

## **Mangroves: Underwater forests**

Below the surface of the water of mangroves lies a strange, tropical world, where fish, reptiles, corals and other strange plants and animals shelter from the stormy sea beyond...



### **Small plants and animals**

Small underwater plants and snails cling to the roots of the mangrove trees.

Baby sharks and tropical fish swim through small gaps in the tangled roots.



### **Miniature reefs**

The warm, gently flowing water is the ideal home for corals, sea urchins, starfish and many other living things you'd also find in reefs like the Great Barrier Reef in Australia.



### **A safe place**

The tangled roots of the mangrove trees break up the flow of water, so small, delicate plants and animals don't get washed out to sea. They also stop large fish and other predators entering the mangrove. It's a safe place for smaller plants and animals to live and grow.



## **Mangroves: The muddy forest floor**

Mangroves are muddy places! It's very difficult for large animals, or people, to travel through mangroves without sinking in to the mud and getting stuck.

Tree frogs come to the muddy banks to feed on insects flying, floating and swimming in the little pools of water. They climb up into the trees when the tide comes in.



This strange animal is a mudskipper. It lives its entire life in the mud. It can live for a long time out of water, and crawls across the mud on its fins!



The mud is really important for mangrove plants and animals. It's full of nutrients which the trees absorb through their roots. Macaque monkeys wade through the mud to forage for crabs and oysters.



### **Fiddler crabs**

When the tide goes out, fiddler crabs come out of their holes to feed and fight!

They can't stay out for long, though: they need water to survive. They go back to their holes, which store water, every few minutes until the tide comes back in again.

## **Mangroves: The weather and tides of coastal forests**



### **Hot and humid**

The heat and the humidity are not nice for humans, but insects love it. Mosquitos, dragonflies and other insects fill the air, attracting birds who feed on them.



### **Tides**

Twice a day the tide goes out, leaving the trees standing on their roots. Fallen leaves and rotting branches are washed away.

When the tide comes back in it brings fresh water, soil and sand back into the forest.



### **Stormy weather**

Storms often blow in from the sea, battering the trees and plants. Animals shelter in the branches of the trees.

Mangrove forests help protect people living on the land behind them - the strong winds are slowed down by the trees, and their roots slow down water flooding in.



### **Mangroves: Human activity**



When the tides come in, local people use boats to travel through the forest.

#### **Living near a mangrove forest**

Fishermen come for shrimp, which shelter in the calm, shallow water. Food and other items are taken from place to place.



**Mangrove trees are useful for people, too. The wood is used for furniture, building houses and for making fires.**



#### **Mangrove visitors**

Lots of tourists come to mangroves to explore the beautiful, strange surroundings.

##### **Activities**

- walking
- taking photos
- kayaking
- snorkelling
- looking at plants and animals
- airboat trips
- guided tours





## **Mangroves: Living in the trees**

### **Fishing birds**



Kingfishers, pelicans and herons live in the roots and lower branches, close to the fish they feed on.



Wading birds, like the scarlet ibis, live in the lower branches, too. They come to feed on crabs, insects and other small animals in the mud and shallow water.

### **Proboscis monkeys**



Proboscis monkeys have strong hands and feet to help them climb through the trees. Their long tail helps them balance.

### **Ants**



Weaver ants make their nests in the trees.

They join leaves together with sticky silk threads.

### **Reptiles**



Snakes and lizards live in the low branches and among the roots.

They are excellent climbers.

They hunt for frogs, insects and small birds.





## **Mangroves: The forest canopy**

**Tree crabs** are born in the water, but they don't stay there for long. They spend almost their entire lives in the branches of the mangrove trees.

Once a day, **when the tide goes out**, they climb down to eat seaweed and other bits of plant left behind.



**When the tide comes**

**in**, they climb up to the highest branches of the trees to eat the newest leaves. They don't climb back down for the second low tide - it takes too long!



It's tricky to get to the tops of the mangrove trees! Small, light animals with strong claws can grip the trunk and climb to the top. Only excellent fliers can land on the thin branches, waving in the sea breeze.



**Flying foxes** are a very large type of fruit bat. They can grow up to 40cm long! They eat the freshest fruit at the tops of trees and bushes.

They roost in the treetops, hanging upside down.



**If you looked below the surface of the water in a mangrove forest, what might you see?**

**What might you see if you looked closely at the muddy banks of a mangrove forest?**

**What sort of activities do people do in mangrove forests?**

**Can you describe the tides and the weather in mangrove forests?**

**If you looked closely at the trunks and lower branches of the mangrove trees, what might you see?**

**If you look up into the canopy of the mangrove treetops above, what might you see?**

**Can you describe some of the plants, fish, and other living things found underwater in a mangrove forest?**

**Can you describe some of the animals, and their activities, which are found on the muddy banks of a mangrove forest?**

**Can you describe some of the birds, reptiles, insects and mammals found in the bushes and lower branches of a mangrove forest?**

**Can you describe some of the ways in which mangrove forests are used by visitors?**

**Can you describe some of the ways in which local people use their mangrove forest?**

**Can you describe some of the animals, and their activities, which are found in the treetop canopy of mangrove forests?**



**Find out as much as you can about the living things found underwater in a mangrove forest. Can you explain why they are able to live and grow there?**












**Can you describe some of the animals, and their activities, which are found on the muddy banks of a mangrove forest? What do they do when the tide comes in?**

**Can you describe some of the birds, reptiles, insects and mammals found in the bushes and lower branches of a mangrove forest? Can you explain why they are able to live and grow there?**

**Can you describe some of the ways in which mangrove forests are used by visitors? What would you most like to see and do?**

**Can you describe some of the ways in which local people use their mangrove forest? How do they use the things they get from the forest?**

**Can you describe some of the animals, and their activities, which are found in the treetop canopy of mangrove forests? Can you explain why they are able to live and grow there?**

 <b>Animal Expert</b> Can you share interesting information with the passengers? 	 <b>Captain</b> How will you steer the boat through the tangled mangrove tree roots? 
 <b>Passenger</b> What plants and animals will you look out for? Where might they be found? 	 <b>Guide</b> What will you say to your passengers during the tour? 
 <b>Passenger</b> What plants and animals will you look out for? Where might they be found? 	 <b>Animal Expert</b> Can you share interesting information with the passengers? 