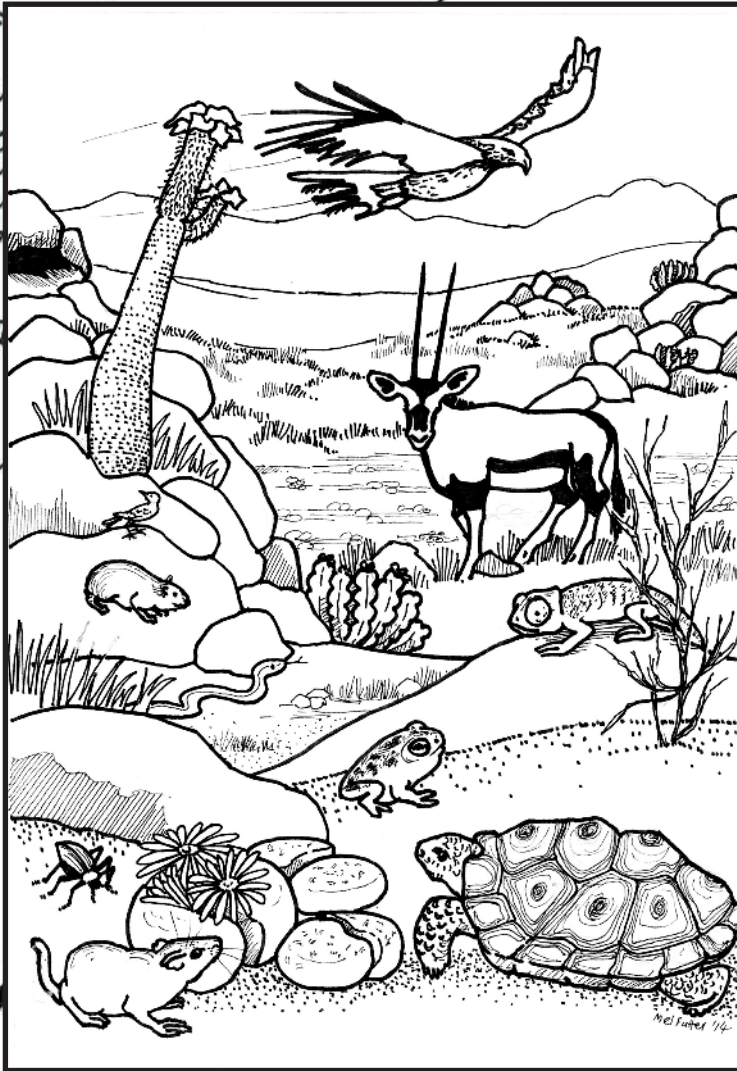


Khomas Environmental Education Programme (KEEP)



Field Day Workbook

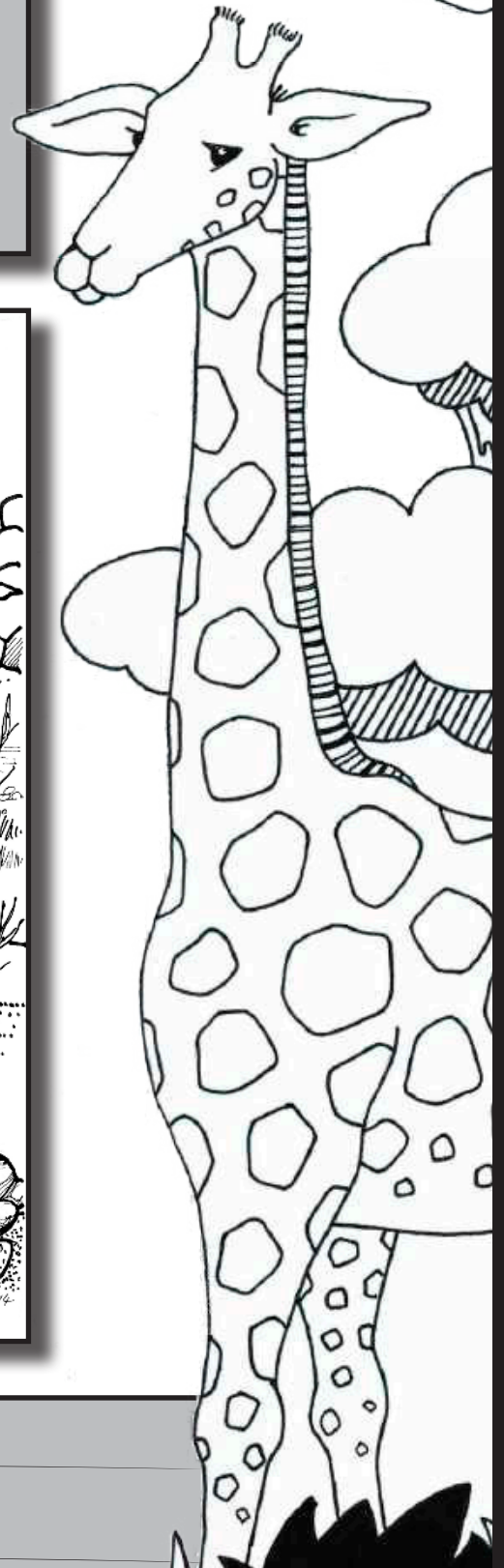
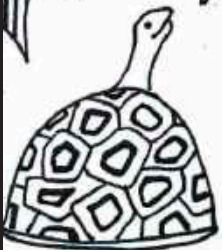


Name: _____

Group Name: _____

Class: _____

School: _____





Building a culture of environmental awareness, social responsibility and action, and equipping our future leaders with the skills to live sustainably for a better environment.

The Khomas Environmental Education Programme (KEEP) is an initiative of the Giraffe Conservation Foundation (GCF).

Written by Marie Louise Mott-Adams, Rachel du Raan and the GCF Environmental Education Team
 Illustrations by Marie Louise Mott-Adams, Rachel du Raan and Mel Futter
 Graphic Design by Suzi Seha

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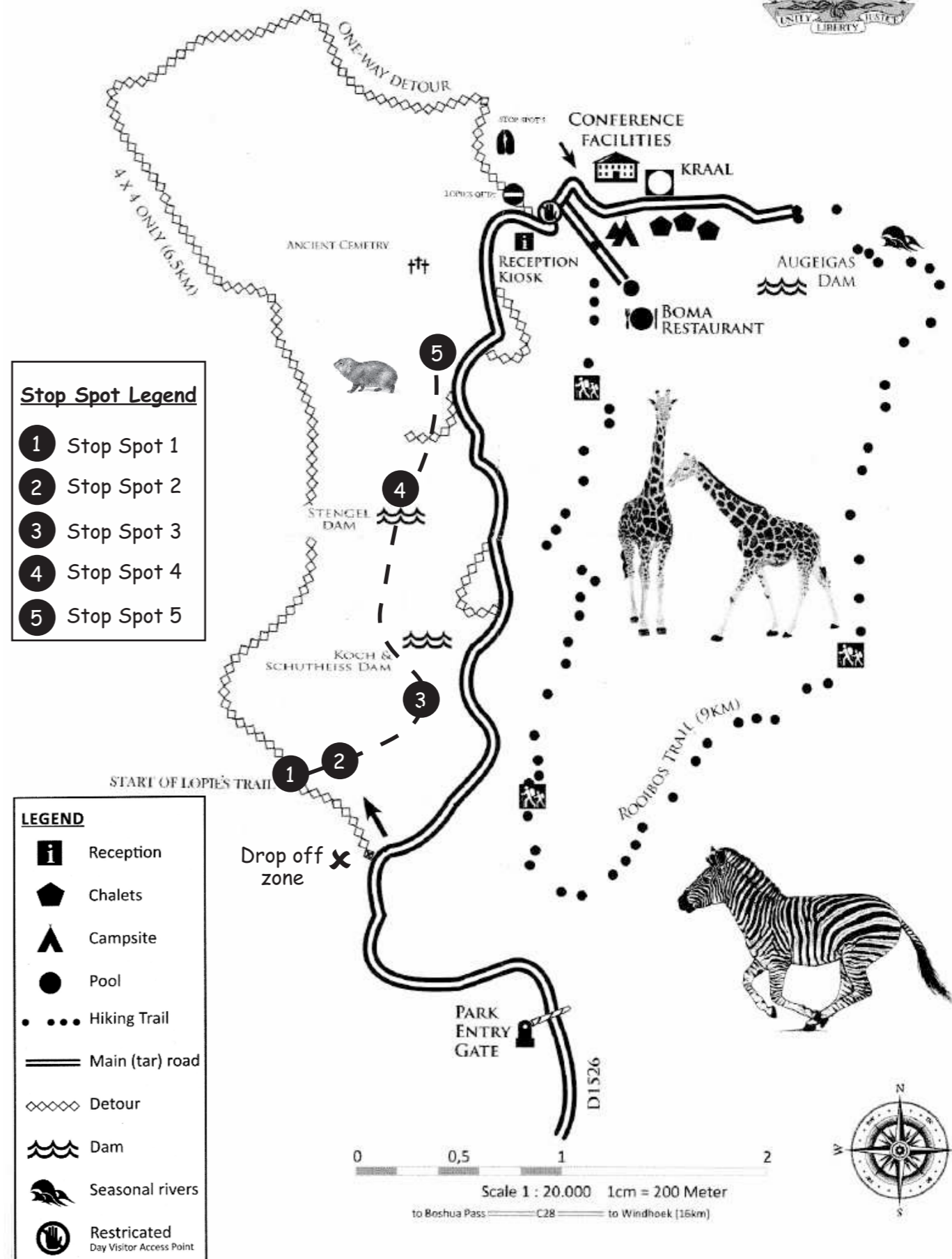
Giraffe Conservation Foundation
info@giraffeconservation.org
<https://giraffeconservation.org>

The Khomas Environmental Education Programme (KEEP) is supported by



We would like to thank the Ministry of Environment, Forestry and Tourism and the Ministry of Education for their continued support and collaboration.

DAAN VIJJOEN VISITORS MAP



Hi! I'm Lopie!

Welcome to the field day!



This is your own KEEP workbook, and you can take it home with you. There are lots of drawings to colour in and fun activities for you to do. If you are not sure what the underlined words mean, you can find their meanings in the glossary at the back of the workbook.

We will help you complete each task and guide you on your way. Have fun and please take good care of your workbook.

DAAN VILJOEN



History

Daan Viljoen was not always a game reserve. A community of people used to live and farm here. At the time, they had a church and a small school. Unfortunately there was a terrible drought, and in 1956 all the people left. In 1968, the land was protected by the Ministry of Environment and Tourism and it was called the Daan Viljoen Game Reserve. It is 3,946 hectares in size - this is the same size as 3,946 soccer fields! Even though it sounds very big, it is still the smallest protected area in the whole of Namibia.

Flora and Fauna

These are the plants (flora) and animals (fauna) that live in an area. Did you know that you can find 301 different plants here, and 108 different kinds of birds? If you keep very quiet, you might get to see some of the animals that live here, like zebra, oryx, eland and wildebeest. Be on the lookout! You might even see Lopie, the giraffe.

Geology and Topography



You are in the beautiful Khomas Hochland Mountains, which are 2,000 metres above sea level. These mountains are mostly made up of two kinds of rocks: schist and quartz. Schist is softer than quartz, and wind and water easily break it down. Quartz is much harder than schist, and wind and water break it down very slowly.

Geology is the study of the structure of our planet Earth. It tries to explain how rocks and mountains were made, and how they have changed over a long time. When the people who study geology (geologists) talk about a long time, they mean millions of years.

Topography is the description of what an area looks like. The topography of one area can be made up of mountains, valleys and rivers, like the Fish River Canyon. The topography of another area can be flatter with lots of sand, like the Namib Desert. It also tells us how high or low different areas are compared to sea level. Sea level is 0 metres.

The name Khomas comes from the Nama word L'mas, which is 'mountains' in English.

Climate

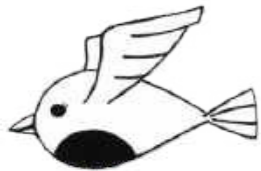
In Daan Viljoen it can get very hot during summer. So it is important to wear a hat, use sunblock and drink lots of water. But in winter, it gets very cold at night, and sometimes the temperature can even drop to below freezing. The usual amount of rain for the area is 370 millimetres per year.

Climate describes the weather in a certain area over a long time (many years). For example, the Khomas Hochland's summer seasons are usually wet and rainy, and the winter seasons are dry with no rain.

Weather tells us what is happening in the atmosphere in a short time (one day). For example, look around you, is it sunny or cloudy? Is it hot or cold? Is the wind blowing, and from which direction is it blowing - north, south, east, or west? All these things make up the weather at this very moment.

Daan Viljoen is home to many wonderful living and non-living things, and we are just visiting. And just like at home and at school, there are a few rules we all need to follow.

FIELD DAY RULES



Rule 1

NO LITTERING

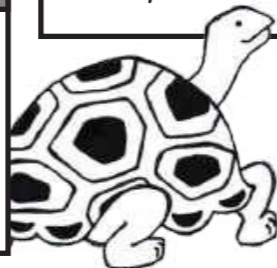
We do not leave a mess when we visit other people's homes. So, please clean up after yourself! While we are on our walk, make sure that you put your litter safely in your pocket, or in the rubbish bag that we will have with us.



Rule 2

DO NOT DISTURB OR KILL THE WILDLIFE DO NOT BREAK OR DAMAGE PLANTS

Remember to be kind to all living things, big and small! We must all use our quiet bush voices so that we do not scare the animals while visiting them.



Rule 3

NO STEALING

You will find and see lots of interesting things out here in the natural environment. Remember, because everything in nature is important to other creatures, it is important that you leave everything that you find where it is.

Respect yourself Respect each other Respect the environment

ENVIRONMENT



What do you think of when you hear the word environment? Wherever you are right now, look around you...

An environment is where you are and everything that is around you. Your environment can be your home, your garden, your school, a hospital, or somewhere out in nature.



Did you know that different environments can change how you feel and how you do things?

look

touch

wet

cold

listen

smell

happy

feel

afraid

dry & warm

An environment includes living and non-living things. How can we tell the difference? It is easy when we know what to look for.

LIVING THINGS

Living things are alive. They breathe, grow and use energy, and they adapt to their environment.

BIRDS

INSECTS

PLANTS

PEOPLE

ANIMALS

NUTRITION

All living things need food for energy. Energy allows humans, animals and plants to grow. Without energy, we would not be able to carry out our daily activities like running, playing, working and thinking. People and animals get energy from the food they eat. Plants make their food and energy by combining sunlight and carbon dioxide from the air with water and minerals from the soil (this is called photosynthesis).

GROWTH

All living things become larger in size. Think about how tiny you were when you were born, and look at yourself now. Think about the new green grass that grows after the first rains.

ADAPTATION

All living things are able to change according to the environment they are in. For example, when you are in a cold environment, you wear a jersey and long pants; when it is hot, you wear short-sleeved shirts. When it is too hot, some animals stay underground, hide in caves or lie in the shade; when it is very cold, most animals will find a comfortable place to bask in the sun. Plants like the Welwitschia have adapted to living in the Namib Desert: they have very long roots which are able to reach the water deep under the ground.

SENSITIVITY

All living things are able to sense what is happening in their environment. For example, living things respond to changes in sound and temperature; they react when they are touched; and plants will always grow towards the light.

EXCRETION

All living things are able to get rid of unwanted substances from their bodies. People and animals do this by pooing, peeing and sweating. Plants release unwanted substances through their leaves and stems.

REPRODUCTION

All living things are able to make new life (reproduce). Humans and animals give birth to babies, other creatures such as reptiles and birds lay eggs, and plants grow again in the next season from the seeds they have made.

RESPIRATION - BREATHING

All living things need to get energy from food to stay alive. The process of producing energy is called respiration, and it is done by using oxygen. Humans and other animals need to breathe for respiration to take place. The oxygen that is breathed in joins with sugar inside the body's cells, and this makes energy. Fish do this by opening and closing their gills. When animals breathe in, they take in oxygen; and when they breathe out, they release carbon dioxide from the body. Although plants do not breathe the same way as animals, these gases still need to pass in and out of their leaves for them to stay alive. Plants are important because they use carbon dioxide and release oxygen.

MOVEMENT

All living things are able to move from one position to another. People move from one area to another. For example, today you left home and went to school, and now you are in Daan Viljoen. Animals move in the same way as people; they walk and run. Plants also move; their branches, stems, and leaves swing about when it is windy.

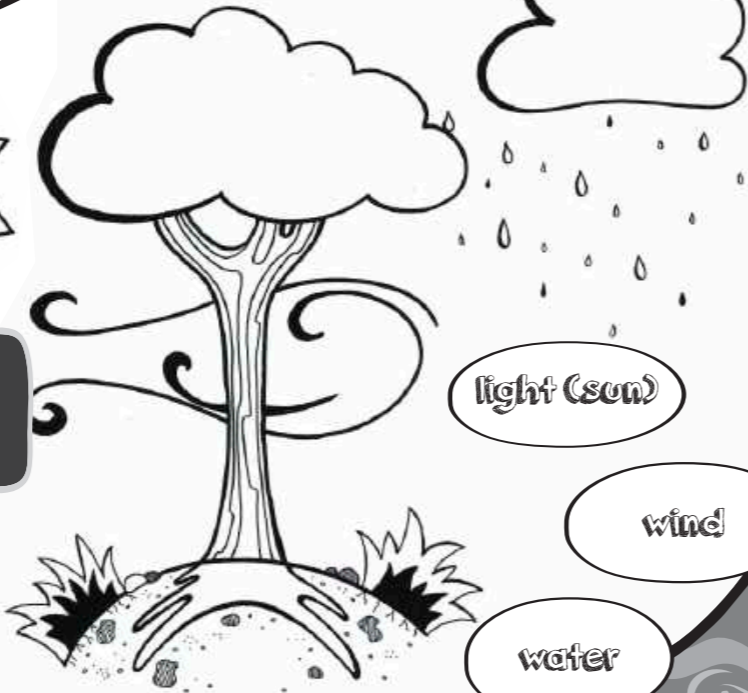
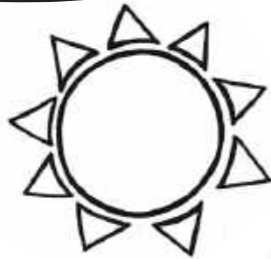
NON-LIVING THINGS

Non-living things are not alive. They are found naturally in the environment.

soil

air

temperature
(hot/cold)



light (sun)

wind

water

Non-living things do not breathe, they are not made of cells, they do not eat and grow, they cannot feel, they cannot reproduce, and they do not need to adapt to the environment.

