Achieving Conservation Through Education

Activity and Games

Water, Water Everywhere

Water is important to all living things

By using water we also create pollution

How can we conserve our water resources?

Water is vital to our planet as it sustains all life be it plant or animal. 70% of the human body is made up of water and more is used to maintain life, cleanse our bodies and maintain clean environments. Water is colourless, odourless and tasteless and appears as liquid, solid or gas.

Most people in Seychelles get their water from public water utility (PUC). Public utilities Seychelles is a government agency that supply needs such as electricity and water to the public. Water utilities get their water from rivers, reservoirs, or underground aquifers. Often, the water must be treated to make it safe to drink.

Let's take care of our water resources. Use your "**Green thumb**" to conserve water, protect it, and get involved.

Glossary

Water sources- bodies of water such as lakes, rivers, reservoirs, and underground aquifers from which we draw water for drinking.

Treatment- a series of chemical and physical processes to remove dissolved and suspended solids from raw water to produce safe water to drink.

Contaminate- to make unsafe for drinking.

Pesticide- a chemical used to kill pests.

Hazardous- dangerous or harmful

(Circle each one)

nature	recycle	treatment
drink	pesticide	leaks
toxic	oil	tap
fertilisers	batteries	pollute
paint	contaminate	protect
gasoline	hazardous	safe
clean	wells	water sources

W	E	L	L	S	D	M	P	Q	S	V	F
L	A	B	O	T	P	O	L	L	U	T	E
H	Z	T	R	E	A	T	M	E	N	T	R
C	P	A	E	R	I	C	B	C	U	E	T
O	Y	P	C	R	F	E	N	L	K	D	I
N	A	H	Y	J	S	T	M	E	H	I	L
T	E	A	C	P	Z	O	C	A	L	C	I
A	F	Z	L	K	T	R	U	N	T	I	Z
M	A	A	E	D	O	P	E	R	B	T	E
I	S	R	I	X	X	N	W	G	C	S	R
N	M	D	P	A	I	N	T	S	L	E	V
A	B	O	I	L	C	F	S	M	O	P	S
T	F	U	O	D	R	I	N	K	T	E	S
E	D	S	L	M	O	H	J	L	A	M	R
P	A	T	B	A	T	T	E	R	I	E	S
G	K	U	E	F	N	A	T	U	R	E	L

Water, Water Everywhere

Put the letters in the right order to complete a green thumb thought!

All living things need _____ (tawer) to live.

When water evaporates, it travels into the air and becomes part of a _____ (dlocu).

Less than 1% of all the water on earth is _____ (sefrh) water.

We _____ (ikrdn) water in the liquid form.

Check for leaks and save hundreds of _____ (glloans) of water a day.

You'll save water by taking a quick _____ (howser).

Wash bikes and cars with a _____ (kecbut) and a sponge instead of a running hose.

Ask your_____ (mfaiyl) to look for ways to save water.

How much water do we use in a day?

Taking a bath or shower	15-30 gallons
Watering the lawn	180 gallons
Washing the dishes	15-60 gallons
Washing clothes	30 gallons
Flushing the toilet	4-7 gallons
Brushing teeth	1 gallon
Drinking	1/2 gallon

Did you know?

- Earth is the only planet known to have water to support life
- Every living thing consists mainly of water
- A person can't live for weeks without water
- The 1993 Seychelles constitution states that access to potable water is a basic human right

Water harvesting and consuming in Seychelles

Past Practices

- Water was fetched from rivers or streams
- Water was collected from rooftops
- Small dams held back river water
- Untreated water had to be boiled
- Water used for bathing mostly
- Very little was stored
- low demand few people

Water, Water Everywhere

Fresh water is running out

It is estimated that 1/3 of the world's population will suffer from severe water shortage in the next 25 years. This shortage is to a large extent due to human activities where we consume water more quickly than it can be replaced naturally.

So what we can do?

- Help to protect water **catchment areas** by not cutting down trees in forested and close to rivers
- Make water conservation a way of life. We, as individuals, can make a difference if we make it our responsibility to use less water every day. Try out the following at home to see how much water you could conserve. Complete the column on the right:

Water-saving activities to try at home	Litres of water used	Alternatives	Litres of water used	Litres of water saved
Have a shower	30	Have a Bath	110	
Wash vegetables in bowl	9	Wash vegetable under a running water	69	
Hand wash clothes in a bucket	40	Under a running tap	240	
Wash a full load in a washing machine	130	Wash half load	30	
Use rain water for washing a car or watering the garden	30	Use treated water	230	
Wash car using a bucket of water	18	Wash your car using a hose	300	
Install **dual-flush toilets** Half flush	4.5	Full flush	9	
Install a spray taps for washing up to minimise the outflow of water	30	Normal flow	90	
When brushing your teeth fill a mug with water	0.5	Leave the tap running	45	
Wash dishes by filling two bowls of sinks; one for washing, one for rinsing	25	Leave the tap running	30	
Use a mop and bucket to clean floor	18	Use a hose for five minutes	78	

N.B. All figures are approximate
How many of the above do you regularly do at home? List three things you do that save the most water. Can you think of other ways you could help save water at home?

Glossary

Catchment areas - areas from which rainfall flows into rivers. Dual-flush toilets - use small amounts of water for liquid waste and larger quantities for solid wastes.

Biodiversity

Seychelles Biodiversity

Biodiversity refers to the totality of the world's living animal and plant species including the genes and ecosystems. The tropical forest and coral reefs are thus the richest shelters of biological diversity. But through the years several species have disappeared and this phenomenon has been enhanced by the ever increasing amount of human activities.

The factors responsible for the disappearance of various species and their ecosystems are deforestation, pollution, over-exploitation of certain resources of lands and coastal regions and the introduction of predators which destroy or alter the natural habitats or other species. Theses problems could bring about severe loss and degradation of the biodiversity of the entire world.

Therefore, the conservation of the biodiversity of our islands is fundamental if we want to maintain a healthy environment. However, with the arrival of humans in the 18th and 19th century has had great effect on the fauna and flora of the islands. The forests have been cut down for construction. Other animals such as rats and cats were introduced and these acted as predators to certain species of the island. Competition was ferocious between the exotic birds and indigenous ones and also the imported plants and trees caused the destruction of native vegetation. Coastal construction and certain industries have had great impact on our ocean.

In this way a number of species unique to Seychelles are under threat. It is therefore extremely important to sustain the actual biodiversity both of our islands and the whole world in order to preserve the environment and hence ensure the survival of mankind

Biodiversity Quiz

Test your knowledge of Seychelles biodiversity, and see if you can answer the following questions.

