

Name: \_\_\_\_\_

Date: \_\_\_\_\_

## Phylum Chordata

### Student Notes Worksheet

#### *General Characteristics*

- To be a chordate, an organism must, for at least some stage of its life, have:
- A \_\_\_\_\_, \_\_\_\_\_ nerve cord
- A \_\_\_\_\_ (a long supporting rod that runs through the body just below the nerve cord)
- \_\_\_\_\_ pouches (paired, pouch-like structures in the throat region)
- A \_\_\_\_\_ that extends beyond the \_\_\_\_\_

#### *Chordates vs. Vertebrates*

- Most chordates are \_\_\_\_\_ (have backbones). Two groups do not: the \_\_\_\_\_ and the \_\_\_\_\_.
- A backbone is made of individual segments called \_\_\_\_\_.
- Functions of a vertebral column:
  - Enclose and protect the \_\_\_\_\_
  - As part of the endoskeleton it provides \_\_\_\_\_ and \_\_\_\_\_ as well as a location for \_\_\_\_\_ attachment

#### *Classification & Examples:*

##### *Non-vertebrate Chordates*

- There are two groups of chordates which do not have backbones:
  - Tunicates: filter feeders known as “\_\_\_\_\_”
  - [Tunicate animation](#)
  - Lancelets: a small \_\_\_\_\_ organism with \_\_\_\_\_
  - See hand sample

##### *Body functions: Fishes*

- Feeding:** every mode of feeding; one-way digestive tract
- Respiration:** almost all utilize \_\_\_\_\_
- Circulation:** \_\_\_\_\_ circulatory systems with one heart (one exception) – heart contains one \_\_\_\_\_ and one \_\_\_\_\_

•**Excretion:** \_\_\_\_\_ filter blood to produce ammonia while other wastes escape through the \_\_\_\_\_

•**Response:** well developed \_\_\_\_\_ which coordinates a variety of sensory organs – chemical senses and \_\_\_\_\_ vision are the most developed senses

•**Movement:** \_\_\_\_\_ propel and steer fish through the water

•**Reproduction:** internal or external fertilization

• \_\_\_\_\_: eggs hatch outside mother's body

• \_\_\_\_\_: eggs hatch within the mother and are then born "live"

• \_\_\_\_\_: do not develop in eggs at all – born "live"

### *Class Agnatha*

- The "\_\_\_\_\_ Fishes"
- Includes the \_\_\_\_\_ (left) and the \_\_\_\_\_ (right).
- The Hagfish will produce copious amounts of disgusting \_\_\_\_\_ when disturbed.
- Lamprey attach to host species of fish by a sucking (oral) disk. Sea lampreys suck the \_\_\_\_\_ out of host species by using teeth and a grasping tongue that often leave hosts dying or dead.

### *Class Chondrichthyes*

•Includes \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_

•Skeletons made up of \_\_\_\_\_

•Most are covered in rough \_\_\_\_\_

•Most sharks have numerous rows of \_\_\_\_\_ and replace their \_\_\_\_\_ as they wear out

•More than one \_\_\_\_\_ slit – not muscular so sharks must keep moving to respire.

•E.g. Great White Shark and Stingray

### *Class Osteichthyes*

• \_\_\_\_\_ skeleton

• \_\_\_\_\_ gill slit – muscular covering which can "pump" water over the gills

•Most belong to the "\_\_\_\_\_ " fishes which have thin fins. Seven species belong to the "\_\_\_\_\_ " fishes which have thicker, bone-supported fins.

•E.g. Great barracuda & angler fish

### ***Bony fish body plan***

#### ***Class Amphibia***

- \_\_\_\_\_, \_\_\_\_\_, frogs and toads are examples of amphibians.
- \_\_\_\_\_ in limbs and limb girdles \_\_\_\_\_ than those in fish to allow \_\_\_\_\_ movement
- Heart has \_\_\_\_\_ atria and \_\_\_\_\_ ventricle – an advancement from fish.
- Eggs are not protected by a \_\_\_\_\_, so they must be laid in \_\_\_\_\_ or they will dry out, \_\_\_\_\_ the embryo.
- E.g. red eyed tree frog and Giant Pacific Salamander

#### ***The Double Lives of Amphibians***

- Amphibian eggs must be laid in water to avoid drying out.
- \_\_\_\_\_ amphibians (e.g. a tadpole) must live in the \_\_\_\_\_ and respire using \_\_\_\_\_.
- Amphibians go through a \_\_\_\_\_ into the adult form and begin to breathe air using \_\_\_\_\_.
- Adult amphibians are \_\_\_\_\_. The \_\_\_\_\_ also plays an important role in \_\_\_\_\_ and must remain \_\_\_\_\_.

### ***Fish and Amphibian Video***

#### ***Class Reptilia***

- Includes:
  - lizards & snakes
  - crocodilians
  - turtles & tortoises
  - tuataras (resemble lizards)
- Well-developed lungs and “\_\_\_\_\_” chambered heart
- \_\_\_\_\_ limbs
- \_\_\_\_\_ excretory system
- \_\_\_\_\_ – “cold blooded”
- \_\_\_\_\_ fertilization
- Lay \_\_\_\_\_ in \_\_\_\_\_ so they are not tied to water for reproduction
- B.C. species include Western Yellow-Bellied Racer and Western Painted Turtle

### *Class Aves*

- Outer covering of \_\_\_\_\_
- Two legs covered in \_\_\_\_\_ for walking or perching; Two limbs covered in feathers modified into \_\_\_\_\_.
- most species can fly
- \_\_\_\_\_ flow of air through the respiratory system via **air sacs** and then the lungs – allows higher \_\_\_\_\_ rate
- \_\_\_\_\_ chambered heart – “double loop” circulation.
- \_\_\_\_\_ – “warm blooded”
- \_\_\_\_\_ fertilization
- Lay \_\_\_\_\_ in shells
- B.C. species include the Bald Eagle and Great Blue Heron

### *Reptile and Bird Video*

### *Class Mammalia*

- Groups:
- \_\_\_\_\_ – lay eggs
- \_\_\_\_\_ – most development occurs in pouches
- \_\_\_\_\_ – development occurs inside the mother
- Bodies covered in \_\_\_\_\_
- Produce milk in \_\_\_\_\_ **glands**
- Breathe air and have a \_\_\_\_\_ chambered heart
- Well developed \_\_\_\_\_ \_\_\_\_\_ for higher level thinking
- \_\_\_\_\_ (warm-blooded) and have \_\_\_\_\_ fat
- \_\_\_\_\_ are well adapted to the type of food consumed

### *Mammal Video*

### *Orders of Placental Mammals*

- For interest sake, take a look at pages 830 – 831 in the text to see the various orders of placental mammals. Pretty cool!