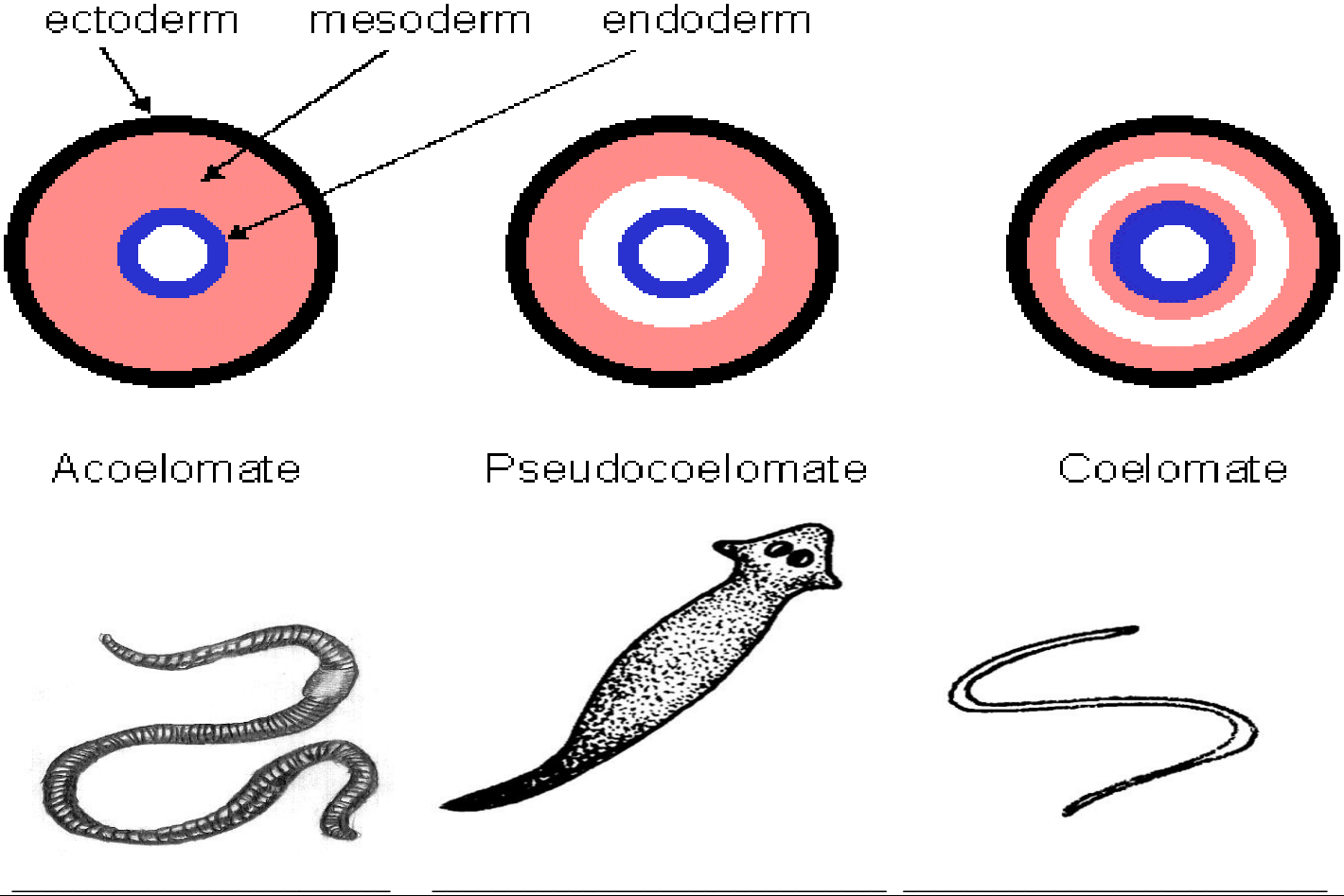
Phylum Platyhelminthes. "The _____."
Simple bilateral, unsegmented, soft-bodied invertebrates.

They are acoelomates (having _____ body cavity) and have no specialized circulatory or respiratory system (why they're flat) so _____ and nutrients can through by _____.

The digestive cavity has only one opening (mouth is _____) for both intake of nutrients and removal of undigested wastes; as a result, the food cannot be processed continuously.

Phylum Annelida "The _____worms"
The annelids, also known as the ringed worms or segmented worms, are a large phylum, with over 22,000 extant species including ragworms, earthworms, and _____.

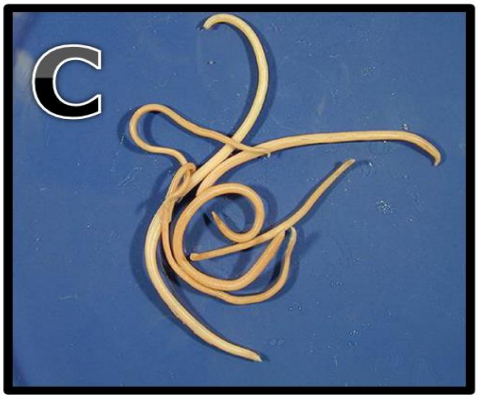
Name the Phylums of the worms below and then match to the correct body cavity.



_____ _____ _____

Name the three phylums of "worms" below?

A.)	B.)	C.)



Part 4 Lesson 4 Mollusca, Echinodermata, Rotifera, Tardigrades

Phylum Mollusca "_____ bodies" and some have _____.

-Mollusks are predominantly a _____ group of animals; however, they are known to inhabit freshwater as well as terrestrial habitats.

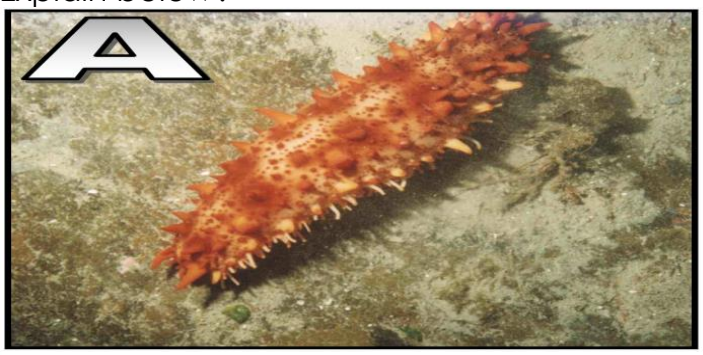
-Mollusks display a wide range of morphologies in each class and subclass, but share a few key characteristics, including a muscular _____, a visceral mass containing internal organs, and a mantle that may or may not secrete a shell of calcium carbonate

Phylum Echinodermata " _____ Skinned Creatures"

The adults are recognizable by their _____l symmetry and hard spiny skin.

They include starfish, sea urchins, sand dollars, and sea cucumbers, as well as the sea lilies

Which picture below is in the Phylum Mollusca, and which is in the Phylum Echinodermata? Explain below?



Echinoderms and humans are both in _____ which comprise one of the major groups within the animal kingdom.
We are both bilateral in our symmetry

-Echinoderms begin life _____and then switch to _____ symmetry.

-Deuterostomia develop a layer of cells where the anus forms and then later comes the mouth .

Phylum Rotifera

Rotifers are microscopic _____ feeding aquatic animals found in many freshwater environments and in moist soil.

The group is characterized by the _____, ciliated, wheel-like structure, the corona, on their head.

Phylum: Tardigrade

Tardigrades "_____ / moss bears" 1,100 species of free-living tiny invertebrates.

Can survive harsh environments. Even space!

Name the two microscope animals below. Any additional research would be a plus.

Part 4 Lesson 5 Arthropoda

Phylum Arthropoda

Segmented _____, _____skeleton, _____symmetry

Statistics vary, but millions of Arthropod species exist.

They outnumber all other phylums of animals combined.

The Class Insecta alone represents 75-90% of all known animal species.

Class Insecta

____ legs.

_____ body parts.

Head, thorax, _____.

Compound _____.

____ antennae.

Only _____ arthropod.

_____ is a biological process by which an animal physically develops after birth or hatching, involving a relatively abrupt change in the animal's body structure through cell growth and differentiation. Describe the process below.

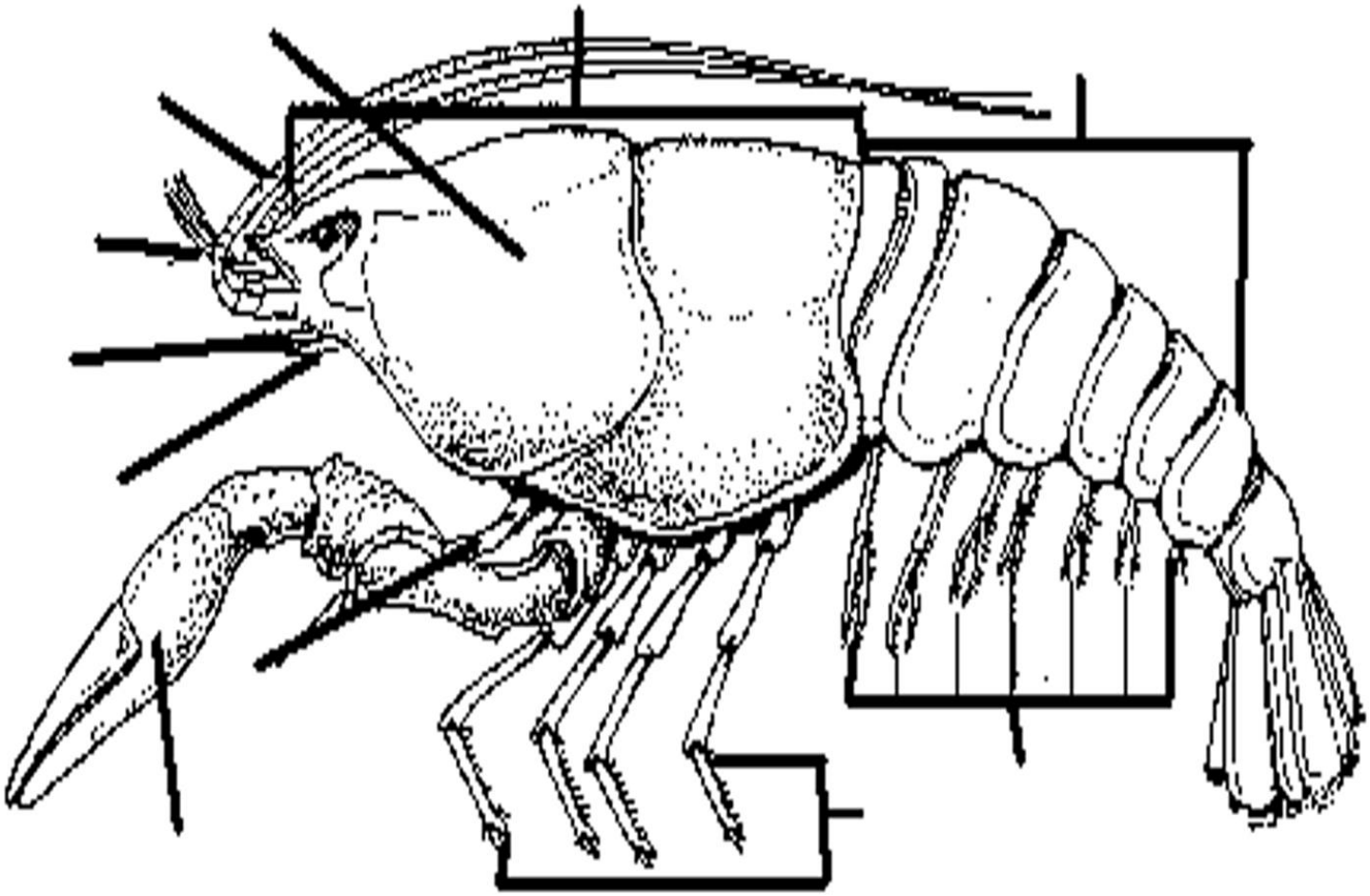
Some Insects undergo gradual, or _____, metamorphosis.

The immature stages (usually called nymphs) go through a series of molts, gradually assuming an adult form.

Part 4 Lesson 6 Crustacea

Class Crustacea

_____ and abdomen
Some have many legs (_____) with many jobs.
Most are _____



Answers 1-10 Name that part of a crayfish.

1	2
3	4
5	6
7	8
9	10
*11	*12

Part 4 Lesson 7 Arachnida

Class Arachnida

_____legs.

_____ antennae or wings.

_____ body parts.

Head and sensory.

Abdomen.

Most live on _____. (-Horseshoe Crab)

Name the group of Arthropods below? Why in a few words.

A)	B)
C)	D)

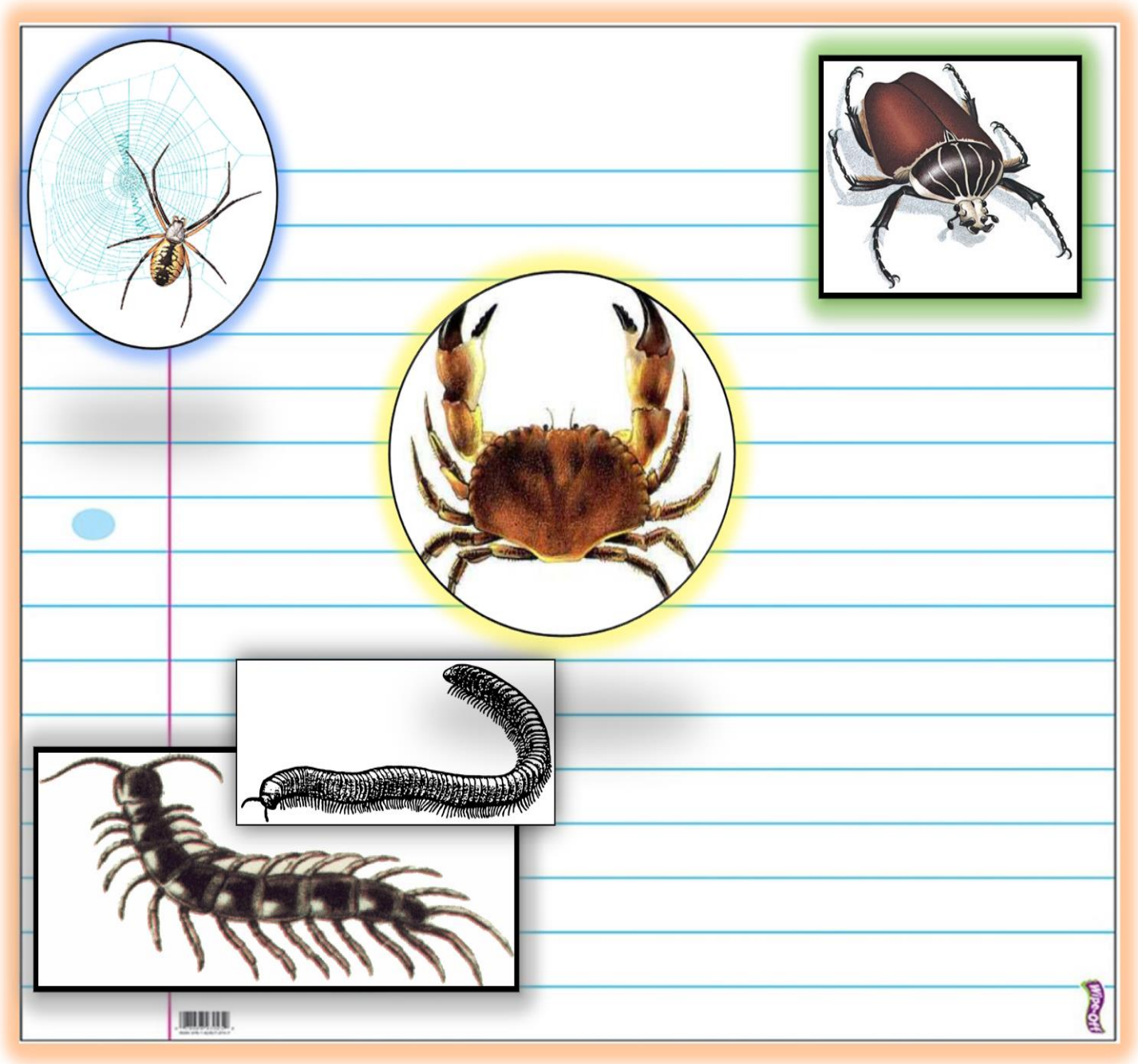
Part 4 Lesson 8 Myriapoda, and then Chordata