1) What is the biggest reptile in Seychelles?
2) Who first discovered the nest of black parrot (kato nwar) on Praslin?
3) On which islands can you find the Seychelles warbler (timel dezil)?
4) Name one mammal which is native to Seychelles (was not brought here by human).
5) What is the name of the strange insect found only Fregate Island?
6) How did the jelly fish tree get its name?
7) Which is the most endangered of Seychelles endemic' birds?
9) What is the name of the biggest fish in the sea, which can be found in Seychelles' waters?
10) What is the name of Seychelles' endemic plant that produces the largest seed in the world?
11) Why does the pitcher plant (potao) catch insects?

Biodiversity

Special species

Seychelles has a wide variety of plants and animals, few of which have been studied by scientists. Some of these species are endemic to Seychelles, some are indigenous or native, and some are introduced species.

What is a species anyway?

A species is a group of plants or animal which are different from all other plants and animals and cannot reproduce with any types of plants or animals. For example the black paradise flycatcher from La Digue is a species of birds and it is different from other birds and cannot make babies with any other birds, only other black paradise fly catchers.

The table below shows a list of the main groups of plants and animals found in Seychelles, and the number of species in each. It also includes the number of species which are endemic and the number which are threatened with extinction.

GROUP OF PLANT OR ANIMAL	TOTAL# OF SPECIES	# OF ENDEMIC SPECIES	# OF THREATENED SPECIES
Macro-algae Terrestrial & freshwater algae	75	?	0
FERNS	90	?	?
FLOWERING PLANTS	9OO-1000	113	38
INVERTEBRATES			
SPONGES	350	5?	?
Sea anemones	55	0	0
Corals	178	2?	0
Marines molluscs	300?	?	?
Freshwater molluscs	11	1	1
Scorpions	3	1	2
Shrimps	165	9?	?
Crabs	32	1	0
Insects	3500+	1800	140?
Millipedes	28	13	6
Sea urchins	33	0	0
Sea cucumbers	35	2?	?
VERTEBATES			
Fish	100+	10-2-?	?
Amphibians	12	11	?
Snakes	4	2	?
Lizards	25		1
Freshwater turtles	3	3	2
Marine turtles	4	0	4
Tortoises	1	1	1
Birds (residents only)	62	12	8
Bats	6	3	1

Here are some definitions you might find it useful:

ENDEMIC - species which are only found in a specific geographic region eg. Seychelles.

INDIGENOUS OR NATIVE - species which occur naturally in Seychelles but may also occur elsewhere

INTRODUCED - species which were brought here on purpose or accidentally by humans.

Questions

- Which types of animals seem to have the most different species? Does this surprise you?
- Which group of animals has the highest proportion of endemic species?
- Which group of animals has the largest number of species threatened with extinction?

Biodiversity

ENDEMIC PLANTS OF SEYCHELLES

In Seychelles we are lucky to have a large number of plants that are found nowhere else in the world - we call these plants ENDEMIC to Seychelles. Many of our endemic plants grow high in the mountains in glacis areas which have been left relatively undisturbed by human activities.

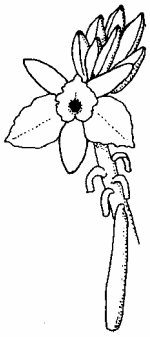
Some of our endemic plants like mosses and ferns are not well known to people and have no common name. Others are well known for their medicinal properties, their variety or beauty.

Visit a Nature Reserves and Check some these unique endemic plants!

Bwa medize / Jellyfish Tree:

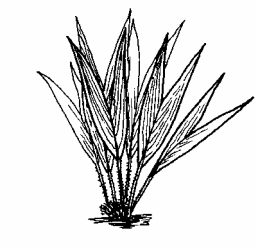
One of the rarest trees in Seychelles. The fruits look like a bit like a jellyfish larva.

Lavannir maron / Wild Vanilla



A curious endemic orchid with leafless fleshy stems and beautiful white flowers

Koko maron



Stemless herb, leaves are borne from the ground. Widely spread on the granitic islands and recorded from Mahe, Praslin, Silhouette, Curieuse and La Digue. Used for plugs of tobacco and for curing dysentry.

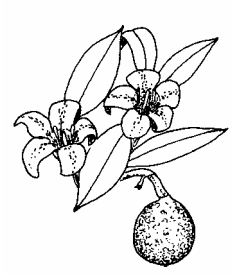
Biodiversity

ENDEMIC PLANTS OF SEYCHELLES

Potao / Pitcher Plant

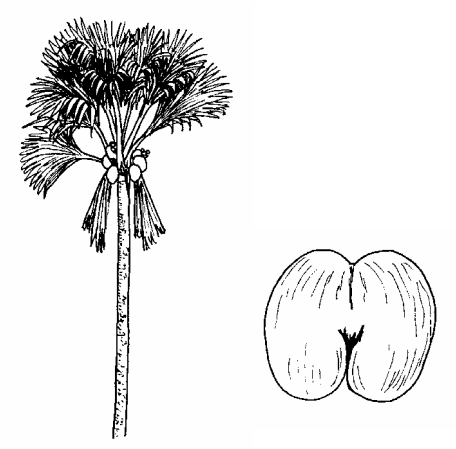
Carnivorous woody climber. Each leaf is extended at the tip into a pitcher capable of digesting insects which are trapped inside.

Bwa Sitron / Wright's Gardenia



Found only on Aride, one of the most beautiful flowering shrubs of the Seychelles. The fruit looks like lemon.

Koko-d-mer



This spectacular tree, one of six endemic palms, boasts the largest seeds in the world. It grows naturally on Praslin and Curieuse.

“Trees are like umbrellas, raised to shelter us from the sun and the wind and rain. The big difference is that trees spread their canopies to protect birds and animals and the land."

Biodiversity

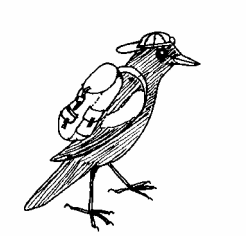
Take Action for Wildlife!

Seychelles is well known around the world for its beautiful environment and unique biodiversity. However, our country is changing rapidly; pollution, land reclamation, housing and road construction, dredging of wetlands and rivers are all taking their toll on important habitats for plants and wildlife.

Each and every one of us can do something to help Seychelles conserve its precious biodiversity and remain one of the most beautiful and unpolluted places in the world. Here are some ideas!