Non-living things are important because all living things need them to survive. For example, trees (living) need the soil (non-living) to be able to grow.

MAN-MADE THINGS

Man-made things are also non-living, but they are NOT found naturally in the environment. They are here because people make them.

plastic bottles

cars

pencils

books

pens

clothing

and lots more



✓ Some man-made things are **good**. They can help by keeping us and our environment healthy and safe. For example, **machines that measure the weather help us to know when big storms are coming and houses give us a safe place to live.**

✗ Some man-made things are **bad**. For example, **litter and pollution harm the environment and they can also make us sick.**

LIVING THINGS IN THE ENVIRONMENT HAVE 5 BASIC NEEDS

You will see all of these in nature.

Tick the boxes of each one you see.

Sunlight



People: _____

Animals: _____

Plants: _____

Water



People: _____

Animals: _____

Plants: _____

Air



People: _____

Animals: _____

Plants: _____

Food



People: _____

Animals: _____

Plants: _____

Home



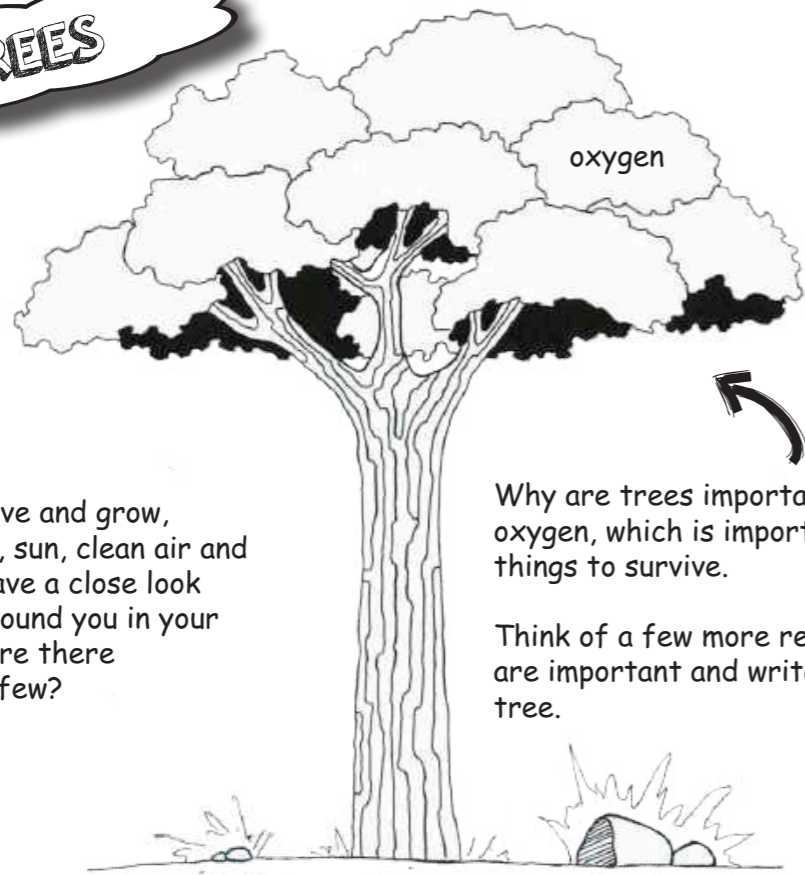
People: _____

Animals: _____

Plants: _____

PLANTS

TREES



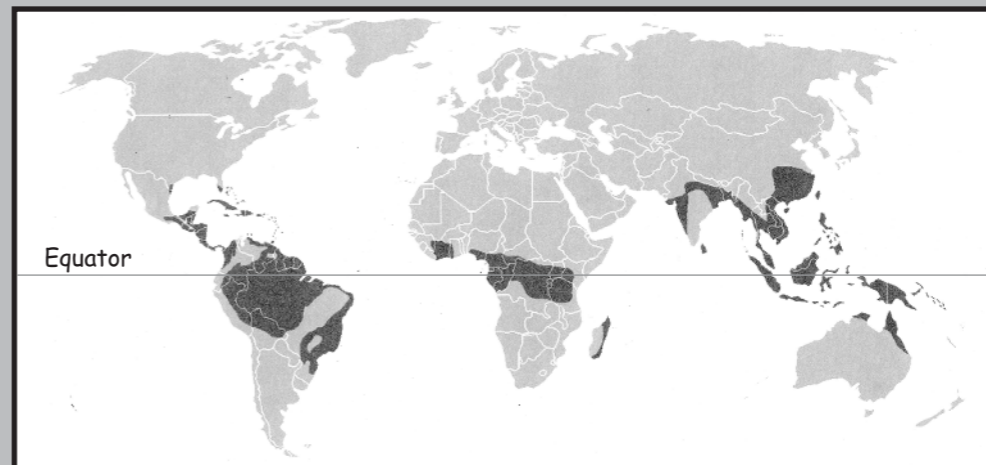
To be able to live and grow, trees need soil, sun, clean air and clean water. Have a close look at the trees around you in your environment. Are there many or only a few?

Why are trees important? Trees give oxygen, which is important for all living things to survive.



Think of a few more reasons why trees are important and write them in the tree.

WHAT IS A RAINFOREST?

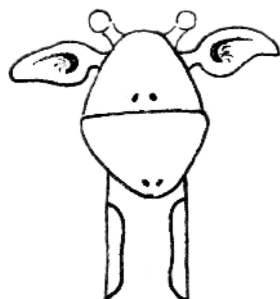
A rainforest is a forest with a huge amount of trees growing in it. Most of the world's trees grow in rainforests. Rainforests are found along the equator, in South America, Africa, Asia and Australia.



Why are rainforests so special and important?

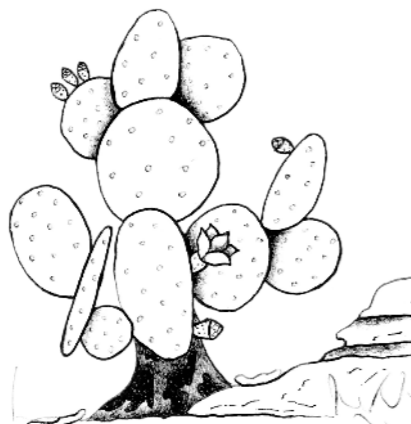
-  Rainforests are home to half (50%) of the Earth's plants and creatures.
-  Rainforests are very important because they provide all of us with oxygen.

ALIEN TREES AND PLANTS



Many of the plants growing in our country do not belong here. They are called aliens because they have been brought here by people from other countries and continents. Plants that belong naturally in Namibia are called indigenous.

Alien trees and plants spread out in the natural environment where they steal growing space, water, food in the soil and sunlight from the indigenous Namibian plants. This makes it difficult for indigenous plants to grow in a healthy way.



If you want to grow more trees and plants at home or at school, choose plants that belong to Namibia! Also, choose the Namibian trees and plants that have fruit in the summer to attract more birds to the garden.



DID YOU KNOW?



Rainforest trees are very, very tall. Some of the trees can grow up to 50 metres tall. Because rainforest trees are so tall, they also have enormous roots to support them.



Rainforests are so thick and full of plants and trees, that it can take 10 minutes for a raindrop to travel from the canopy through to the forest floor.

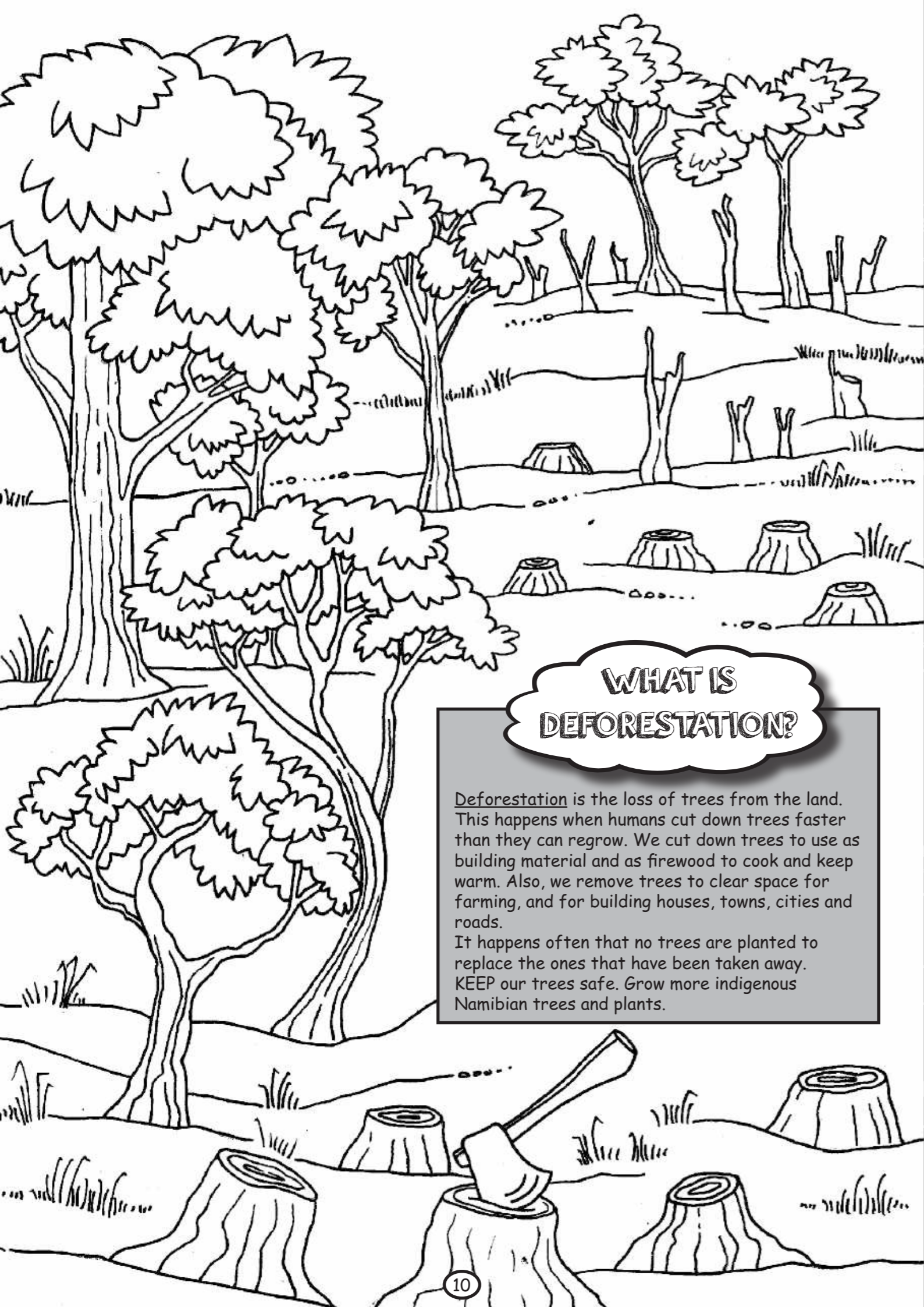


In the Amazon rainforest in South America, there is a wonderful, strange creature called the sloth. Sloths move very, very slowly. They spend most of their time up in the canopy, moving through the trees using large hooked claws to help them along. They eat leaves and fruit. They sleep up to 15 hours at a time. They go down to the forest floor once a week to go to the toilet.



Every hour, a piece of rainforest the size of 4 000 soccer fields is destroyed.

If we do not stop destroying the rainforests at the speed it is happening now, they will be completely gone in 100 years.



WHAT IS DEFORESTATION?

Deforestation is the loss of trees from the land. This happens when humans cut down trees faster than they can regrow. We cut down trees to use as building material and as firewood to cook and keep warm. Also, we remove trees to clear space for farming, and for building houses, towns, cities and roads. It happens often that no trees are planted to replace the ones that have been taken away. KEEP our trees safe. Grow more indigenous Namibian trees and plants.

NUTRITION



NUTRITION IS THE FOOD WE EAT.

People are omnivores. This means that we eat fruit, vegetables and meat. Not everything we eat is good for us. We cannot live only on lollipops, biscuits, cake and soda cooldrink.

Eating the right food is very important because it keeps us healthy and gives us energy. Food gives us energy to do all the things that living things do – to grow, to reproduce, to move, and to learn.

WHAT ARE NUTRIENTS?

Nutrients are all the important things (like vitamins and minerals) found in healthy foods that keep you alive, healthy and strong. Water is also an important nutrient. More than half (70%) of your body is made up of water. Without water, your body is not able to use all the other nutrients, and you would die in a short time! Your body uses the food you eat as fuel to keep you going, just like a car uses fuel to keep running. But just like a car, you need to make sure you put the right fuel in.

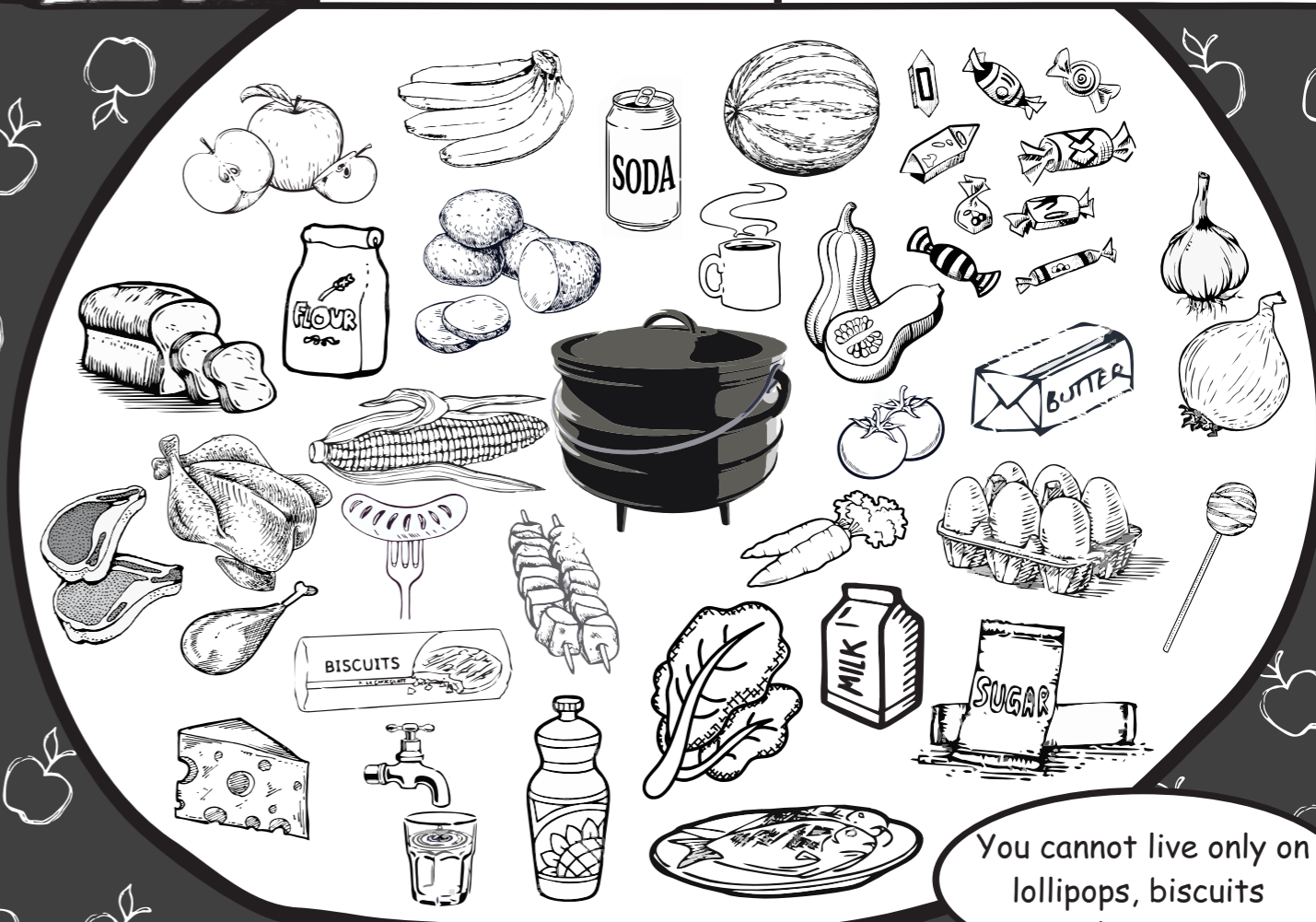


Below, there are good and bad foods floating around together.

- ➔ We would like you to cook a healthy lunchtime pot stew.
- ➔ Draw arrows from all the foods you are going use to the pot.

DESSERT TIME!

- ➔ Look at the picture again.
- ➔ Draw a circle around all the healthy foods you can use to make a dessert.
- ➔ Pick your foods carefully – choose only those foods that are full of nutrients.



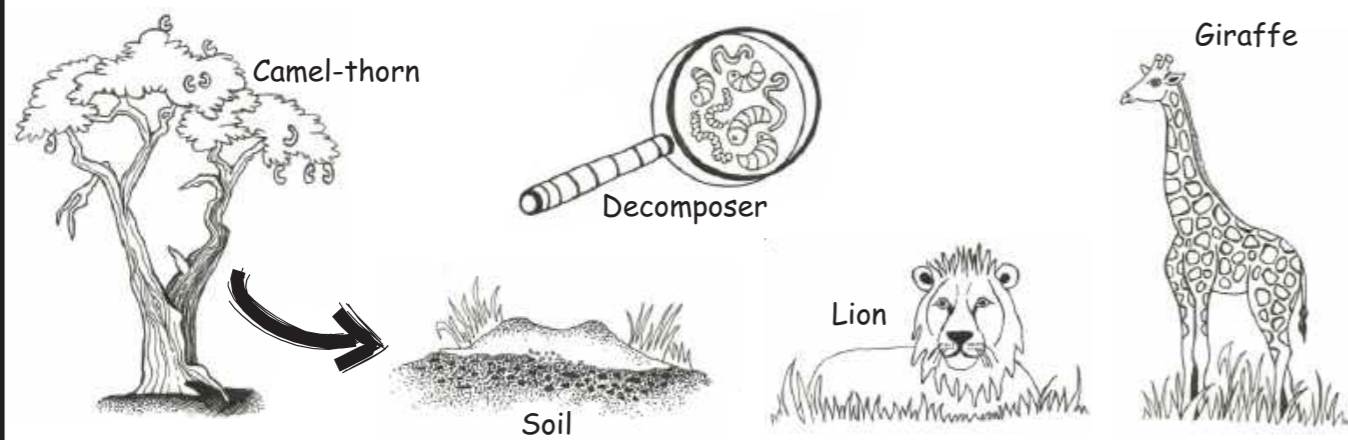
You cannot live only on lollipops, biscuits and sweets.