Class Chilopoda

Head and _____
Many _____ per segment
No _____
____ Antennae

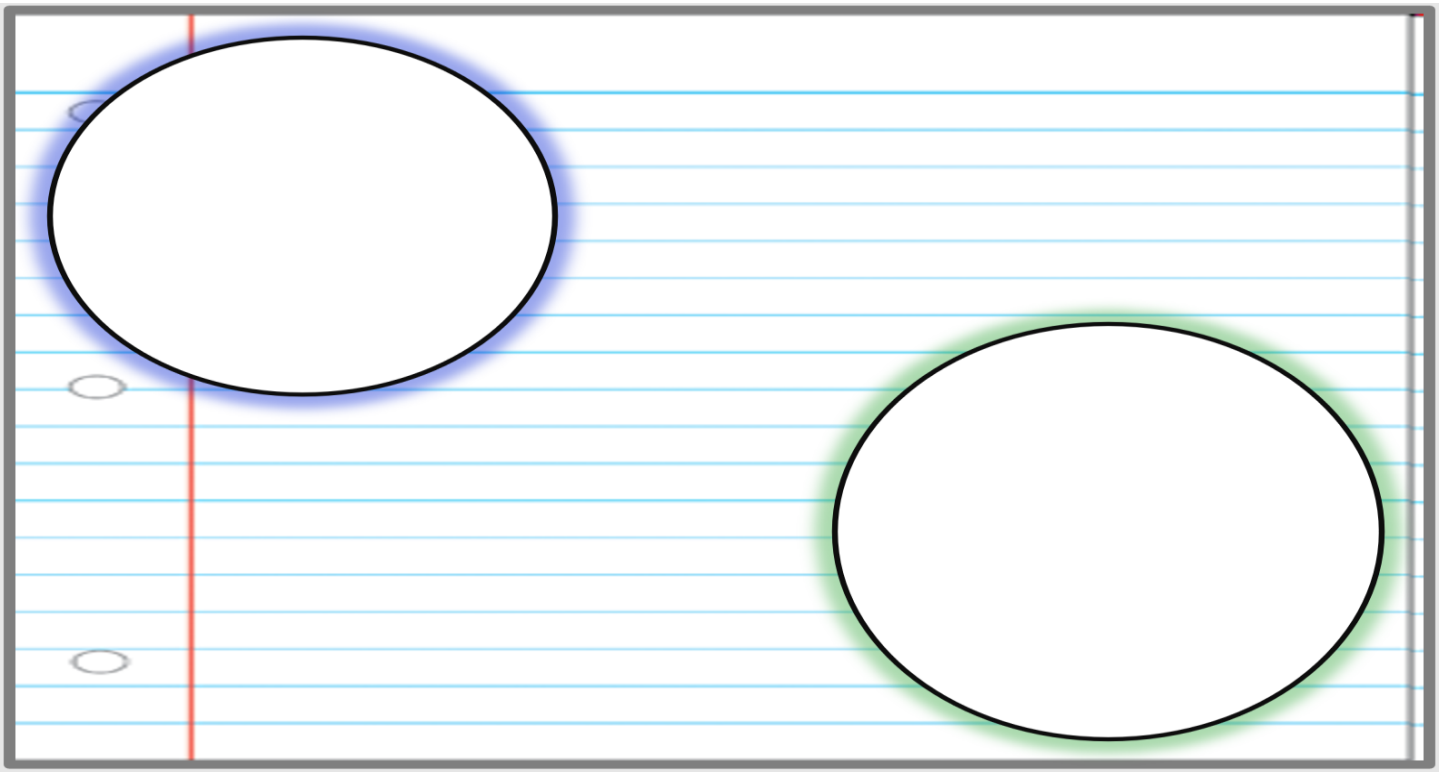
_____– Class Diplopoda (Decomposers, rarely bite)

Please describe the classes of Arthropoda based on the pictures below. **Why?**



Activity! Looking for Animalia under the microscope.

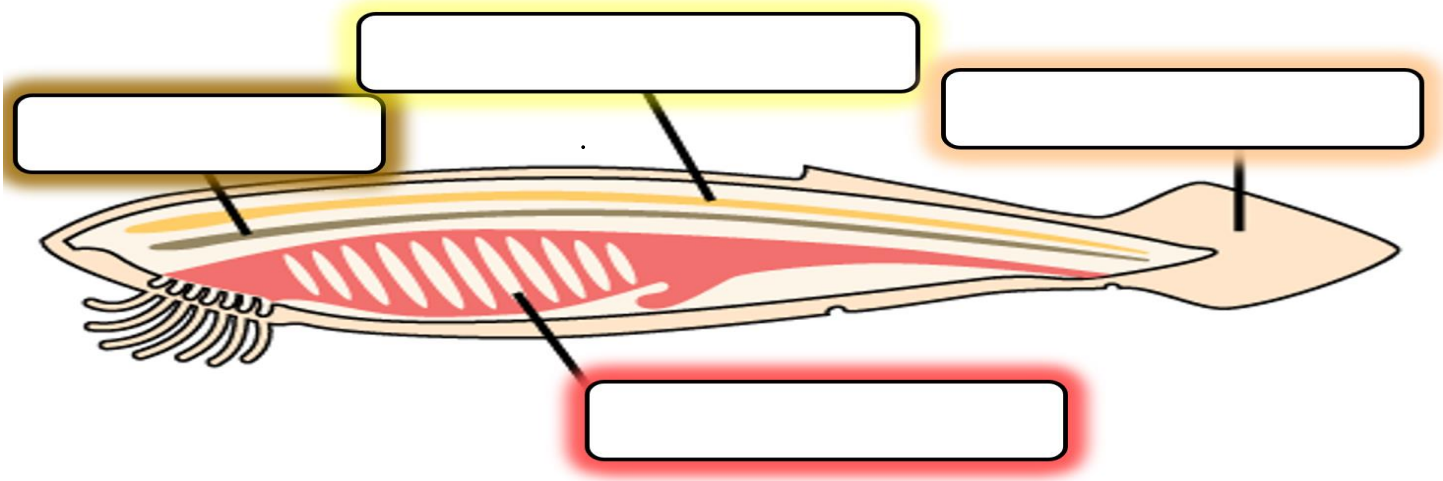
- Create a wet mount slide and use a compound light microscope.
- Sketch and color some samples on medium power. Identify and provide some critical information next to the picture as to why you classified it into that group.



All chordates have the following features at some point in their life

- **Pharyngeal slits** - a series of _____that connect the inside of the throat to the outside of the "neck".
- **Dorsal nerve cord** - a bundle of _____ which runs down the "back". It connects the brain with the lateral muscles and other organs.
- **Notochord** - cartilaginous rod running underneath, and supporting, the_____
- **Post-anal tail** - an extension of the _____ past the anal opening.

Name the parts of the Chordate below?



Name some of the classes of Chordata below?

Phylum Chordata. Having a backbone or notocord.
-Classes of Chordata (The Big 5)
Mammalia - Hair
Reptilia - Scales
Amphibia – Double life, land and water, toads, frogs, salamaders
Aves - Birds
Fish – See below

Part 4 Lesson 9 Reptilia and Fish and Birds

Class Reptila, the group of _____-breathing vertebrates that have internal fertilization, amniotic development, and epidermal _____ covering part or all of their body.
The major groups of living reptiles—the turtles (order
Testudines), lizards and snakes (order Squamata), and crocodiles (order, or Crocodilia)

Class Amphibia: Double Life –_____and _____.

Class Aves (_____) are a group of _____-blooded vertebrates.

-Characterized by _____, toothless _____ jaws, the laying of hard-shelled _____, a high metabolic rate, a four-chambered heart, and a strong yet _____ skeleton.

Fish are aquatic, craniate (_____), _____-bearing animals that lack _____ with digits.

Included in this definition are the living hagfish, lampreys, and cartilaginous and bony fish as well as various extinct related groups.

Around 99% of living fish species are ray-finned fish, belonging to the class Actinopterygii, with over 95% belonging to the teleost subgrouping.

Superclass Agnatha (_____)

- Class Myxini - _____
- Class Cephalaspidomorphi - _____

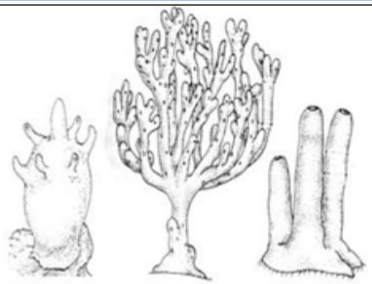
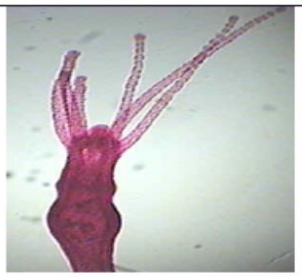
Superclass Gnathostomata with jaws

- Class Chondrichthyes (cartilagineous fish - _____ and _____)
- Class Osteichthyes (_____ fish), which has two subclasses:
  - Actinopterygii (_____-finned fish)
    - Ray-finned with spikes and spines.
    - Makes up half of all vertebrae species

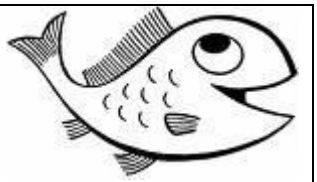
Sarcopterygii (lobe-finned fish)

Can you name the type of fish and class below.

Please name the correct phylum of Animalia in the boxes below.

 P=	 P=	 P=	 P=
 P=	 P=	 P=	 P=
 P=	 P=	 P=	 P=

Name some of the classes representing the chordate phylum below

Part 11, 12, and 13 Wrap-Up/Review, Phylum Quiz and Quiz Answers

Kingdom Animal Phylum Quiz 1-33 (3 points each with bonus) 1 owl

P 1	P 2	P 3	P C 4	P C 5
P C 6	P 7	P 8	P 9	P C 10
P 11	P 12	P 13	P C 14	P 15
P **C** 16	P 17	P 18	P 19	P **C** 20
P **C** 21	P **C** 22	P **C** 23	P **C** 24	P **C** 25
P 26	P 27	P 28	P 29	P **C** 30
P **C** 31	P **C** 32	P **C** 33	Bonus 1	Bonus 2

Part 4 Lesson 13 Mammals

Class Mammalia: Vertebrate animals constituting the class Mammalia and characterized by the presence of _____ glands which in females produce _____ for feeding (nursing) their young, a neocortex (a region of the brain), _____ or hair, and three middle _____ bones.

These characteristics distinguish them from reptiles and birds, from which they diverged over _____ million years ago.

3 subclasses of mammals

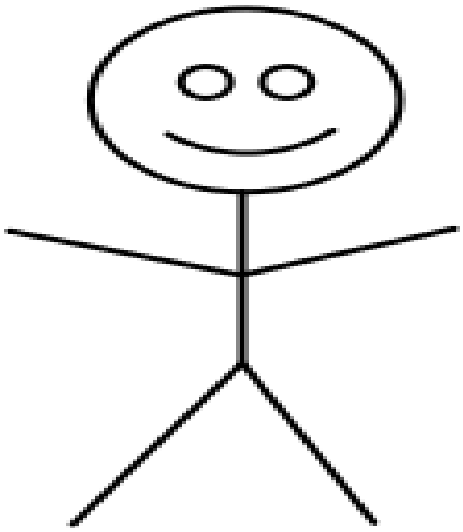
-_____: Placental Mammals.
-_____: (Marsupials).
-Prototheria / Monotremes (_____laying mammals).

Part 4 Lesson 14 Characteristics of Mammals

Characteristics of Mammals

-Have _____
-_____ -bloodedness.
-Mammary Glands: Nourish _____with milk.
-Circulatory system: _____ chambered heart.
-Respiratory system: _____ are very large.
-Reproductive system: Young live inside in an _____.
-Fat and _____ storage.
-Brain: _____in the animal world.
-Digestive system: _____ glands are present.
-3 Small Bones in _____
-Musculature system: Highly plastic for high _____ locomotion.
-Hinged lower _____.

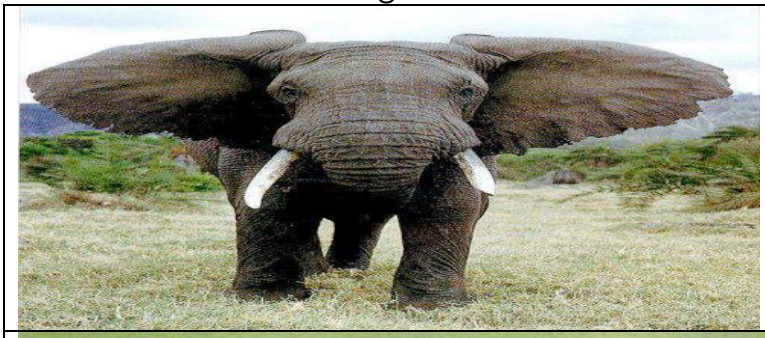
Show that the stick figure is a mammal by decorating it with mammalian characteristics. Notes should be provided in the margin.

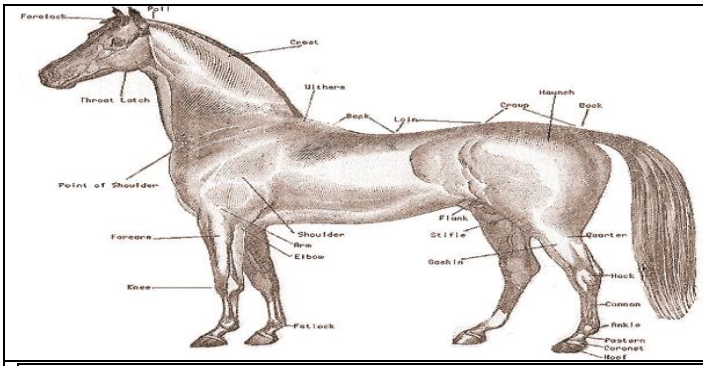


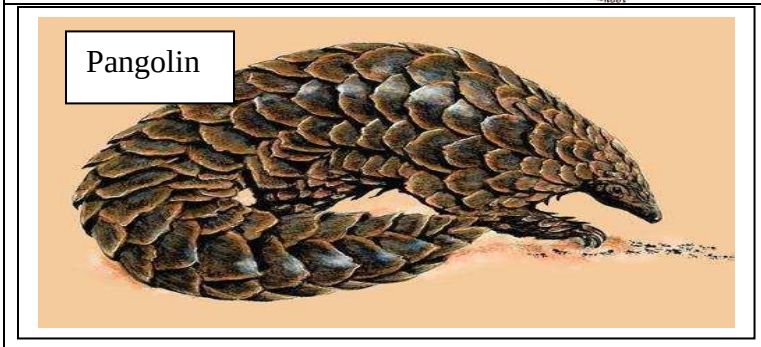
Which is not a characteristics of Mammals? A.) Have hair. B.) General cold-bloodedness. C.) Mammary Glands: Nourish young with milk. D.) Circulatory system: 4 chambered heart. E.) Respiratory system: Lungs are very large. F.) Reproductive system: Young live inside in an embryo. G.) Fat and energy storage. H.) Brain: Largest in the animal world. I.) Digestive system: Salivary glands are present. J.) Small Bones in ear K.) Sweat Glands (Most Mammals). L.) Teeth: Heterodonty - specialized for feeding/diet. M.) Musculature system: Highly plastic for high speed locomotion. N.) Hinged lower jaw.	Which is not a characteristics of Mammals? A.) Have hair. B.) General warm-bloodedness. C.) Mammary Glands: Nourish young with milk. D.) Simple circulatory system: 1 chamber. E.) Respiratory system: Lungs are very large. F.) Reproductive system: Young live inside in an embryo. G.) Fat and energy storage. H.) Brain: Largest in the animal world. I.) Digestive system: Salivary glands are present. J.) Small Bones in ear K.) Sweat Glands (Most Mammals). L.) Teeth: Heterodonty - specialized for feeding/diet. M.) Musculature system: Highly plastic for high speed locomotion. N.) Hinged lower jaw.

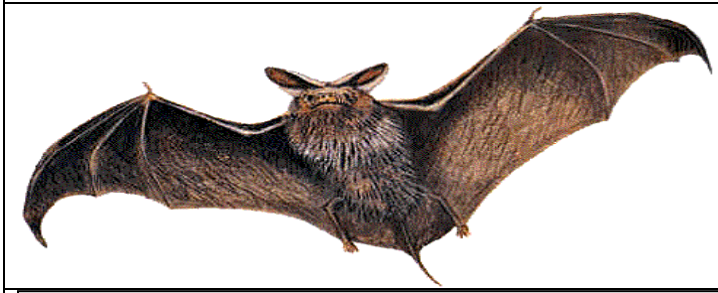
Part 4 Lesson 5 Orders of Mammals

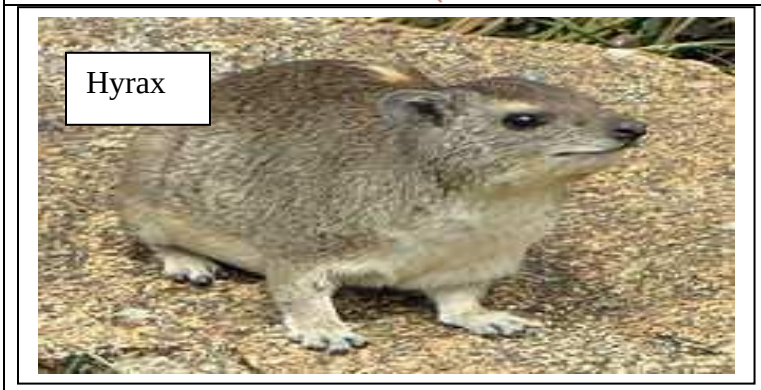
Please record the name of the order and a bit of information about each order of mammal in the boxes below using the mammal info sheet. Please include the common name as well.