GET OUT AND ABOUT!

Take time to get out and see Seychelles fantastic wildlife for yourself. You can visit national parks, marine parks, go on forest hikes, or go and explore the wildlife living in the rivers, beaches and woods near where you live. Don't forget to bring along some friends!

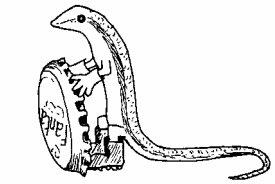


ADOPT A NATURAL AREA

If there is a special beach, river, wetland or patch of forest in your community, why not get together with others in your school or wildlife club and adopt it? You can take care of your adopted natural area by:

- Posting attractive signs reminding people not to throw rubbish there, and to take care of the wildlife.
- Doing a rubbish clean -up.
- Keeping track of interesting plants or animals which live there.

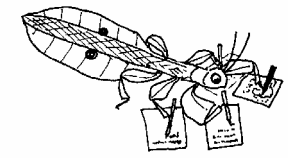
Removing invasive alien plants and replacing them with native species.



HAVE A SAY!

If you feel strongly about wildlife issues, try and get support from others by putting your ideas down on papers:

- Write to your MNA
- Write to the Minister of Environment
- Write an article for a local newspaper



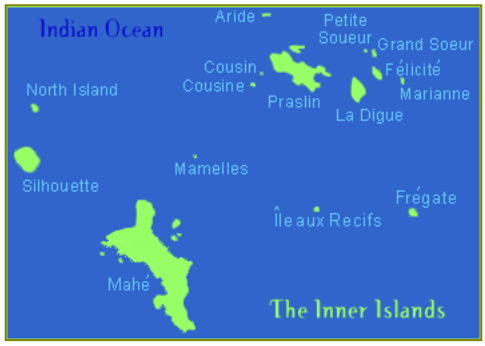
READ UP ON IT!

Finding out more about wildlife and
Environmental issues can help you feel more confident about convincing others of the their importance. Look for information;

At the offices of environmental NGO's like Wildlife Clubs of Seychelles and Nature Seychelles as well as the Ministries of Environment and Natural Resources.

Birds of Seychelles

The Republic of Seychelles is made up around 40 inner or granitic islands and more than 70 islands. The granitic islands **(see map below)** hold the vast majority of the country's human population and are made up of ancient rocks that formed as part of a continent over 600 million years ago, separating from other land masses about the time of the final extinction of the dinosaurs 65 million years ago. Because they are ancient and remote from other land, the inner islands support a range of species found nowhere else on earth (endemic species). The archipelago has been recognised as one of 218' Endemic Birds Areas' on earth, by the conservation and research body of BirdLife International. In addition to their importance for land birds, the islands support many wading birds that spend the summer months around the Arctic circle.



What is a bird?

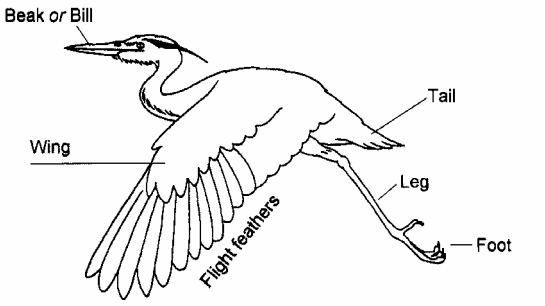
Birds evolved from dinosaurs, the earliest 'bird-like' creatures appearing about 150 million years ago.

All modern birds have some things in common; they have feathers, wings and lay eggs. They don't have teeth but have a horny beak or bill. Many of their special adaptations like feathers and hallow bones, help to reduce their weight to allow them to fly.

Feathers are amazing structures, made of keratin, the protein from which human hair and nails are also made. They are strong and light, but also flexible, made up of many interlocking barbs. The long feathers on a bird's wings are used in flight; they are called flight feathers. The smaller feathers all over its body make it aerodynamic, keep it warm in cold places and dry in the rain. Feathers are replaced once or twice a year, in the process called *moult.* For example, many shorebirds that winter in Seychelles have dull-looking brown or grey plumage while they occur here.

In the northern summer, they return to their breeding grounds in Siberia and completely change their plumage; males are often brightly-coloured to attract mates and defend territory.

Below: Basic bird features

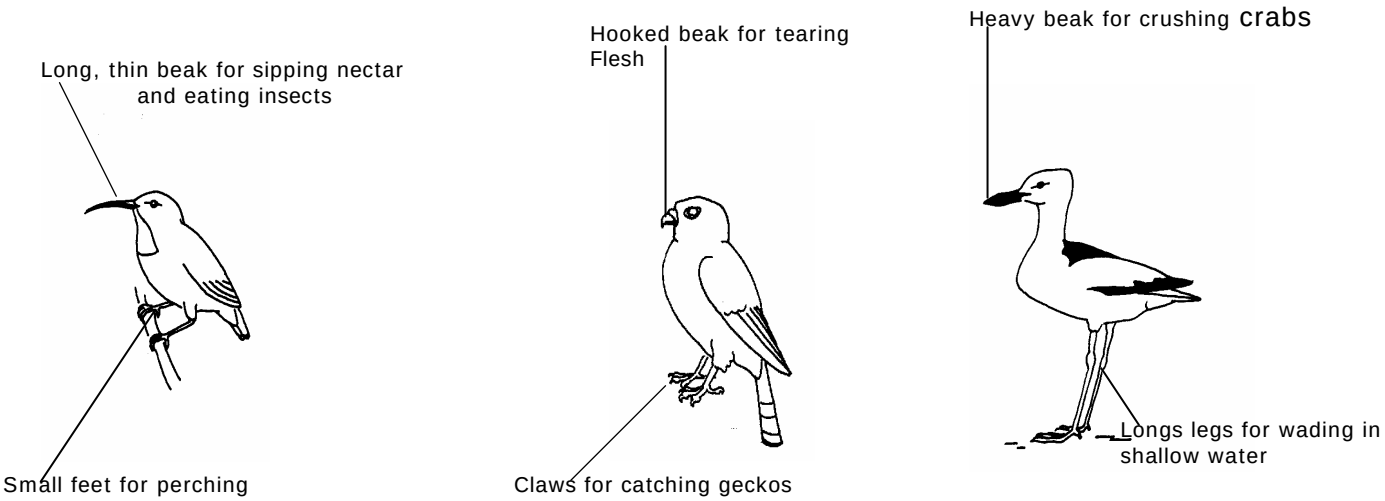


Flight allows birds to migrate to escape cold weather, to escape predators and to find food. A few birds like Aldabra Rail have given up the power of flight; especially on remote islands, birds have not needed to escape predators and evolution has favoured bird with smaller and smaller wings until they can no longer fly.

