

**GOD IS
CREATOR
PART 1**

**Ecosystems
Term 2
Year 4**

Biography

Mataika



A storm-battered canoe was beached on the shore of Lifu Island in the Loyalty Islands group, situated between the New Hebrides (Vanuatu) and New Caledonia islands. A weary Tongan man stepped ashore, relieved to be on solid ground again. When a small group of villagers came down to greet him it was difficult to communicate at first. But after a time, using signs and discovering words common to their two languages, they ascertained that he had been on a trading trip out from Tonga when a severe storm swept him far off course to the west. The villagers on Lifu made him welcome and he became one of their communities.

Later on he noticed an attractive young woman.

“May I have that young woman for my wife?” he asked the village chief.

“You should ask her father if you can have her,” replied the chief. “If he agrees to it, then so do I.”

The Tongan approached the father, received his permission and in due course a baby boy was born to them. This boy was named Mataika. At about the same time as this, a ship arrived on Lifu carrying a team of missionaries. Their leader asked to see the island chief. “We have a great story to tell your people. It’s about the Creator God and Jesus His Son. We have other island people with us who can tell you how this message has changed their lives and their community. May we stay and teach you about our God?”

The chief was impressed with these visitors and gave them a piece of land to build houses on and plant food gardens. The Tongan man, baby Mataika’s father, heard of the missionaries’ arrival and went to see the chief.

“I come from Tonga, as you know,” he began. “My people have believed in the Christian God for some time, and I do too. Since we began to follow the Christian way, He has changed our lives.

My people used to fight and kill each other, but now we are at peace. We used to be afraid of evil spirits, but now we know God's Holy Spirit who is stronger than all the evil spirits of your priests."

The chief listened attentively, and then said thoughtfully, "I have begun to listen to the missionary teachers. Would you help me to understand all that they teach us? I believe it is a good thing for my people to follow."

So the Tongan man spent much time explaining the Christian message to the chief, Bula by name. Because the chief accepted the Gospel message readily his people gladly believed on the Lord Jesus Christ also.

Mataika attended the missionaries' school on Lifu and grew up into a strong believer in Jesus Christ as His Lord. In 1871, the ship, the *John Williams*, sailed from Rarotonga to Samoa with some newly trained missionaries going to British New Guinea (now Papua New Guinea). They called in at Lifu to pick up Mataika and Gucheng, his friend who had both been chosen to join the pioneer team going to British New Guinea.

The *John Williams* sailed to Somerset, a new mission station on the northern tip of York Peninsula, Australia. At Somerset they changed from the *John Williams* to a smaller ship that could better negotiate the hazards of these uncharted waters. Gucheng and his wife were taken to Darnley Island. Mataika and his wife were chosen to settle on Mer in the Murray Islands to teach the Christian message there. But the captain of their ship came to the mission team leaders with a serious concern. "There is reef all through these waters. I don't have any maps or charts of these reefs to sail by, so we could very likely run up on a reef if I try to sail to the Murray Islands."

The mission team leaders prayed and considered the position. Calling Mataika and Gucheng to them they told them their decision.

"Mataika, you and your wife will stay here at Darnley with Gucheng. Trading boats come through here from time to time. You could wait here until one comes that will take you to Mer in the Murray Islands. Gucheng, are you happy with that?"

"Yes, I'll be pleased to have my friend with me as we start our work here," Gucheng replied. Mataika was equally pleased. "We can encourage each other as we begin to learn about the language and the customs together."

The ship had off-loaded Mataika and Gucheng and their wives and goods and was ready to depart when Gucheng's wife suddenly burst into tears, overcome with terror at the situation.

"They're leaving us here all alone," she cried in panic, "I'm frightened! I want to go home to my own island. I don't want to stay here with these strange people in this strange place. Let me go home!"

Quietly but firmly Gucheng took her aside. "We must remember why we have come here," he said gently. "It's not to get sea cucumber or pearl shell, or other earthly riches, but to tell these

people about the true God and the loving Saviour Jesus Christ. We must think of what He suffered for us. If they kill us, or steal our goods, whatever we have to suffer, it will be very little compared with what He had to suffer for us.”

So Gucheng and his wife went on together in that spirit of sacrifice.

In the early days on Darnley Island they discovered a group of Murray Islanders. These men had realised that having the missionaries on their islands was going to spoil their wrongful practices. They tried hard to frighten the new-comers.