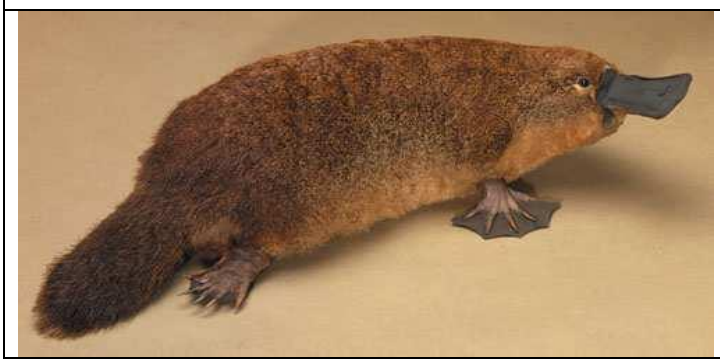
	
	
	


Forelock
Poll
Crest
Withers
Throat Latch
Back
Loin
Croup
Haunch
Dock
Point of Shoulder
Shoulder
Arm
Elbow
Forearm
Flank
Stifle
Gaskin
Quarter
Knee
Hock
Cannon
Fetlock
Ankle
Pastern
Coronet
Hoof

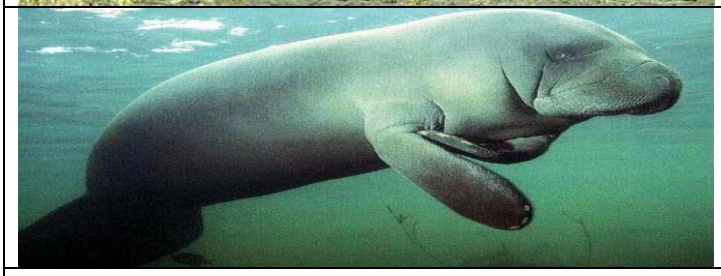

Pangolin




Hyrax



	
	
	
	
 Hoof	

	
 Flying Lemur	
	
	
	
	

All animals with backbones, including humans, are chordates. That is, in the language of taxonomy, they belong to the phylum Chordata. Their subphylum is Vertebrata, meaning that their backbones are segmented. Mammals, members of the class Mammalia of vertebrate animals that includes humans, are the most highly advanced organisms on Earth. They are warm-blooded, hairy, have four-chambered hearts, relatively large brains, and they suckle their young.

There are 19 orders of mammals in the world. Ten of these live in North America. Some orders include a wide range of animals; for example, shrews, lemurs, marmosets, monkeys, apes, and humans are all primates, one order of the class of mammals. Other orders are made up of only one sort of creature; Order Chiroptera, or example, consists of 18 families of bats.

The Latin names of the orders of mammals given here are followed by their common names and the families that make up each order. Examples of the various types of animals included in each family also are given.

Order Artiodactyla (even-toed hoofed animals)

Hoofed animals with an even number of toes include those that ruminate, or digest their food in four-chamber stomachs and chew cuds, and those that do not ruminate. Those that ruminate are the families Girrafidae (giraffes). Cervidae (deer, moose, reindeer, elk). Antilocapridae (pronghorn antelope), and Bovidae (cattle, bison, yaks, waterbucks, wildebeest, gazelles, springboks, sheep, musk oxen, goats). Nonruminators include the families Suidae (pigs), Tayassuidae (peccaries), Hippopotamidae (hippopotamuses), and Camelidae (camels, llamas).

Order Carnivora (meat-eaters)

There are two suborders of these toe-footed creatures. They include the Canidae (wolves, dogs, jackals, foxes), Ursidae (bears, giant pandas), Procyonidae (coatis, raccoons, lesser pandas), and Mustelidae (martens, weasels, skunks, otters), all part of one superfamily that is characterized by long snouts and unretractable claws; and Felidae (cats, lions, cheetahs, leopards) Hyaenidae (hyenas), and Viverridae (mongooses, civets), all of which have retractable claws.

Order Cetacea (whales and purpoises)

Two suborders of Order Cetacea are the toothed whales, which have regular conical teeth, and the baleen, or whalebone, whales, which have irregular whalebone surfaces instead of teeth. Toothed whales include the families Physeteridae (sperm whales), Monodontidae (narwhals, belugas), Phocoenidae (porpoises), and Delphinidae (dolphins, killer whales). Baleens are in the family Eschrichtiidae (gray whales), Balaenidae (right whales), or Balaenoptridae (fin-backed whales, hump-backed whales).

Order Chiroptera (bats)

There are two suborders of bats, the only mammals that can fly. Suborder Megachiroptera contains one family, the Pteropodidae (flying foxes, Old Worm fruit bats). Suborder Microchiroptera contains 17 families, including: Rhinopomatidae (mouse-tailed bats), Emballonuridae (sheath tailed bats), Craseonycteridae (hog-nosed or butterfly bats), Noctilionidae (bulldog or fisherman bats), Nycteridae (slit-faced bats), Megadermatidae (false vampire bats), and Rhinolophidae (horseshoe bats).

Order Dermoptera (colugos or flying lemurs)

These gliding tree mammals from Asia do not fly and are not lemurs, but they are known as flying lemurs, or Family Cynocephalidae .

Order Edentata (toothless mammals)

Three families of mammals get by without teeth: Dasypodidae (armadillos), Bradypodidae (sloths), and Myrmecophagidae (hairy anteaters).

Order Hyracoidae (hyraxes, dassies)

Order Hyracoidae is one of three orders that has only one modern family remaining. Procavia capensis (the African rock hyrax) is one of nine living species in the Family Procaviidae .

Order Insectivora (insect-eaters)

The three members are the families Talpidae (moles), Soricidae (shrews), and Erinaceidae (hedgehogs).

Order Lagomorpha (pikas, hares, and rabbits)

Two families make up this order: Ochotonidae (pikas) and Leporidae (hares and rabbits of all sorts).

Order Marsupialia (pouched animals)

Included among these are the families Caenolestidae (rat opossums), Diddeelphidae (true opossums), Dasyuridae (native cats, native mice), Notoryctidae (marsupial moles), Myrmecobiidae (numbats), Peramelidae (bandicoots), Phalangeridae (koalas), Vombatidae (wombats), and Macropodidae (kangaroos and wallabies).

Order Monotremata (egg-laying mammals)

These more primitive mammals make up the families Tachyglossidae (echidnas, also called spiny anteaters) and Ornithorhynchidae (platypuses).

Order Perissodactyla (odd-toed hoofed animals)

The two suborders, Hippomorpha and Ceratomorpha, include creatures that have an odd number of toes. Families in this order are the Equidae (horses, donkeys, zebras), the Tapiridae (tapirs), and the Rhinocerotidae (rhinoceroses).

Order Pholidata

Family Manidae (pangolins) is the sole family in this order.

Order Pinnipedia (seals and walruses)

In the fin-footed order there are Otariidae (eared seals, sea lions), Odobenidae (walruses), and Phocidae (earless seals).

Order Chiroptera (bats) The only Flying Mammal (Capable of sustained fight / Not gliding only).

Order Proboscidea (elephants)

Large enough to have an order all to itself is Family Elephantidae .

The 20 armadillo species belong to eight genera, which together constitute the family Dasypodidae. Dasypodidae is the only family in the **mammalian order Cingulata** of the magnorder Xenarthra, which also includes sloths and anteaters.

Order Primates (apes, monkey, lemurs, gorilla)

Primates include prosimians and simians. Primates arose from ancestors that lived in the trees of tropical forests; many primate characteristics represent adaptations to life in this challenging three-dimensional environment. Most primate species remain at least partly arboreal.

The order to which people belong is divided into two suborders: The Prosimii , who have longer snouts than their relatives, and the Anthropoidae . The first group includes the families Tupalidae (tree shrew), Lemuridae (lemurs), Daubentonlidae (aye-ayes), Lorisidae (lorises, pottos), and Tarsiidae (tarsiers). The anthropoids include the families Callitrichidae (marmosets), Cebidae (New World monkeys), Cercopithecidae (baboons, Old World monkeys), Hylobatidae (gibbons), Pongidae (gorillas, chimpanzees, orangutans), and Hominidae (human beings).

Order Rodentia (gnawing mammals)

The most prolific mammals, Order Rodentia includes three suborders. It takes in the families Aplodontidae (mountain beavers), Sciuridae (chipmunks, squirrels, marmots), Cricetidae (field mice, lemmings, muskrats, hamsters, gerbils), Muridae (Old World mice, rats), Heteromyidae (New World mice), Geomyidae (gophers), and Dipodidae (jerboas).

Order Sirenia (dugongs and manatees)

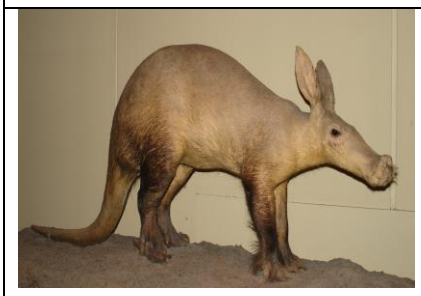
The families Trichechidae (manatees) and Dugongidae (dugongs and other sea cows) make up the Order Sirenia .

Order Tubulidentata (aardvarks)

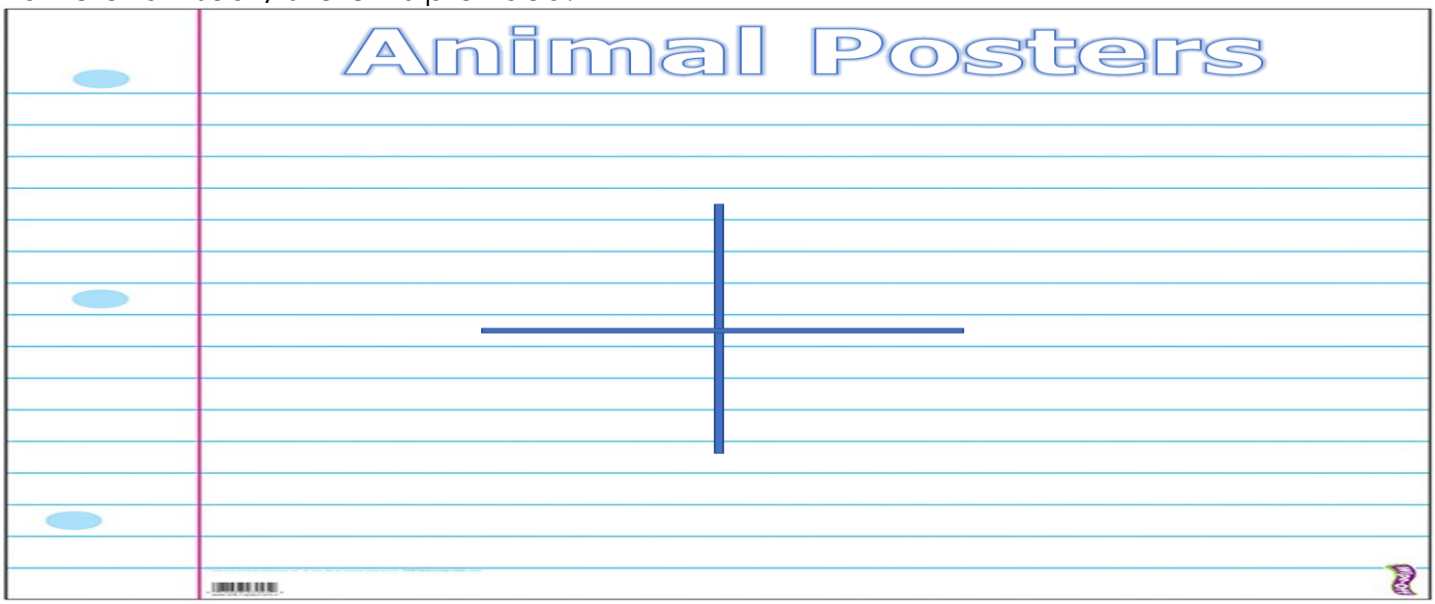
Another mammal in an order by itself is Family Orycteropodidae.

Name some of the orders of mammals below. If you want to mention subclass – Awesome!

 I am a Manatee		 I am even toed	

			
			
			 Odd Toed

Please visit four kingdom animalia posters are record important information. Space for the name or a visual / sketch is provided.



Please name the animal below.

Common Name:_____

Kingdom_____ **Phylum**_____ **Class**_____
Subclass_____ **Order**_____ **Family**_____
Genus_____ **Species**_____

Please name the animal below.

Common Name:_____

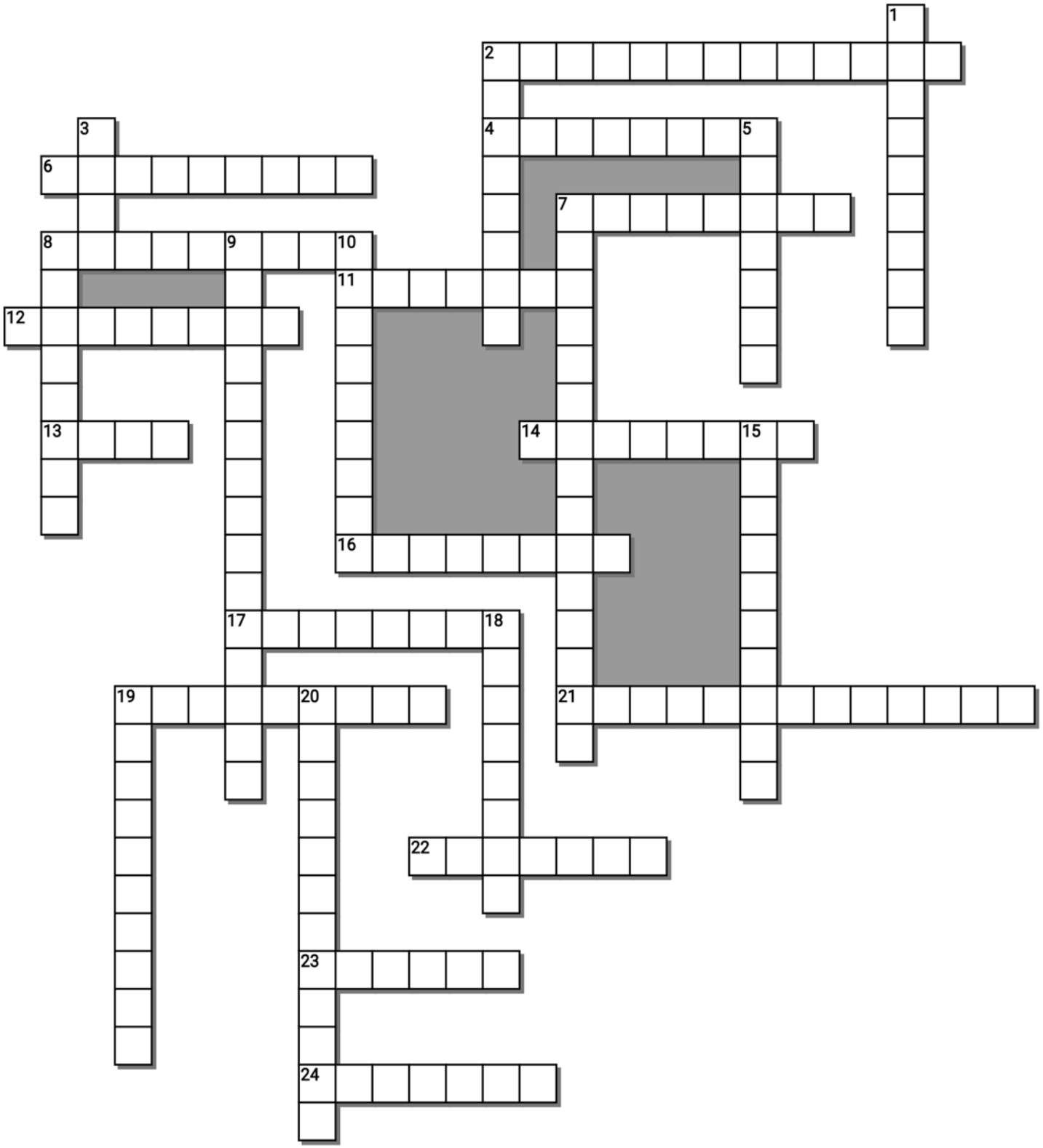
Kingdom_____ **Phylum**_____ **Class**_____
Subclass_____ **Order**_____
Family_____

Across

2. is a biological process by which an animal physically develops after birth or hatching, involving a relatively abrupt change in the animal's body structure through cell growth and differentiation. Describe the process below.
6. Class _____. The Millipedes
7. Phylum _____ "Sponges" Asymmetrical. They are a basal animal clade as a sister of the Diploblasts.
8. Class _____. The Centipedes
11. Class _____, the group of air-breathing vertebrates that have internal fertilization, amniotic development, and epidermal scales covering part or all of their body.
12. Phylum _____ These are microscopic filter feeding aquatic animals found in many freshwater environments and in moist soil.
13. Class _____ (Birds) are a group of warm-blooded vertebrates.
14. M_____ animals: They are multicellular, mitochondrial eukaryotes with differentiated tissues, including nerves and muscles.
16. Class _____: Double Life – Land and water.
17. Roundworms, Phylum N_____ are bilaterally symmetrical, surrounded by a strong, flexible noncellular layer called a cuticle.
19. Class of Arthropod, Class _____ Have a Head and abdomen Some have many legs (8+) with many jobs. Most are aquatic
21. Phylum _____ The adults are recognizable by their radial symmetry and hard spiny skin. They include starfish, sea urchins, sand dollars, and sea cucumbers, as well as the sea lilies
22. When offspring develop as a growth on the body of the parent.
23. This is a type of animal symmetry where the organism is arranged equally in all directions from a central point.