FOOD CHAIN

Where do you get your energy from? We get it from food. In nature, it works the same way.

A food chain is the order in which living things eat one another, and this keeps energy flowing in nature.

Create this food chain by drawing arrows in the correct order that these creatures eat each other.



Look at the environment on the right. You can build your own food chains at home.

Use a different colour for each food chain you find.



LITTER



Litter is man-made rubbish that has been left behind in a place where it does not belong. Waste is all the unwanted materials and objects that people throw away in the correct place because they no longer need or use it.

Like it is with people, not everything animals eat is good for them. Sometimes, they accidentally eat litter that people have left behind in the environment.

Animals that live on land and in water can also get stuck in plastic or metal containers, and tangled up in plastic wrapping, plastic shopping bags and string. For example, when we let balloons go they float up into the air for a while but, eventually, they will pop and fall down. Wherever they land, animals can get tangled in the string or they can accidentally eat the balloons.

Other litter, like cigarette butts and old batteries, release chemicals which are poisonous for the soil and water, as well as all the insects and beetles that live on or in the ground and the fish, frogs and other animals that live in water.

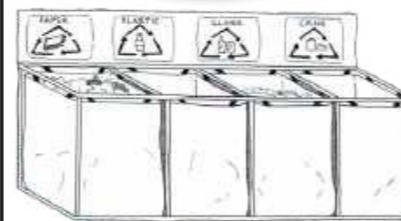


Even though it is important to throw your rubbish in a bin, did you know that there are other things you can do. You can also

RECYCLE

REDUCE

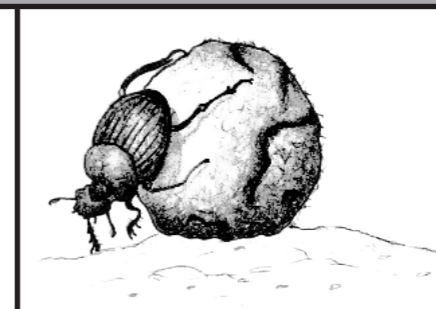
REUSE



Take a reusable cloth bag to the shops to reduce the number of plastic bags you use.

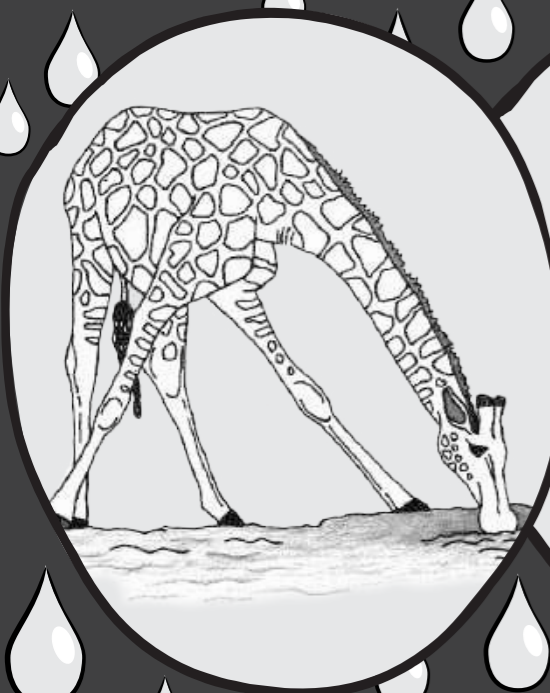


Nature is full of re-users. Can you think of any others?



WATER

ALL LIVING THINGS NEED CLEAN WATER TO SURVIVE



Giraffe have adapted to living in a hot and dry environment. If giraffe get enough water from the food they eat, they can live without drinking. People are not like giraffe, we can live several weeks without food, but only a few days without water. We need to drink six to eight glasses of water every day to stay healthy! For being such big animals, giraffe poo is dry and made up of lots of really small pellets. This is because they do not waste any water.



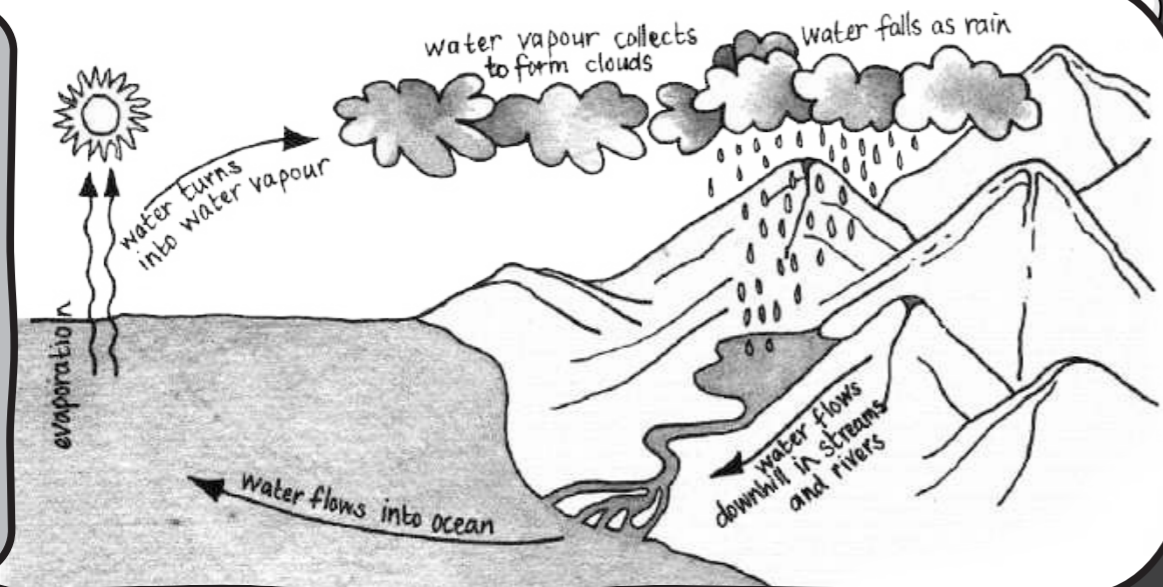
WHERE DOES WATER COME FROM?

Like you, water is always moving and changing. The sun and wind work together to change water in the sea, rivers and dams into vapour - this is called evaporation.

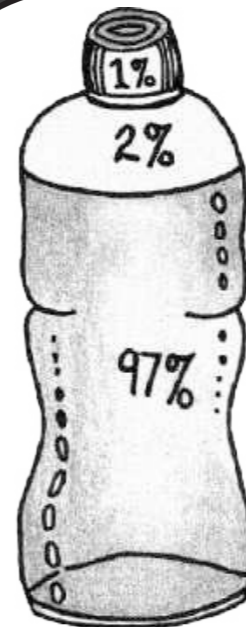
This vapour rises into the atmosphere and turns into clouds, and then falls back to Earth as rain. Our water is always there.

There is no new water being made, it is just evaporation and rain that goes round and round in a cycle - The Water Cycle.

THE WATER CYCLE



WATER ON EARTH



1% of the water on the planet is available for us to use, and we have to share it with all the other living creatures. Do you think this is enough water for all of us?

2% of the water on the planet is in the polar icecaps, where penguins (South Pole) and polar bears (North Pole) live.

97% of the water on the planet is in the oceans. Can we drink this water? No, sea water is salty!



DID YOU KNOW?

All the water on Earth has remained the same for about 2 billion years.

Wow, imagine, you are most probably drinking the same water that dinosaurs drank!

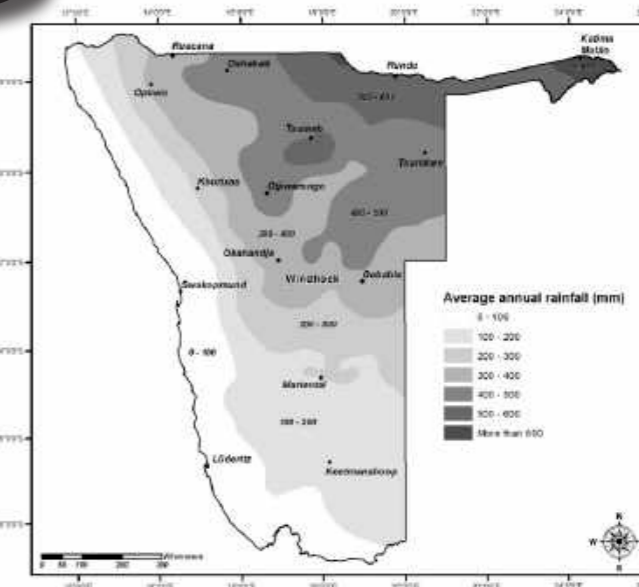


RAIN IN NAMIBIA

Some countries get more rain than others. Also, the rain inside one country does not always fall evenly. Think about Namibia - are some areas drier than others?

Which area gets the most rain in Namibia?

Which area gets the least rain in Namibia?



Data: Atlas of Namibia/map: SASSCAL

SAVE WATER

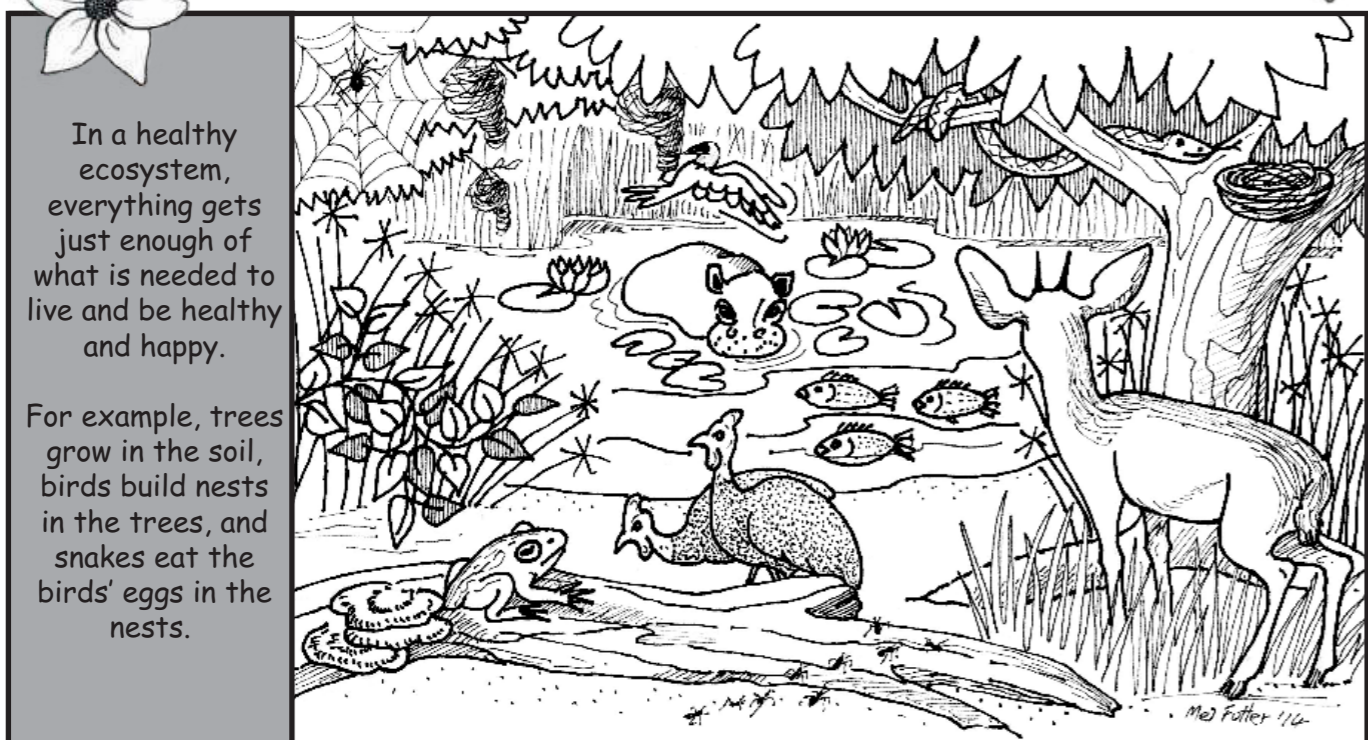
Turn off your taps properly and report burst pipes to the municipality.

ECOSYSTEMS

Have you ever wondered why plants and all the different kinds of creatures live where they do? To be able to survive, they all live where they have the right amount of sunlight, water and air, and the right kind of food. For example, frogs have very thin skins which dry out very quickly, so they need to live close to water.

When a group of different living things live together with non-living things in an environment, this is known as an ecosystem. In a community, everything is connected because they all need each other to survive. An ecosystem works the same way as a community.

Remember, everything is important to something or someone!

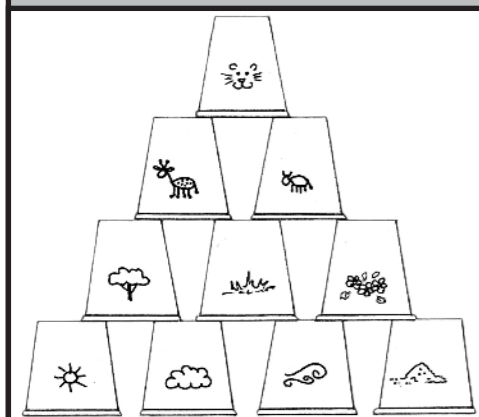


In a healthy ecosystem, everything gets just enough of what is needed to live and be healthy and happy.

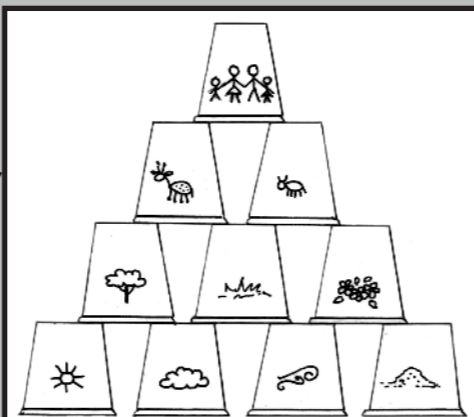
For example, trees grow in the soil, birds build nests in the trees, and snakes eat the birds' eggs in the nests.

KEEP our ecosystems healthy!

When humans disturb or take away or pollute one part of an ecosystem, it can unbalance the balance of the whole ecosystem. Remember when we built the eco-pyramid, it all collapsed when we took away one of the pots. This can put the survival of certain species into danger -



they become endangered. And sometimes, certain species die out completely - they become extinct. **Whatever we do to nature, we also do to ourselves.** For humans, this change of balance can lead to a shortage of our five basic needs, which can also make us sick.



Sustainability



Sustainability is about the small changes we can make to help look after the planet. By making these changes, we help to protect our natural resources.

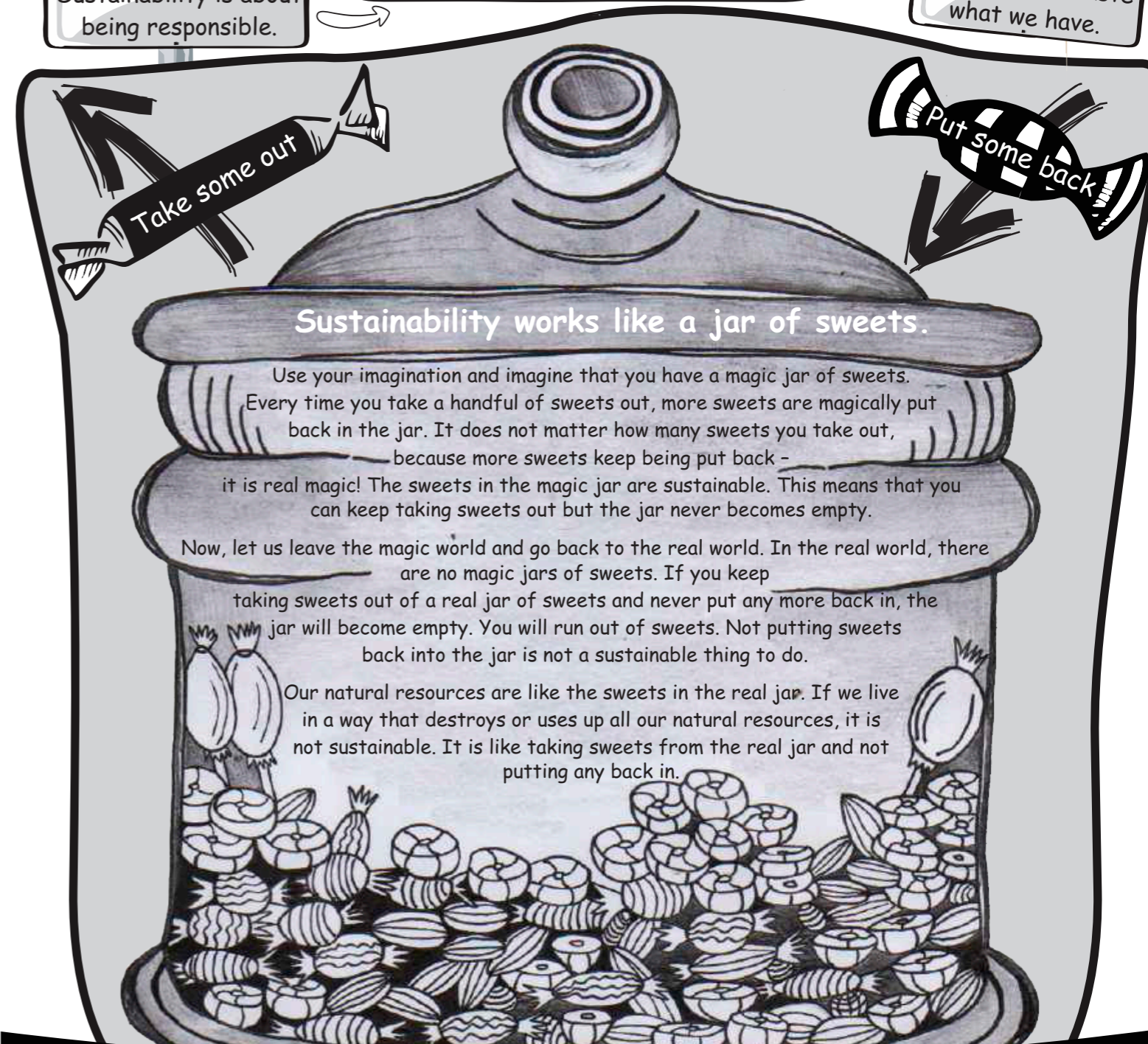
Natural resources are plants, trees, animals, water, soil, and the sun and the air.