Within the basic 'bird' pattern different species have a range of adaptations which suit them to different lifestyles and habitats. Most seabirds, for example, have waterproofing oil on their feathers and webbed feet to help them swim underwater when feeding. Wading birds have long featherless leg so they can wade in shallow water, and long bills adapted for probing in sand, mud and among rocks to find their invertebrate food. The Crab Plover has a huge, heavy bill for smashing up crabs. Herons have long featherless legs, and a pointed beak for spearing fish. Moorhens have long toes, to help spread their weight when walking on floating vegetation.

Birds of Seychelles

Below: special bird adaptations to different lifestyles; Sunbird, Kestrel and crab Plover



Endemic, Native and Introduced Birds

The Seychelles is a long way from the nearest continent (the African coast is 1600km away). Although the islands are very old, birds that live here today have had to travel a long distance to get here. For ocean - going seabirds, many of which cover long distances at sea outside the breeding season, the remoteness of Seychelles is no obstacle. However, for land birds, which will drown if they land in the sea, finding their way to islands is not more dangerous and difficult. For two birds of the same species to arrive and start breeding here is rare event.

Bird species that have arrived here, started breeding and established a population with no help from humans, are called **NATIVE** species.

Some native species have been here so long that they have changed through evolution, becoming more suited conditions. With time, they become so different species. Species that have evolved here and are found nowhere else on earth are called **ENDEMIC** species.

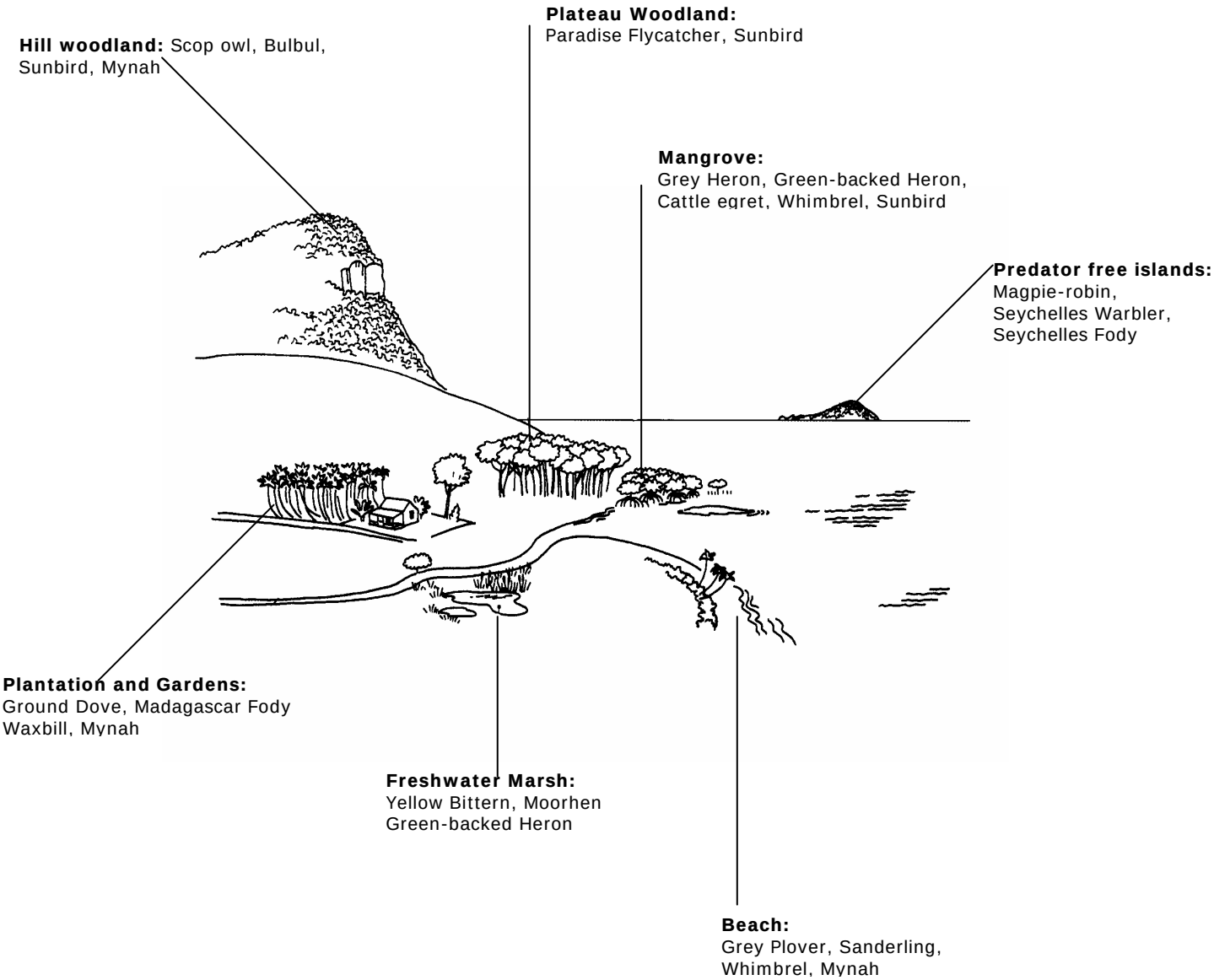
A third group of species could never have reached Seychelles without help from man. These are **INTRODUCED** species, most of which were brought in as cage birds and released here. Introduced species have not here long enough to evolve any differences from their original populations. Most introduced species thrive in man-made habitats, rather than natural forests.

Birds of Seychelles

Bird Habitats

Most animals are best adapted to survive in a particular environment, which we call their *habitat*. Some of the birds of Seychelles have very specific habitat needs, while others are able to survive in many different habitats. Seychelles Paradise Flycatchers are restricted to tall coastal forest of native trees. Mynah birds, by contrast, can be seen on beaches, in town, gardens, plantations and forest from sea level to the highest hills. The bird's habitat needs are linked to its diet and the way it lives (its ecology). Mynah birds have a very broad diet - they will eat almost anything, and can survive where there are dense populations of predators. Several of the endemic land birds have more restricted diet and cannot survive alongside mammals like rats and cats. They evolved when Seychelles was largely covered in forest made up of native tree species, and this is the kind of habitat they still prefer.