Down

1. This is a type of animal symmetry where the organisms is the same on both sides.
2. Class _____ Vertebrate animals constituting the class Mammalia and characterized by the presence of mammary glands which in females produce milk for feeding (nursing) their young, a neocortex (a region of the brain), fur or hair, and three middle ear bones.
5. _____ reproduction: A mode of reproduction by which offspring arise from a single parent.
7. Phylum _____. These are the flatworms, Simple bilateral, unsegmented, soft-bodied invertebrates. They are acoelomates (having no body cavity) and have no specialized circulatory or respiratory system (why they're flat) so oxygen and nutrients can through by diffusion.
8. Phylum _____ Having a backbone or notocord.
9. P_____, the females produce eggs, but these develop into young without ever being fertilized.
10. Class of Arthropoda, Class _____ has 8 legs. No antennae or wings. Two body parts. Head and sensory. Abdomen. Most live on land.
15. Phylum _____ Segmented joints, exoskeleton, Bilateral symmetry
18. Phylum _____. These are the segment worms
20. This when an animal has no symmetry



----------Teacher can remove this word bank to make puzzle more challenging----------

Possible Answers

AMPHIBIA, ANIMALS, ANNELIDA, ARACHNIDA, ARTHROPODA, ASEXUAL, ASYMMETRICAL, AVES, BUDDING, CHILOPODA, CHORDATA, CNIDARIANS, CRUSTACEA, DIPLOPODA, ECHINODERMATA, FISH, MAMMALIA, METAMORPHOSIS, METAZOAN, MOLLUSCA, NEMATODA, PARTHENOGENESIS, PLATYHELMINTHES, PORIFERA , RADIAL, REPTILA, ROTIFERA , BILATERAL

Part 4 Review Game Lesson 16

Name:

1-10 = 5 pts * = Bonus + 1 pt,
(Secretly write owl in correct space +1 pt)
Final Question = 5 pt wager

Due: Today
Score ____ / 100

GOING WILD	SYMM CITY	FILE THEM	FURBIE	FAMOUS ANIMALS Bonus round 1 pt each
1)	6)	11)	16)	*21)
2)	7)	12)	17)	*22)
3)	8)	13)	18)	*23)
4)	9)	14)	19)	*24)
5)	10)	15)	20)	*25)

Final Question Wager ___/5 Answer: _____

Part 4 Kingdom Animalia

Name:

Part 4 Lesson 1 Animalia

Characteristics of Animalia.

-No Cell Walls.

-Animals have a period of embryonic development.

Animals have diplontic life cycle. Genetic information can come from a mother and father. (Many species)

-Animals eat food.

-Animals move.

-Animals have nervous and muscle tissue.

Circle the members of the Kingdom Animalia below

Find two that aren't animals and tell me why below?

Characteristics of Animalia.

- -No Cell Walls.
- -Animals have a period of embryonic development.
  - Animals have diplontic life cycle. Genetic information can come from a mother and father. (Many species)
- -Animals eat food.
- -Animals move.
- -Animals have nervous and muscle tissue.

Find two that aren't animals and tell me why below?

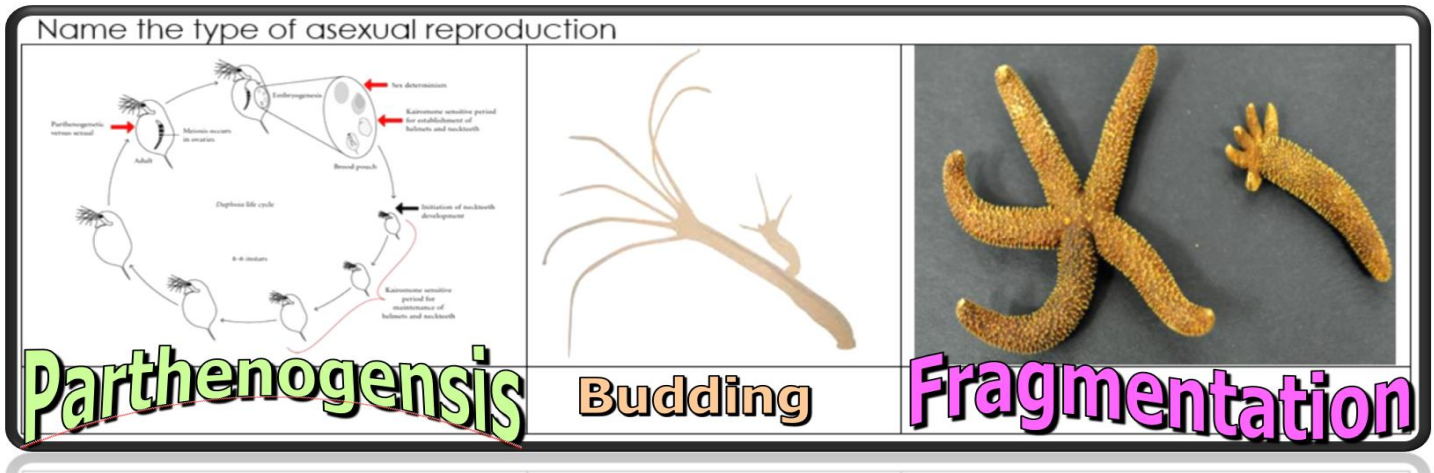
Asexual reproduction: A mode of reproduction by which offspring arise from a single parent. The offspring inherit the genes of that parent only, it's reproduction which does not involve meiosis or fertilization.

Budding: Offspring develop as a growth on the body of the parent.

Fragmentation: As certain tiny worms grow to full size, they spontaneously break up into 8 or 9 pieces.

Each of these fragments develops into a mature worm, and the process is repeated.

Parthenogenesis ("virgin birth"), the females produce eggs, but these develop into young without ever being fertilized.



Parthenogenesis ("virgin birth"), the females produce eggs, but these develop into young without ever being fertilized.

Budding: Offspring develop as a growth on the body of

Fragmentation: As certain tiny worms grow to full size, they spontaneously break up into 8 or 9 pieces.

Animals have three types of symmetry.

-Bilateral symmetry.

Same on both sides.

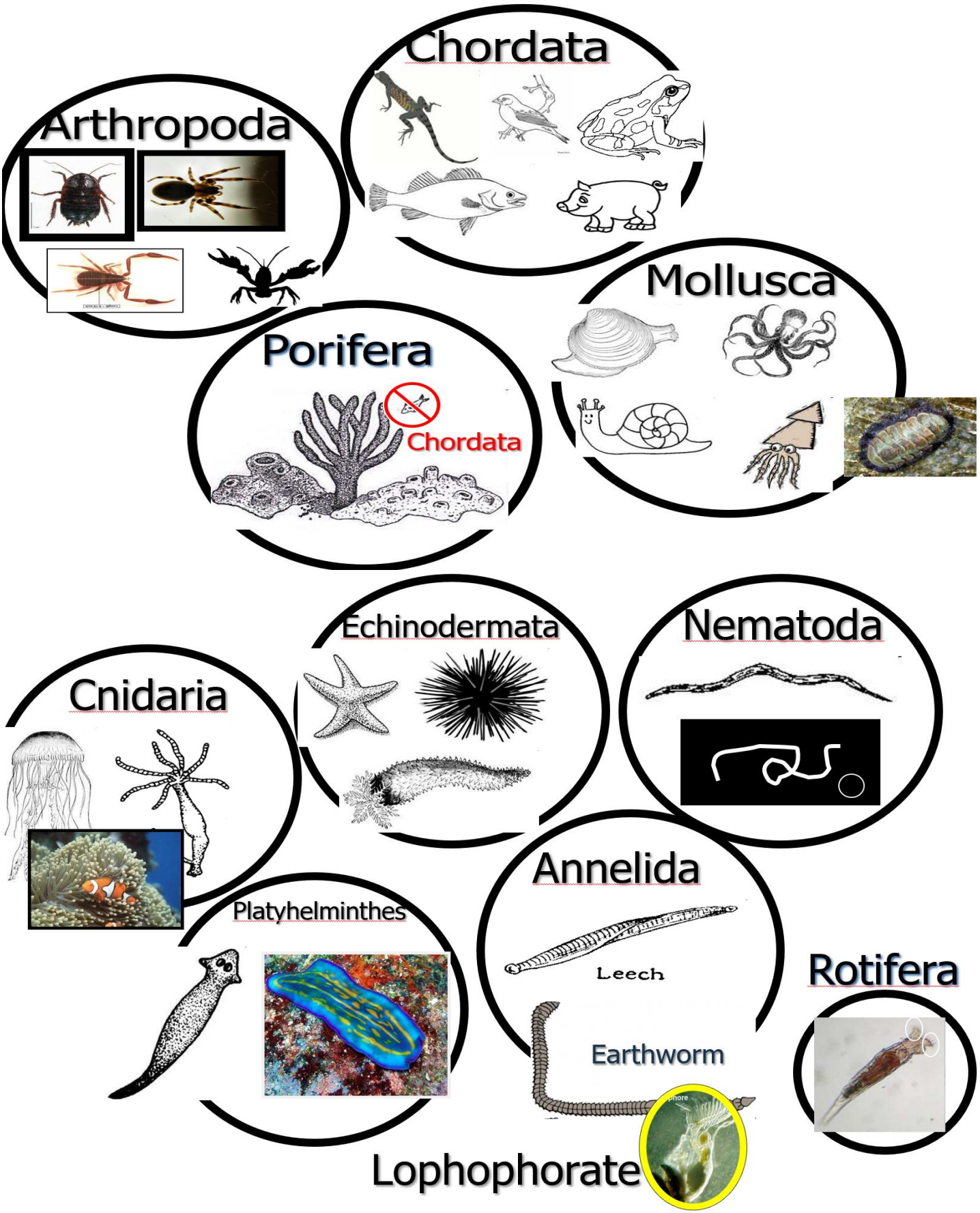
-Radial Symmetry.

Arranged equally in all directions from a central point.

-Asymmetrical.

Having no symmetry.

Part 4 Lesson 2 Animalia Phylums



Part 4 Lesson 3 Cndaria and "Worms"

Metazoan animals: They are multicellular, mitochondrial eukaryotes with differentiated tissues, including nerves and muscles.

They evolved from the protists approximately 700 million years ago.

Phylum Porifera "Sponges" Asymmetrical. They are a basal animal clade as a sister of the Diploblasts.

They are multicellular organisms that have bodies full of pores and channels allowing water to circulate through them, consisting of jelly-like mesohyl sandwiched between two thin layers of cells.

Phylum Cnidaria – Stinging cells.

Silent C (ni dérree ən). Radial symmetry.

-Cnidarians have two distinct body plans known as polyp which are attached to the bottom, and medusa, which are mobile

-The have two membrane layers in the body: the epidermis and the gastrodermis.

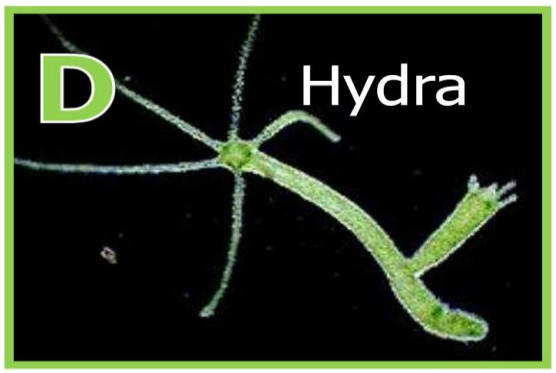
-Cnidarians carry out extracellular digestion, where enzymes break down the food.

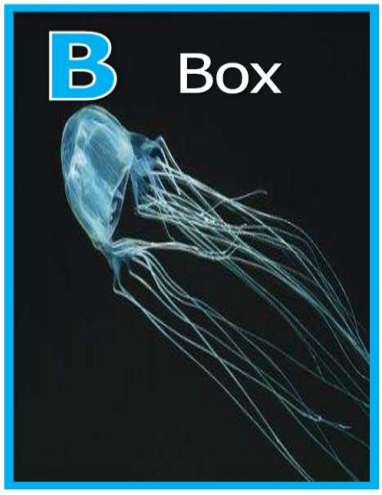
-They have an incomplete digestive system with only one opening; mouth and an anus.

The nervous system moves captured prey (tentacles) to the mouth.

-Anthozoa, Scyphozoa, Cubozoa, and Hydrozoa make up the four different classes of Cnidarians.

- Which is a...
  - Coral (Anthozoa)
  - Box Jelly (Cuboza)
  - Hydra (Hydrozoa)
  - True Jelly (Scyphozoa)





Phylum Nematoda "The Roundworms"

Roundworms (nematodes) are bilaterally symmetrical, surrounded by a strong, flexible noncellular layer called a cuticle.

Their body plan is simple. Near the body wall but under the epidermal cells are muscle cells; they run in the longitudinal direction only.

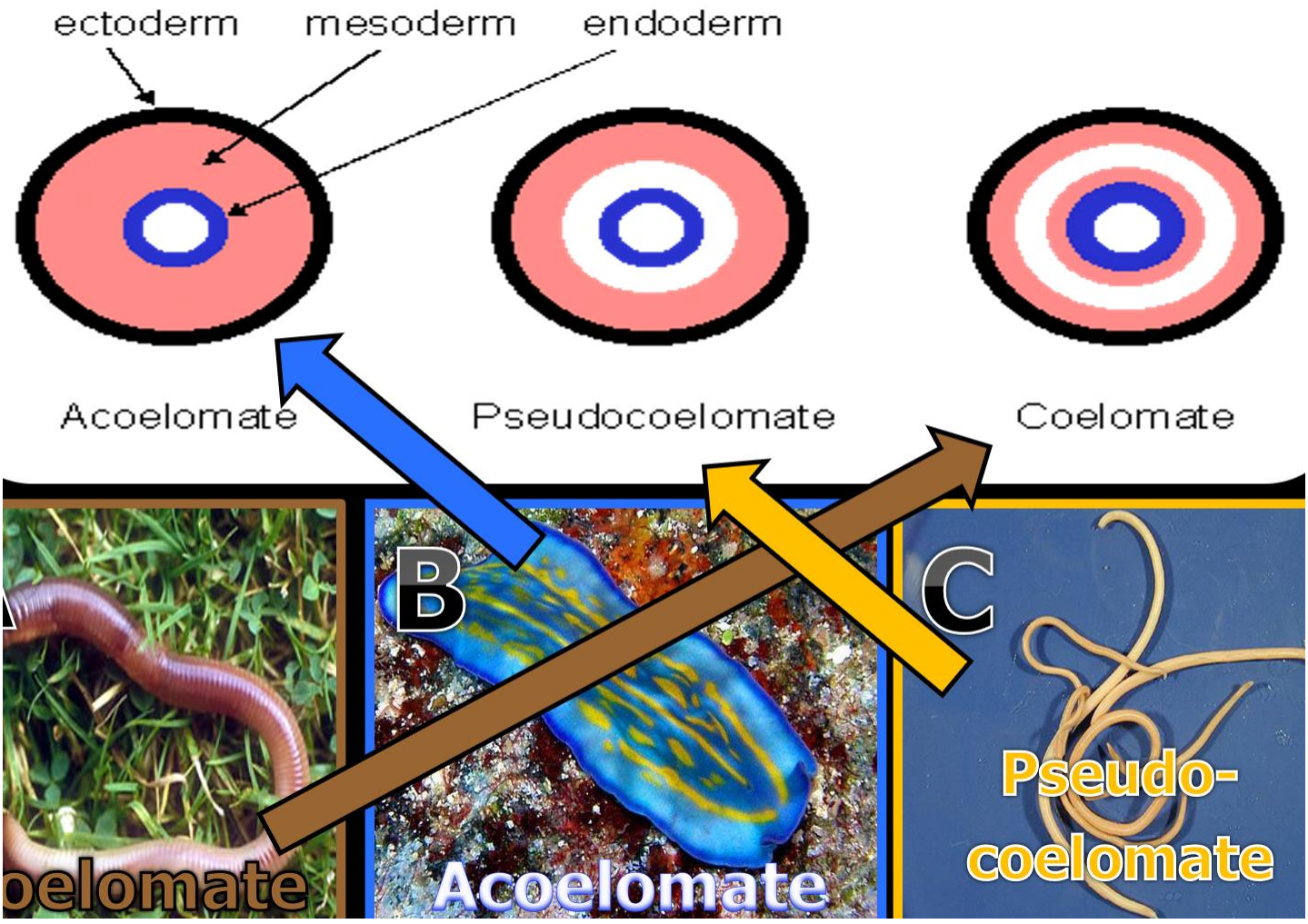
A true coelom is lacking, instead, nematodes have a "pseudocoel" formed directly from the cavity of the blastula.