Looking after and using our natural resources carefully, so that future generations are able to enjoy them, is called sustainability.

Sustainability is about being responsible.

Whatever we take out, we must put back.

We must not waste what we have.



Sustainability works like a jar of sweets.

Use your imagination and imagine that you have a magic jar of sweets. Every time you take a handful of sweets out, more sweets are magically put back in the jar. It does not matter how many sweets you take out, because more sweets keep being put back - it is real magic! The sweets in the magic jar are sustainable. This means that you can keep taking sweets out but the jar never becomes empty.

Now, let us leave the magic world and go back to the real world. In the real world, there are no magic jars of sweets. If you keep taking sweets out of a real jar of sweets and never put any more back in, the jar will become empty. You will run out of sweets. Not putting sweets back into the jar is not a sustainable thing to do.

Our natural resources are like the sweets in the real jar. If we live in a way that destroys or uses up all our natural resources, it is not sustainable. It is like taking sweets from the real jar and not putting any back in.

We can all help, even in small ways, to look after our natural resources.

HOW TO BE RESPONSIBLE ABOUT WATER



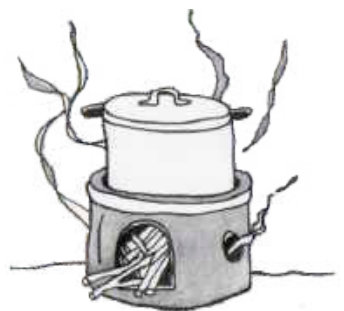
- Close taps tightly after using them.
- Report any leaking taps or toilets in your home and in your community.
- Take short showers.
- Turn the water off in the shower while you are shampooing your hair.
- Put a bucket under the shower while you wait for the water to get hot.
- You could use the water in the bucket for the garden.



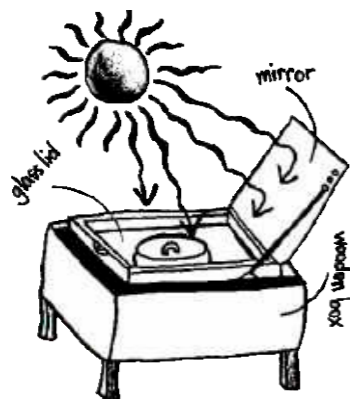
- Do not leave the tap running while brushing your teeth.
- Always use a cup or a water bottle to drink water instead of running the water into your hands.
- When you wash the car, use a bucket and not a hose pipe.
- Do not throw litter in a river, in a pond or in a dam. Take your litter home with you.

HOW TO BE RESPONSIBLE ABOUT PLANTS AND TREES

If we use fire to cook with, we can use wood-saving cooking stoves because they use smaller and less wood pieces than an open fire.



Instead of cooking with fire, we could cook with solar ovens. These ovens use the sun to create heat.



Grow more oxygen by planting indigenous trees and plants in your garden, at your school, or at your church.

Paper comes from trees. You can save a tree by making your own recycled writing paper. You could ask a teacher at school to help you.



HOW TO BE RESPONSIBLE ABOUT WASTE

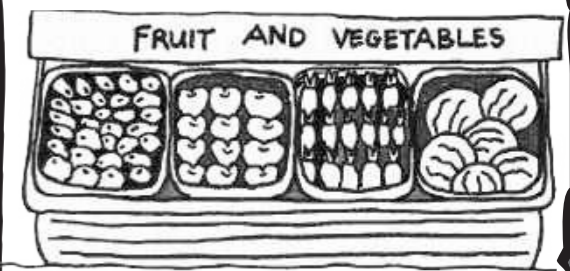
Refuse means that if something is not necessary, you simply do not do it.

- ✗ Say NO to plastic bags when you go shopping - take your own bags or a basket.
- ✗ Say NO to using a straw to drink your cool-drink. If you really enjoy using a straw, you could use a metal one.



Reduce means to lessen or reduce the amount of waste you produce.

- > Buy bigger packages rather than lots of small ones. So, instead of buying a small bottle of cool-drink for each person, rather buy a large bottle of cool drink that everyone can share.
- ☐ If you have the option of buying loose apples, tomatoes, potatoes or onions, do this instead of buying the ones that are in plastic bags.



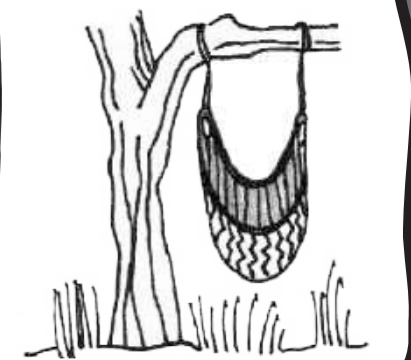
Reuse means to use something more than just once.

- You can reuse a juice bottle as a water bottle, instead of just throwing it away after only using it once.
- ☐ You can use empty containers to grow food plants like spinach.



Recycle means to change something into something else that can be used again.

- You can turn empty tea bags into fire-balls to light a fire.
- You can make a swing out of an old car tyre.
- ✦ You can use bottles and bottle tops to make musical instruments.
- ☐ You can make sure that all your glass, paper and plastic waste at home goes to the recycling company.



HOW TO BE RESPONSIBLE ABOUT LITTER

- > When you need to throw something away at home, at school or at a friend's house, you must use the rubbish bins around you.
- ☐ When you are out and about and there is no rubbish bin nearby, put the rubbish in your pocket or a bag and throw it away in a proper rubbish bin later.
- ⚠ When travelling, always have a rubbish bag in the car or bus, and never throw anything out of the window.
- You can participate in community clean-up campaigns. You could even organise a clean-up campaign at your school.

HOW TO BE RESPONSIBLE ABOUT WILDLIFE

What is wildlife?

Wildlife is all the living things that grow (plants) and live (animals) in a natural environment - in the wild. Many wild animals live in protected areas such as national parks, game reserves and private game-farms.



The main reason for conserving wildlife and their habitats is so that they can continue to live safely.



Wildlife brings tourists. Tourists enjoy travelling to other countries to see their wildlife. Tourism is important because it brings money to the country and it creates jobs for people.

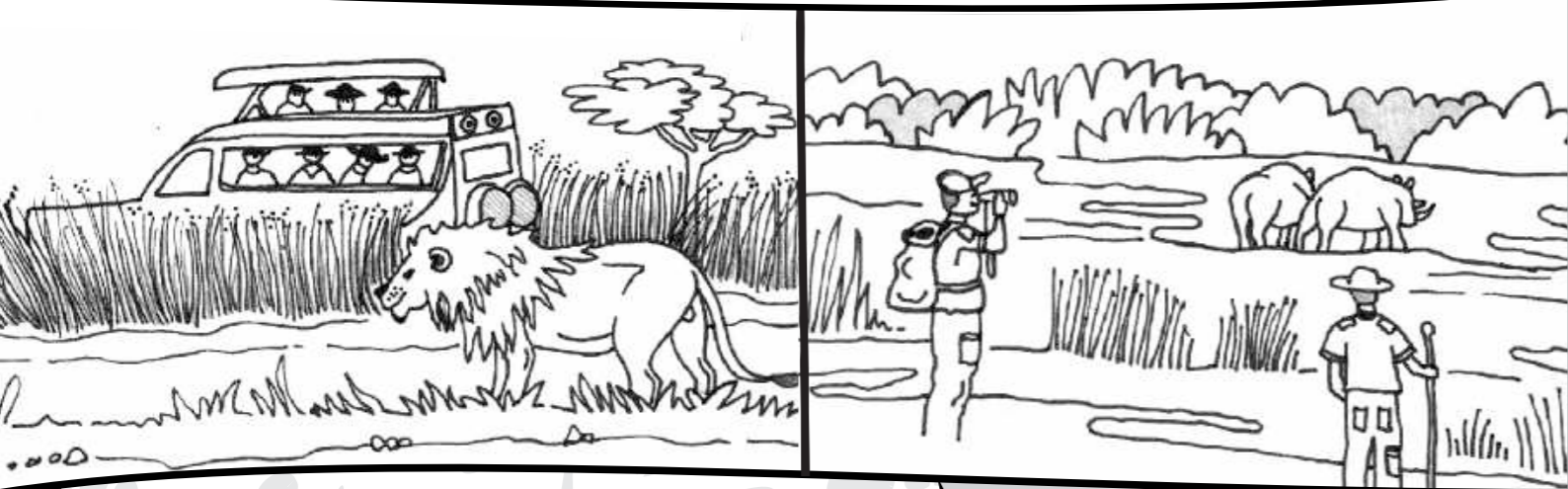


By looking after wildlife, future generations of people can enjoy the natural world and the amazing plants and animals that live in it.

WHY IT IS IMPORTANT TO LOOK AFTER WILDLIFE?



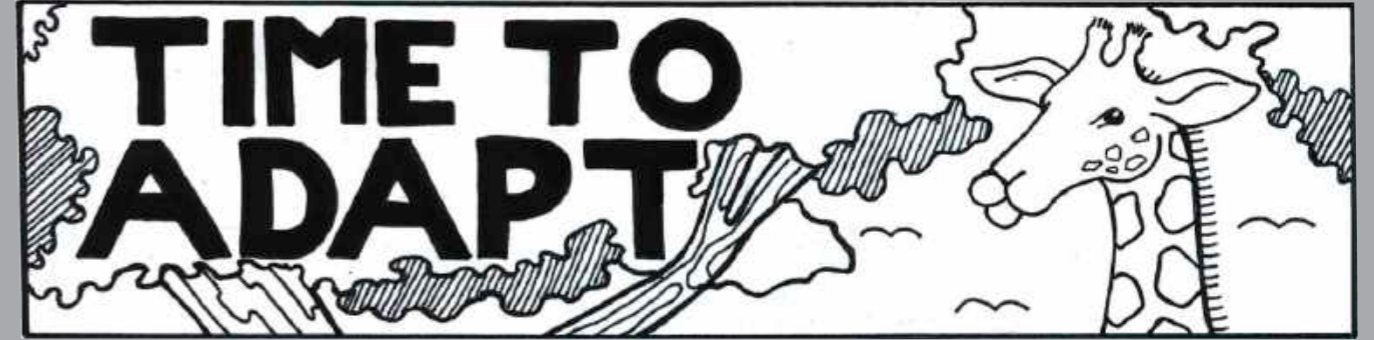
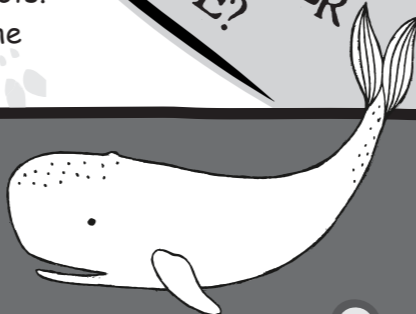
Looking after our wildlife keeps the natural world in balance. For example, if people take too many fish from the sea there will not be enough fish for other sea animals like dolphins, seals, whales and sea turtles to eat.



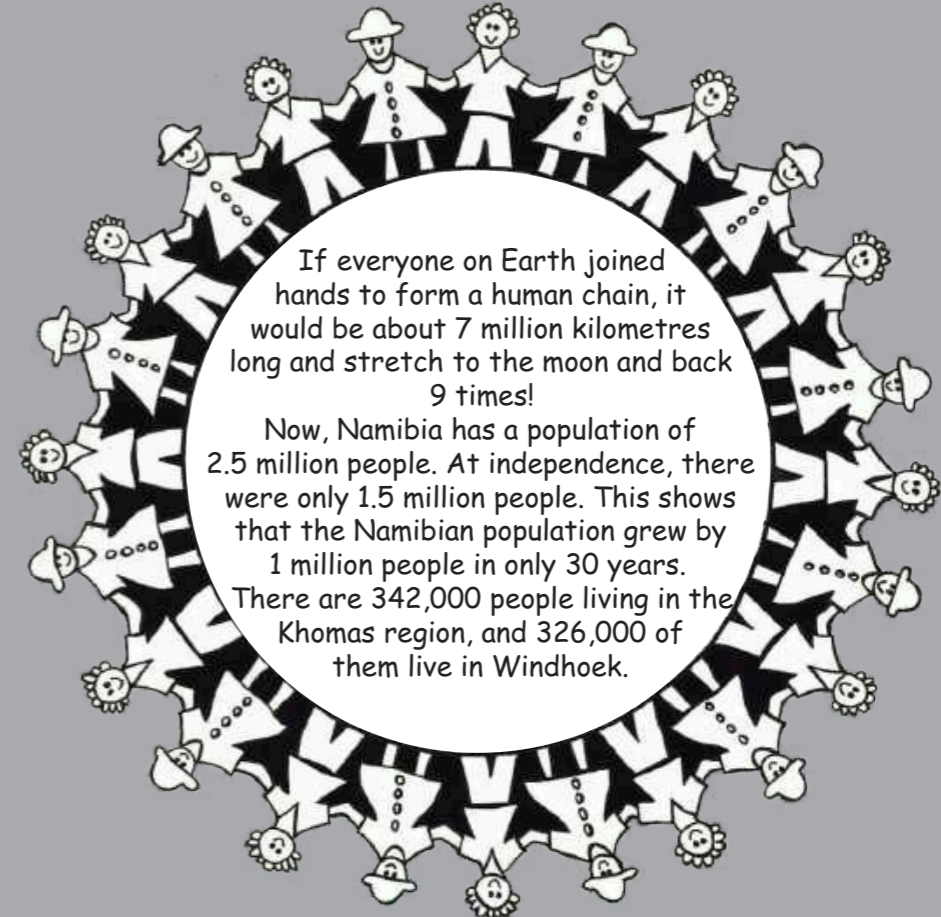
- ♥ You can teach your family and friends about the importance of wildlife.
- ♥ We can rebuild their habitats. For example, we could regrow forests that have been destroyed.
- ♥ We can move wild animals in danger to safer natural environments.
- ♥ Do not kill wild animals for fun.
- ♥ If you find an injured bird or abandoned baby bird, put it in a cardboard box and telephone the Injured and Abandoned Bird Rescue for help. The telephone number is at the back of the book in Useful Contacts.
- ♥ We can protect and support them wherever they already are, like in the Daan Viljoen Game Reserve.

HOW CAN WE HELP TO LOOK AFTER WILDLIFE?

Saving our world's wildlife is important to all of us now and for our future generations.



THERE ARE 7.9 BILLION PEOPLE ON EARTH!



If everyone on Earth joined hands to form a human chain, it would be about 7 million kilometres long and stretch to the moon and back 9 times!

Now, Namibia has a population of 2.5 million people. At independence, there were only 1.5 million people. This shows that the Namibian population grew by 1 million people in only 30 years. There are 342,000 people living in the Khomas region, and 326,000 of them live in Windhoek.

SO, HOW DO WE ALL GET WHAT WE NEED TO BE HAPPY AND HEALTHY? **WE ADAPT!**



YOU CAN TEACH OTHERS

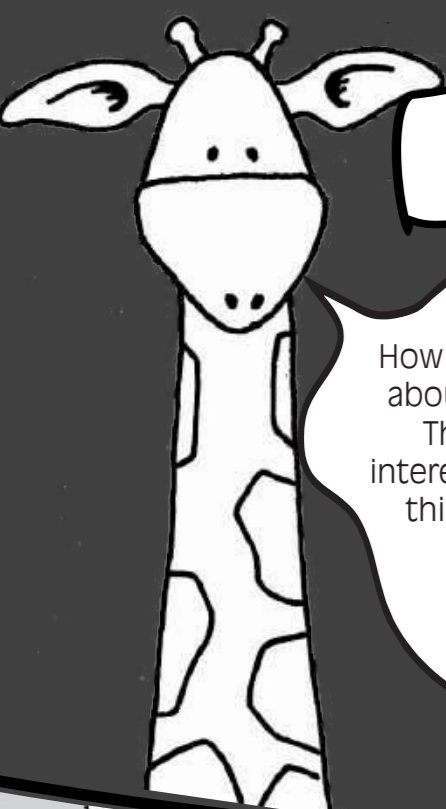
Remember, all living things change and adapt to their environment. Even though you are still in school, you can adapt by becoming a teacher. You can help people in your environment by teaching them all the important things you have learnt here today.

Write one or two things that you think are important to teach others about each of the following:

Giraffe	
Plants	
Litter	
Water	
Your favourite part that you have learnt about today	

GIRAFFE

LONG LEGS, LONG NECKS AND LOTS OF BROWN PATCHES



How much do you know about giraffe in Africa? There are so many interesting and surprising things about giraffe.

Let us explore Africa's giraffe.



DID YOU KNOW?

- Instead of only one kind, there are actually 4 different kinds of giraffe.
- These 4 kinds of giraffe are called **species**. They are the **Masai giraffe**, the **Northern giraffe**, the **Reticulated giraffe** and the **Southern giraffe**.
- There is more: the Masai, Northern and Southern giraffe are made up of several **subspecies**.

GIRAFFE TREE

SPECIES		SUBSPECIES
Northern giraffe		Kordofan giraffe Nubian giraffe West African giraffe
Southern giraffe		Angolan giraffe South African giraffe
Masai giraffe		Luangwa giraffe Masai giraffe
Reticulated giraffe		

In Namibia, we have mostly the Angolan giraffe.

Even though all giraffe look very similar, can you see that the patterns of the different species are actually not quite the same?

INTERESTING FACTS ABOUT GIRAFFE

Just like a human fingerprint, no two giraffe patterns are the same. Researchers use their patterns to recognise individual giraffe in the wild.

Giraffe can live for at least **25 years**.

A newly born giraffe is about **1.8 metres tall** - this is taller than your teacher.

A full-grown giraffe's **neck is about 2 metres long** - this is the same height as the classroom door at your school.

A giraffe has **7 bones** in its **neck** - just the same as us!

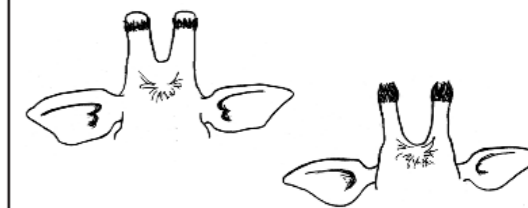
When giraffe need to defend themselves, they are able to **kick in all directions**.

