

Name: _____

Date: _____ Period: _____

Review Sheet: Mollusks

Mollusks:

- Mollusks - soft bodies with bilaterally symmetry that are composed of a head, foot, and coiled visceral mass
- More than 100,000 species which are classified into several distinct groups:
 - Bivalves - clams, oysters, scallops, mussels
 - Gastropods - snails and slugs
 - Cephalopods - squids, octopus, nautilus, cuttlefish

Cephalopod Characteristics:

- Squid, Nautilus, Cuttlefish, and Octopus
- Cephalopods means "head-foot"
- Excellent swimmers
- Octopi "walk" along sea floor using arms
- Cuttlefish use lateral fins to swim
- Cephalopods can also move quickly by means of jet propulsion
- Cephalopods have no external shell (except for nautilus) but instead have other adaptations:
 - Speed
 - Camouflage
 - Ink
 - Highly developed brains and eyes
 - Strong arms and powerful beaks
 - Venom

Cephalopod Camouflage:

- Special cells called chromatophores are used to change the color and pattern of skin
- Quickly and accurately match their surroundings
- Some octopi change the shape of their bodies as well as the color/pattern to imitate other species
- Also use color changes for communication and courtship rituals

Cephalopod Feeding:

- Capture prey with arms or tentacles
- Squid and cuttlefish have two long tentacles in addition to 8 arms
- Strong suction cups, or hooks grip prey
- Nautilus lack these features
- Fish and crustaceans are main food source
- Bite and slice up prey with its parrot like beak
- The octopus has toxic, caustic saliva
- This dissolves prey externally as well as paralyzing and killing it before ingesting

Cephalopod Reproduction:

- Breed in shallow water (except nautilus)
- Separate sexes
- Squid deposit clusters of eggs
- Most squid (both male and female) die after mating
- Octopus lay 1000's of eggs
- They clean and protect them for up to 4 months
- Mother octopi usually die after the eggs hatch, having not eaten during the incubation period they are weak and easy prey for other creatures

Review Sheet: Mollusks

Gastropods [univalves]:

- Gastropod means “stomach footed”
- Diverse group of mollusks including snails and slugs
- 2/3 of all mollusks
- Uni (one) valves (shell)

Gastropods Characteristics:

- Locomotion through large muscular foot
- Open circulatory system consisting of a one-chamber heart and tiny blood vessels
- Shell grows and develops with snail their whole life
- Shell made of calcium carbonate
- Colorless blood
- Can have either lungs or gills
- First (upper) set of tentacles carry the eyes
- Second (lower) set of tentacles are used for sensory
- Operculum - thick pad of tissue that closes like a trapdoor over the foot and protects the snail
- Adapted to crawl or climb for food
- Secrete mucus to reduce friction

Gastropods Feeding:

- Adapted to eat a variety of food
 - Including: plants, dead organisms, or live prey
- Snails use a rough tongue-like organ, called the radula
- Tear and shred matter into consumable pieces
- Moon Snail
 - Feeds on live clams by secreting chemicals from the foot to soften the clamshell
 - Then inserts its mouth and eats the clam from the inside
- Cone Snail
 - Use toxins to kill its prey
 - Has a harpoon like radula that they use to spear prey and inject toxins

Gastropods Reproduction:

- Some species have separate sexes most are hermaphrodites
- Fertilization is internal and development is external
- Fertilized eggs may be deposited directly into the water or in something protective

Review Sheet: Mollusks

Bivalves:

- Mollusks with two (bi) shells (valve)
- The shells are hinged together at one end with a ligament
- Shells kept closed by strong adductor muscles

Bivalves Characteristics:

- Shells are made of calcium carbonate
- The shells are built by the mantle membrane which lines the inside of both shells
- The membrane secretes calcium carbonate thus producing the shell
- Shells are shut very tightly with just a small gap opening
- Water flows through siphon tubes which are extended for feeding and breathing
- Thus the bivalve can bury itself in the sand and extend the siphon tube
- Use muscular "foot" to dig into the sand Bivalve Feeding
- All bivalves are filter feeders
- They cleanse great quantities of sea water and excellent indicator species for water quality
- During filter feeding, water that contain plankton and organic debris pass into the bivalve through its siphons
- Food particles get stuck on the mucus surface that coats the surface of the gills and mantle
- Ciliated cells move food along clam's mouth which is located opposite its siphon

Bivalve Breathing

- The siphon tubes bring in water which passes over the gills
- Oxygen is then absorbed by a pair of mucus-coated gills
- Bivalves have an open circulatory system and colorless blood

Bivalve Age

- Age can be determined by observing the shell
- Each ring represents a year of growth, similar to a tree
- Larger bands indicate favorable growth conditions

Bivalve Locomotion

- Bivalves move using adductor muscle to open and close the shell, propelling it awkwardly through the water
- Scallop is the fastest

Bivalve Economics

- Bivalves are widely harvested as food
- Some bivalves produce natural pearls (pearl oysters)
- Results when food or sand lodge between mantle and shell
- Layers of calcium carbonate form around the grain, forming a pearl

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