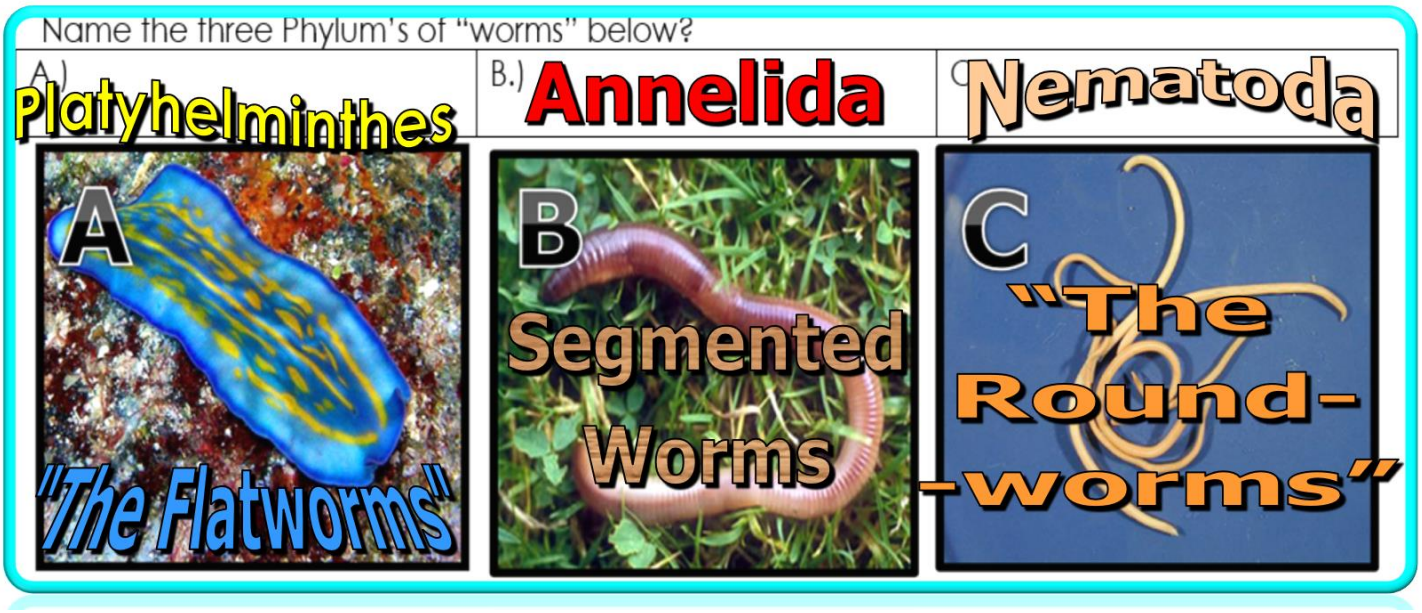
Phylum Platyhelminthes. "The Flatworms."
Simple bilateral, unsegmented, soft-bodied invertebrates.

They are acoelomates (having No body cavity) and have no specialized circulatory or respiratory system (why they're flat) so oxygen and nutrients can through by diffusion.

The digestive cavity has only one opening (mouth is anus) for both intake of nutrients and removal of undigested wastes; as a result, the food cannot be processed continuously.

Phylum Annelida "The Segmented worms"
The annelids, also known as the ringed worms or segmented worms, are a large phylum, with over 22,000 extant species including ragworms, earthworms, and leeches.





Part 4 Lesson 4 Mollusca, Echinodermata, Rotifera, Tardigrades

Phylum Mollusca "Soft bodies" and some have shells.

-Mollusks are predominantly a marine group of animals; however, they are known to inhabit freshwater as well as terrestrial habitats.

-Mollusks display a wide range of morphologies in each class and subclass, but share a few key characteristics, including a muscular foot, a visceral mass containing internal organs, and a mantle that may or may not secrete a shell of calcium carbonate

Phylum Echinodermata " Spiny Skinned Creatures"

The adults are recognizable by their radial symmetry and hard spiny skin.

They include starfish, sea urchins, sand dollars, and sea cucumbers, as well as the sea lilies

Which picture below is in the Phylum Mollusca, and which is in the Phylum Echinodermata? Explain below?

Echinoderms and humans are both in Deuterostomia which comprise one of the major groups within the animal kingdom.
We are both bilateral in our symmetry

-Echinoderms begin life bilateral and then switch to radial symmetry.

-Deuterostomia develop a layer of cells where the anus forms and then later comes the mouth .

Phylum Rotifera

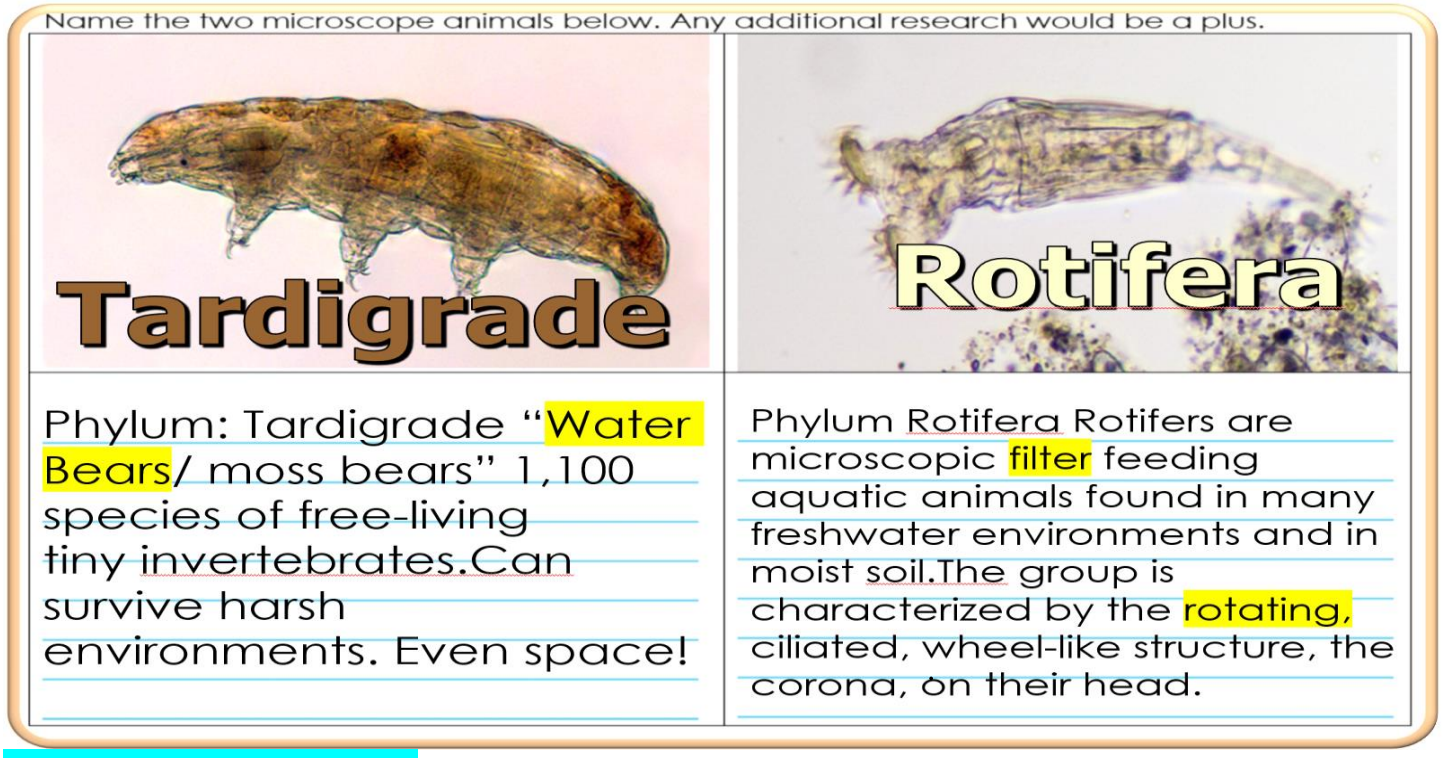
Rotifers are microscopic filter feeding aquatic animals found in many freshwater environments and in moist soil.

The group is characterized by the rotating, ciliated, wheel-like structure, the corona, on their head.

Phylum: Tardigrade

Tardigrades "Water Bears/ moss bears" 1,100 species of free-living tiny invertebrates.

Can survive harsh environments. Even space!



Part 4 Lesson 5 Arthropoda

Phylum Arthropoda

Segmented joints, exoskeleton, bilateral symmetry

Statistics vary, but millions of Arthropod species exist.

They outnumber all other phylums of animals combined.

The Class Insecta alone represents 75-90% of all known animal species.

Class Insecta

6 legs.

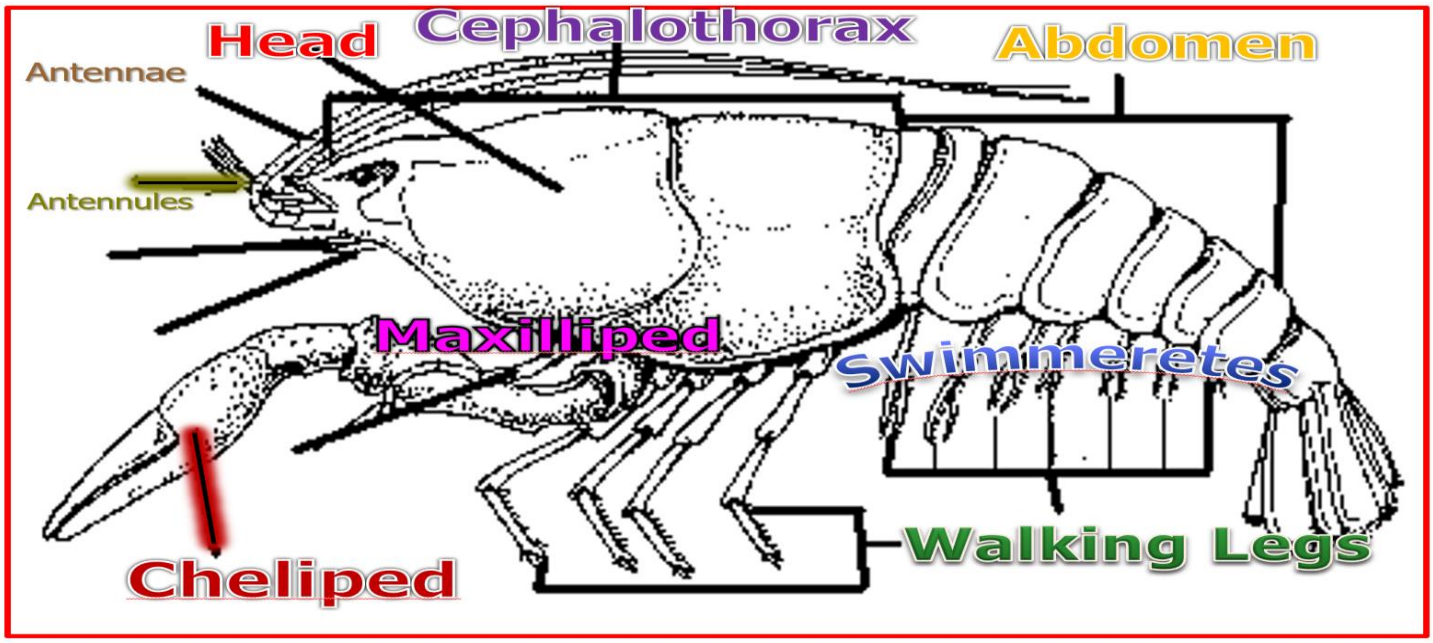
3 body parts.
Head, thorax, abdomen.
Compound eyes.
2 antennae.
Only flying arthropod.

Metamorphosis is a biological process by which an animal physically develops after birth or hatching, involving a relatively abrupt change in the animal's body structure through cell growth and differentiation. Describe the process below.

Some Insects undergo gradual, or incomplete, metamorphosis.
The immature stages (usually called nymphs) go through a series of molts, gradually assuming an adult form.

Part 4 Lesson 6 Crustacea

Class Crustacea
Head and abdomen
Some have many legs (8+) with many jobs.
Most are aquatic



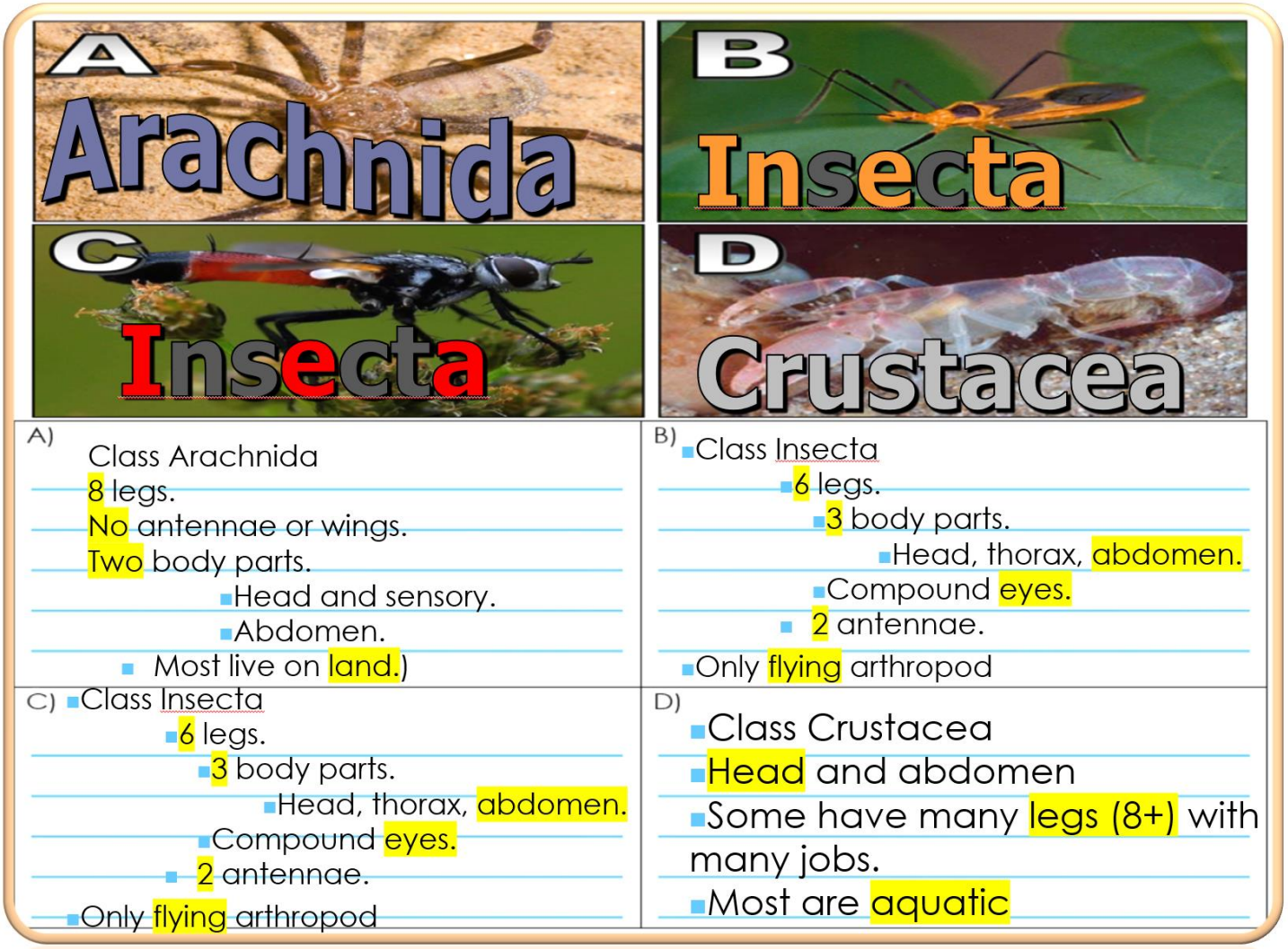
Answers 1-10 Name that part of a crayfish.

1 **Rostrum**	2 **Cheliped**
3 **Antennae**	4 **Cephalothorax**
5 **Walking Legs**	6 **Abdomen**
7 **Swimmerets**	8 **Antennule**
9 **Gills**	10 **Cervical Groove**
*11 **Maxilliped**	*12 **Sebastian**

Part 4 Lesson 7 Arachnida

Class Arachnida
- 8 legs.
- No antennae or wings.
- Two body parts.
  - Head and sensory.
  - Abdomen.
- Most live on land. (-Horseshoe Crab)

Name the group of Arthropods below? Why in a few words.



A)
- Class Arachnida
- 8 legs.
- No antennae or wings.
- Two body parts.
  - Head and sensory.
  - Abdomen.
- Most live on land.)