Giraffe can **run up to 50 kilometres per hour!** This is as fast as a horse galloping at full speed.

Giraffe usually have a lot of **ticks living on them**. Because of the way they are built, it is very difficult for them to groom themselves. So, they rub their bodies against trees to brush the ticks off. Sometimes they get help from birds, who pick the ticks off from places that are difficult to reach.

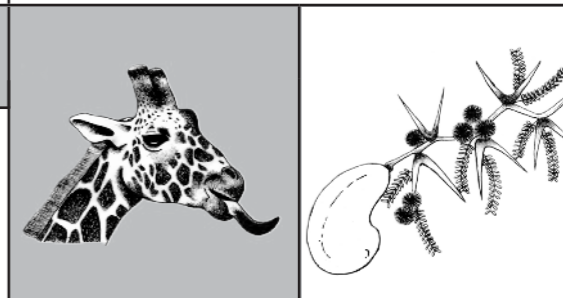
Giraffe's horns are called **ossicones**. When they are born, giraffe's ossicones lie flat on their head. As they grow older their ossicones grow straight, and after some more time they become part of the skull.

You can tell the difference between a male (**bull**) and a female (**cow**) giraffe by looking at their ossicones. Males have thick ossicones which are bald on top. Female ossicones are thinner and fluffy on top.



A giraffe's **tongue** can be as long as **50 centimetres**. This is almost the length of your arm.

Giraffe like to browse on different kinds of trees. **Camel-thorn trees, Vachellia (Acacia) erioloba**, are by far their favourite!



Giraffe can **poo up to 15 kilograms a day**. That is a lot of poo!

A giraffe can eat **45 to 60 kilograms of food in a day**, but only poos out **15 kilograms**. This is a big difference - where does it go? Just like cows, giraffe are **ruminants**. This means that their stomachs are divided into 4 parts, and because of this they have 4 chances to digest their food. After they swallow, they bring the food up from the stomach (**regurgitate**), chew it again, and then swallow it again. They do this several times. This might not sound so nice, but it means that giraffe and other ruminants make sure that they use all the nutrients that are in each mouthful of food.

Already, giraffe **no longer exist in 7 African countries**. The good news is that there are a few populations of giraffe that are getting bigger, and one of them is in Namibia. This is something to be proud of!



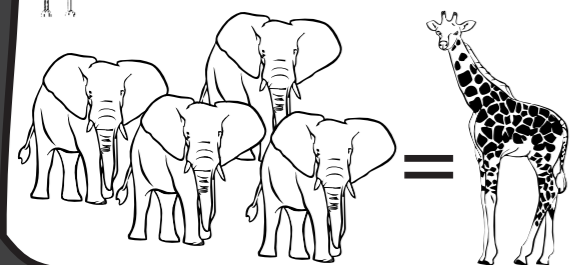
Long time ago, giraffe lived all over Africa, and there were more than 1 million of them. Thirty-five years ago, there were more than 150 000 giraffe. Today, there are only about 117 000 giraffe, and they can only be found in small population groups in different parts of Africa.



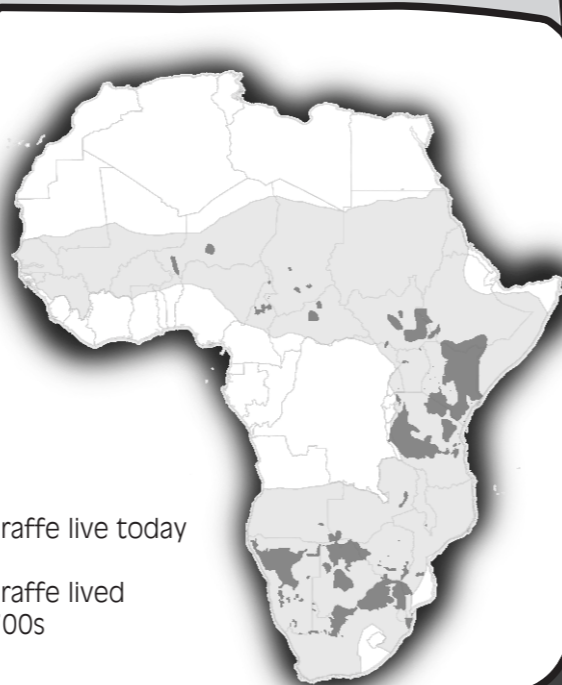
Almost 50% of all giraffe live in southern Africa.



For every 3-4 elephants in Africa, there is only one giraffe.



HOW MANY GIRAFFE ARE THERE IN AFRICA?



- Where giraffe live today
- Where giraffe lived in the 1700s

The IUCN Red List

There is a special list of all the plants and animals in the world that are in trouble. This special list is called the IUCN Red List: The International Union for Conservation of Nature Red List of Threatened Species. Giraffe are listed as 'threatened' on this list, which means they are in danger of dying out.

Already, giraffe no longer exist in at least 7 African countries.

In many parts of Africa giraffe are in serious trouble. They need our help.

The Kordofan, Nubian, Masai, Reticulated, and West African giraffe are all listed as threatened on the IUCN Red List. This means that they are in trouble and need help.

Some of these populations of giraffe are rarer than mountain gorillas or the black rhinoceros.

For example: in Niger, there are just over 600 West African giraffe in the wild.

GCF works with and supports many African countries to protect giraffe so that they can live happily and safely, wherever they are.

In some countries GCF moves giraffe back to areas where they used to live long ago. This helps to protect habitat for giraffe and other wildlife.

The good news is that there are a few populations of giraffe that are getting bigger, for example, in Namibia, Niger and Uganda.

These Nubian giraffe are happily travelling to their new, safer home in Uganda.



WHAT ARE THE MAIN THREATS FOR GIRAFFE?

Throughout Africa, giraffe face many different kinds of threats.

Running out of space

The main problem for giraffe is human population growth. There are more and more people living in Africa. All these people need more space to live and grow food. Because of this, the available food for giraffe and other wild animals gets less and less, and space for them to live becomes smaller and smaller.

Poaching

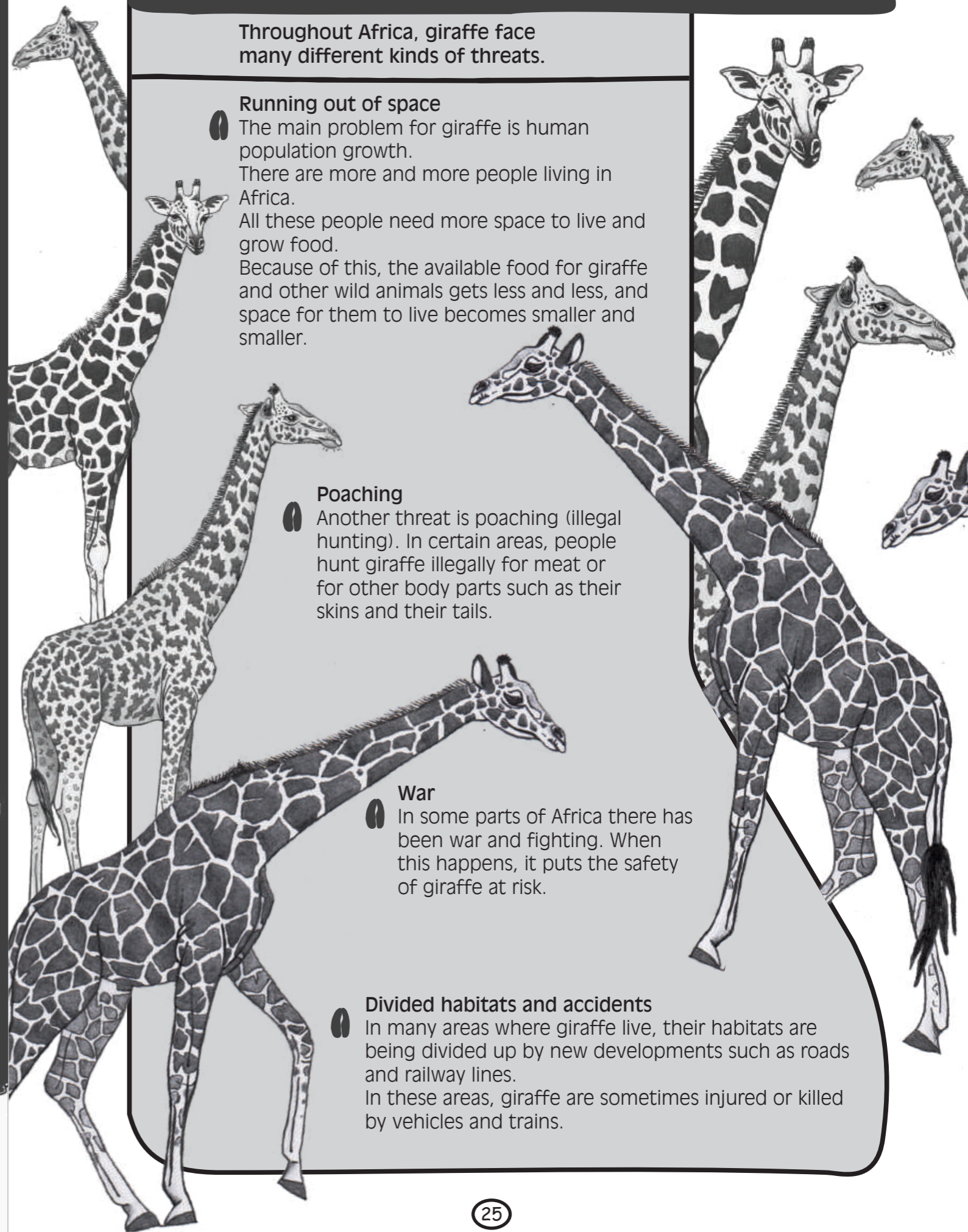
Another threat is poaching (illegal hunting). In certain areas, people hunt giraffe illegally for meat or for other body parts such as their skins and their tails.

War

In some parts of Africa there has been war and fighting. When this happens, it puts the safety of giraffe at risk.

Divided habitats and accidents

In many areas where giraffe live, their habitats are being divided up by new developments such as roads and railway lines. In these areas, giraffe are sometimes injured or killed by vehicles and trains.



LET US CELEBRATE
THE WORLD'S
TALLEST ANIMAL
on the longest
day/night of the year.

**21 JUNE IS
WORLD GIRAFFE DAY**

On World Giraffe Day, we raise awareness about giraffe
and celebrate them all over the world.
You could celebrate the next World Giraffe Day with us!

There are lots of ways for you to do this.

BE A GIRAFFE FOR THE DAY

Redraw or photocopy the giraffe mask on page 33 on to another piece of paper. Then, cut it out and colour it in. I live in Namibia, so I am an Angolan giraffe (a subspecies of the Southern giraffe).

Where do you live? _____

Which giraffe species or subspecies will you be? _____

DRAW YOUR OWN GIRAFFE


Page 32 shows you how to draw a giraffe. You could also draw a family of giraffe standing in their habitat with trees and plants.

SHARE FUN GIRAFFE PICTURES WITH US


How long is your tongue?
Send us a picture of how far you and your friends can stick out your tongues.


Pretend you are a giraffe drinking. Ask a friend or someone in your family to take a picture of you and send it to us.

BE A TEACHER

 You can help other people to understand why it is important to look after and protect the environment and giraffe by sharing what you know with them.

 You could also create your own little classroom.

 Gather a group of friends, family members or people from your community.

 Invite them to your classroom, and then share information from your Nature Workbook about giraffe with them.

Share your World Giraffe Day fun with us on our social media:

facebook.com/giraffeconservationfoundation
twitter.com/save_giraffe
instagram.com/giraffe_conservation

Why did Lady giraffe leave her boyfriend?

Because he was a cheetah.

Why do people never believe a giraffe?

Because they tell tall stories.

FUN THINGS

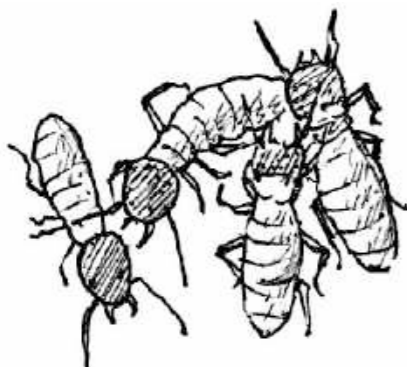
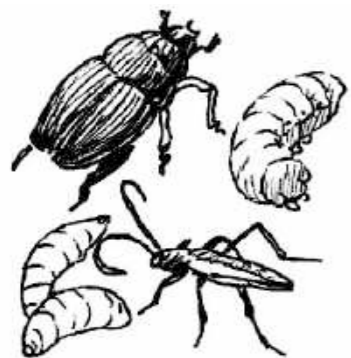
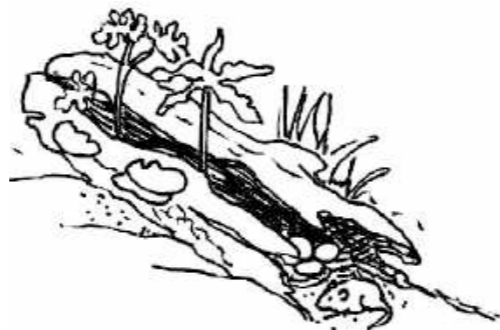
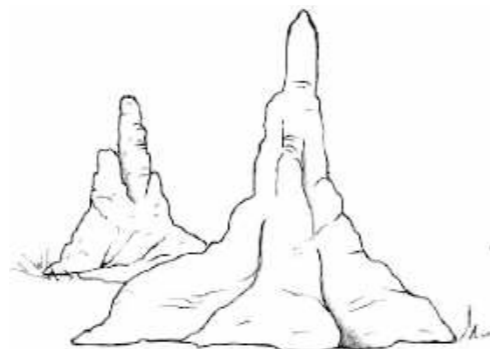
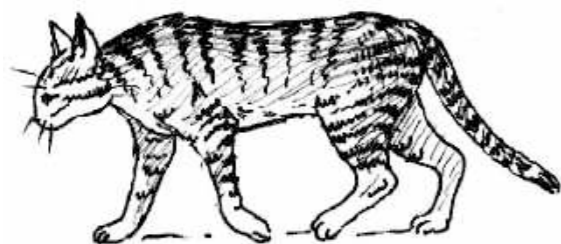
to do at
home

WASTE WATCH WORD SEARCH

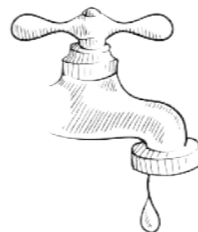
ANIMALS	ENVIRONMENT	POISON	RUBBISH
BALLOONS	GLASS	POLLUTION	SUSTAINABLE
BUBBLEGUM	LITTER	RECYCLE	WILDLIFE
CAN	PAPER	REDUCE	
CIGARETTE BUTT	PLASTIC	REUSE	

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

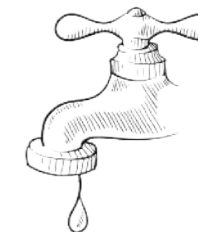
All living creatures need a **SAFE PLACE TO LIVE!**
Connect each of them to their shelter.



Answers: African wild cat → cave. Scorpion → rocks. Beetles and bugs → log. Termites → termite mound.



WASTE WATCH MATHS



Try this at home or in class.

If a leaking tap loses 50 millimetres of water a minute, how much water will be wasted in:

1 Hour? _____

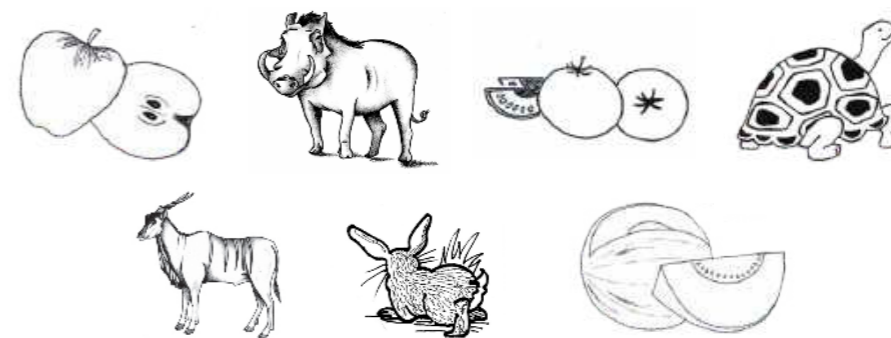
1 Day? _____

Hint: There are 60 minutes in an hour

Hint: There are 24 hours in a day

WATER PUZZLE

All animals and plants need water to live and grow. Fill in the open spaces with names of wild animals and fruit or vegetables beginning with each letter in the word WATER. Three have been filled in for you already.



	W	A	T	E	R
Wild Animals		Aardvark			
Fruit or Vegetables				Eggplant	Raisin

WATER-LIVING ANIMALS

Many creatures live in water all the time, and other creatures live in water only some of the time.

- ➔ For each animal that lives some of the time in the water, draw an arrow from it to the bottom edge of the river.
- ➔ For each animal that lives all the time in the water, draw an arrow from it to the middle of the river.
- ➔ If you would like to, you can draw the animals in or on top of the water and colour the whole picture in.



Guineafowl

Duck

Crocodile

Warthog

Frog

Fish

Tadpole

Tortoise

Hippopotamus

INQUIZITIVE GIRAFFE

All the answers are in this workbook.

How much have you learnt about giraffe on your field trip? Test your knowledge with this quiz.

1. Giraffe are active in

- a) the night (nocturnal)
- b) the day (diurnal)
- c) both day & night (cathemeral)

2. The giraffe living in Namibia are called

- a) Reticulated giraffe
- b) Masai giraffe
- c) Angolan giraffe

3. Giraffe are

- a) Herbivores
- b) Omnivores
- c) Carnivores

4. Giraffe numbers in Africa are

- a) Increasing
- b) Unchanging
- c) Decreasing

5. Giraffe like to eat

- a) Camel-thorn trees
- b) Fish
- c) Chips

6. Giraffe numbers in Namibia are

- a) Increasing
- b) Unchanging
- c) Decreasing

7. You can tell the difference between male and female giraffe by their

- a) Tails
- b) Ossicones
- c) Tongues

8. What does the IUCN Red List stand for?

- a) International Understanding of Care and Nature Red List
- b) International Union for Conservation of Nature Red List
- c) Incorporated Agency for Caring and Nurturing Red List



A CLOSER LOOK AT BABOONS



1) Which of the following words is correct for the baboon?
(Draw a circle around the word you choose.)