Below: Some typical bird habitats



Birds of Seychelles

Why do birds matter?

Birds are important to man in many different ways. Today, seabirds do not form a major part of people's diet in Seychelles as they once did, but we still eat the eggs of a seabird (Sooty Tern) every year. The colonies of seabirds on islands including Aride, Bird and Cousin attract many visitors from around the world, who all contribute to Seychelles' tourist economy. Air Seychelles even uses a bird, the Fairy Tern, as its symbol. Without the birds that we see every day, the world would be a quieter and less interesting place. Some of the birds found in Seychelles are to found nowhere else on earth, so we have a special duty to protect, or conserve, them.

Bird conservation

Since people first settled in the Seychelles over 200 years ago, they have changed natural habitats drastically and have affected bird populations. Some birds are directly hunted for food, or their eggs collected example include the shearwaters (fouke) and Sooty Terns. Other were regarded as pests by people - foe example, the endemic parrots which ate fruit crops. At the same time, man began to remove the natural habitats of the Seychelles and replace them with much simpler, 'man-made' habitats. Most of the tall forests on coastal land were lost and replaced by field crops and later, coconut plantations. Marshes were drained or filled in. Either accidentally or on purpose, people introduced a range of species of plant or animal, some of which began to displace the endemic and native species. Rats and cats, which eat birds and their eggs, were introduced to many islands.

All these changes happening at the same time were bad news for the native birds. Many populations of birds were lost, including seabirds such as the boobies (fou) which no longer breed anywhere in the central islands of Seychelles. For three land species, these pressures caused the death of every last bird, and the species became extinct. The extinct species in the inner islands of Seychelles are: the Seychelles Green Parakeet of Kato Ver, the Chestnut-flanked White-eye (a type of Zwazo Linet) and the Ble. The Poul Ble was made extinct so quickly that have no evidence like bones to say what the species actually was, only some written records dating from the earliest years after settlement.

Some of the land birds that did not become extinct survive in very small numbers, on islands without introduced predators: for example, the Seychelles Magpie Robin on Frégate, the Seychelles Warbler on Cousin and the Seychelles Fody on Cousin, Cousine and Frégate. These species are unique to Seychelles, but similar problems have happened to birds all over the world, especially on islands. Island birds are particularly vulnerable because they have often evolved in places free of predators and cannot cope when species like rats are introduced.

Two organisations devoted to international conservation, the World Conservation Union (IUCN) and BirdLife International have listed all the species of birds that are thought to be in danger of extinction in the next 100 years. All together, 1,186 species (12% of the world's birds) are on this list. Of the Seychelles endemic birds, eight are on this list. Four of these are in the highest-risk category (CRITICAL, or critically endangered) which means that they are thought to have a 50% risk of extinction in the next 10 years, because they have shown a rapid population decline or have small population or range. Four more species are regarded as being threatened, but being at a lower level of risk - they are VULNERABLE. The Seychelles Black Parrot, although it has a very small population, is not listed because it is thought to be a subspecies of a more common species found in Madagascar and Comores.

Birds of Seychelles

Seychelles Birds at risk of extinction:

	Species		Number of birds in the world (approximate)
CRITICAL	Seychelles Magpie Robin	Pi Santez	125
	Seychelles Paradise-flycatcher	Vev	230
	Seychelles Scop-Owl	Sye	360
	Seychelles White-eye	Zwazo Linet	400
VULNERABLE	Seychelles Kestrel	Katiti	At least 860
	Seychelles Warbler	Timel Dezil	2,100
	Seychelles Swiflet	Zirondel	Up to 3,000
	Seychelles Fody	Toktok	3,500

What to with baby birds

Sometimes you might find baby bird on the ground, in bushes or somewhere that is not its nest. Often these 'lots baby birds are fledglings (with their first feathers) that have left the nest but are still being cared for by the adults. Although they may look fluffy and helpless, they are old enough to escape predators. If you try to pick it up, it will probably run or fly away quickly to shelter. If it does, leave it alone and the parents will come to feed it.

If you find a very small chick that does not have proper feathers and is helpless, the best thing to do is to find its nest and put it back, as quickly as possible. Baby birds need feeding the correct foods as often as every 20 minutes, something the adult birds are a lot better at doing than people are. If a nest has blown down a tree, put the nest back in the tree and put the baby birds into it. Put Fairy Tern chicks on a high branch. If the chicks are still alive when you find them, the chances are that they have only recently fallen from the nest and that the parents are still nearby waiting to feed them. The most important things is to get the chicks into a secure place out of the way of rats and cats.
This applies to seabird chicks as well as land birds chicks. Young seabirds of some species are still fed by their parents even after they leave the nest and fly out sea, so even if you succeed in raising a bird until it can fly, there is no guarantee that it will be able to feed itself.
If the bird is injured, the veterinary service at Union Vale (Mahé) or Cote d'or (Praslin) may be able to help.

Watching Birds

Watching birds as they go about their everyday business or feeding, preening and nest-building can be fascinating, and thousands of people around the world are bird-watchers in their spare time. By noting the colour and behaviour of birds, we can identify the species and age, and learn more about their biology. Even the commonest introduced birds show a range of interesting behaviours, and you do not have to go far to see some of the endangered endemic birds like Kestrel and Swiflet.

The best time to watch birds is in the early morning and late in the afternoon when they are most active. By keeping behind cover and not making sudden movements, you may be able to approach quite close. If you sit or stand quietly in the shade, birds will ignore your presence after a few minutes.

Birds of Seychelles

Watching Birds

Making notes when birdwatching will help you identify your bird and remember how it behaves. Record the date, time, colour and other features, behaviour and call. If possible, make a quick sketch.

Things to look for are:

- The size and shape of the body - is it larger or smaller than a Mynah? Does it have a long neck or tail? What colour is it?
- The wings - especially if you see the bird in flight. Are they narrow or broad, long and pointed like a swiflet's or short and rounded like a sunbird's? What colour are they?
- The beak - is it long or short, narrow or thick? It straight or does it curves up or down? What colour is it?
- The legs - are they long or short? What colour are they?
- Behaviour - does the bird fly, walk or hop in a distinctive way?
  Does it occur in a group (flock) or alone?
- Its call, or song - many species have a song, used especially by males in the defence of territory or to communicate to other birds.
  Also, often have a range of other calls foe example. To warn of predators.

  Males, females and young birds of the same species may look very different -watch their behaviour to help identify pairs and family groups.