B)
- Class Insecta
- 6 legs.
- 3 body parts.
- Head, thorax, abdomen.
- Compound eyes.
- 2 antennae.
- Only flying arthropod

C)
- Class Insecta
- 6 legs.
- 3 body parts.
- Head, thorax, abdomen.
- Compound eyes.
- 2 antennae.
- Only flying arthropod

D)
- Class Crustacea
- Head and abdomen
- Some have many legs (8+) with many jobs.
- Most are aquatic

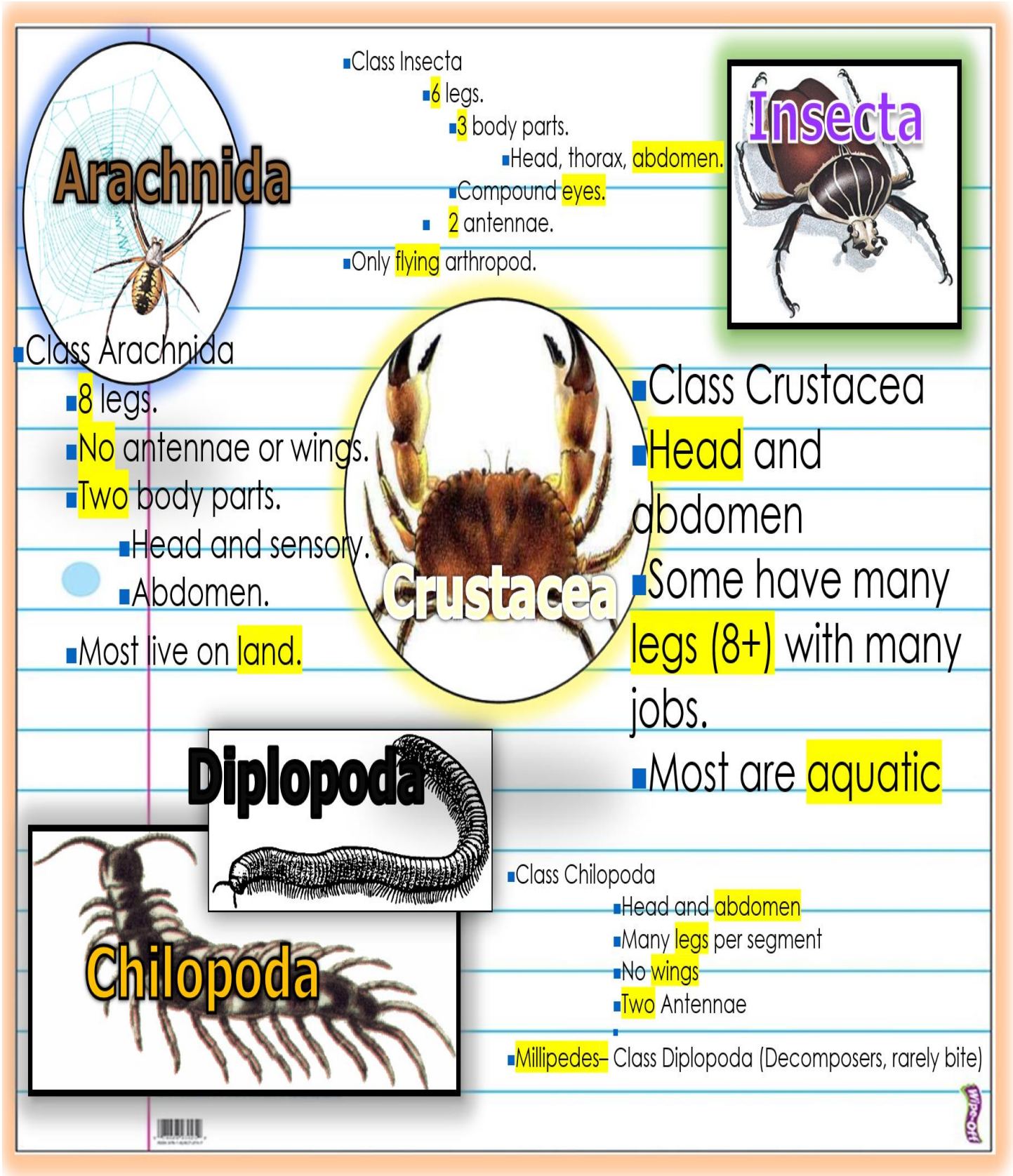
Part 4 Lesson 8 Myriapoda, and then Chordata

Class Chilopoda

Head and abdomen
Many legs per segment
No wings
Two Antennae

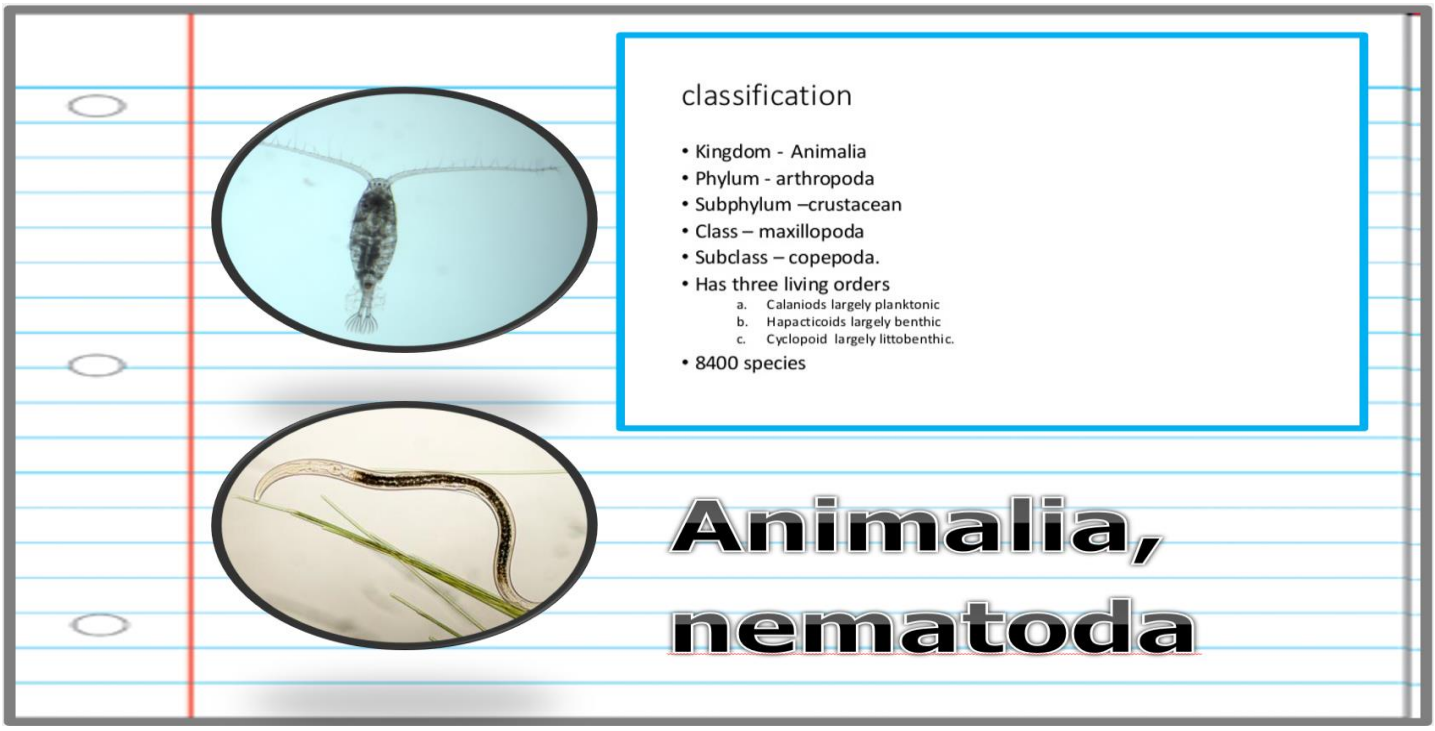
Millipedes– Class Diplopoda (Decomposers, rarely bite)

Please describe the classes of Arthropoda based on the pictures below. **Why?**



Activity! Looking for Animalia under the microscope.

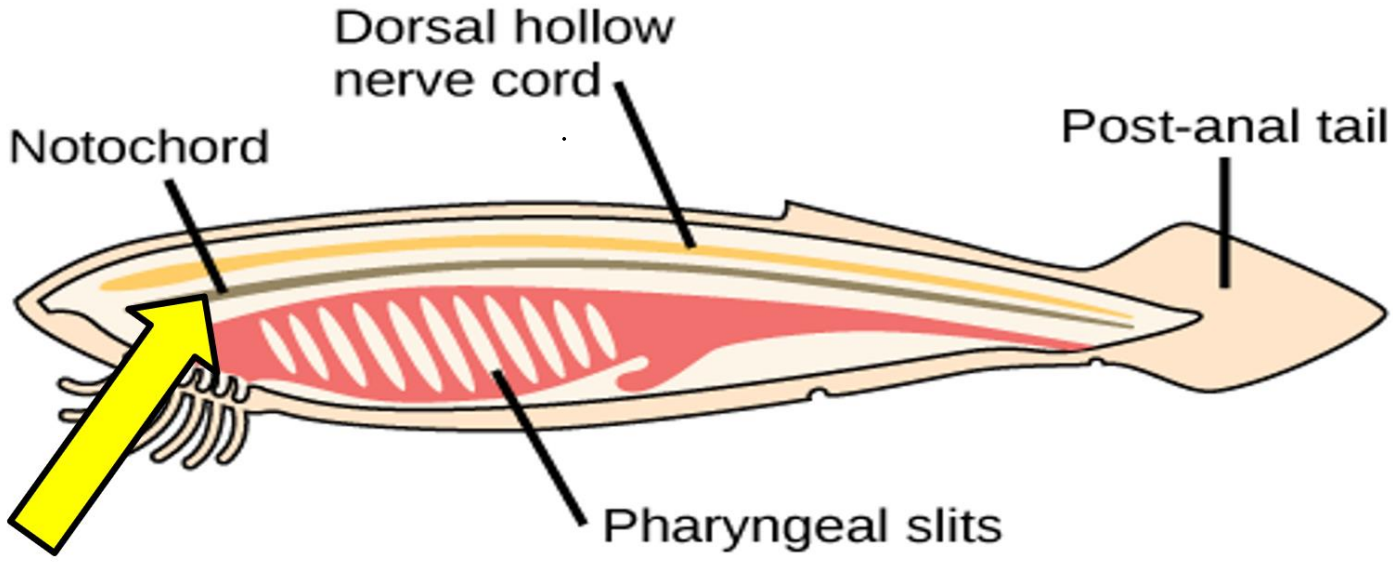
- Create a wet mount slide and use a compound light microscope.
- Sketch and color some samples on medium power. Identify and provide some critical information next to the picture as to why you classified it into that group.



All chordates have the following features at some point in their life

- **Pharyngeal slits** - a series of openings that connect the inside of the throat to the outside of the "neck".
- **Dorsal nerve cord** - a bundle of nerve fibers which runs down the "back". It connects the brain with the lateral muscles and other organs.
- **Notochord** - cartilaginous rod running underneath, and supporting, the nerve cord
- **Post-anal tail** - an extension of the body past the anal opening.

Name the parts of the Chordate below?



Name some of the classes of Chordata below?

Phylum Chordata. Having a backbone or notocord.
-Classes of Chordata (The Big 5)

Mammalia - Hair
Reptilia - Scales
Amphibia – Double life, land and water, toads, frogs, salamaders
Aves - Birds
Fish – See below

Part 4 Lesson 9 Reptilia and Fish and Birds

Class Reptila, the group of air-breathing vertebrates that have internal fertilization, amniotic development, and epidermal scales covering part or all of their body.

The major groups of living reptiles—the turtles (order Testudines), lizards and snakes (order Squamata), and crocodiles (order, or Crocodilia)

Class Amphibia: Double Life –Land and water.

Class Aves (Birds) are a group of warm-blooded vertebrates.
-Characterized by feathers, toothless, beaked jaws, the laying of hard-shelled eggs, a high metabolic rate, a four-chambered heart, and a strong yet _____ skeleton.

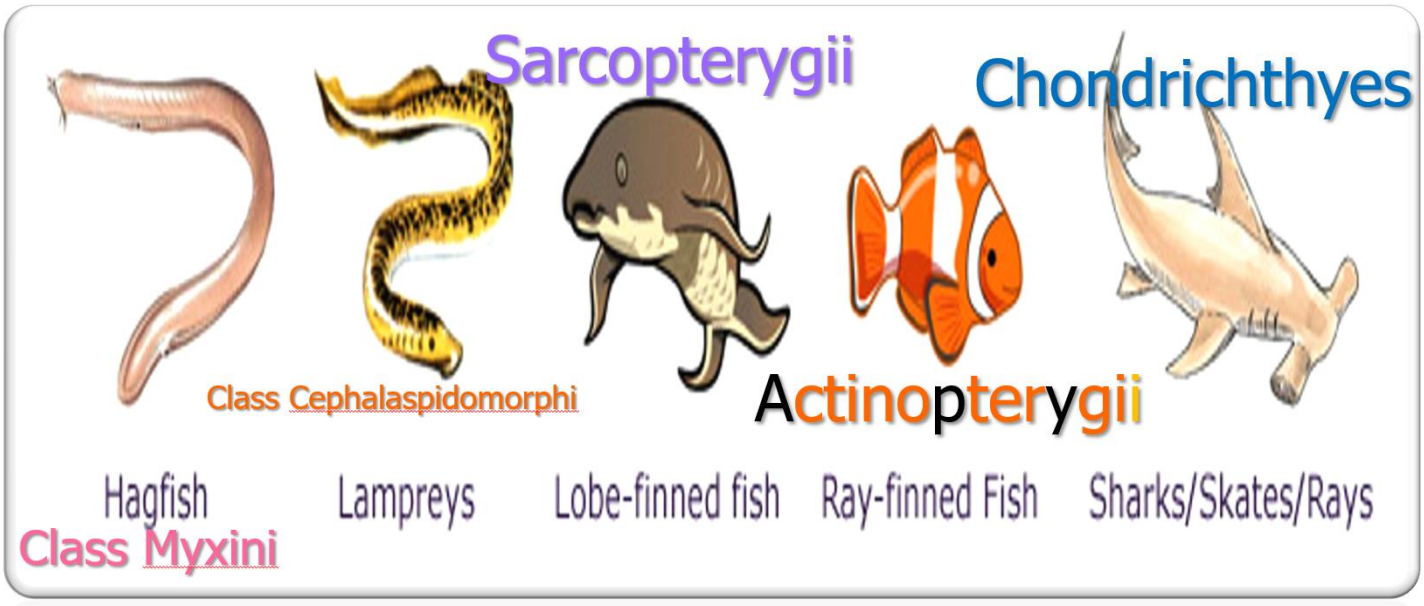
Fish are aquatic, craniate (has skull), Gill-bearing animals that lack limbs with digits.
Included in this definition are the living hagfish, lampreys, and cartilaginous and bony fish as well as various extinct related groups.
Around 99% of living fish species are ray-finned fish, belonging to the class Actinopterygii, with over 95% belonging to the teleost subgrouping.

Superclass Agnatha (Jawless Fish)
- Class Myxini - Hagfish
- Class Cephalaspidomorphi - Lampreys

Superclass Gnathostomata with jaws
- Class Chondrichthyes (cartilagineous fish – Sharks and Rays)
- Class Osteichthyes (Bony fish), which has two subclasses:
  - Actinopterygii (Ray-finned fish)
    - Ray-finned with spikes and spines.
    - Makes up half of all vertebrae species

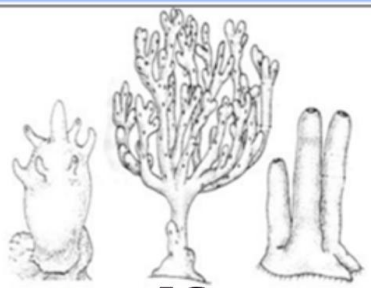
Sarcopterygii (lobe-finned fish)

Can you name the type of fish and class below?



Please name the correct phylum of Animalia in the boxes below.

