

What is a Mollusk?

A mollusk is a soft-bodied animal without a backbone. The body of the mollusk usually consists of the visceral mass (main part of the body); which contains the heart, gonads, organs for respiration, kidneys, stomach and intestine, and the muscular foot which can be used for crawling, digging, swimming, burrowing, and acquiring food.

GASTROPODA



A mollusk with a single, usually spirally coiled shell into which body can be withdrawn is called a gastropod. More than half of all living molluscan species are gastropods. This group comprises about 61,000 described living species of marine, terrestrial, and freshwater snails and slugs. The word gastropoda comes from the Greek language, meaning “stomach-foot”. When the gastropod is gliding along, it looks like it is traveling on its belly. The shells of these snails grow in a process called coiling, in which a spiral is formed by a sequence of coils or whorls. Most gastropods have an operculum (trap door), proboscis (snout containing the mouth) and radula (teeth), well developed tentacles (for finding food), and a pair of eyes that enable them to detect light and dark. The shell encloses the mantle cavity. Gastropods may burrow, crawl, swim, float, or be sedentary. Gastropod feeding habits are extremely varied and include grazers on vegetation, browsers, carnivores, suspension feeders, scavengers, and detritivores.

BIVALVIA



A laterally compressed shell with two parts, or valves, is called a bivalve. There are about 10,000 living marine and freshwater species of bivalves. This group contains clams, oysters, scallops, mussels, etc. The two valves are connected by a flexible ligament which acts like a hinge. The strong adductor muscle enables the bivalve to open and close. Bivalves do not have a head or radula. Bivalves are primarily sedentary or sessile organisms that usually are filter feeders. They have one or two siphons that extend into the water. One siphon pumps seawater in while the oxygen and food (plankton) are filtered out of the seawater and used by the mollusk. The waste is pumped out the second siphon.

CEPHALOPODA



Photo courtesy of Reobert Bachand

Cephalopods are the most highly evolved group in the phylum Mollusca. Cephalopods are more intelligent, faster, and have better eyesight than other mollusks. There are about 900 living marine species inhabiting all depths of the oceans from the Arctic to the Antarctic. The word cephalopoda comes from the Greek language meaning “head-foot” because their arms and head are the most visible. Nautilus, squid, cuttlefish, and octopus are cephalopods. The hard external shell that most mollusks depend on for protection is reduced or absent in most cephalopods. The nautilus is one of the few cephalopods that have an external shell present. The animal inhabits the last (youngest) chamber, with a filament of living tissue extending through older chambers. Many cephalopods have an ink sac, which is used as a defense mechanism. Squid, cuttlefish, and octopus can change color using a complex chromatophore system controlled by the nervous system. Cephalopods move via jet propulsion in which water is forced through a siphon. Cephalopods are carnivorous and have powerful beak-like jaws that allow them to grip large, live prey.

POLYPLACOPHORA



This class of mollusks contains the chitons. They are flattened, elongated mollusks with 8 (sometimes 7) overlapping dorsal shell plates, called valves. There are about 900 described marine species. Most chitons live in the rocky intertidal zone but some live in the deep sea. Chitons feed on sponges, bryozoans, diatoms, and algae that are scraped from the substrate with their radula.

SCAPHOPODA



This class of mollusks contains the tusk shells. The word scaphopoda means “shovel foot” in the Greek language. There are about 900 living marine species. This animal usually has a one pieced shell that is open at both ends and tubular. As adults, scaphopods usually live buried in sand or mud, with their head pointed downwards. Tusk shells do not have gills, therefore the mantle tissue both produces the shell and also obtains oxygen from seawater. The tentacles are used to capture and manipulate prey.