“It’s dangerous to go to the Murray Islands,” said one, “there are snakes and alligators and centipedes there.”

“Yes,” came the reply, “but are there *men* there?”

“Oh, yes, there are men. But they’re dreadful savages. It’s no use thinking of living among them,” persisted the Murray Islander.

“That will do,” replied Mataika, “wherever there are men, the missionaries are bound to go.”

Gucheng and Mataika waited many months but no trading vessel came by that could take Mataika and his wife to Mer. Mataika said to Gucheng, “We’ve waited a long time and no trading ship has come by. I’ve looked around in the bush and there are plenty of trees that are good for building a canoe. I have tools here. What is to stop me from constructing a canoe that would take me to Mer?”

Gucheng encouraged him to go ahead with the work. Mataika searched in the bush for a suitable large tree and, with help from Gucheng and some of the friendly Darnley Islanders, he set to work to carve out the canoe for himself. It was dug out of a single tree, but raised a little at the sides to prevent water lapping into the canoe in rough seas.

He chose four men to help paddle the canoe, two of them from the group of Murray Islanders living on Darnley and two others. It was a thirty-mile journey which they covered in two days and a night. Arriving at Mer, the two crew members from the Murray Islands were able to speak to the local chiefs, “These men are good people. They bring a good message that helps people to live together in peace. They would like your permission to come and live in our islands and tell everybody about this Christian way of living.”

The chiefs gave their permission. “We would be happy to welcome you and your friends to our islands,” they said, “and we promise to listen to the Christian message you bring.”

They selected a piece of land where Mataika and his wife could have their home and their food garden, then set off back to Darnley. This time they hired a boat from a man living on Mer. Mataika’s wife and their few possessions were loaded on to the boat and they set off to pioneer the Christian work on Mer in the Murray Islands. Mataika was one of only three of that first mission team that went out on the *John Williams* who lived to return home to his native land after many years of service in the islands.

Adapted from: History of the London Missionary Society, 1795-1895, Richard Lovett, London.

Ecosystems 1

Food chains

Student activities

Plants make their own food. They are called producers.
Animals that eat plants are called herbivores.
Animals that eat other animals are called carnivores

Here is a list of animals and the foods they eat:

Grass

A leaf

An eagle

A small bird that eats insects

A caterpillar

A cat

A mouse

A vegetable

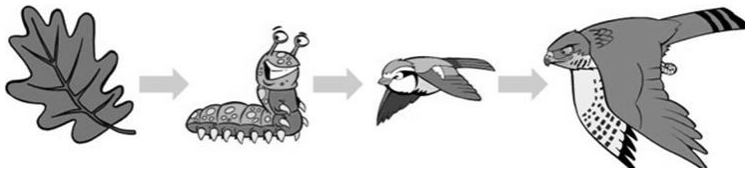
A cow

Write the list and next to each write "P" for producer, "H" for herbivore and "C" for carnivore.

We can show what eats what by drawing a food chain.

For example:

A LEAF → (is eaten by) A CATERPILLAR → A BIRD



Now make up different food chains using the above list of animals and their foods. Use drawings and arrows. Start all your food chains with a plant.

Ecosystems 2

Food chains and food webs

A food chain tells us what animal eats what.
All food chains begin with plants.

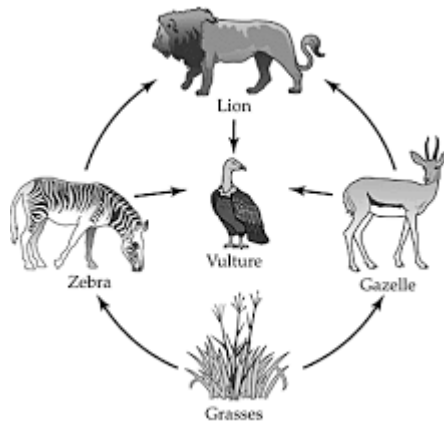
1. PLANTS get energy from the sun to make their own food. (They are the PRODUCERS)
2. HERBIVORE animals eat the plants.
3. CARNOVORE animals eat the herbivores.

But there are also OMNIVORES. They eat both plants and animals.

And last of all there are the DECOMPOSERS which are the bacteria which break down the dead plant and animal material so that it goes back to the soil.