P= Rotifera



P= Porifera

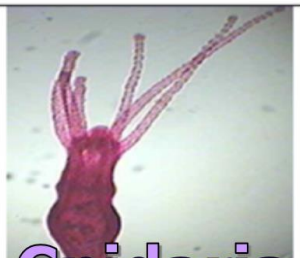
P= Cnidaria

P= Molluska

Arthropoda

P= Arthropoda

P= Echino--dermata



P= Cnidaria

Arthropoda

P= Chordata

P=

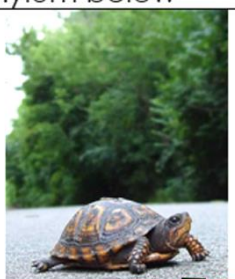
P=

Name some of the classes representing the chordate phylum below

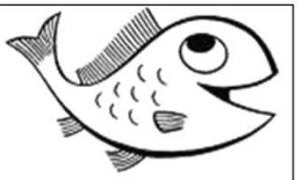
Amphibia

Aves

Mammalia



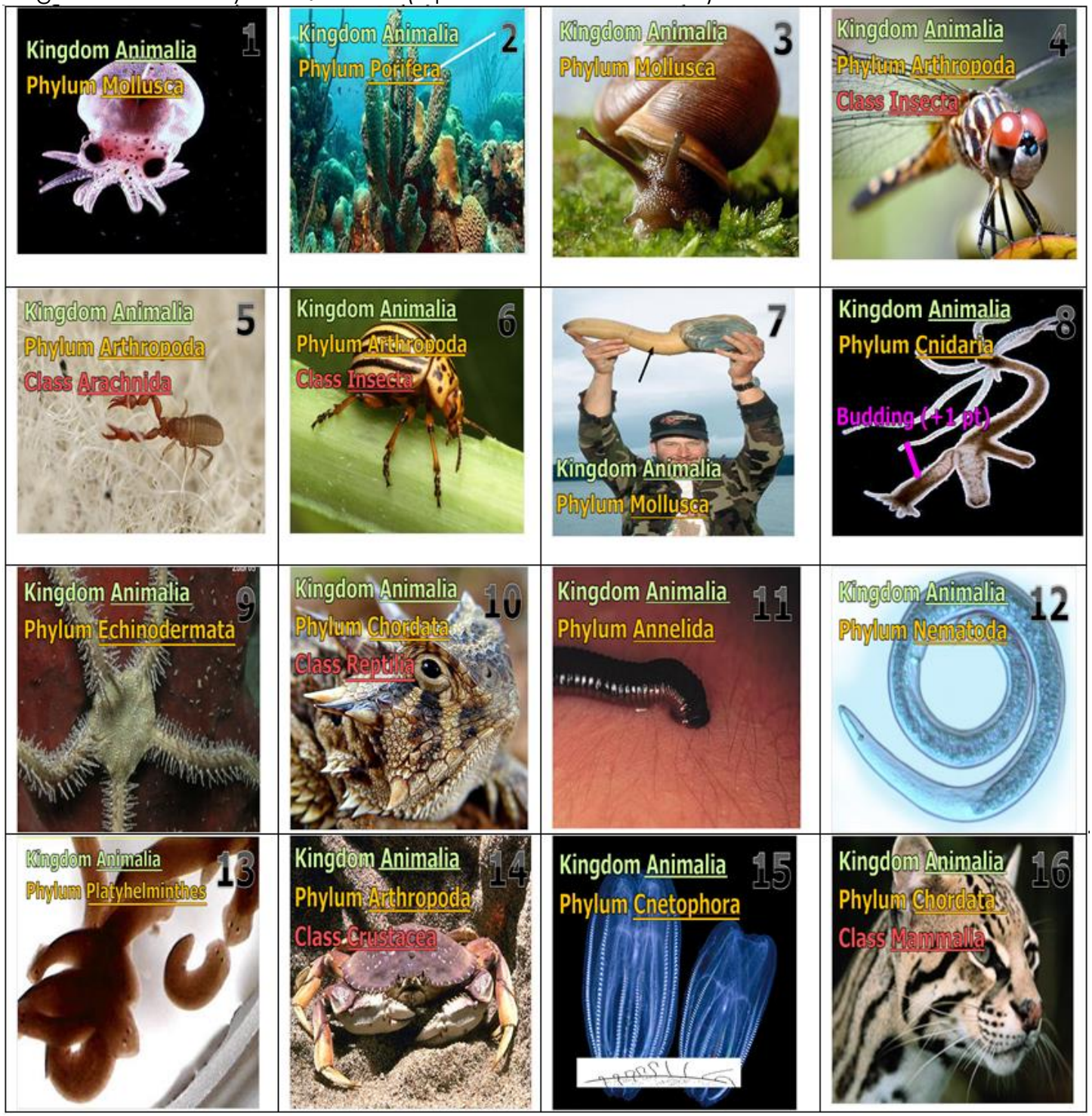
Reptilia



Actinopterygii

Part 11, 12, and 13 Wrap-Up/Review, Phylum Quiz and Quiz Answers

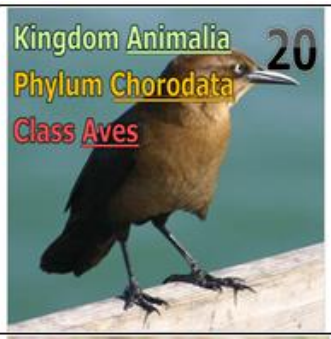
Kingdom Animal Phylum Quiz 1-33 (3 points each with bonus) 1 owl



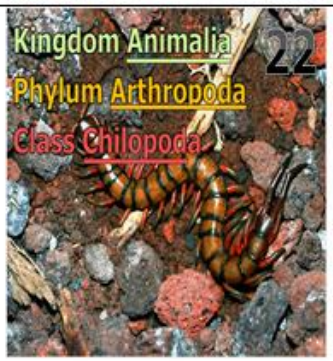

Kingdom Animalia
Phylum Rotifera
17

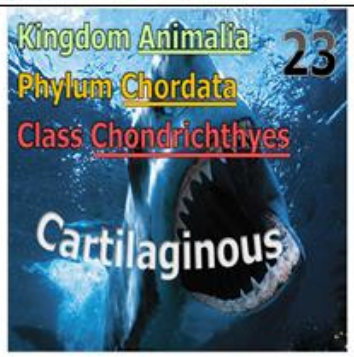

Kingdom Animalia
Phylum Cnidaria
18


Kingdom Animalia
Phylum Echinodermata
19


Kingdom Animalia
Phylum Chorodata
Class Aves
20

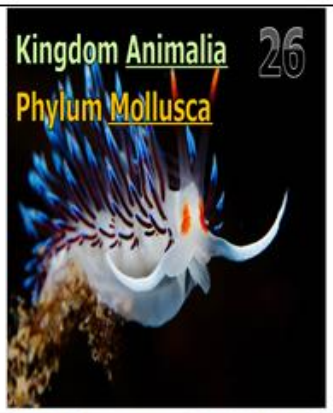

Kingdom Animalia
Phylum Chordata
Class Agnatha
21
Jawless
Fish

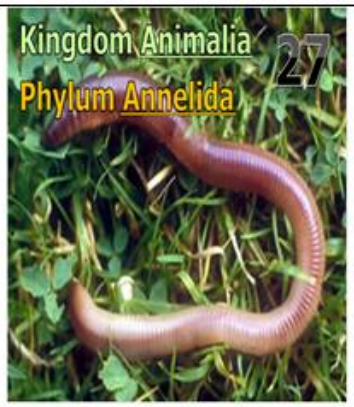

Kingdom Animalia
Phylum Arthropoda
Class Chilopoda
22

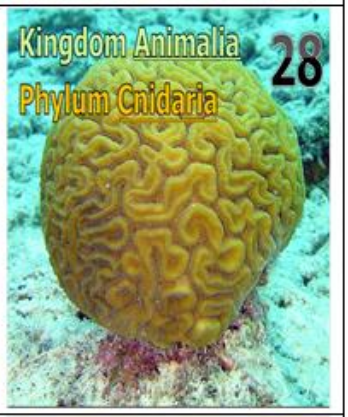

Kingdom Animalia
Phylum Chordata
Class Chondrichthyes
23
Cartilaginous

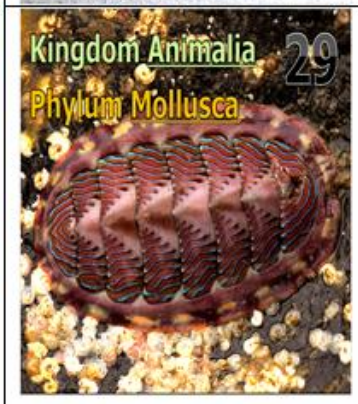

Kingdom Animalia
Phylum Chordata
Class Amphibia
24

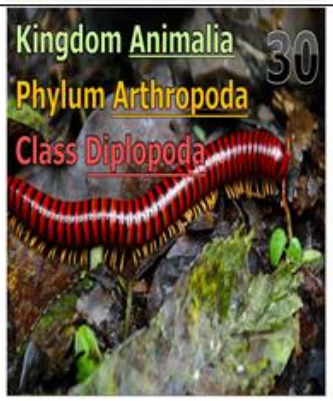

Kingdom Animalia
Phylum Arthropoda
Class Arachnida
25

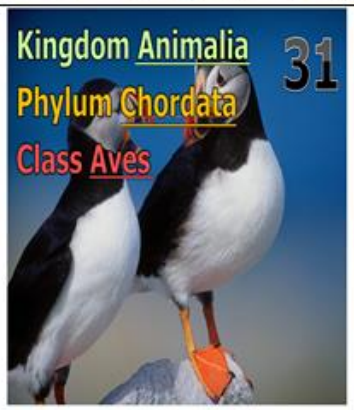

Kingdom Animalia
Phylum Mollusca
26


Kingdom Animalia
Phylum Annelida
27


Kingdom Animalia
Phylum Cnidaria
28


Kingdom Animalia
Phylum Mollusca
29


Kingdom Animalia
Phylum Arthropoda
Class Diplopoda
30


Kingdom Animalia
Phylum Chordata
Class Aves
31


Kingdom Animalia
Phylum Chordata
Class Osteichthyes
32
Bony Fish

Part 4 Lesson 13 Mammals

Class Mammalia: Vertebrate animals constituting the class Mammalia and characterized by the presence of mammary glands which in females produce milk for feeding (nursing) their young, a neocortex (a region of the brain), fur or hair, and three middle ear bones.
These characteristics distinguish them from reptiles and birds, from which they diverged over 300 million years ago.

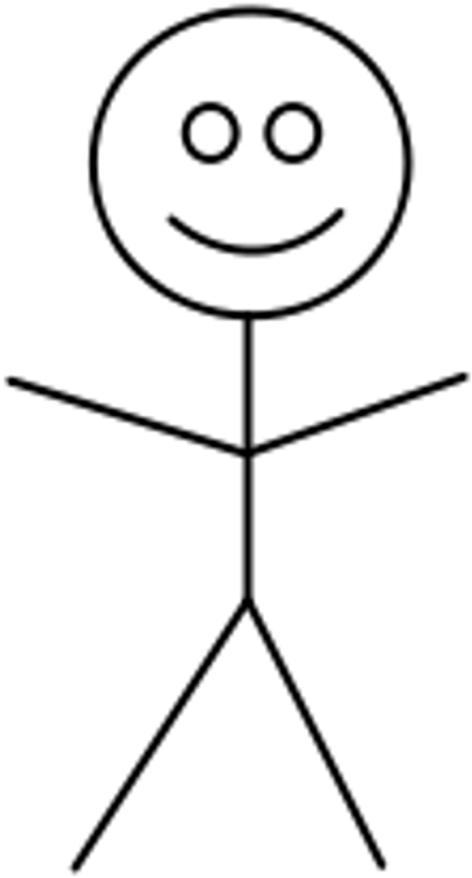
3 subclasses of mammals
- -Eutheria: Placental Mammals.
- -Metatheria: (Marsupials).
- -Prototheria / Monotremes (egg laying mammals).

Part 4 Lesson 14 Characteristics of Mammals

Characteristics of Mammals
- -Have hair
- -Warm -bloodedness.
- -Mammary Glands: Nourish young with milk.
- -Circulatory system: Four chambered heart.
- -Respiratory system: Lungs are large.
- -Reproductive system: Young live inside in an embryo.
- -Fat and energy storage.
- -Brain: Largest in the animal world.
- -Digestive system: Sweat glands are present.
- -3 Small Bones in ear
- -Musculature system: Highly plastic for high speed locomotion.
- -Hinged lower jaw.

Show that the stick figure is a mammal by decorating it with mammalian characteristics. Notes should be provided in the margin.

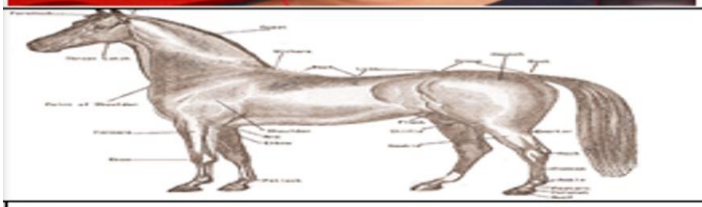
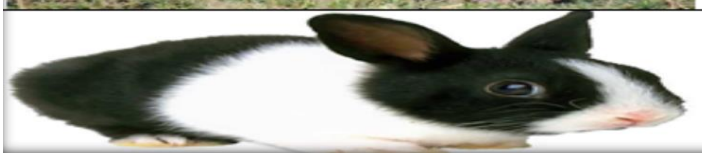
- Characteristics of Mammals
  - -Have hair
    - -Warm -bloodedness.
    - -Mammary Glands: Nourish young with milk.
  - -Circulatory system: Four chambered heart.
  - -Respiratory system: Lungs are large.
  - -Reproductive system: Young live inside in an embryo.
  - -Fat and energy storage.
  - -Brain: Largest in the animal world.
  - -Digestive system: Sweat glands are present.
  - -3 Small Bones in ear
  - -Musculature system: Highly plastic for high speed locomotion.
    - -Hinged lower jaw.



Which is not a characteristics of Mammals? A.) Have hair. B.) General cold-bloodedness. C.) Mammary Glands: Nourish young with milk. D.) Circulatory system: 4 chambered heart. E.) Respiratory system: Lungs are very large. F.) Reproductive system: Young live inside in an embryo. G.) Fat and energy storage. H.) Brain: Largest in the animal world. I.) Digestive system: Salivary glands are present. J.) Small Bones in ear K.) Sweat Glands (Most Mammals). L.) Teeth: Heterodonty - specialized for feeding/diet. M.) Musculature system: Highly plastic for high speed locomotion. N.) Hinged lower jaw.	Which is not a characteristics of Mammals? A.) Have hair. B.) General warm-bloodedness. C.) Mammary Glands: Nourish young with milk. D.) Simple circulatory system: 1 chamber. E.) Respiratory system: Lungs are very large. F.) Reproductive system: Young live inside in an embryo. G.) Fat and energy storage. H.) Brain: Largest in the animal world. I.) Digestive system: Salivary glands are present. J.) Small Bones in ear K.) Sweat Glands (Most Mammals). L.) Teeth: Heterodonty - specialized for feeding/diet. M.) Musculature system: Highly plastic for high speed locomotion. N.) Hinged lower jaw.

Part 4 Lesson 5 Orders of Mammals

Please record the name of the order and a bit of information about each order of mammal in the boxes below using the mammal info sheet. Please include the common name as well.

	Order Proboscidea
	Order Insectivora
	Order Primates
	Order Perissodactyla
	Order Pholidata
	Order Chiroptera
	Order Hyracoidae
	Order Monotremata
	Order Carnivora
	Order Lagomorpha

	Order Cetacea
	Order Pinnipedia
	Order Artiodactyla
	Order Edentata
	Order Dermoptera
	Order Turbulidentata
	Order Sirenia
	Order Marsupialia
	Order Rodentia

All animals with backbones, including humans, are chordates. That is, in the language of taxonomy, they belong to the phylum Chordata. Their subphylum is Vertebrata, meaning that their backbones are segmented. Mammals, members of the class Mammalia of vertebrate animals that includes humans, are the most highly advanced organisms on Earth. They are warm-blooded, hairy, have four-chambered hearts, relatively large brains, and they suckle their young.

There are 19 orders of mammals in the world. Ten of these live in North America. Some orders include a wide range of animals; for example, shrews, lemurs, marmosets, monkeys, apes, and humans are all primates, one order of the class of mammals. Other orders are made up of only one sort of creature; Order Chiroptera, or example, consists of 18 families of bats.

The Latin names of the orders of mammals given here are followed by their common names and the families that make up each order. Examples of the various types of animals included in each family also are given.

Order Artiodactyla (even-toed hoofed animals)

Hoofed animals with an even number of toes include those that ruminate, or digest their food in four-chamber stomachs and chew cuds, and those that do not ruminate. Those that ruminate are the families Girrafidae (giraffes). Cervidae (deer, moose, reindeer, elk). Antilocapridae (pronghorn antelope), and Bovidae (cattle, bison, yaks, waterbucks, wildebeest, gazelles, springboks, sheep, musk oxen, goats). Nonruminators include the families Suidae (pigs), Tayassuidae (peccaries), Hippopotamidae (hippopotamuses), and Camelidae (camels, llamas).

Order Carnivora (meat-eaters)

There are two suborders of these toe-footed creatures. They include the Canidae (wolves, dogs, jackals, foxes), Ursidae (bears, giant pandas), Procyonidae (coatis, raccoons, lesser pandas), and Mustelidae (martens, weasels, skunks, otters), all part of one superfamily that is characterized by long snouts and unretractable claws; and Felidae (cats, lions, cheetahs, leopards) Hyaenidae (hyenas), and Viverridae (mongooses, civets), all of which have retractable claws.

Order Cetacea (whales and porpoises)

Two suborders of Order Cetacea are the toothed whales, which have regular conical teeth, and the baleen, or whalebone, whales, which have irregular whalebone surfaces instead of teeth. Toothed whales include the families Physeteridae (sperm whales), Monodontidae (narwhals, belugas), Phocoenidae (porpoises), and Delphinidae (dolphins, killer whales). Baleens are in the family Eschrichtiidae (gray whales), Balaenidae (right whales), or Balaenoptridae (fin-backed whales, hump-backed whales).

Order Chiroptera (bats)

There are two suborders of bats, the only mammals that can fly. Suborder Megachiroptera contains one family, the Pteropodidae (flying foxes, Old Worm fruit bats). Suborder Microchiroptera contains 17 families, including: Rhinopomatidae (mouse-tailed bats), Emballonuridae (sheath tailed bats), Craseonycteridae (hog-nosed or butterfly bats), Noctilionidae (bulldog or fisherman bats), Nycteridae (slit-faced bats), Megadermatidae (false vampire bats), and Rhinolophidae (horseshoe bats).

Order Dermoptera (colugos or flying lemurs)

These gliding tree mammals from Asia do not fly and are not lemurs, but they are known as flying lemurs, or Family Cynocephalidae .

Order Edentata (toothless mammals)

Three families of mammals get by without teeth: Dasypodidae (armadillos), Bradypodidae (sloths), and Myrmecophagidae (hairy anteaters).

Order Hyracoidae (hyraxes, dassies)

Order Hyracoidae is one of three orders that has only one modern family remaining. Procavia capensis (the African rock hyrax) is one of nine living species in the Family Procaviidae .