Carnivore Omnivore Herbivore

2) Where do baboons live? _____

3) Why do baboons spend time picking through each other's hair? _____

4) What do baboons eat? _____

5) Why do baboons live in groups? _____

6) Are baboons monkeys? _____

7) If you had to describe a baboon to your classmates, which words would you use?
(Draw a circle around each word you choose.)

Hairy	Busy	Ugly	Cute	Mammal	Scary	Human-like
Family	Black	Grey	Funny	Brave	Angry	Dangerous
Noisy	Naughty	Charging	Diurnal	Clever	Protective	Stupid

WHAT IS WHAT?

The following list includes living things, non-living things and man-made things. Look carefully through the list, and write each one under its correct heading.

rock	soil	sun	giraffe	road	butterfly	water
car	tree	bird	human	building	fish	grass
wood	mountain	feather	book	wind	television	litter

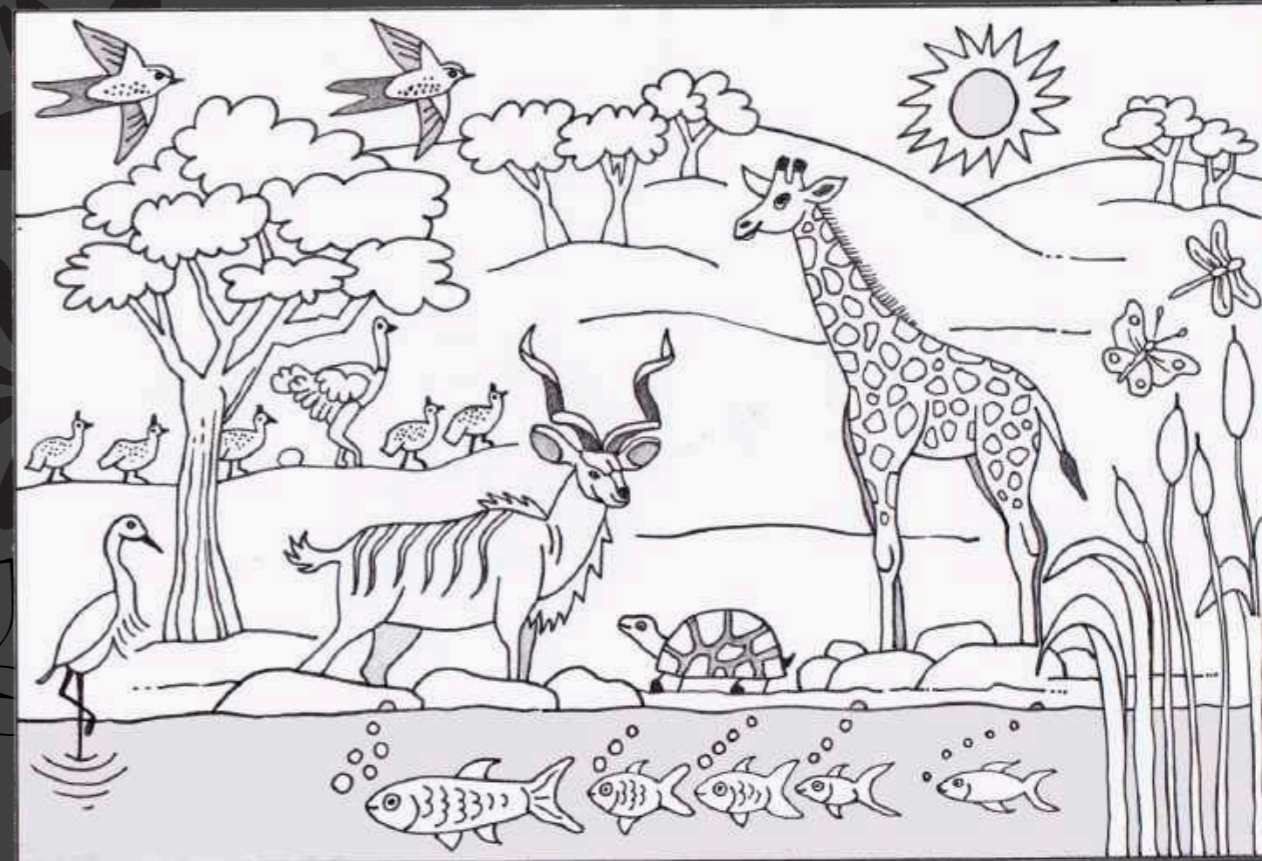
Living

Non-living

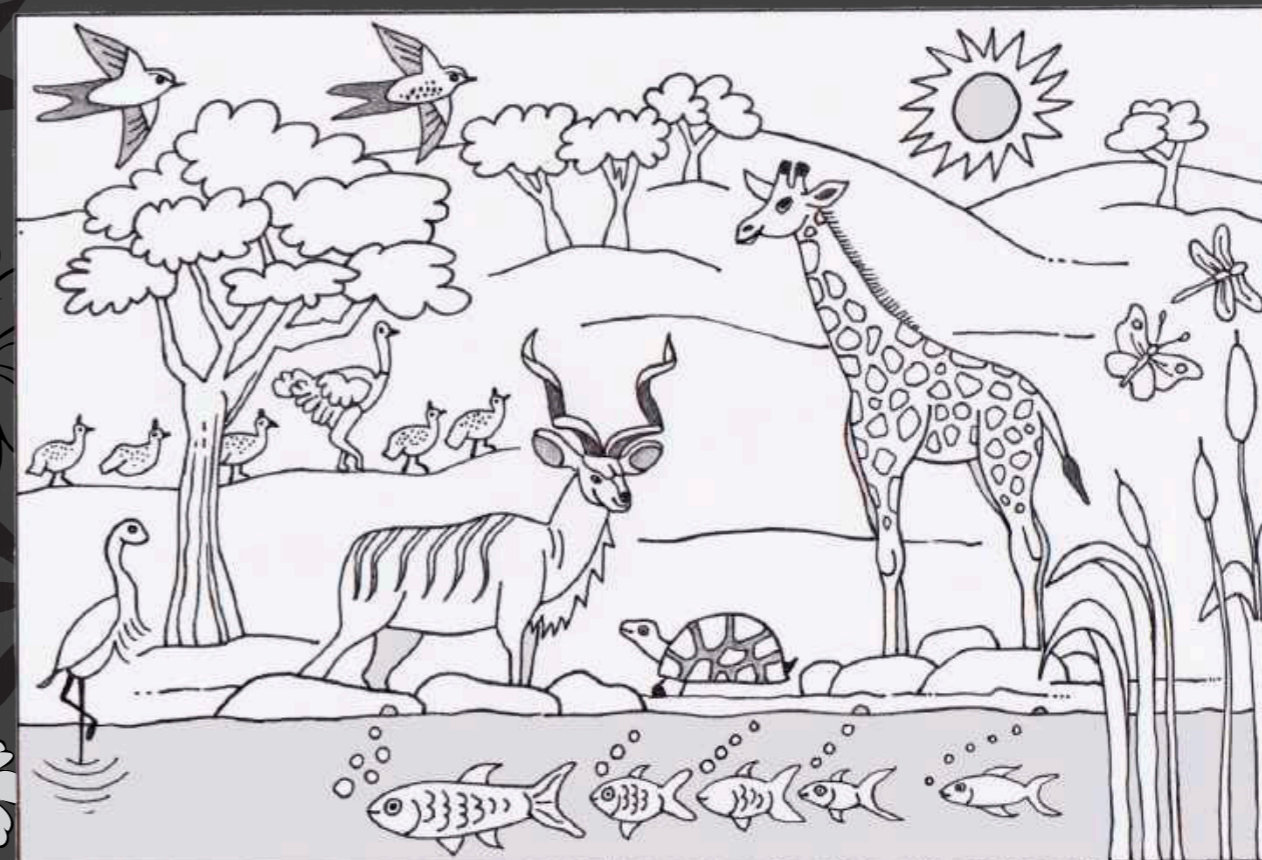
Man-made

_____	_____	_____
_____	_____	_____
_____	_____	_____

SPOT THE DIFFERENCES



In the picture below, fourteen things are missing. Compare it to the picture above, and then draw a circle around the place where each thing is missing.

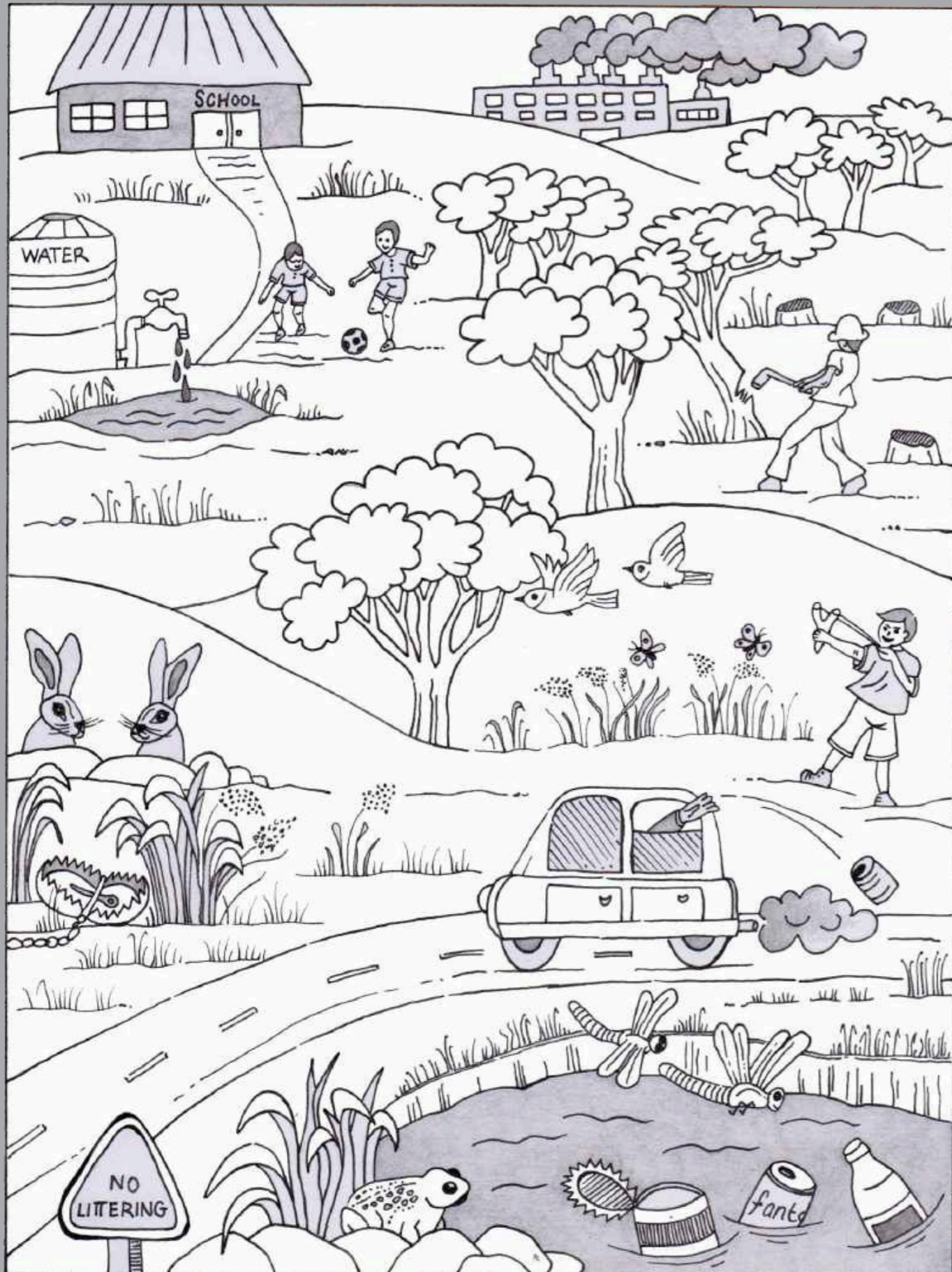


ANSWERS: 1) spots on flying swallow's body 2) patches on giraffe's neck 3) a river plant 4) tortoise's back leg 5) a fish's eye 6) ostrich's egg 7) big tree's left branch 8) dots on butterfly's wings 9) rock behind tortoise 10) hair on kudus's shoulder 11) tree on top of hill 12) water birds' legs 13) guinea fowl's legs 14) the kudus's tail

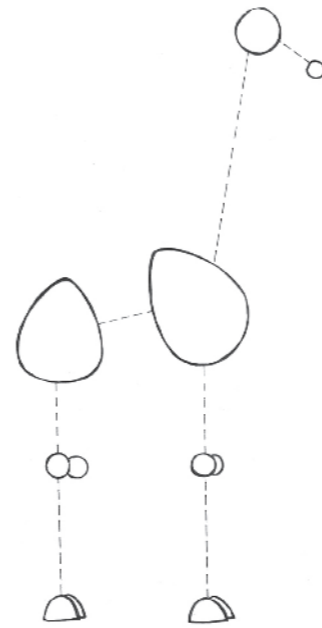
UNSUSTAINABLE ENVIRONMENT

WHAT IS WRONG?

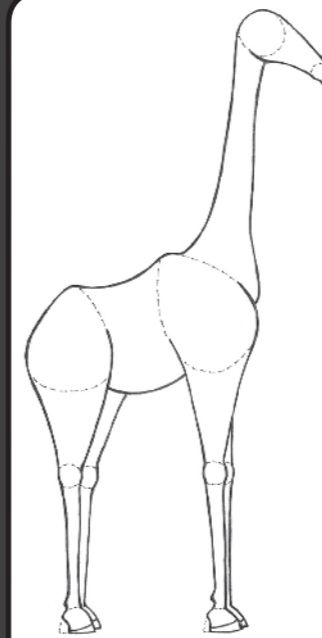
There are seven environmentally unfriendly things happening in this environment. See if you can find them, and draw a circle around each one.



LEARN HOW TO DRAW A GIRAFFE!

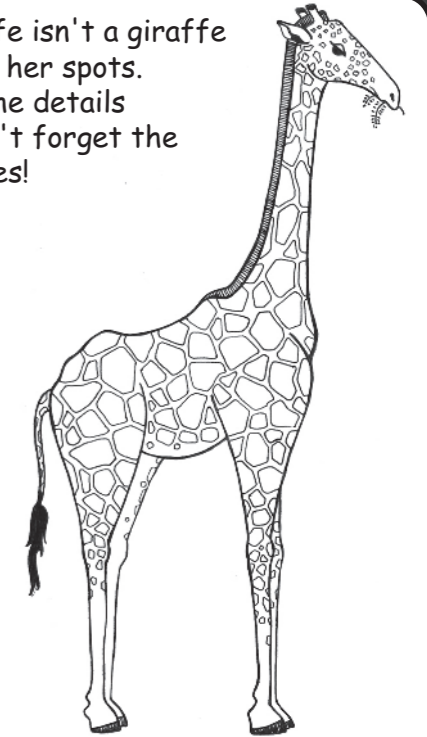


First, draw these basic shapes and the dotted lines between them. Remember to do them softly in pencil so you can rub them out later.



Now, draw around the shapes to get the outline of your giraffe. Take your time, there is no rush.

A giraffe isn't a giraffe without her spots. Fill in the details and don't forget the ossicones!



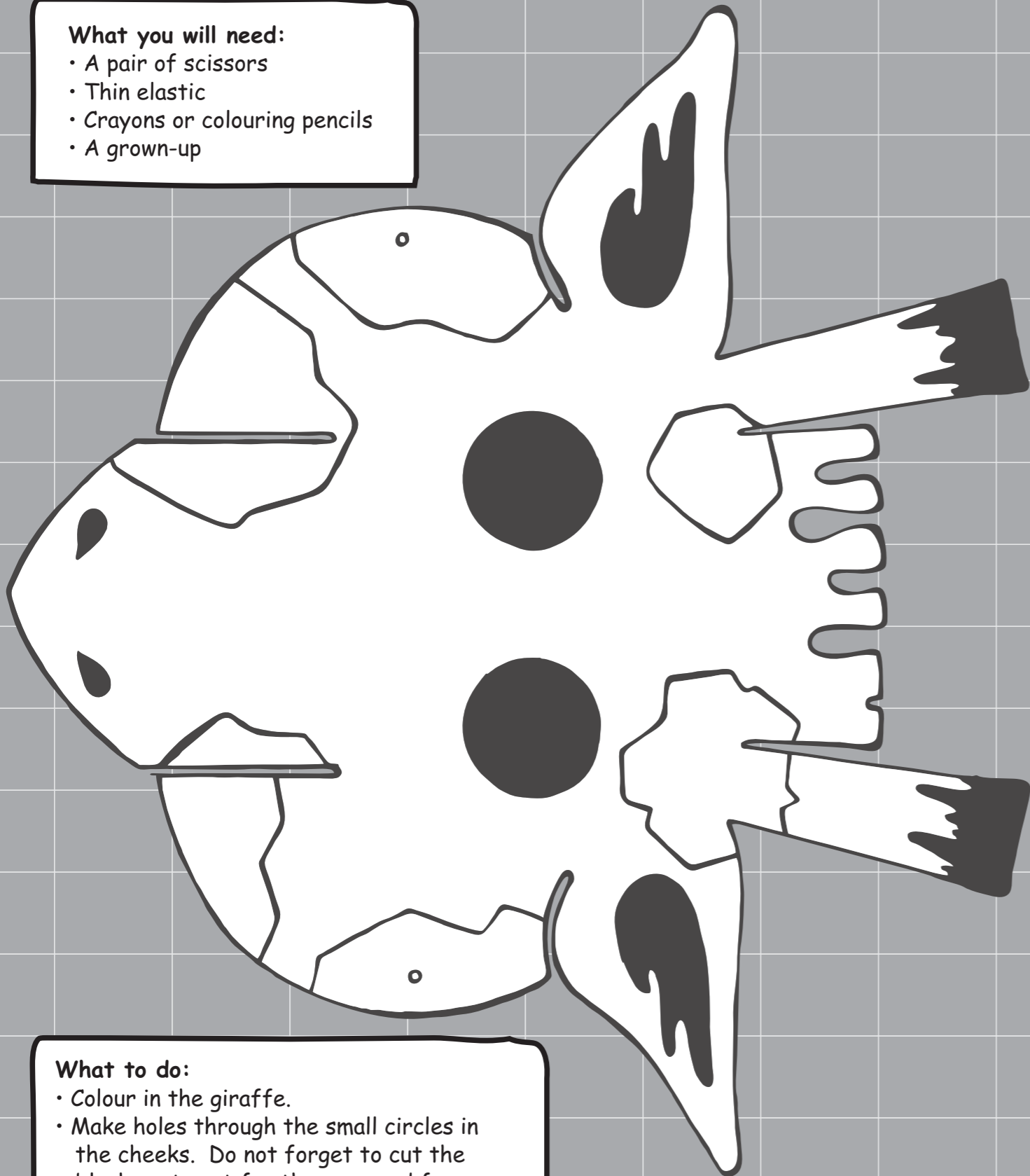
Well done, you've drawn a giraffe! Doesn't she look happy? Now colour her in.

