

Phylum Mollusca Notes Part 1**I. Phylum Mollusca**

- a. Mollusks are _____ animals that usually have an internal or external shell.
- b. Mollusks include: _____, _____, _____, _____, and _____

II. Anatomy

- a. The body plan of most have ___ parts: mantle, shell, visceral mass, and foot.
1. The _____ is a thin layer of tissue that covers most of the mollusk's body like a cloak.
 2. The _____ is made by glands in the mantle that secretes calcium carbonate
 - _____ or _____ in slugs
 - Internal or lost in _____ (squid/octopus)
 3. _____ is just beneath the mantle and consists of the internal organs. The muscular _____ takes many forms, including _____ structures for crawling, spade-shaped for burrowing, and tentacles for capturing food.

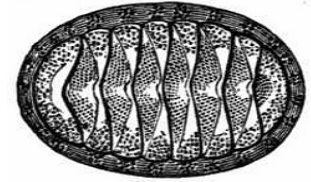
III. Feeding

- _____ are herbivores, carnivores, filter feeders, detritivores, and parasites.
 - _____ are organisms that feeds on plant and animal remains and other dead matter
 - _____ are organisms that feeds on plants.
 - _____ feed on animals.
- Mollusks have a _____: a rough, _____-like organ with rows of _____ like structures. Some use it to scrape algae off surfaces, and other use it to rasp up flesh from prey.

IV. Phylum Mollusca: Classification

- There are _____ classes of Mollusks (We are covering _____)
1. **Class Polyplacophora:** _____
 2. **Class Gastropoda:** _____, _____, & sea _____
 3. **Class Bivalvia:** _____, _____, _____ & _____
 4. **Class Cephalopoda:** _____, _____, _____, & _____

1. Class Polyplacophora



Chiton

- Includes _____
- Marine
- Have a reduced _____ and a _____ foot
- The shell is divided into _____ articulating dorsal _____
- When disturbed, the edges of the _____ tightly grip the substrate creating a powerful vacuum that holds the chiton in place
- Has the ability to _____ into a ball when _____

2. Class Gastropoda

- Gastropoda means “ _____ ”
- Includes _____, _____, & _____
- Most are _____ shelled
- Some are shell-less (_____ & _____)
- They are 2nd only to _____ in their number of _____ species
- Can be found living in _____, in _____, in deserts, _____ and _____; in estuaries, mudflats, the rocky intertidal, the sandy subtidal, in the depths of the oceans, and many other _____
- They move using a muscular _____
- Many have 2 or 4 _____ with _____ on the tip
- Most have a coiled _____ that opens to the _____
- The Lightning Whelk is the only “ _____ ” snail
- Many have an _____ that is used as a “ _____ ” to close the body inside the shell
- Most breath using _____
- Many _____ feed on gastropods
 - Example: _____ eat abalone
- Hermit _____ inhabit _____ snail shells.
 - The crabs do not _____ the shells, the _____ do.
 - When the crab gets too _____ for the shell, they find a _____ one.
 - Hermit crabs have _____ for prized shells.

Class Gastropoda: Suborder Nudibranchia

- Means “ _____ ”
- Are all _____ gastropods
- The _____ are arranged as feathery _____ on their backs

○ Are brightly _____ Warning: many are _____
Name _____ Date _____

Phylum Mollusca Notes Part 2

3. Class Bivalvia

- a. _____, _____, _____ & _____
- b. Have _____ shells that are held together by powerful _____.
- c. _____ can move around by flapping their shells when threatened.
- d. Live _____ in water
- e. The only Mollusks that don't have a _____
- f. Feed by _____ and _____ large particles from water
- g. Can survive for short times out of water by closing their _____
- h. _____, many _____ (Oyster Catchers, willets, plovers, and much more), and walrus feed on them
- i. The largest Gastropod is the _____ (Can weight more than _____ lbs)

Class Bivalvia: Making Pearls

- An irritant, such as a grain of _____, becomes embedded in the mantle.
- The animal coats the _____ with the same material used to produce the lining of its shell called **mother-of-pearl**.
- The coating makes the irritant less _____.
- It continues to coat the irritant, creating a _____.

