SHELLED GASTROPODS.

SHELL CHARACTERISTICS.
SPIRE
APEX
BODY WHORL
APERTURE
SIPHONAL CANAL

SOFT PARTS
OPERCULUM
FOOT
SIPHON
TENTACLE
EYE
MANTLE
HEAD
MOUTH
EPIPODIAL TENTACLE
EXCURRENT OPENING
PROPODIUM

TULIP SNAIL

ABALONE

MOON SNAIL

COWRY
MOLLUSCAN DIVERSITY:
SHELLED GASTROPODS

The gastropods (Class Gastropoda) are the largest class of molluscs: 15,000 fossil forms are identified, and existing species number well over 35,000.

Color the lower empty shell of the tulip snail and use a light color for the body whorl.

Most gastropod shells are built as a series of spirals, called whorls. The tip, or apex, of the shell, is the smallest whorl laid down by the snail in the early part of its life. As the snail grows, it lays down the intermediate whorls which form the spire of the shell. The final large spiral is the body whorl, terminating at the aperture or opening. The aperture is elongated into an anterior notch or siphonal canal, which harbors the incumbent respiratory siphon in the living snail.

Color the illustration of the living tulip snail. Use a dark color for the eyes.

The tulip snail possesses a tough, proteinaceous oval-shaped structure called the operculum, which is carried on its broad foot and is used to shut the snail snugly into its shell. When disturbed, the tulip snail retracts into its shell by first pulling in its head, then its foot, with the operculum brought in last to seal off the shell.

Projecting anteriorly is the elongated siphon used to carry water to the gills (not shown) for respiration. Special chemosensory organs are located near the gills. The tentacles are chemosensory and touch-sensitive; the eyes are light-sensitive and can detect movement.

Tulip snails are predatory molluscs, feeding on other molluscs, particularly on bivalves. The tulips reach a length of 10 centimeters and are commonly found in the Gulf of Mexico and along the southern coast of the United States.

Color the two illustrations of the abalone.

The abalone is a large herbivore common to the Pacific coast of North America. The abalone lives in shallow rocky areas of considerable wave action, and the flat shell shape offers little resistance to water movement. The broad, flat body whorl terminates in an aperture that is as large as the whorl itself. The foot of the abalone completely fills the aperture. Because of the size and tremendous surface area of the foot, the abalone can grip the substratum with amazing tenacity and remain securely fastened against strong waves and most predators.

The abalone has a pair of sensory tentacles and a large mouth. Around the foot of the abalone is a mantle from which the epipodial tentacles protrude. If the epipodial tentacles are touched, the mantle retracts and a strong muscular contraction of the foot brings the shell down tightly against the rock surface.

The abalone shell, measuring up to 37.5 centimeters in some species, has several openings through which the excurrent respiratory water flows. These excurrent openings also carry out the waste products of digestion and excretion and serve as the exit for sex cells when the abalone spawns (see Plate 64).

Color the cowry and the moon snail as they are discussed in the text.

Some of the most beautifully patterned shells are those of the cowries, found in tropical and subtropical oceans. The cowry shell has a glossy, polished appearance, which is maintained by the cowry's ability to completely encase its shell with its mantle. The two large mantle lobes can be drawn up the sides of the shell to meet at the dorsal midline, or can be completely withdrawn into the shell. The mantle, shown in the illustration only partially covering the shell, is often brightly colored and patterned and sometimes studded with small fleshy projections called papillae (not shown).

The cowry moves on its foot, probing with its tentacles and eyes, taking in the respiratory current through its short funnel-like siphon. The cowry feeds on small bottom-dwelling invertebrates such as compound sea squirts and dead animals.

The cowry shell grows up and over itself, so that in the adult animal shell only the body whorl is visible. Cowry species range in size from 6 to 150 millimeters.

The moon snail lives on the mud and sand flats, where a very large foot aids its movement through the soft substrata. Locomotion is further aided by the propodium, an extension of the foot that serves as a plow to dig forward through the mud. The propodium has a flap that extends to cover the head of the snail, providing protection and leaving only the siphon and the tentacles exposed as the snail travels through the sand and mud. Note the spire and body whorl in the moon snail shell. The snail preys on bivalve molluscs and other gastropods.