When several animals eat the one type of food it gets complicated. This is called a food web. For example, zebra, giraffe and deer all eat grass. But lions and cheetahs both eat zebras, giraffe and deer.

Draw a diagram of a different food web.



Ecosystems 3

What is an ecosystem?

An ecosystem is a community of plants and animals living together in the same environment.

There are two parts to the community:

The non-living part:

Rain, sunlight, temperature, soil

The living part:

Plants, animals, bacteria

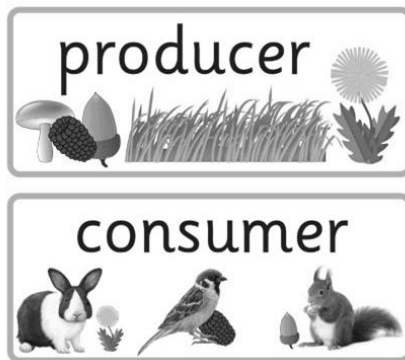
In the living part there are producers and consumers.

The plants produce food. The animals consume food.

The living part can only survive when the non-living part provides the right conditions for survival.

If one part of the food chain gets taken away, then it affects the whole ecosystem.

1. Why would rainforest animals die if their trees were taken away?
2. Why is the non-living part of an ecosystem important?



Ecosystems 4 Dependence

Dependence in an ecosystem means that the living things in that environment are dependent on one another. That means that they all need one another.

Living things are also dependent on the non-living part of the environment staying the same.

This is called the balance of nature.

Changes to ecosystems can be caused by:

- Humans
- Climatic changes

What would happen if:

1. *Hunters shot most of the herbivores?*
2. *There were too many frogs on one pond?*
3. *Floods, drought, oil spills, pollution, overgrazing, hunting and cutting down trees can upset the balance of nature. Chose two of these and explain how.*



Ecosystems 5

Types of ecosystems

Deserts

Oceans

Savannah grasslands (e.g. Africa)

Rainforests

Lakes and ponds

Rivers

Choose one of the ecosystems above and write down all the living and non-living things that you will find in that ecosystem. Now explain:

- *What the animals eat*
- *Where the animals live*
- *Why they need the living and non-living things in their ecosystem*

Now draw your ecosystem.



Ecosystems 6

Climate

Climate is the usual pattern of weather for a particular place. In some places, it is hot all of the year. In some places, it is cold all of the year. In some places, it is hot in the summer and cold in the winter. Some places have lots of rain and some don't.

- Hot and wet places are called **tropical**.
- Places that are not too hot and not too cold are called **temperate**.
- Places that are very dry are called **deserts**.

The climate affects the type of ecosystem.

Where in the world would you find:

1. *A tropical rainforest?*
2. *A temperate climate?*
3. *A desert?*
4. *A place that is cold all year round?*



Ecosystems 7

Rainforest animals

Tropical rainforests grow around the equator where it is hot and rainy all year round. They are homes to millions of animals. Animals find plenty of food to eat and places of shelter among the trees.

Jungle hunters

The hunters are called predators. Jaguars stalk food such as deer and tapirs. Their spotted coats hide them among the trees. Then they pounce and kill their prey with a single bite. Their teeth are so sharp that they can even crack open hard turtle shells.

Other animals

The rainforest is also home to many insects, reptiles and birds. Large snakes such as boa constrictors kill their prey by wrapping around it and squeezing it to death. Colourful birds and monkeys feed on the fruit that grows on the forest trees.

1. *Name a country where you would find jungle hunters such as the jaguar.*
2. *What do jaguars eat?*
3. *What other animals live in a tropical rainforest?*



Ecosystems 8

The North and South Pole

It is freezing cold and windy at the poles. Ice covers large parts of the land and sea, and yet animals still live here. They have special ways of keeping warm, dry and safe.

Polar bears

Polar bears live in the Arctic. They hunt for seals on the sea ice. They also eat fish. To keep warm, they have thick fur and a layer of fat underneath their skin. Small bumps and long hairs on their feet help them to grip the slippery ice.

The Arctic fox

In summer, Arctic foxes grow a greyish-brown coat so they can hide from enemies among the rocks. In winter, they grow white coats so they can hide among the ice and snow. The Arctic fox hunts small animals like Arctic rabbits, which are also white.