BE A GIRAFFE FOR THE DAY

Make a giraffe mask!

What you will need:

- A pair of scissors
- Thin elastic
- Crayons or colouring pencils
- A grown-up

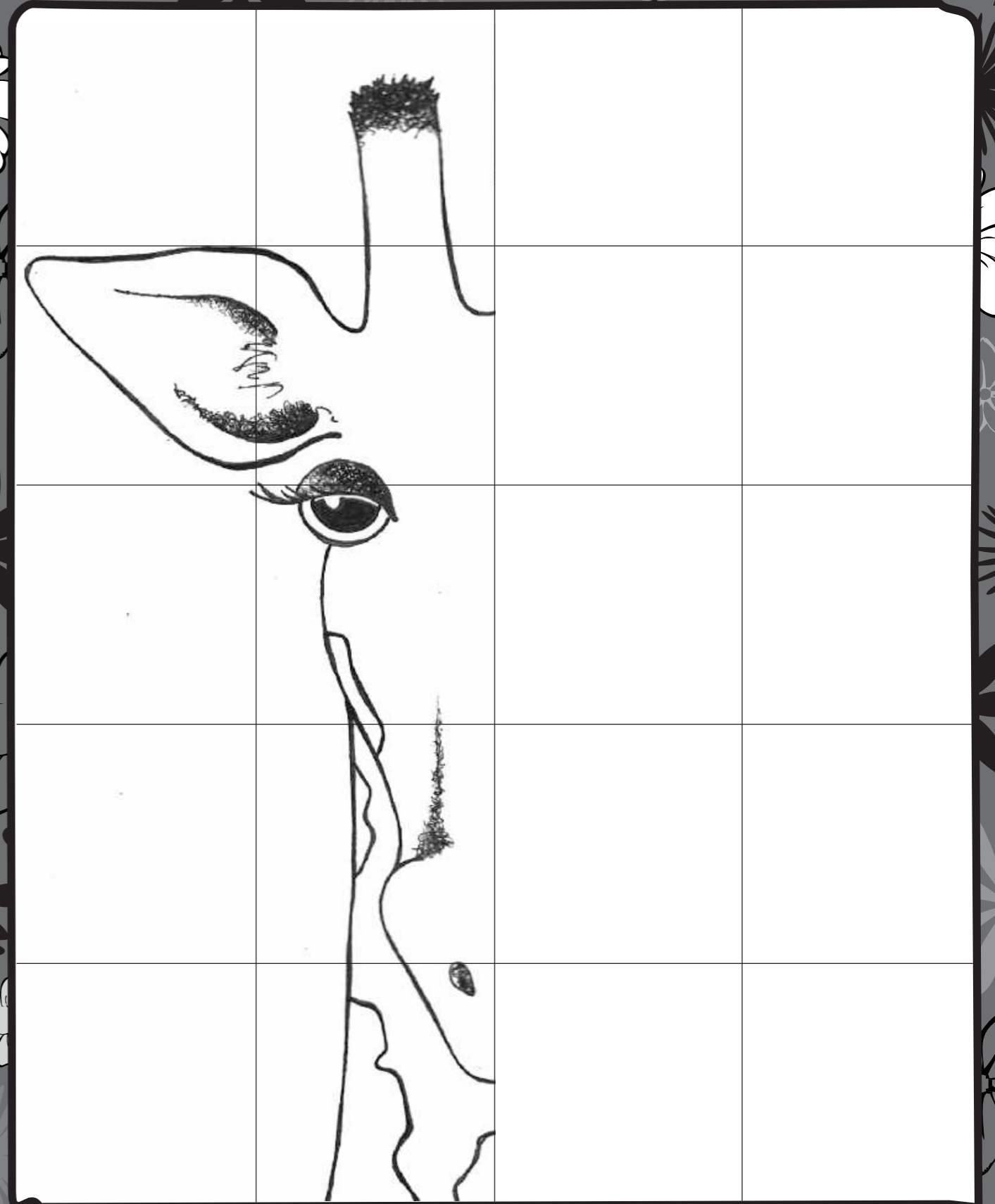


What to do:

- Colour in the giraffe.
- Make holes through the small circles in the cheeks. Do not forget to cut the black parts out for the eyes and from the nose.
- Attach the elastic to the holes.
- Put the mask on. Now you are a giraffe!

FOLLOW MY LEADER

Draw the other side of the giraffe's face by copying what you see on the left, and then colour it in.





STORY TIME

If you have never seen a giraffe, try not to laugh at him.
 Unlike most creatures, he has peculiar features.
 Four long legs and knobby knees and with that long neck, he is as tall as the trees!
 Now, giraffe have good manners. They take great care to greet all those they see, from here to there.
 And with such a good view, they see quite a few.

"Hello! Goeie môre! Mwalelepo nawa!" Lopie calls to the mongoose and the aardvark with claws.
 "#Khaisgo! Guten Tag!" Lopie bows to the jackal, the warthog, and the kudu cows.

While completing his greeting near the weaver's nest, there is the sound of tweeting!
 The eggs have hatched! Oh, how exciting! And he dashed right over - no time for inviting!
 And just as you would expect from a weaver bird batch, the young chicks are curious and full of questions and chat.

"We are so far up! We are too small to fly, and too young to glide. Please, Lopie, tell us about the world outside?"

Well, how could Lopie say no? Education is important, as you all should know!
 Lopie clears his throat and says:

"We will start at the beginning, if you please, with the most important of lessons, the ABCs!"

Now, you are all familiar with this rhyme, but you must understand that these chicks have not been around a very long time!

"Now little chicks, the first one is easy and we will take it slow. Is everyone ready? OK, let us go..."

GIRAFFE'S ENVIRONMENTAL ABCs

Aa	is for Africa . Africa is big and wide and home to all the wild giraffe in the world.
Bb	is for birds , every size, shape and colour. I can see one, can you see another?
Cc	is for cars . They give off lots of fumes, but with more walking and less driving, the difference is surprising.
Dd	is for deforestation, deserts and droughts . Does anyone know what I am talking about? These start with Dd and I think you will agree that saving our trees should be as easy as one-two-three.
Ee	is for the environments and ecosystems that we are all part of. Insects and mammals, the air as it swirls, arachnids and reptiles, and even you, boys and girls.
Ff	is for food . Energy for your body and brain! Healthy and nutritious! Sure is delicious!
Gg	is for... giraffe , of course!
Hh	is for habitat , the place we call home. There is water, sun, food and shelter, and do not forget air. We find all of these there.

Ii	is for insects , some big and some small. They are very important, so do not squish them all.
Jj	is for jackal . He is one sneaky pup. And by night he is a singer, keeping everyone up.
Kk	is for Khomas . To find this region you do not have to go far. It is right here, where we are!
Ll	is for litter . No excuse, silly goose! Put it in the bin! Paper, glass, and even tin!
Mm	is for Ministry of Environment and Tourism . It is a very big thank you that we owe to them. Giving this reserve their protection and teaching poachers a lesson!
Nn	is for Namibia , our wonderful land. Its environment is special, so let us give it a hand!
Oo	is for ossicones . They grow on top of giraffe's heads, and they are made of bone.
Pp	is for plants , so many there are. They have a trick you cannot miss, producing their own food by <u>photosynthesis</u> .
Qq	is for questions . What, why and how? Get curious, now! Oh, the things that you will learn!
Rr	is for recycle, reuse and reduce . Do something good with the waste you produce.
Ss	is for sun , it warms up our Earth. We would be freezing cold if it did not shine bold.
Tt	is for team work . No one is alone. Be there for each other, at school and at home.
Uu	is for urbanisation , more people, houses and cars. So many lights, we cannot see the stars at night.
Vv	is for the value on objects we place. But life, love and friendship, money cannot replace.
Ww	is for water , do not waste one drop. When it is all gone, you will miss it non-stop!
Xx	is the last letter in oryx . Have you seen their horns? They are sharp as thorns!
Yy	is for you. Yes, you! Oh, the things you can do if you are kind and brave and believe in yourself, too.
Zz	is for zebra . I am sure we all agree that he is the zippiest Zee there could ever be!

With the cool breeze swirling around Lopie's knees, he was curious to know what they thought of his Environmental ABCs ...
 ... but when he looked inside the nest, what did he find? Two weaver chicks fast asleep, not even a peep!

As Lopie slipped quietly away, he thought how lovely it must be to be a young chick.

Now, this story has a lesson... Have you spotted it yet?
 We are all part of nature. We are family, we are friends, and we are in it together, from insects to mammals no matter the weather. Look after your environment, not just for you and for me, but for those little chicks too, high up in the tree.

ANIMAL DETECTIVE



Use your KEEP Field Guide to help you.

LEGEND



Moon and stars means these animals are nocturnal. They are active at night.



Sun means these animals are diurnal. They are active during the day.



Moon, stars and sun all together means these animals are cathemeral. They are active both day and night.



SHHHH!!!

Use your bush voice and keep your eyes and ears open and sharp! You might get to see the animal you are tracking.

Do not just look, try to also SEE. Take your time and search for any clues. Where are the tracks? Are they on the road, or in the river? Are there many tracks, or only a few tracks? Is the ground hard or soft? What other signs of activity can you see in the area? For example, a zebra's dusty sand bath where it rolls.



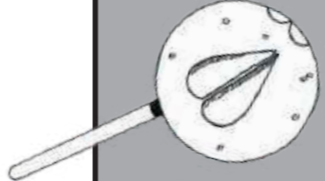
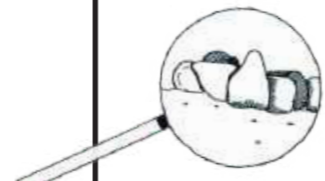



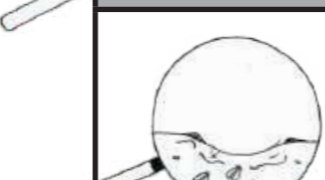

ANIMAL DETECTIVE CHECKLIST



Using your KEEP Field Guide, try to find the following things...

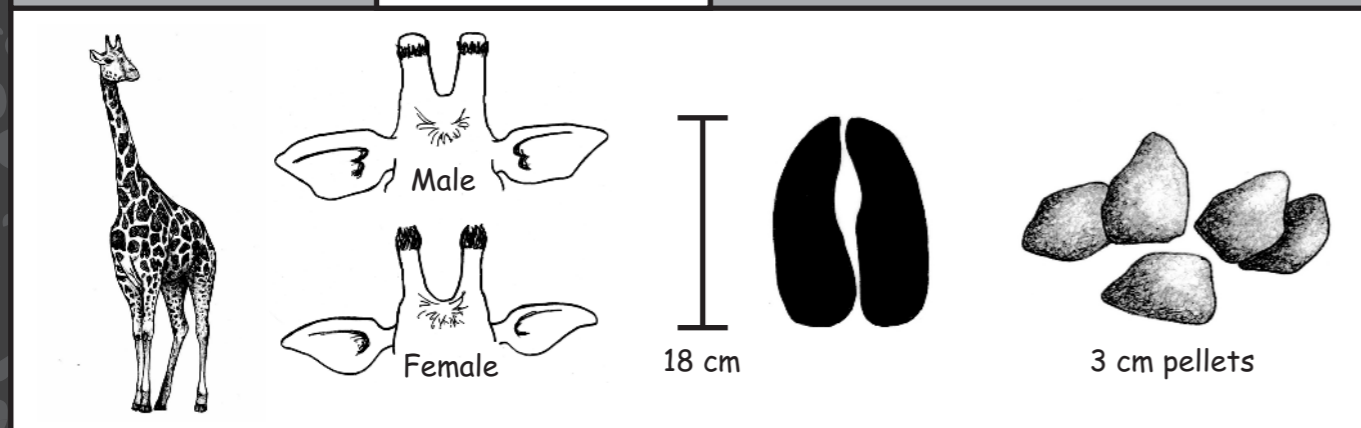
Take your time and look carefully for all the clues. Tick the boxes for those that you find.



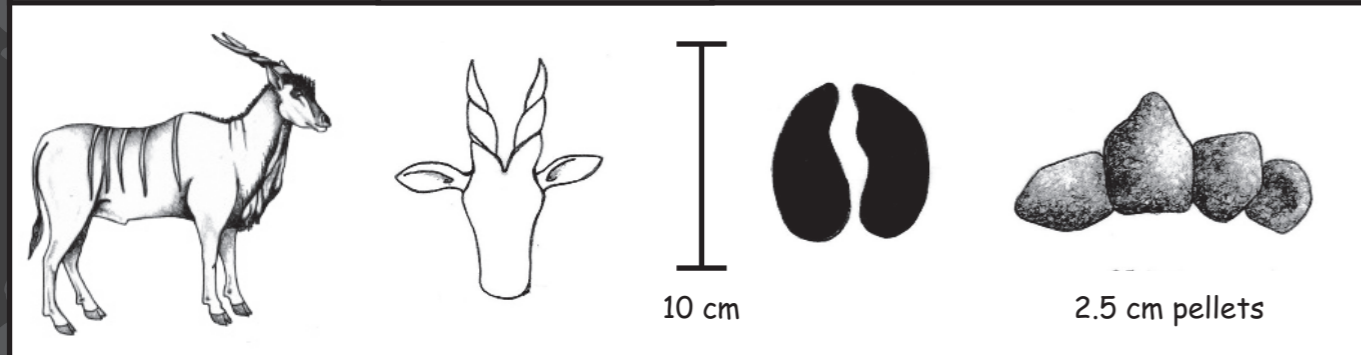
	A HERBIVORE TRACK <input type="checkbox"/> Whose is it? _____ <u>Herbivores</u> are animals that only eat plants.
	HERBIVORE POO <input type="checkbox"/> Whose is it? _____ You can learn a lot about which animals are in the area by the poo you find.
	PREDATOR TRACK <input type="checkbox"/> Whose is it? _____ A predator is an animal that kills and eats other animals. Animals that only eat meat are called <u>carnivores</u> . Does your track belong to a carnivore or an <u>omnivore</u> ?
	A VACHELLIA or SENEGALIA (ACACIA) TREE <input type="checkbox"/> Which one is it? _____ The name for Acacia trees has been changed. Some Acacias are now called Vachellia, and others are called Senegalia. The giraffe's favourite food is the leaves and flowers from these trees.
	A TERRITORY PATCH <input type="checkbox"/> Whose is it? _____ Some animals mark their territory by peeing and pooping in one place. This sends a strong and smelly message to others that this place has been taken.
	A DUSTY SAND BATH <input type="checkbox"/> Whose is it? _____ Animals have dusty sand baths to get rid of ticks and other parasites that live on their skin. If you look closely, you might even find some hair from animals that have rolled in the dusty sand bath you have found.
	AN INSECT TRAP <input type="checkbox"/> Whose is it? _____ Look high, and look low. Many insects build clever traps to catch their food. Insects that eat other insects are also called predators.


FIELD GUIDE

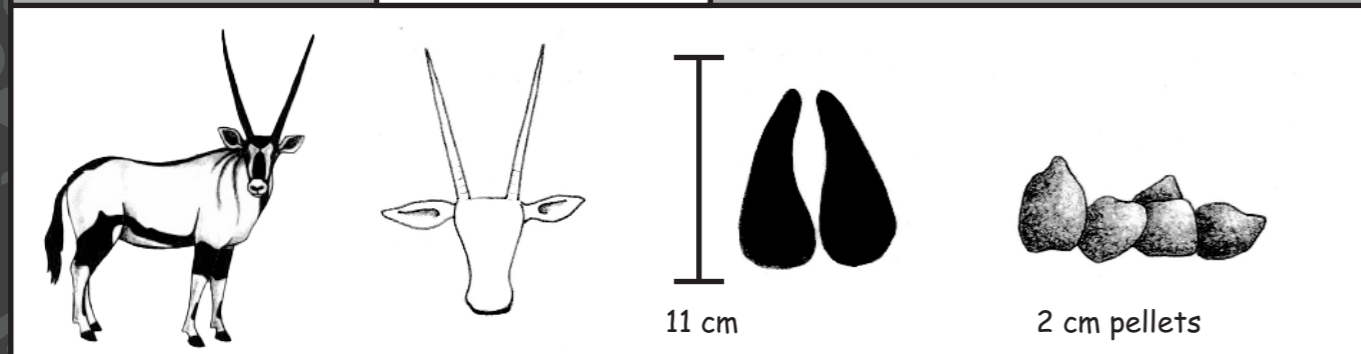
ANGOLAN GIRAFFE  *Giraffa giraffa angolensis*
HERBIVORE - Browsers (trees)



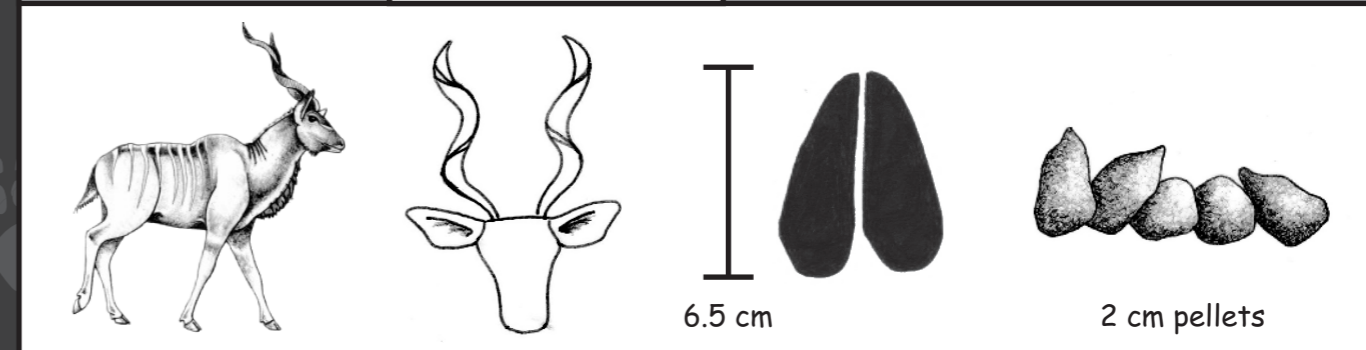
ELAND  *Tragelaphus oryx*
HERBIVORE - Grazers and browsers (grass and trees), and also digs for bulbs and eats fruit.