Order Insectivora (insect-eaters)

The three members are the families Talpidae (moles), Soricidae (shrews), and Erinaceidae (hedgehogs).

Order Lagomorpha (pikas, hares, and rabbits)

Two families make up this order: Ochotonidae (pikas) and Leporidae (hares and rabbits of all sorts).

Order Marsupialia (pouched animals)

Included among these are the families Caenolestidae (rat opossums), Diddeelphidae (true opossums), Dasyuridae (native cats, native mice), Notoryctidae (marsupial moles), Myrmecobiidae (numbats), Peramelidae (bandicoots), Phalangeridae (koalas), Vombatidae (wombats), and Macropodidae (kangaroos and wallabies).

Order Monotremata (egg-laying mammals)

These more primitive mammals make up the families Tachyglossidae (echidnas, also called spiny anteaters) and Ornithorhynchidae (platypuses).

Order Perissodactyla (odd-toed hoofed animals)

The two suborders, Hippomorpha and Ceratomorpha, include creatures that have an odd number of toes. Families in this order are the Equidae (horses, donkeys, zebras), the Tapiridae (tapirs), and the Rhinocerotidae (rhinoceroses).

Order Pholidata

Family Manidae (pangolins) is the sole family in this order.

Order Pinnipedia (seals and walruses)

In the fin-footed order there are Otariidae (eared seals, sea lions), Odobenidae (walruses), and Phocidae (earless seals).

Order Chiroptera (bats) The only Flying Mammal (Capable of sustained fight / Not gliding only).

Order Proboscidea (elephants)

Large enough to have an order all to itself is Family Elephantidae .

Order Primates (apes, monkey, lemurs, gorilla)

Primates include prosimians and simians. Primates arose from ancestors that lived in the trees of tropical forests; many primate characteristics represent adaptations to life in this challenging three-dimensional environment. Most primate species remain at least partly arboreal.

The order to which people belong is divided into two suborders: The Prosimii , who have longer snouts than their relatives, and the Anthropoidae . The first group includes the families Tupalidae (tree shrew), Lemuridae (lemurs), Daubentonlidae (aye-ayes), Lorisidae (lorises, pottos), and Tarsiidae (tarsiers). The anthropoids include the families Callitrichidae (marmosets), Cebidae (New World monkeys), Cercopithecidae (baboons, Old World monkeys), Hylobatidae (gibbons), Pongidae (gorillas, chimpanzees, orangutans), and Hominidae (human beings).

Order Rodentia (gnawing mammals)

The most prolific mammals, Order Rodentia includes three suborders. It takes in the families Aplodontidae (mountain beavers), Sciuridae (chipmunks, squirrels, marmots), Cricetidae (field mice, lemmings, muskrats, hamsters, gerbils), Muridae (Old World mice, rats), Heteromyidae (New World mice), Geomyidae (gophers), and Dipodidae (jerboas).

Order Sirenia (dugongs and manatees)

The families Trichechidae (manatees) and Dugongidae (dugongs and other sea cows) make up the Order Sirenia .

Order Tubulidentata (aardvarks)

Another mammal in an order by itself is Family Orycteropodidae.

Name some of the orders of mammals below. If you want to mention subclass – Awesome!

I am a Manatee

- **Order Sirenia (dugongs and manatees)**
- The families Trichechidae (manatees) and Dugongidae (dugongs and other sea cows) make up the Order Sirenia .

- **Order Lagomorpha (pikas, hares, and rabbits)**
- Two families make up this order: Ochotonidae (pikas) and Leporidae (hares and rabbits of all sorts).

I am even toed

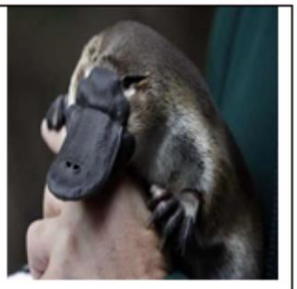
- **Order Artiodactyla (even-toed hoofed animals)**
- Hoofed animals with an even number of toes include those that ruminate, or digest their food in four-chamber stomachs and chew cuds, and those that do not ruminate. Those that ruminate are the families Girrafidae (giraffes). Cervidae (deer, moose, reindeer, elk).

- **Order Marsupialia (pouched animals)**
- Included among these are the families Caenolestidae (rat opossums), Diddeelphidae (true opossums), Dasyuridae (native cats, native mice), Notoryctidae (marsupial moles), Myrmecobiidae (numbats), Peramelidae (bandicoots), Phalangeridae (koalas), Vombatidae (wombats), and Macropodidae (kangaroos and wallabies).

Order Pholidota

- **Order Carnivora (meat-eaters)**

- **Order Insectivora (insect-eaters)**



- **Order Monotremata (egg-laying mammals)**

- **Order Edentata (toothless mammals)**
- **Order Tubulidentata (aardvarks)**
- Another mammal in an order by itself is Family Orycteropodidae.

- **Order Rodentia**
- **(gnawing mammals)**

Order: Pinnipedia

Order Cingulata

- **Order Primates (apes, monkey, lemurs, gorilla)**

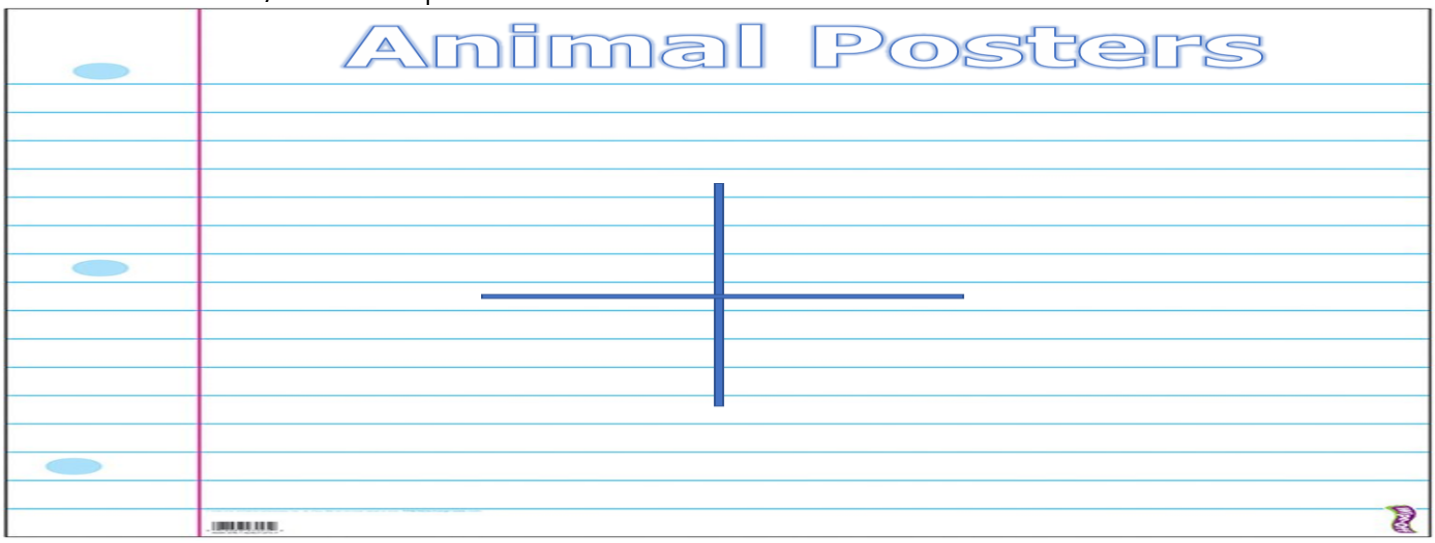
- **Order Chiroptera**
- (bats) **The only Flying Mammal**

- **Order Cetacea (whales and purpoises)**

- **Order Perissodactyla**

Odd Toed

Please visit four kingdom animalia posters are record important information. Space for the name or a visual / sketch is provided.



Please name the animal below.

Common Name: Okapi

The okapi, also known as the forest giraffe, Congolese giraffe, or zebra giraffe, is an artiodactyl mammal that is endemic to the northeast Democratic Republic of the Congo in central Africa. Although the okapi has striped markings reminiscent of zebras, it is most closely related to the giraffe.

Family: Giraffidae
Order: Artiodactyla
Kingdom: Animalia
Phylum: Chordata

Okapia johnstoni

Please name the animal below.

Common Name: Toe Pinching Beetle / Giant Water Bug

Genus: Lethocerus; Mayr, 1853
Family: Belostomatidae
Order: Hemiptera
Kingdom: Animalia
Suborder: Heteroptera

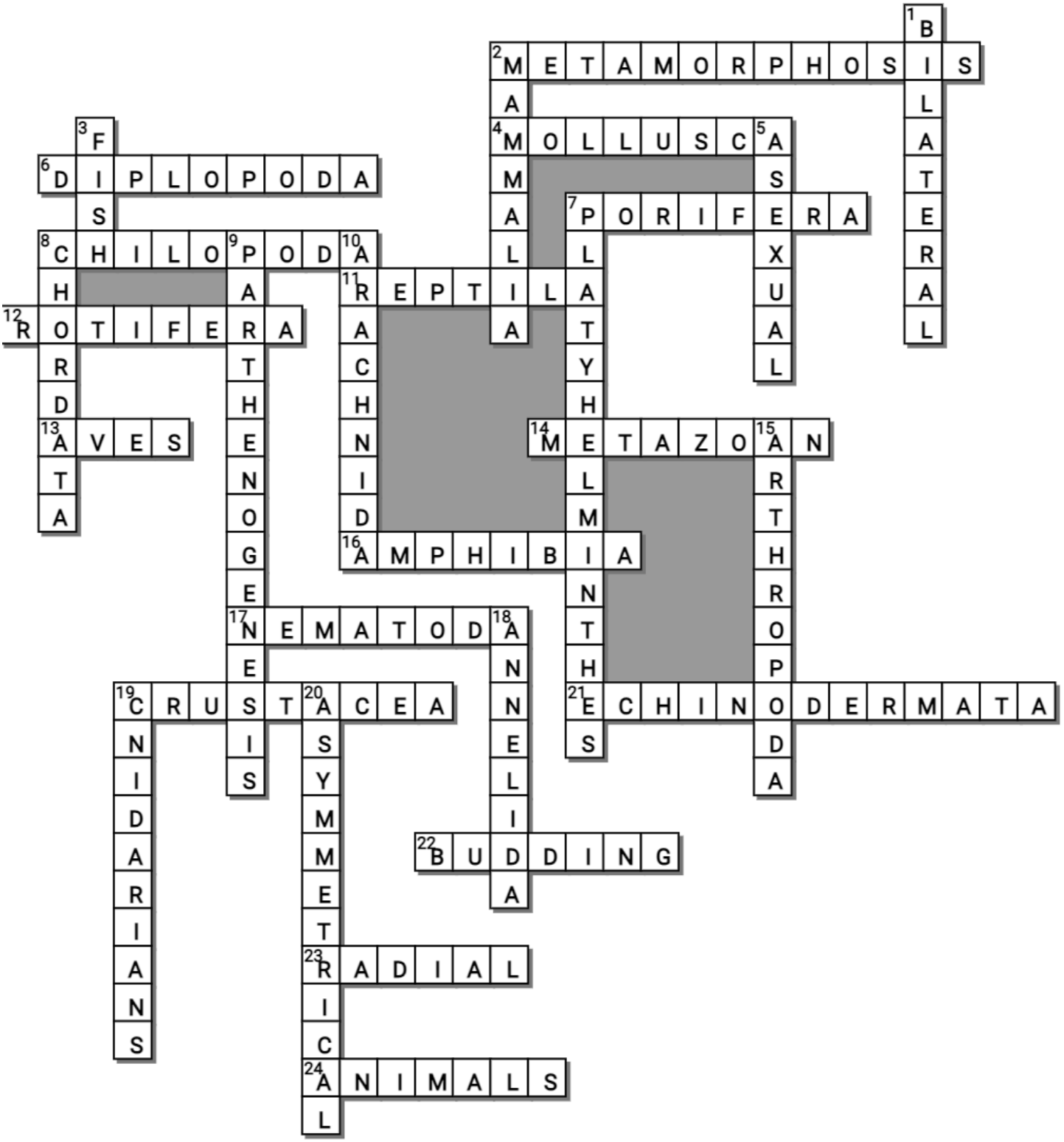
Lethocerus is a genus of the hemipteran family Belostomatidae, known colloquially as giant water bugs, toe biters and electric light bugs, distributed in tropical, subtropical and temperate areas of the world.

Across

2. is a biological process by which an animal physically develops after birth or hatching, involving a relatively abrupt change in the animal's body structure through cell growth and differentiation. Describe the process below.
6. Class _____. The Millipedes
7. Phylum _____ "Sponges" Asymmetrical. They are a basal animal clade as a sister of the Diploblasts.
8. Class _____. The Centipedes
11. Class _____, the group of air-breathing vertebrates that have internal fertilization, amniotic development, and epidermal scales covering part or all of their body.
12. Phylum _____ These are microscopic filter feeding aquatic animals found in many freshwater environments and in moist soil.
13. Class _____ (Birds) are a group of warm-blooded vertebrates.
14. M_____ animals: They are multicellular, mitochondrial eukaryotes with differentiated tissues, including nerves and muscles.
16. Class _____: Double Life – Land and water.
17. Roundworms, Phylum N_____ are bilaterally symmetrical, surrounded by a strong, flexible noncellular layer called a cuticle.
19. Class of Arthropod, Class _____ Have a Head and abdomen Some have many legs (8+) with many jobs. Most are aquatic
21. Phylum _____ The adults are recognizable by their radial symmetry and hard spiny skin. They include starfish, sea urchins, sand dollars, and sea cucumbers, as well as the sea lilies
22. When offspring develop as a growth on the body of the parent.
23. This is a type of animal symmetry where the organism is arranged equally in all directions from a central point.

Down

1. This is a type of animal symmetry where the organisms is the same on both sides.
2. Class _____ Vertebrate animals constituting the class Mammalia and characterized by the presence of mammary glands which in females produce milk for feeding (nursing) their young, a neocortex (a region of the brain), fur or hair, and three middle ear bones.
5. _____ reproduction: A mode of reproduction by which offspring arise from a single parent.
7. Phylum _____. These are the flatworms, Simple bilateral, unsegmented, soft-bodied invertebrates. They are acoelomates (having no body cavity) and have no specialized circulatory or respiratory system (why they're flat) so oxygen and nutrients can through by diffusion.
8. Phylum _____ Having a backbone or notocord.
9. P_____, the females produce eggs, but these develop into young without ever being fertilized.
10. Class of Arthropoda, Class _____ has 8 legs. No antennae or wings. Two body parts. Head and sensory. Abdomen. Most live on land.
15. Phylum _____ Segmented joints, exoskeleton, Bilateral symmetry
18. Phylum _____. These are the segment worms
20. This when an animal has no symmetry



----------Teacher can remove this word bank to make puzzle more challenging----------

Possible Answers

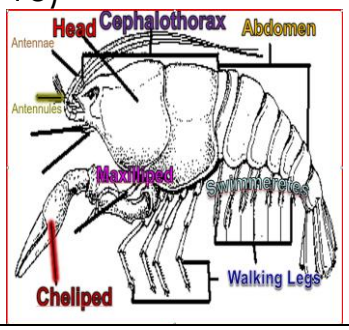
AMPHIBIA, ANIMALS, ANNELIDA, ARACHNIDA, ARTHROPODA, ASEXUAL, ASYMMETRICAL, AVES, BUDDING, CHILOPODA, CHORDATA, CNIDARIANS, CRUSTACEA, DIPLOPODA, ECHINODERMATA, FISH, MAMMALIA, METAMORPHOSIS, METAZOAN, MOLLUSCA, NEMATODA, PARTHENOGENESIS, PLATYHELMINTHES, PORIFERA , RADIAL, REPTILA, ROTIFERA , BILATERAL

Part 4 Review Game Lesson 16

Name:

1-10 = 5 pts * = Bonus + 1 pt,
(Secretly write owl in correct space +1 pt)
Final Question = 5 pt wager

Due: Today
Score ____ / 100

GOING WILD	SYMM CITY	FILE THEM	FURBIE	FAMOUS ANIMALS Bonus round 1 pt each
1) D.) A eukaryotic multi-cellular heterotrophic organisms that consumes food. No Cell Walls	6) Asymmetrical	11) A=Nematoda B=Platyhelminthes C=Annelida	16) Subclass Metatheria	*21) Lassie
2) E.) Has Cell Walls.	7) Mollusca	12) A=True Jelly (Scyphozoa) B=Box Jelly (Cuboza) C=Coral (Anthozoa) D=Hydra (Hydrozoa)	17) Egg Laying Mammals	*22) Boo Boo
3) Budding	8) Echinodermata	13)  	18) Placenta	*23) Steve
4) Radial Symmetry	9) Porifera	14) Arthropoda, Insecta	19) Bat = Order Chiroptera	*24) Snorks
5) Bilateral Symmetry	10) A=Crustacea B=Diplopoda C=Arachnida D=Insecta E=Chilopoda	15) Amphibia and Reptilia were switched	20) Opossum	*25) Monchhichis

Final Question Wager ___/5 Answer: Arachnida