Anemones 3B

Anemones are very simple, solitary animals that look rather like flowers. Their bodies resemble a thin sac, filled with water, with a single opening, the mouth, that is surrounded by tentacles. Anemones lack any hard skeleton and are supported by the water inside their body cavity. When an anemone contracts its circular body-muscles it becomes long and thin; when it contracts its longitudinal muscles, it becomes short and squat. The body wall consists of two layers of cells with no well-developed organs. If water is lost from the body cavity, the muscles no longer have the necessary water pressure to act against, and the anemone is helpless. It has to use flickering hairs (cilia) to create a current to pump the body full of water once again. This is a very slow process. So don't stick your finger into the mouth of an anemone and hold it open until the anemone goes soft.

Anemones belong to the phylum Cnidaria, which also includes jellyfish, corals and hydroids (e.g. bluebottles). All have a simple sac-like structure with two cell layers, radial symmetry, a single opening and specialised stinging cells.

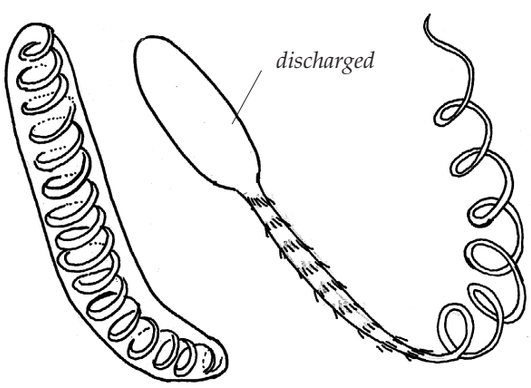
Feeding – stinging animal traps

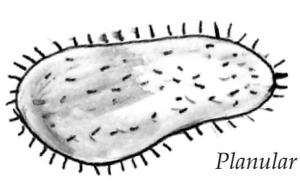
An anemone may look like a delicate flower attached by a flat adhesive disc – but it is, in fact, an animal that can move and catch prey. The mouth is surrounded by tentacles and closed by a pharynx that serves as a valve, allowing food to enter without the loss of water. The tentacles are packed with microscopic stinging cells, called nematocysts. When anemones touch and taste food, the stinging cells paralyse and entangle their prey. The anemone needs time to grow replacement stings. Anemones feed on mussels, small fish and any prey that the tentacles can grasp and push into their mouths. The body cavity serves as the gut. It is divided vertically by sheets that extend inwards from the body wall and increase the surface area for digestion and make it easier to control the water pressure for movement. Waste matter is expelled through the mouth, as there is no anus.

Reproduction and life cycle

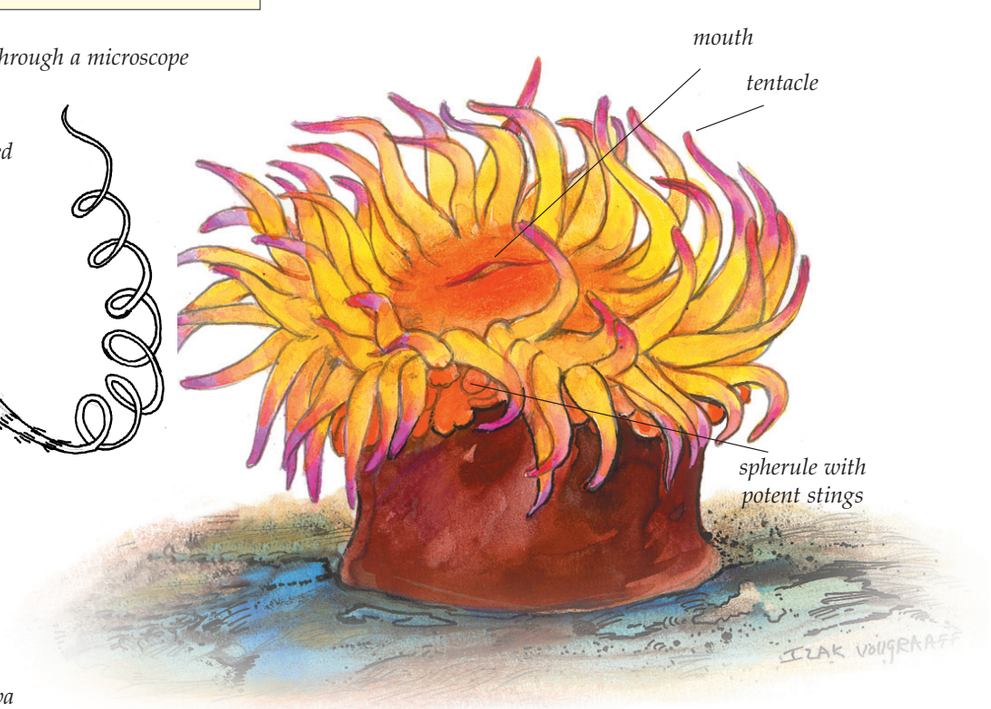
Most anemones have separate males and females. They release eggs and sperm, and fertilisation occurs externally in the sea. The eggs develop into tiny, oval planular larvae that swim around and feed for about two weeks before settling in rocky crevices and growing into individual anemones (polyps). Anemones can also bud off new individuals or split in half to form two animals.