Penguins

Penguins live in Antarctica. The females lay eggs, then go off to sea to feed on fish. The males look after the eggs, carrying the egg on their feet, covered by a flap of skin.

Seals

The Weddell seal lives in Antarctica. It dives underwater to feed on fish and squid.

Whales including Killer Whales also live in Antarctica.

1. *Draw a globe and show both the Arctic circle and Antarctica.*
2. *Name and draw the animals that live in the Arctic.*
3. *Name and draw the animals that live in Antarctica. (Don't forget about the animals living in the sea.)*

Ecosystems 9

Grasslands

Grasslands are huge plains where the climate is dry much of the year. Only tough grasses grow there and a few trees.

In Africa, huge herds of zebras, giraffes and antelopes graze on the grasslands. Elephants and giraffes eat from the trees. They have to keep a good look out for hungry predators who hunt them. These are the lions, leopards and cheetahs, (the big cats), and the wild dogs and hyenas.

Giraffes, zebra and antelope stay together and help each other look out for the hungry predators.

The adult male African elephant stands about three metres tall and weighs as much as eight cars. It is the largest land mammal. Giraffes are the tallest land mammal. They are more than five metres tall. They use their long necks to reach the leaves high up in the trees. Monkeys also eat food from the trees.

The rhinoceros is another large mammal that lives on the African plains. Hippopotamuses (hippos), live in and by the rivers and waterholes. Both of these large mammals are plant eaters.

Towards the end of the dry season the water holes start to dry up and animals are on the move looking for water. The big cats often catch animals drinking at waterholes. They also catch the slower, weaker animals running at the back of the herd.

Make two lists: the plants eaters and the meat eaters.

Ecosystems 10

The coral reef

Coral reefs are made by tiny sea creatures called coral polyps. They build hard cases around their bodies. When they die, the cases are left behind. Reefs provide plenty of food and shelter for thousands of amazing animals.

Thousands of fish live on the coral. Many, such as the butterfly fish, swim in large groups called shoals. This helps to keep them safe from enemies who find a group hard to attack. Fish of the coral reef are brightly coloured with strong patterns.

Small fish keep the reef clean. They pick dead skin and dirt off big fish like moray eels. The eels even let the small fish into their mouths to clean bits of food from their sharp teeth.

Parrot fish get their name from their sharp, beak-like teeth. During the day, they feed on the coral. During the night, they keep themselves safe by making bubbles of jelly around their body.

Giant clams are the biggest shells in the world. They can measure one metre wide. They live on the Pacific and Indian oceans.

- 1. Why do fish swim together in groups?*
- 2. Describe some of the fish of the coral reef.*
- 3. How do they help one another?*
- 4. How do you think the bubbles of jelly keep the parrot fish safe at night?*
- 5. Draw an underwater scene from a coral reef.*



**GOD IS
CREATOR
PART 2**

Ecosystems

Animals of the desert

Term 3

Year 4

Desert animals 1

The Camel

What do I eat?

When I'm hungry, I'll eat almost anything

- a leather bridle or a pair of shoes
- a piece of rope
- my master's tent
- thorny cactus
- grass and other desert plants
- hay

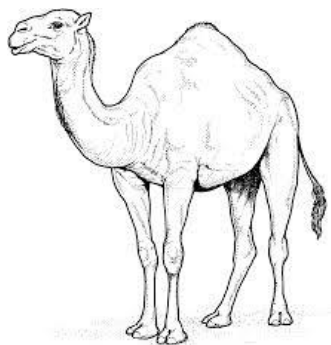
What is my hump for?

I'm a dromedary camel, the one-hump kind that lives on hot deserts in the Middle East.

- My hump weighs 36 kg (80 pounds)
- It is filled with fat which provides fuel for my body

My Mighty Maker gave it to me because He knew I wouldn't always be able to find food in the desert.

When I don't find any food, my body uses fat from the hump, to feed my body. This is my emergency food supply.



Desert animals 2

The Camel

How much water can I drink?

I've been known to drink 100 litres of water in ten minutes.

Where does the water go?

