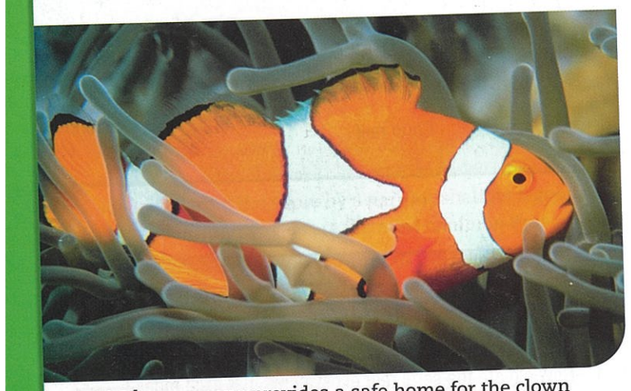
4.4

Animals of the coral reef environment

4.13 Small fish seek cover in staghorn coral as part of the rich biodiversity on the reef.

Coral reefs contain thousands of species of marine plants and animals. As one of the most complex ecosystems on the planet, reefs are home to over 4000 different species of fish and 700 species of coral as well as many other plants and animals. The abundance of different corals provides protection for the smaller fish that make the reef their home.



4.14 The anemone provides a safe home for the clown fish in what is one of the most well-known symbiotic relationships on the reef.

4.15 The diet of the parrot fish helps control algae and creates coral sand on the reef.

THE CLOWN FISH AND THE ANEMONE

The clown fish—made famous in the 2003 movie *Finding Nemo*—has developed a special symbiotic relationship with the anemone, a close relative of the coral polyp.

Anemones

Like coral polyps, anemones grow best in shallow, sunlit water. They catch small fish by stinging and paralysing them with their tentacles. One of the anemone's adaptations is that its stinging tentacles are covered in mucous so that it does not sting itself. Connected to the reef by a small disc, the anemone is capable of moving very slowly over rocks and coral.

GEOGRAPHY FOCUS

It can take up to an hour for a clown fish to get the coating of mucous that it needs before it is fully immune to the anemone's sting.

One parrot fish is capable of chewing through enough algae and coral to create one tonne of sand per year!

Clown fish

Clown fish get their name because of their bright orange and white colours and the fact that they are always moving. These movements are often mistaken as 'clowning around' when they are actually a very aggressive fish known for defending their territory. While not immune to the stings of the anemone, the clown fish is able to coat itself in the mucous that covers the anemone's tentacles. This means that it will not be stung.

How is this relationship symbiotic?

Anemones benefit from this relationship because clown fish chase away fish that would bite off pieces of the tentacles. Clown fish also clean up food scraps and other debris from anemones. Clown fish are protected from predators by living in anemones. It is the perfect symbiotic relationship.

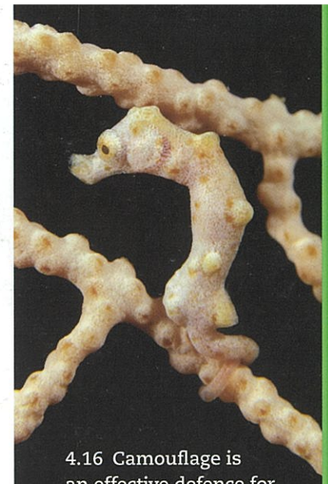
PARROT FISH

The parrot fish gets its name because of its bright colouring and its beak—or more correctly the teeth—at the front of its mouth. Parrot fish eat algae that grow on the reef. As they remove the algae, pieces of coral are removed as well which the parrot fish then spits through its mouth and gills. Parrot fish form mounds of white coral sand in areas of the reef as they eat the algae.

People once believed parrot fish were destroying the reef, but recent studies have shown that they play an important role in limiting the amount of algae growing on the reef. Without the parrot fish, algae would smother the reef and kill the coral polyps.

SEAHORSES

One of the more unusual reef animals is the seahorse. Living on coral reefs and sea grass beds they are well camouflaged in the environment. Camouflage is one of the important ways that reef animals are able to protect themselves. Seahorses eat small crustaceans such as shrimp and catch their prey by drawing water and prey into their tube-like mouths. One special adaptation of the seahorse is its ability to change colour to blend in with the background. Another unique feature is that while it is the female that lays the eggs, the male carries the eggs in his pouch and looks after the eggs until they hatch.



4.16 Camouflage is an effective defence for the seahorse against its predators.

Activities

Knowledge

1 Where does the anemone live on coral reefs? Explain one way the anemone is different to the coral polyp.

2 Describe how the anemone catches its food.

3 Why is the mucous coating on the anemone's tentacles an important adaptation to life on the reef?

4 Explain how one other animal on the reef benefits from the mucous coating on the anemone's tentacles.

5 Explain why the relationship between the clown fish and the anemone is symbiotic.

6 Describe the physical features of the parrot fish.

7 What would happen to the coral reef if parrot fish were removed?

8 Describe one adaptation of the seahorse that protects it from predators.

Application

9 Prepare a report on a coral reef animal. Include the animal's features, diet, habitat and any special adaptation that the animal has to living on coral reefs. Some suggestions: cone shell, lion fish, moray eel, stone fish.

10 Prepare a response to the following fax.

Hint for completing this task

Look back through your notes and the textbook. Study the images and information and make a list of the essential features and animals that live on coral reefs. Then apply your list to the task.

Surf ICT CW

URGENT
To: Enthusiastic Geography students
From: Seascapade Animation Studios

Our animators have been working hard to create our new movie *The Adventures of the Pink Seahorse*. They are having incredible trouble drawing the underwater coral reef environment.

As you are studying coral reefs, we need your expert input on four matters before we swing into production of our movie.

1 Please explain five features of coral reefs that would be essential to show in an underwater picture. We'll use this list to help our animators as they draw.

2 We would also like you to have some input into the plot of the movie. We'd like you to describe a good story line in a paragraph that we could use for our movie. The central character is to be a seahorse living on a coral reef.

3 Please include a series of three hand-drawn images showing us your ideas—one image each from the beginning, middle and end of your story. Somewhere on the three images please label the five essential elements of the underwater coral reef environment you described above.

4 Finally, the film director is not happy with the title of the movie. We want it to be a popular kids' movie. We're sure you'll have a better idea, so please suggest a new title.

Thanks for your help

Stephanie Gibson
Director
Seascapade Animation Studios