Stinging cells – nematocysts as seen through a microscope





Planular lava



False plum anemone

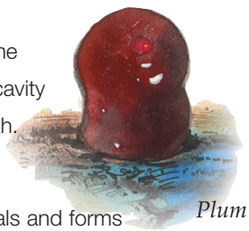
Examples of anemones

False plum anemone *Pseudactinia flagellifera*

The large orange false plum anemones are easy to identify because they are soft and cannot fold their tentacles inside their bodies as they lack a sphincter muscle around the mouth. They are very aggressive. If another unrelated anemone comes too close, swellings appear below the tentacles – these spherules are packed with potent stings that will injure or even kill the intruder and enable the anemone to defend its territory. The venom from the false plum anemone will affect humans, so it should not be handled.

Plum anemone *Actinia aquina*

The dark red plum anemone lives high on the shore. It broods its young inside the body cavity and juvenile anemones crawl out of its mouth.



Plum anemone

Sandy anemone *Bunodactis reynaudi*

The sandy anemone buds off new individuals and forms large family groups, called clones, with the same genetic composition, which live successfully together. They have sand sticking to their bodies and have an amazing array of colours – purple, pink, blue, orange, red and yellow.

Striped anemone *Anthothoe stimpsoni*

This delicate pink, green or yellowish-brown anemone has distinctive vertical stripes and is common in pools. If irritated it shoots sticky white threads of stings through its body wall.

Knobbly anemone *Bunodosoma capensis*

This is one of the most beautiful and variable species that appears in all the colours of the rainbow. It is abundant in sand-free areas and never has sand sticking to the knobbles on its surface.

Giant anemones

There are a few species of giant anemones living in tropical waters. These may reach 1 m in diameter and are covered with numerous tentacles. They have an interesting commensal association with clown fish that shelter among the tentacles, protected from the stings by a special coating of slime. The anemone seems to recognise its resident clown fish.

Strawberry anemone *Corynactis annulata*

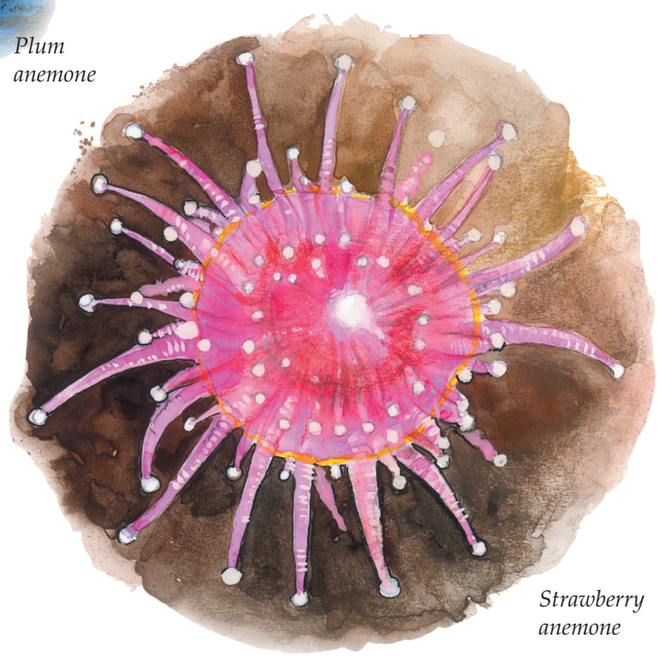
These small, exquisite, transparent pink anemones have distinctive pale knobs on the tips of the tentacles. They occur in clusters and are more closely related to corals than anemones. They feed on small organisms floating in the plankton.

Zoanthids

Zoanthids form vast carpets in greens, browns and purples on the rocky shores of KwaZulu-Natal. These anemone-like animals are linked together at their bases by a fleshy coenenchyme and form large colonies of interconnected individuals. They are carnivorous, but seem to gain most of their nourishment from tiny algae that live symbiotically within their bodies.

Author: Margo Branch September 2000

Zoanthids



Strawberry anemone

Classification:	
PHYLUM	Cnidaria
CLASS	Anthozoa – Anemones, zoanthids and corals
ORDER	Actinaria – Anemones
ORDER	Coralliomorpha – Strawberry anemone
ORDER	Zoanthidea – Zoanthids

FURTHER INFORMATION: • Branch, G. M. & Branch M. L. 1981. *The Living Shores of Southern Africa*. Struik, Cape Town.
• Branch, G. M., Griffiths, C. L., Branch M. L & Beckley, L. E. 1994. *Two Oceans: A guide to the marine life of southern Africa,* David Philip, Claremont, Cape Town.

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