



# Mangrove Habitat

## W o r k s h e e t

### Around the Nature Gallery, Mangrove Boardwalk & Mangrove Arboretum

#### **Location and Estimated Time**

Nature Gallery (30 min)

Mangrove Boardwalk (45 min)

Mangrove Arboretum (120 min)

#### **Objectives**

1. To introduce the wide variety of life that can be found in the mangrove habitat.
2. To study the way plants and animals in the mangrove swamp have adapted themselves in order to survive the harsh mangrove conditions (constant changes in the water level, high salinity of the water, low light conditions and soft, muddy soil which is often low in oxygen) of the mangrove habitat.
3. To study the importance of the mangrove habitat.
4. To study how the various plants and animals in the mangrove habitat interact to form an ecosystem.

#### **Background**

Mangrove trees grow on muddy land and near water. They develop along sheltered coastlines where fine silt from rivers have been allowed to settle. Additional silt and debris carried by the river and emptied into the shallow waters are trapped by the mangrove roots. Decay of the debris leads to the formation of an enriched mud, which is a good breeding ground for fish, prawns and other crustaceans.

In addition, the mangrove roots act as breakwaters to prevent the erosion of the coastline. In this way, they also help to keep the sea free of the suspended silt that is detrimental to coral reefs (if this silt settles on the corals, they prevent the algae found in the corals from making food and the coral will eventually die).

The conditions along the coastlines are harsh for the trees; the mud is waterlogged and salinity is high, whilst oxygen level is low (the mud is described as anaerobic that is lacking in oxygen).

As a result, mangrove trees have developed special adaptive features to cope with these harsh conditions.

#### **Harsh Condition**

High Salinity

#### **Adaptation**

Thick, waxy leaves to minimise water loss. Leaves store salt, which are then lost when the leaves fall. All this will help to preserve the osmotic balance.

Waterlogged and anaerobic mud

Prop or stilt roots to help hold the tree up in the soft mud. Breathing roots (called pneumatophores) stick up from the mud help the tree breathe.

Tidal effect

Seeds of the mangrove germinate while still on the parent plant. In this way, when they fall, they are able to take root immediately and not get washed away by the tide.

#### **Procedure**

1. Students to view the exhibits at the Nature Gallery. These will provide a good background on the origin, distribution, uses and importance of mangrove wetlands.
2. Take the students on a walk around the Mangrove Boardwalk at the Visitor Centre. If time permits and the students are not too tired, you may also want to consider taking them to the Mangrove Arboretum (enter through the Outdoor Classroom along Route 1).
3. Have the students take note of the flora and fauna that can be found around the mangrove. The animals are very shy and extremely well camouflaged. It is vital that the students remain AS QUIET AS POSSIBLE and keep their eyes peeled for any movement or irregularity in the shape of the mud (usually a mudskipper, crab or some crustacean).