The best places for bird watching include:

Coastal mudflats, where you can see waders especially in the Northwest Monsoon (for example: Promenade, Victoria; Seybrew, Le Rocher);
Freshwater wetlands, where you may see small herons and egrets (e.g. North-East Point and Plantation Club, Mahé; Vev Reserve and L'Union Estate, La Digue);
Native forests at any time altitude, where you can see many of the endemic landbirds;
Small, predator-free islands, where you can see some of the rarer endemic landbirds (e.g. Aride, Cousin and Cousine).

Birds of Seychelles

Activity 1 - WHAT MAKES A BIRD A BIRD?

KEY CONCEPTS: bird identification, adaptations, bird behaviour

KEY SKILLS: observing, groupwork

CURRICULUM LINKS: science, languages

SETTINGS: indoors and outdoors

MATERIALS: books and magazines with pictures of different animals, worksheet, field guides, binoculars (if available)

BACKGROUND INFORMATION

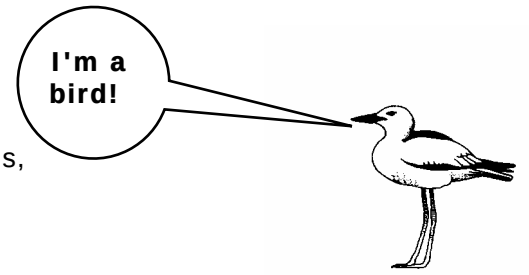
Birds are easily recognisable by events the youngest children.

Their obvious characteristics which make them stand Out from other animals are:

- They have feathers
- They have beak
- They have two feet
- They have two wings
- They lay eggs

Also, but not as obvious, most birds fly, many make nests, they have scaled legs and feet, and clawed toes, and they have hollow bones to make them lighter for flying.

In Seychelles, we have about 70 different bird species, some of which are endemic, some are introduced, and others, like the seabirds, are native but also found in other countries. Birds can be identified with the help of a field guide, by considering their size, shape, colour, song, behaviour, and habitat.

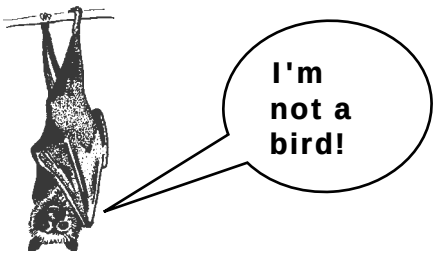


INTRODUCTION

- Look at picture of different kinds of animals, eg. Bats, lizards, Insects, and discuss what features make birds special.

ACTIVITY

- Draw the outline of a bird on the chalkboard, and together label all of it's parts.
- Look at pictures of different kinds of birds to see how they vary in shape and size
- Go outside to observe different birds and how they behave. Have the children work in groups and complete a worksheet (see worksheet).
- Use field guides to help you identify the birds seen.



SUMMARY

- Compare worksheet results back in class.
- Write a list of tips for successful birdwatching.

EXTENTION

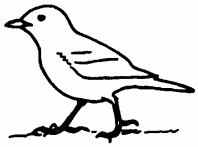
- Make a key to help identify the birds around your school and community.
- Look for articles about birds in magazines, newspapers, and books. Make an exhibition for your classroom.

Birds of Seychelles

1. **Tick if you see a bird doing any of the following:**

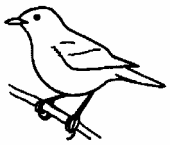
Standing

Preening



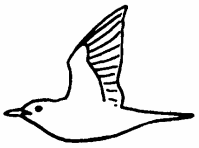
Walking

Eating



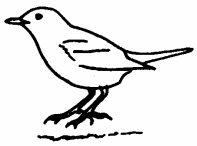
Perching

Drinking



Flying

Bathing



Hopping

Singing

2. **Describe any other behaviours you have you have observed:**

3. **How many different kinds of birds did you see?**

4. **Did you see any Seychelles endemic birds? List them:**

Birds of Seychelles

Activity 2 - HOW DO BIRDS FEED?

BACKGROUND INFORMATION

In this activity, students will compare different ways birds feed, through first hand observation of birds in the schoolyard. The main differences to consider are back shape, feet and habitats. Birds are adapted, or well-designed for the way they find their food.

For example, Kestrels have a sharp, hooked beak for tearing flesh, and strong, sharp-clawed feet for grabbing their prey. They can be found perched on a wire or branch where they have a good view of lizards and potential prey. Herons have long legs foe wading, and a long, sharp beak for catching fish, and are found in rivers or shallow water.
Mynah birds have a general purpose long strong beak
for eating a variety of foods and can be found almost
anywhere, especially near where humans live.

INTRODUCTION

- Because they feed on different things and have no teeth, different kinds of birds have different kinds of beaks, ask the children to think of how birds might deal with different kinds of food:

How would they eat small water creatures?
(Ducks and geese have wide flat beaks with an edge like a sieve).
How would they eat worms and other creatures in the sand or mud? (Many shorebirds have long beaks with a sensitive tip).
How would they catch fish deep in the ocean? Etc.

- Look at pictures of birds or a video and discuss differences in beak shapes and feet.

- Discuss where different birds go to find their food, and how they get it.

ACTIVITY

- Go out to the school compound or a nearby natural are to observe birds feeding.

- Get the students to work in groups and use a worksheet to record their observations.

- Investigate the area for signs of food available for birds, eg. Grass seeds, insects, fruits, fish, etc.

- Spread an upside down umbrella or newspaper under a leafy branch. Shake it and observe how many insects, seeds, fruits, etc. that fall. Discuss which birds might eat these.

SUMMARY

- Back in class, have the groups write up and present their findings.

- Discuss whether the school compound is a good habitat for birds. How could it be improved?

Birds of Seychelles

Activity 2 - HOW DO BIRDS FEED? Cont...

EXTENTION

- Design an experiment to find out which foods birds prefer and how they like to feed. Put some rice, fruit and other kinds of foods out for birds. Observe which birds come to eat them. Experiment by putting some food on the ground, some on a table, some in a tree etc. And observe which birds come. Try doing the experiment at different times of day.

- Have the students work in groups to design real or imaginary birds who are adapted to find their food in different ways.

Design a bird which hunts at night in the forest and feeds on lizards and frogs.

- Design a bird which lives in the arctic and catches fish.

- Visit different habitats to observe different birds feeding, eg. Seashore, forest, mangrove, etc.

Birds of Seychelles

Activity 2 - HOW DO BIRDS FEED? Cont...

