

Molluscs

Discussion Questions:

- 1) How are molluscs classified?**
- 2) What features do molluscs have in common?**
- 3) What types of environments do they inhabit?**
- 4) How do molluscs protect themselves from predators?**
- 5) Which molluscs can be eaten as food by humans?**



MOLLUSCS

- Have a soft body.
- Sometimes have a shell.
- Have sensors to detect vibrations and touch.
- Have a rough tongue (radula) and a foot that slides.
(except bivalves which filter food through gills)

GASTROPODS

includes:
snails, sea-snails, slugs,
sea-slugs, abalone,
nudibranch, limpets



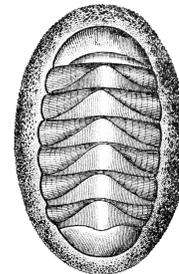
CEPHALOPODS

includes:
squid, octopus, cuttlefish,
nautilus



POLYPLACOPHORES

includes:
chitons



BIVALVES

includes:
clams, oysters,
scallops, mussels,
whelks, cockles
and many more.



Gastropods that live on land

Snails and slugs are examples of gastropods that live on the land. Snails have a shell and slugs do not.

Snails and slugs secrete a slimy substance that helps them slide around on their 'foot'. You will often see a silvery coloured snail trail that shows where the snail or slug has been.

Snails and slugs are usually herbivores. This means that they will eat plant matter. Their mouth is located under their foot. They have thousands of teeth on a ribbon like tongue which acts like a cheese grater or file that shreds their food into small pieces.





Garden Pest or Gastronomic Delight?

If you are a gardener, snails will probably be your worst enemy! They are a pest in the garden because they damage plants. Many gardeners use poisons to control snails but this poses a danger to other animals further up the food chain that might eat the poisoned snail.

Did you know that snails are bred for human consumption in many parts of the world? Snails are a delicacy in French cuisine. They are often cooked in their shells with garlic, butter and parsley. Snails are called 'escargot' (pronounced 'ess-car-go') in the French language. They are served with special cutlery - a pair of tongs to hold the shell and a long thin fork to get the snails out of their shells.





Gastropods that live in water

Some gastropods live in marine environments. They can often be found underwater among coral reefs or along the coast in tidal rock pools. Gastropods without shells include nudibranches and sea slugs.

These soft bodied creatures often use colour signals to warn off predators and some secrete a toxin to prevent being attacked.

Some gastropods rely on shells for protection. Examples of shell dwelling gastropods include periwinkles, cowrie, conch, limpets and whelks.





Spider conch



Cowrie



Close up of eyes of a cowrie



Periwinkles

Cephalopods: Cuttlefish

Cuttlefish are not fish . They are molluscs belonging to the cephalopod class. They live in marine environments.

Cuttlefish have a soft bodies with an internal shell made of aragonite, which is very light and chalky. This 'bone' aids the animal's buoyancy. (You may have seen these bones washed up on beaches.)

Cuttlefish have eight legs and two tentacles that have suckers on them. They use these tentacles to hold their prey. Cuttlefish have the amazing ability to change their colour and skin pattern at will. They can instantly blend in with their surroundings, helping them avoid their predators.



Cephalopods: Octopus

There are many species of octopus that live in marine environments around the world. An octopus has eight legs covered in suckers that help it grasp its prey. Their mouth is located centrally on the underside of their body. An octopus propels itself by forcing water through a special valve in its body, a form of jet propulsion. The octopus' leg movement looks much like the opening and closing of an umbrella!

An octopus often defends itself from predators by confusing them with distractions such as releasing ink, or rapidly changing colours and patterns in their skin. Many simply hide, squeezing themselves into the tiniest of crevices, under rocky ledges or among coral reefs.

The blue ringed octopus uses venom to disable its prey. The toxin paralyses the breathing muscles and causes respiratory failure. Blue ringed octopus venom is highly toxic to humans.



An octopus uses jet propulsion to move through the water



An octopus has suckers on the underside of its legs



A blue ringed octopus is one of the most venomous animals in the world



Cephalopods: Squid

Like cuttlefish, squid have eight arms and two long tentacles that they use to grab their prey. They have an internal 'pen', which is a feather shaped bone, that supports their soft body.

A squid's skin is covered in chromatophores which allow the squid to change the patterns of colour in its skin. They can quickly camouflage themselves from predators and prey alike so that they are not easily seen in their environment. If in danger a squid squirts ink as a distraction, giving the squid time to swim away and escape.

Squid is a popular food for humans. It is often called calamari and is prepared in many cuisines world wide. The tube shaped mantle and legs are commonly barbequed or deep fried. The squid's black ink is also used to colour food in cooking. Examples include pasta and risotto rice dishes.



Cephalopods: Nautilus

This beautiful spiral shell is the home to the nautilus, a marine mollusc that is only found in reef environments in the Indo-Pacific region.

The nautilus uses jet propulsion to move around, drawing water in and out of its shell chamber. The animal has a hard beak, two eyes and numerous tentacles that it uses to latch onto its prey.



Above: A nautilus fits snugly inside its shell with a hard beak covering protecting its body at the shell opening.

Far Left: The outside of the nautilus shell is beautifully patterned.

Left: The chambers inside the nautilus shell are arranged in a spiral pattern.

Polyplacophores: Chitons

Chitons live in marine environments. They range in size and can be found in the tropics as well as in colder oceans of the world.

These animals have a shell that is comprised of overlapping rows which are flexible enough to allow the animal to roll up into a ball when in danger.

The chiton uses its foot to slide along underwater surfaces. It can cling tightly to hard surfaces. Its mouth is also located on the underside of its body and consists of a rough tongue called a radula. It feeds in the same way that a snail does, by rasping its tongue over a food source.



Bivalves

Bivalves are molluscs that live inside two shells (called valves) that are hinged together. Some species live in marine environments and others live in freshwater.

Examples of bivalves include oysters, mussels, scallops and clams. Many bivalves bury themselves in the sand of the sea floor or attach themselves to rocks.

Bivalves are filter feeders. They open their two shell valves to allow water to flow across their gills. This brings them their food supply that is suspended in the water.

Many bivalves make good food for humans. They are eaten across a wide range of cuisines throughout the world.

Mussels, cockles and pipis are often steamed. Their shells will pop open when they are cooked. Any shells that do not open are not fit to eat and should be discarded.

Some bivalves are eaten raw. Their shells are first prised open using a knife. This is called 'shucking'. Oysters are often eaten raw. In French this is referred to as 'au naturel', in their natural state.





Pearls

Natural pearls sometimes form inside the shells of oysters and some other bivalves.

The inside of a bivalve's shell is layered with a calcium substance called nacre. The bivalve creature produces this to help the shell grow as it gets bigger. Nacre is smooth and shiny.

A pearl begins as a tiny speck of sand that gets caught inside the shell of the bivalve. This grit can irritate the soft body of a bivalve creature so nacre is produced to encase the gritty particle. The layers of nacre build up over time, eventually forming a natural pearl.

Natural pearls can range in colour and shape and are sought after for jewellery making. Pearls can also be produced commercially by intentionally growing them inside the shells of farmed bivalves. These pearls are called cultured pearls.



Pearls range in colour, from white and cream to various shades of pink, blue and black.



Can you see the black pearl inside this bivalve?