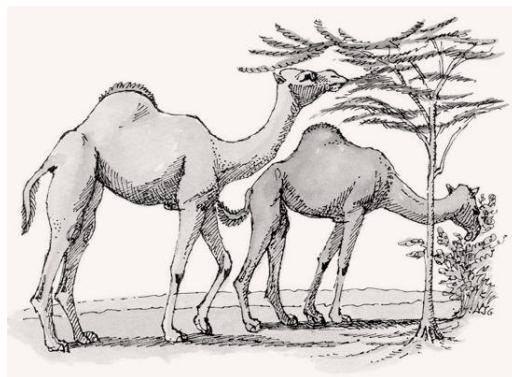
My Master Designer made me in such a fantastic way that in a matter of minutes all the water I've swallowed gets straight into the cells of my body.

The water I swallow first goes into my stomach.

Then my blood vessels carry it to every part of my body.

My stomach is found it empty ten minutes after I've drunk 100 litres of water.

After going all day without a drink I lose a lot of water from my body. I look really skinny. When I find a water hole, I'll drink for about ten minutes and my skinny body starts to change. The water goes to all parts of my body and I don't look skinny anymore.



Desert animals 3

A camel's nose and eyes

My nose

My nose is very special because it helps my body save water.

God has made my nose so that when I breathe out, I don't lose much water.

My nose traps that warm, moist air from my lungs and the water stays in the cells around my nose.

This makes my nose feel cool.

I have special muscles in my nostrils that can close when there is a sand storm. The sand doesn't get in, but I can still breathe.

My eyes

My eyelashes come down over my eyes like screens, keeping the sand and sun out but still letting me see clearly.

If a grain of sand slips through and gets in my eye, the Creator took care of that too. He gave me an inner eyelid that wipes the sand off my eyeball just like a windshield wiper.

My eyebrows are so thick and bushy. I have to hold my head high to peek out from underneath them. I'm glad I have them though. They shade my eyes from the bright sun.

What is special about a camel's nose?

What is special about a camel's eyes?



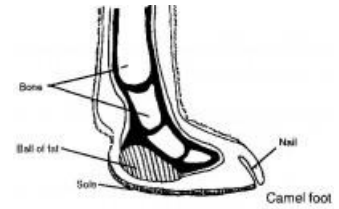
Desert animals 4

A camel's legs and feet

My feet

In the desert I walk on sand. My Creator gave me special sand shoes for feet. My hooves are wide, and they get even wider when I step on them.

Each foot has two long, bony toes with tough, leathery skin between my soles. My feet are a little like webbed-feet. They won't let me sink into the soft, drifting sand.



My knees

When I was six months old, special knee pads started to grow on my front legs. They are very tough. My Creator knew I had to have them.

They help me lower my heavy load to the ground. I can fall on my knees without my knees getting hurt.

If I didn't have them, my knees would soon become sore and infected, and I could never lie down. I'd die because I would never be able to rest.

My legs

When I walk I sway from side to side.

Some of my riders get seasick.

I sway from side to side because of the way my legs work.

Both legs on one side move forward at the same time.

What kind of feet does a camel have?

Why are they good for the desert?

What are the camel's knee pads for?

How does a camel walk?

Desert animals 5

How the camel helps desert people

Desert people depend on me for many things.

They need me for:

- Transport
- Milk, which is made into cheese and butter
- My fur

I shed my thick fur coat once a year and that can be woven into cloth.

Make a chart with drawings showing of how desert people make use of the camel.

Camels in the Bible

How did people of the Bible use camels to help them? Write about some Bible people who rode on camels.



Desert Animals 6

The Desert Scorpion

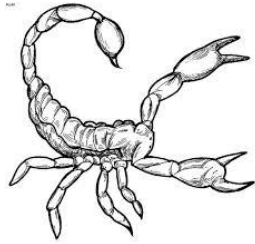
The desert scorpion spends much time on the sand.

This exposes it to harsh sandstorms that could cause damage to its outer skeleton (called an exo-skeleton).

But the scorpion is protected by rough coat of armour.

The bumps on the armour protect it.

- found in Africa and Middle East
- yellow in colour
- have a very poisonous sting in their tail.
- eat insects, spiders, other scorpions and lizards. They also eat small mammals, such as mice.
- must have water to drink, but they can survive for months without food.
- use their pincers to capture and crush prey.
- have eight legs but not a spider and not an insect



How is the scorpion protected from sand storms?

Where would you find a desert scorpion?

Why is it dangerous?

What do they eat?

How do they catch food?

What happens if it does not get water?