Worksheets for Activity 3: Birds Feeding

1. **Tick where see birds feeding :**

   On the ground

   In the bushes

   In the trees

   Other:

2. **Tick the foods you observed birds eating, and list the types of birds next to each food.**

   Seeds

   Rice

   Berries

   Bread

   Fruit

   Other:

3. **Do all birds like the same foods?**

4. **What kinds of food are available for wild birds in your study area?**

5. **Is there enough food for birds and other wildlife? If not, how could you improve the situation?**

Activity and Games

The Shorelines

LEVEL:
P3-P4

SUBJECTS:
Social Science, Languages, Science, Art

Duration: 80 minutes

SETTING: outdoors and indoors

MATERIALS: binoculars, hand lens, beach safari checklist; pencils

INTRODUCTION

Seychelles is well known throughout the world for its outstanding natural beauty. People come from distant lands to appreciate our shores which are a haven for many living organisms; but to most of us they often go un-noticed.

Children should discover and learn to appreciate the beauty and diversity of life that thrive on the shorelines.

OBJECTIVES:

1. To appreciate the beauty and diversity of life found on the shorelines.
2. To produce posters/leaflets and write appreciation for the natural beauty of our shores.

PROCEDURE:

1. Explain to the children that they are going on a beach safari.
   Inform them that they should identify and observe as many living things as they can on the shorelines.
2. Provide children with beach safari checklist for them to identify and record the living organisms found.
3. Allow the children to sit quietly for a while listening to the sounds of nature and to observe the beauty of the beach.
4. Encourage the children to write songs/ poems to show their appreciation of the shorelines.

EVALUATION

1. Ask the children to talk about their findings and their feelings about the activity.
2. Encourage them to recite poems, sing songs or paint their experiences.

EXTENTION

1. Children can display their work in the classroom or on the school's notice board, or even publish these in the school magazines

2. Investigate the relationships between the things recorded on the checklist

Shore Life checklist

Name (s): ……

Date: ……..

Name of site:……

Sandy?

Muddy?

Rocky?

Shellfish

TeK-Tex

Mussel (mouk)

Limpet (bernik)

Barnacle (graban)

Limpet (bernik)

Whelk

Bigorno

Periwinkle (ti-mari)

Chiton (lalang bef)

Star fish

Sea Urchin

Others: ……..

……..

……..

Birds

Waders (zalwet)

Whimbrel (korbizo)

Grey Heron (florenten)

Green backed Heron(mannik)

Terns (golan)

Turnstone (bezros)

Others: ……..

……..

……

Shore Life checklist

Crabs

Fiddler Crab (krab se ma fot)

Ghost crab (loulou grangalo)

Hermit crab (solda)

Mangrove crabs

Sally-light foot crabs (karkasay)

Others: ……..

……..

……..

Fish

Parrot Fish (Kakatwa)

Goby

Rock skipper (kabo soter)

Mud skipper (soter)

Other: ……

……..

……..

Plants

Mangrove

Beach morning glory (patatran)

Vouloutye

Beach grass (sporobolus)

Sea grass

Sea lettuce

Brown seaweed

Saw wrack

Lamous

Red sea weed

Any signs of human activities: ……..

……..

……..

Any signs of animals activities: ……..

……..

……

THE MARINE PARK GAME

LEVEL: P3-P4

SUBECTS: social science education,
Social science languages.

DURATIONS:
40 minutes

SETTING: Indoors

MATERIALS:
Marine Parks Game Board (see next page) Dice playing pieces (use pebbles, shells, seeds, etc.), maps of Mahe and Praslin

EVALUATION:

1. Review some reasons for setting a marine park again to ensure that the children have retained the ideas.
2. Ask the children to make a list of things that people should do not do in a marine park.
3. Discuss why certain things should not be done in the park.

EXTENTION:

1. Visit the Ste Anne marine park in a glass bottom boat, and the information centre on Round Island
2. Visit the seashore to observe marine life.
3. Make a poster illustrating good practises in nature reserves.

THE MARINE PARK GAME

1 **START**	2	3 Teaching others **Advance to 8**	4	5	6 Killing a turtle **Go back to start**	7	8
16	15	14 Picking up rubbish in the park **Advance to three spaces**	13	12 spilling oil in the sea **Go back to three**	11	10	9 You saw a dolphin! **Advance one space**
17	18 Snorkelling in the park Advance to three spaces	19 Your sewage is running into the sea **Go back to 4**	20	21	22 Throwing rubbish in the park **Go back to 15**	23	24
32	31 Water skiing in the park! **Go back to 25**	30	29 You visited the information Centre on Round Island **Advance to 32**	28	27 Setting fish trap in the park **Go back to 11**	26	25
33	34	35 Dumping old rusted vehicle in the park **Go back to 1**	36	37 You used a buoy for mooring in the park **Advance three Spaces**	38	39	40 **FINISH** **YOU'RE A FRIEND IN THE PARK!**

Marine Resources

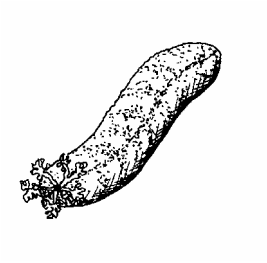
LEVEL:
P5-P6

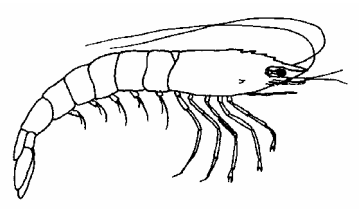
SUBJECTS:
Maths, Science

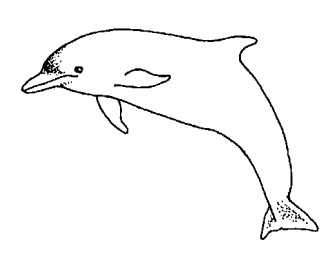
DURATION:
40 minutes

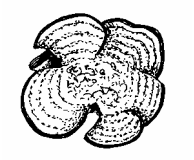
SETTING:
Indoors

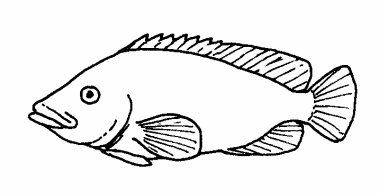
MATERIALS:
Posters (coral reef fish of Port Launay, an protect our Reef Fish)











INTRODUCTION

One of the most important marine resources being utilised in Seychelles is fish. The fisheries is at the moment the second foreign exchange earning industry in Seychelles. Fish is exported fresh, frozen and canned.

