

MOLLUSC

1

The freshwater mussel, *Margaritifera margaritifera*, is a mollusc which lives in rivers and streams.

When the mussel reproduces, gametes are released into the water and fertilisation takes place.

The embryos, in the form of larvae, attach themselves to the gills of fish and develop there for a few months.

The larvae then release themselves and grow in sand in the river, feeding by filtering food from the water.

The number of mussels is falling due to human predation and the species is threatened with extinction.

- (a) The mussel belongs to the group known as the molluscs. State two features you would expect the mussel to have.

1.
2. [2]

- (b) (i) Fish gills have the same function as lungs. Suggest **one** advantage to a mussel larva of attaching itself to fish gills.

.....
..... [1]

- (ii) The mussel develops on the fish gills. Define the term *development*.

.....
..... [1]

-----Marking Scheme-----

- (a) *ignore absence of feature(s)* *ignore slime*
shell ;
muscular foot ; **R** leg / false foot
(soft) unsegmented body ;
tentacles ;
mantle / mantle cavity ;
gills ;
AVP ; e.g. visceral mass **R** exoskeleton [max 2]
- (b) (i) *current of water provides*
(good) source of oxygen ; **A** ref to obtaining oxygen
 R 'from gills' / 'easy to breathe'
low carbon dioxide concentration ; **A** ref to losing carbon dioxide
food source ;
protection / hiding, from predators ;
blood / mucus (from gills), may be food source ; [max 1]
- (ii) *one of the following* *ignore growth / maturity*
increase in complexity
differentiation / specialisation, of cells / tissues
formation of, new structures / organs / tissues / different types of cells
 A change in, structure / form [1]

Molluscs are important animals in many aquatic and terrestrial ecosystems.

Fig. 1.1 shows four species of mollusc that live in the sea.

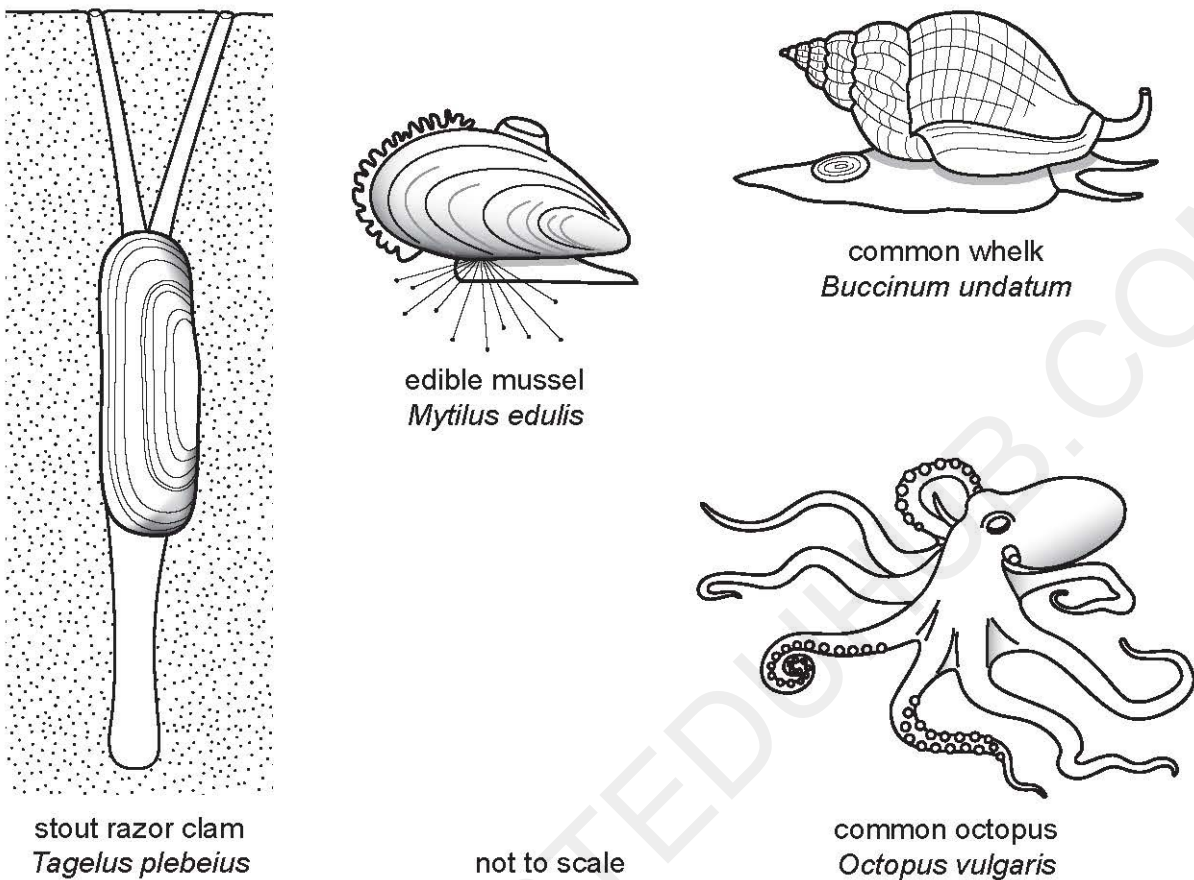


Fig. 1.1

1 (a) State **two** features shown by all mollusc species.

- 1
- 2 [2]

1(b) State **two** features, **visible in Fig. 1.1**, in which the octopus differs from the other three molluscs.

- 1
- 2 [2]

1 (c) The edible mussel, *Mytilus edulis*, is attached to rocks that are exposed to the air at low tide.

Use Fig. 1.1 to suggest how an edible mussel is adapted to attach to rocks and survive when exposed to the air.

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..... [2]

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-----Marking Scheme-----

(a)	<p>unsegmented ; A no segments soft bodies ; (muscular) foot ; ignore feet mantle ; visceral mass ; AVP ;</p>	[max 2]	<p>ignore no (exo)skeleton no backbone no bones radula bilaterally symmetrical shell / exoskeleton</p>
(b)	<p>(8) legs / tentacles / arms / limbs / AW ; (large) eye ; has a head ; no shell / (completely) soft body / no exoskeleton / no external skeleton ; suckers (on tentacles) ;</p>	[max 2]	<p>R any internal features (see the question) R feelers / hands ignore no (muscular) foot / feet</p> <p>A suction pads</p>
(c)	<p><i>look for an adaptation for attachment and an adaptation for survival when exposed to air allow ecf from part (a)</i></p> <p><i>attachment</i> threads / (muscular) foot / sticky fluid ;</p> <p><i>survival in the air</i> <i>either</i> shell / exoskeleton, prevents / reduces, water loss /</p> <p><i>or</i> shell / exoskeleton, protects against (named) predator(s) ;</p>	[max 2]	<p>A any suitable description of the threads e.g. fibres, projections, extensions, tentacles, etc. R suckers A slime / mucus for sticky fluid</p> <p>ignore protection unqualified ignore anything to do with gas exchange ignore camouflage</p> <p>if named must not be an aquatic predator</p>