Class Bivalvia: Importance

- _____ are filter feeders
- Because they filter feed, they provide a valuable service by reducing _____ particles in their habitats
- If their populations are reduced, their water in that area will become _____
- Turbid water (cloudy) reduces _____ penetration for photosynthesis in sea-grasses and algae
- Without plants, many other populations of organisms will also decrease
- "Oysters on a half-shell"
- Eaten _____, _____, or _____

4. Class Cephalopoda

- a. Typically soft-bodied with the _____ attached to a single _____.
- b. The foot is divided into _____ or _____.
- c. Most swim by forcefully expelling _____ from the mantle cavity through a ventral funnel (Siphon).
- d. Swim using _____ propulsion method.
- e. Funnel can point forward or backward to control _____
- f. The force of water expulsion determines speed.
- g. Cephalopods (squids/octopus) have _____: similar to a _____ beak, used for crushing and picking apart food.
- h. Color changes are possible due to special _____ cells contained within its skin, called **chromatophores**.
 - These cells which are small structures filled with colored _____ which can be expanded and contracted to communicate with others or as camouflage against the landscape.
 - Color changes are used for:
 - _____
 - Communication (_____ / _____)
 - Many are _____ to attract prey and mating partners!
- i. Maze and _____ experiments have shown that they do have both short-and long-term memory.
- j. Can be trained to distinguish between different _____ & _____
- k. Observed having _____ skills



Name _____

Date _____

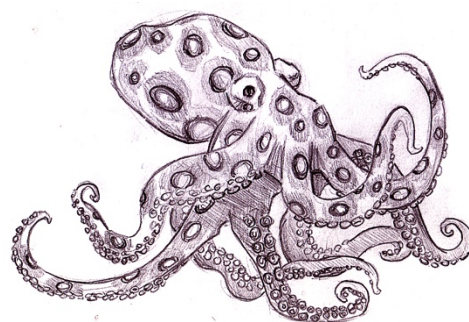
Phylum Mollusca Notes Part 3

Octopus:

- Have _____ arms
- Arms have _____ disks that _____ & hold _____.
- Blood is pale _____.
- The _____ is absent!
- When female lays eggs, she stops _____, & protects her eggs until she _____.

Blue-ringed Octopus:

- The most _____
- A bite is nearly always _____ to humans.



Giant Octopus:

- Can weigh _____ lbs
- Known to attack _____ and bite into metal

Eating Octopus

- People eat octopus: Dead or _____!
- A dish called “San Nakti” means “living octopus”
 - Kind of difficult to get the octopus down because the tentacles stick to your mouth and throat.
 - They also have a tendency to walk off your plate!

Squid & Cuttlefish

- Have 10 appendages (_____):
- 8 _____ with suckers and 2 long retractile _____

Cuttlefish:

-- Have an internal gas filled “_____” that helps with buoyancy called the **cuttlebone**.

Squid:

- Color changes reflect the animal’s _____.



- Messages: ready to _____, sexual identification, _____, ready to hunt, & hiding.
- Most of the shell has disappeared, leaving only a thin, horny strip called a _____ which is enclosed in the mantle.
- Giant Squid are the largest _____
 - Have the largest _____ in the animal kingdom
 - Never been seen alive!!!
 - Their bodies wash up onto _____
 - _____ whales feed on giant squid

Nautilus

- Sticking out from the shell is the nautilus' arms and a leathery _____ that closes the animal into its shell for protection.
- This nautilus has more than 90 _____.
- The only cephalopod encased in a _____.
- The nautilus can fill the chambers it doesn't occupy with _____ or _____. If the chambers are filled with gas, the animal will float. If the chambers are filled with water, the animal will _____.
- The living animal inhabits only the _____ chamber.
- As it grows, it moves forward, secreting behind it a new _____.
- The chambers are connected by a cord of living tissue called a _____, which extends from the visceral mass.