This activity is intended to encourage skill development in children and to promote awareness on the fact that fish is a renewable resource and there are certain factors which affect the ability of the stock to regenerate itself. Unless proper measures are taken, certain species might be severely affected.

OBJECTIVES:

1. To appreciate the beauty and diversity of the fish life of Seychelles.
2. To interpret and manipulate statistics about changing fish catches.
3. To identify the main factors that contributes to the changes in fish population with time.

PROCEDUCES:

1. Introduce the activity by asking students if they have snorkelled around a coral reef and what type of fish would they expect to find there (refer to posters to identify the different types of fish).

2. Ask them if they visited one place year after year would they expect to find the same number of fishes there each year.

3. Look at the data sheet **(n**

4. **ext. page)** showing the catch rate for 8 species of fish by local fisherman for the last six years.

5. Ask children to work in small groups to answer the questions accompanying the chart.

6. All together, discuss the answers to the questions. Determine some of the reasons that might causes a fish population to:

i) go up eg. lots of food, less predators; and ii) go down, eg. Food shortage, too many predators, population, pollution, overfishing etc.

7. Discuss reasons why we should manage our fish stocks and the role that marine parks play in helping to protect them

Marine Resources Cont...

EVALUATION:

1. Discuss the answers to the questions on the following page and review the work done by the children

EXTENTION:

1. Go snorkelling in a sheltered area at low tide to observe fish life
2. Visit one of the marine parks in a glass bottom boat to observe /survey fish at first hand.
3. Research on the economic importance of Artisanal Fisheries.
4. Discuss the seasonal control of lobster-catching in Seychelles.

Marine Resources Data Sheet

Fish	1989	1990	1991	1992	1993	1994
Becune	124.9	312.6	273.7	110.1	286.3	151.5
Bonite	231.6	167.2	275.4	240.7	160.1	169.9
Capitaine	308.8	308.7	478.7	560.8	349.2	283.8
Carangue	1404.4	1862.3	1444.4	1922.7	1470.2	1065.6
Cordonier	244.6	152.8	341.2	468.6	364.4	208.5
Job	421.1	790.8	739.4	637.1	724.0	600.9
Maqureau doux	294.7	195.2	423.0	308.5	303.7	586.2
Red Snapper	492.7	592.8	761.2	516.9	454.8	515.0
All Vielle	234.7	253.5	319.1	286.3	218.4	133.3
Other species	634.2	719.2	664.4	666.1	395.7	712.3
Total Catch (MT)	4391.7	5355.1	5720.5	5717.8	4926.8	4427.0

Sources: SFA: TECHNICAL REPORTS, statistics for 1994.

Questions to attempt

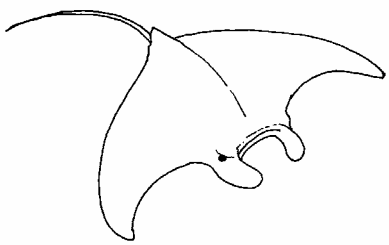
1. Name the most important species of fish caught in the country.

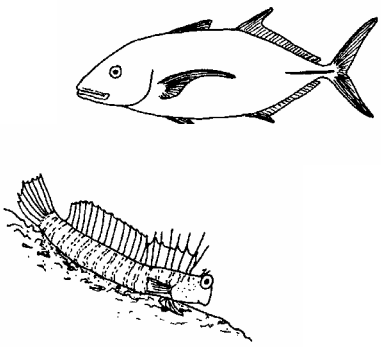
2. Which species of fish represents the highest percentage of fish caught over six-year period?

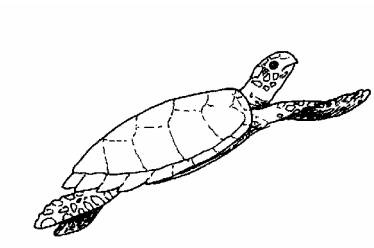
3. Draw a bar graph to show the percentiles of the fish (in 2 above) caught in two year period.

4. There is a gradual decrease in the amount of Cordonier and Vielle caught in 1992, 1993 and 1994. What are the factors that could have attributed to the decrease?

5. Using a data from the table, draw a pie chart to show the percentiles of the species fish caught in 1994.







Under the sea

Art / Science

Children will create an undersea environment in their classroom while researching facts about their favourite sea creatures.

What you need!

- Crayons, coloured pencils, markers
- Crepe paper (blue, green, red, yellow, pink)
- Paper plates
- Construction paper
- Index cards
- Yarn or string
- Books or magazines with pictures and illustrations of fish

What to do!

1. Tell the children that over the next week they all work together to turn the classroom into an undersea environment and teach each other more about the creatures that live in the sea.

2. Discuss with children the different kinds of sea creatures they have learned about so far and ask them to choose their favourites. On the board or chart paper, list each child's name and favourite sea creature. Then explain to the children that during the next week they are going to find out as much as they can about their favourite sea creature so they can tell the class about it at the end of the week. Suggest to the children to starting doing research on interesting facts about their sea creatures and write on index cards. Children may also want to make illustrations to help them describe their favourite sea creature. Provide books and magazine for the children to look through and arrange them to have some research time in the school library.

3. Then begin to decorate the classroom by hanging blue and green crepe paper across the room to create the seawater. Then have children draw and cut out a picture of their favorite fish or other sea creature. Make sure that children decorate both sides of their fish. Then hang the fish from the ceiling or display them around the classroom walls. Continue to create an undersea world in the classroom by using some or all of the following ideas.

- Children can make jellyfish by colouring paper plates and hanging red, yellow, and/or pink crepe paper tentacles from the plates. Hang the jellyfish from the ceiling so they look like they are floating in the water.

- Brainstorm with the children things that might be found on the ocean floor, such as a coral reef, an octopus cave, a sunken ship, and a lobster trap. You can decorate, or simply refer to, areas in your classroom as these undersea landmarks. For example, the reading corner may become a coral reef (pipe cleaners can used to make coral), a book shelf could become a sunken ship.

- Invite children to bring in any seashells they may have at home t0 display around the room. You may want to bring in some tapes of ocean sounds to play in the background during the week.

4. At the end of the week have children share with each other what they have learned about their favourite sea creature. **You may want to celebrate with a variety show, such as poems, songs and story telling base the marine life. Invite other student, parent and the community to celebrate the activity, a best way to sensitise others.**

TEACHING OPTIONS – You may want to expand this activity into a project that extends over two weeks, giving children more time to do research and to better decorate the room.