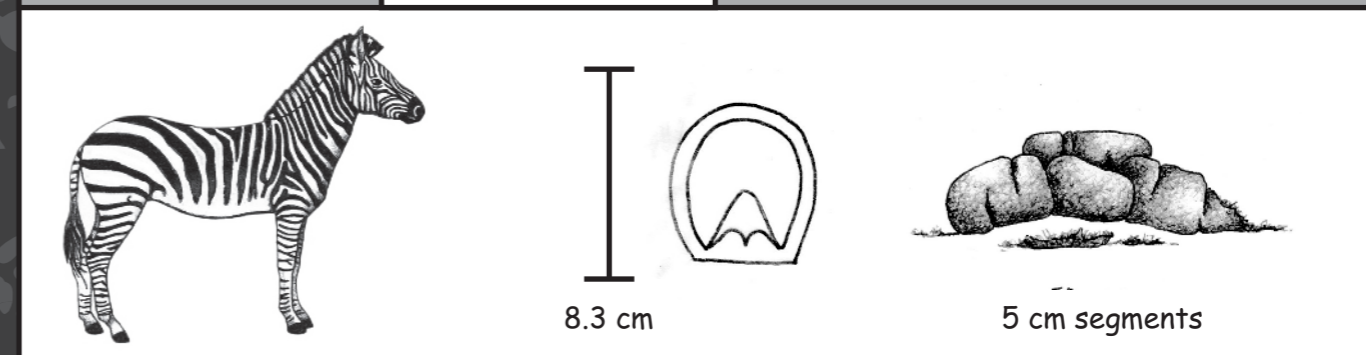
ORYX  *Oryx gazella*
HERBIVORE - Grazers and occasionally browsers (seeds, pods and fruits), and also sometimes dig for bulbs and roots.



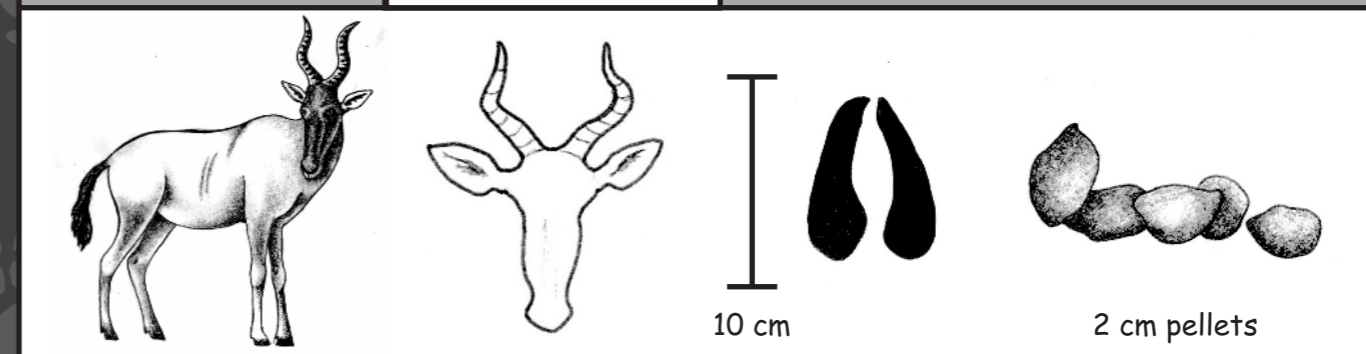
KUDU  *Tragelaphus strepsiceros*
HERBIVORE - Browsers (trees and bushes)



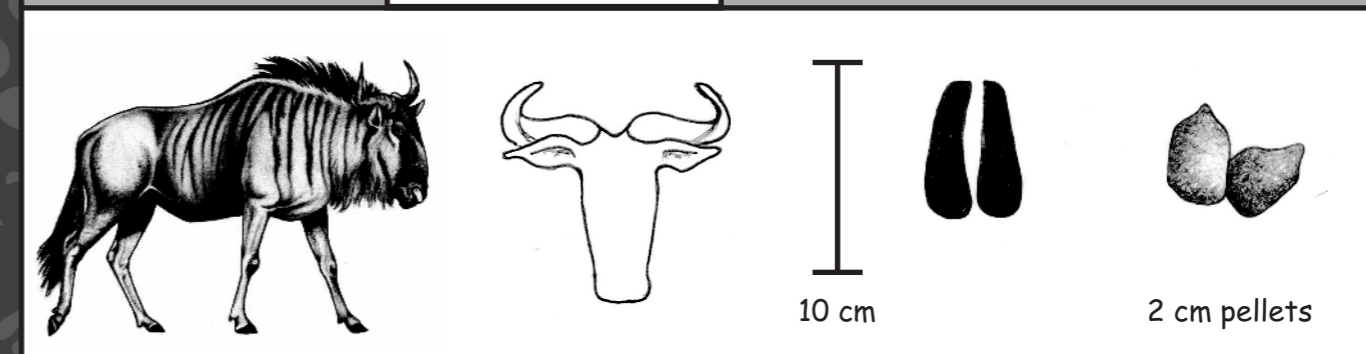
HARTMANN'S ZEBRA  *Equus zebra hartmannae*
HERBIVORE - Grazers (grass)



HARTEBEEST  *Alcelaphus buselaphus*
HERBIVORE - Grazers (grass)



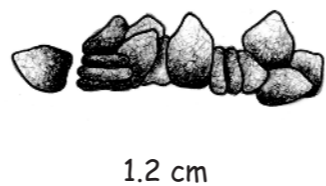
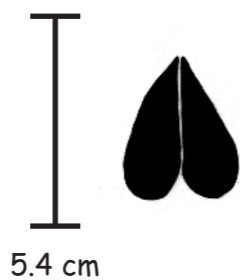
BLUE WILDEBEEST  *Connochaetes taurinus*
HERBIVORE - Grazers (grass)



SPRINGBOK



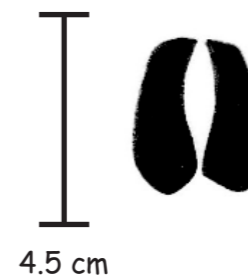
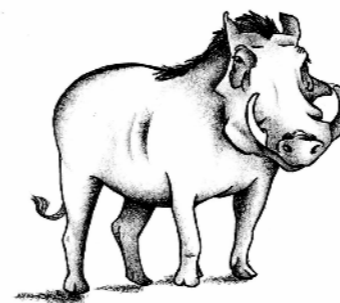
Antidorcas marsupialis
HERBIVORE - Grazers (grass) and browsers (trees), but will also dig for roots and bulbs.



WARTHOG



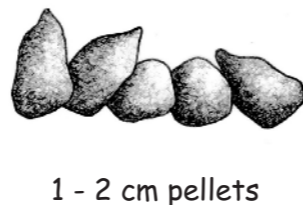
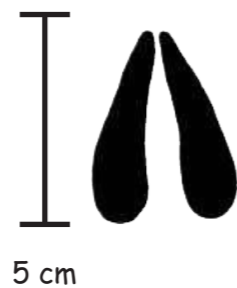
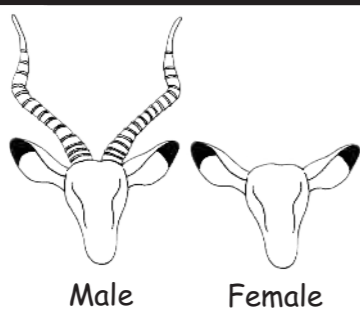
Phacochoerus africanus
HERBIVORE - Grazers (short grasses and roots).



IMPALA



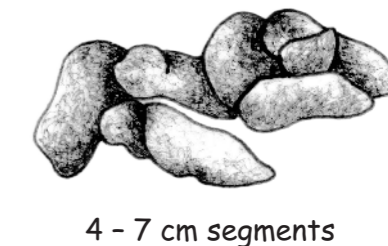
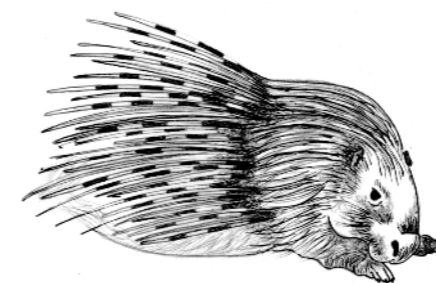
Aepyceros melampus
HERBIVORE - Grazers (green grass) and browsers (bark, leaves, wood, stems)



CAPE PORCUPINE



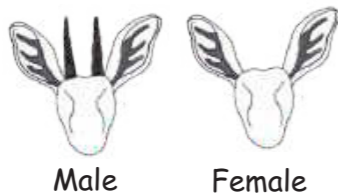
Hystrix africaeaustralis
HERBIVORE - Roots, bulbs and bark, and they sometimes eat the meat of dead animals.



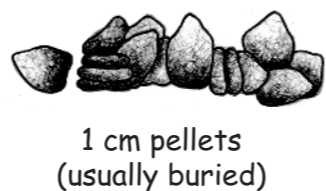
STEENBOK



Raphicerus campestris
HERBIVORE - Browsers (young leaves, short grass, flowers, fruits, roots, bulbs)



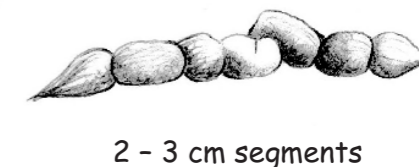
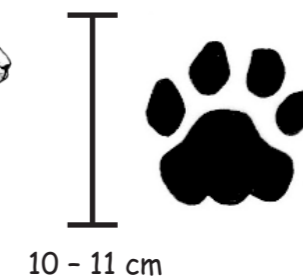
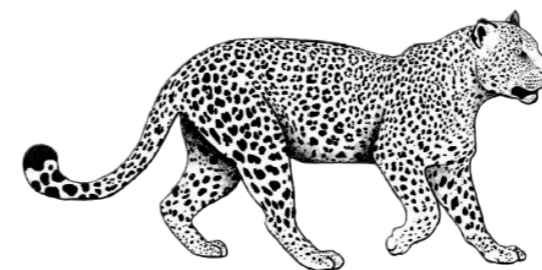
The steenbok is a small antelope: 45 - 60 cm high and weighs only 12 kilograms.



LEOPARD



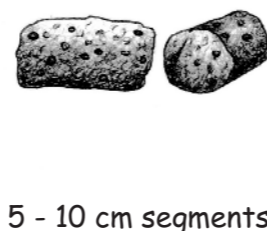
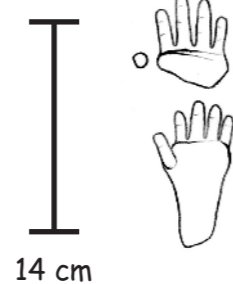
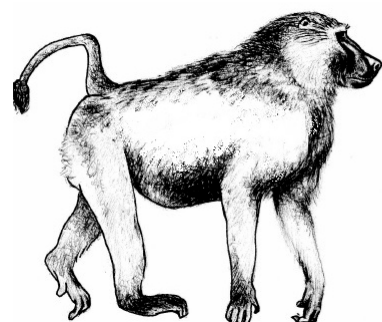
Panthera pardus
CARNIVORE - Insects, rodents, birds and medium-sized antelope.



BABOON



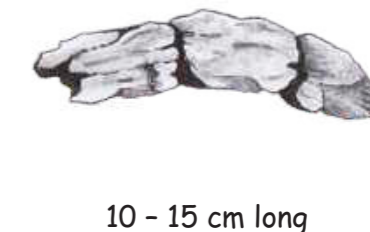
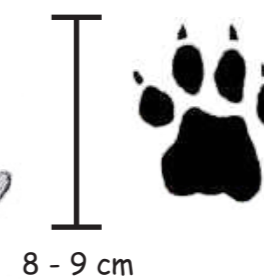
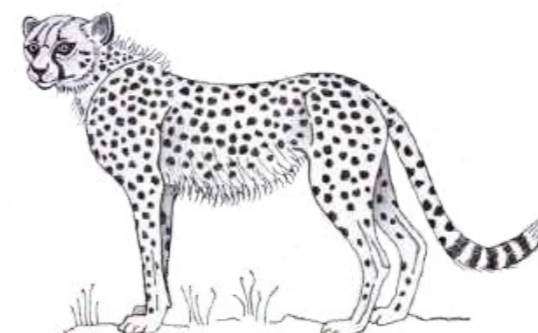
Papio cynocephalus
OMNIVORE - Flowers, seeds, bark, insects, scorpions, mice and reptiles.



CHEETAH



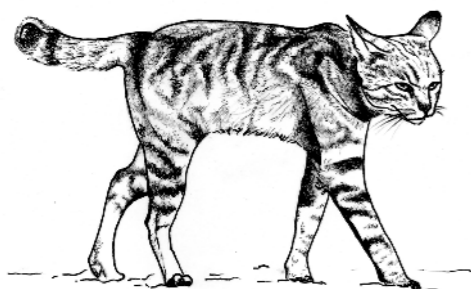
Acinonyx jubatus
CARNIVORE - Small and young antelope, and ground birds, ostrich, hares and porcupines.



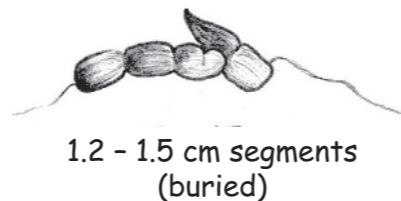
AFRICAN WILD CAT



Felis silvestris
CARNIVORE - Rodents, small mammals, birds, reptiles, amphibians and insects.



3.6 cm



1.2 - 1.5 cm segments (buried)

OSTRICH



Struthio camelus
OMNIVORE - Grass, fruit, seeds, fleshy plants, small lizards, and insects.



19 cm (the long toe)



3 - 5 cm

The Ostrich is the largest bird in the world. They stand about 2 metres tall. Although they have a very small head, their eyes are extremely large. They cannot fly but they can run at 50 kilometres per hour, the same speed as a giraffe - this is amazingly fast!

BLACK-BACKED JACKAL



Canis mesomelas
OMNIVORE - Young antelope, rodents, birds, reptiles and insects, as well as wild fruit and berries. They also eat carrion (carrion is the meat of animals that have already died).



4 cm



1.5 - 2 cm segments

HELMETED GUINEAFOWL



Numida meleagris
OMNIVORE - Seeds, fruits, green leaves, snails, spiders, worms, insects, frogs, lizards, small snakes and small mammals.



8 cm



2 - 3 cm tubes

BROWN HYENA



Parahyaena brunnea
OMNIVORE - Insects (termites), birds, rodents and fruit.



8.5 cm



2 - 3 cm segments

RED-BILLED FRANCOLIN



Francolinus adspersus
OMNIVORE - Seeds, plant shoots, leaves, berries, insects and snails.



5 cm



1 - 2 cm tubes

YELLOW MONGOOSE



Cynictis penicillata
OMNIVORE - Insects, rodents, lizards, small snakes, birds, amphibians, fruits and berries.



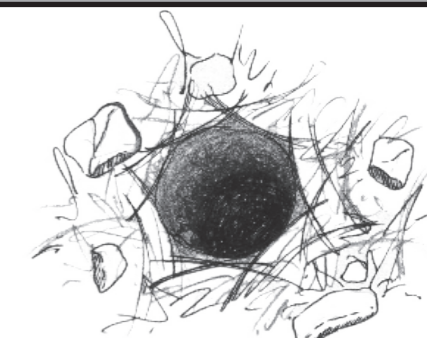
2.3 cm (front) 2.5cm (hind)



0.5 - 1 cm

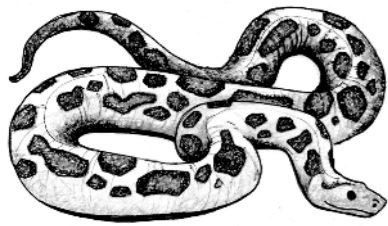
SPIDERS

They are **PREDATORS** that eat insects. Some dig holes and others spin webs in the trees or between rocks and grass on the ground. Some are big and some are small.

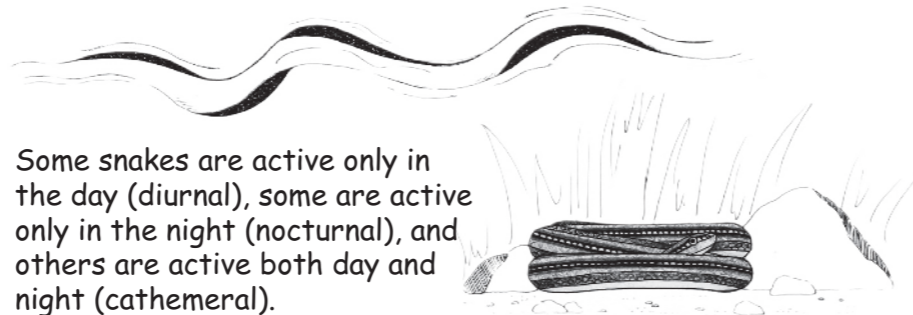


SNAKES

They are PREDATORS that eat small mammals, rodents and birds, as well as other snakes. Some dig holes, some hide in caves, and others hide themselves in the long grass or against rocks.



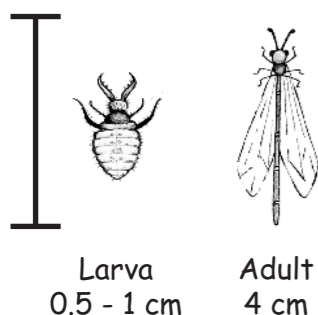
Some snakes are active only in the day (diurnal), some are active only in the night (nocturnal), and others are active both day and night (cathemeral).



ANTLIONS

Myrmeleon

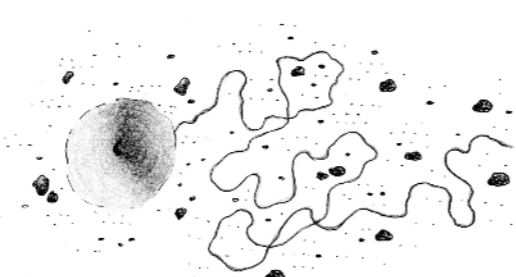
INSECTIVORE - The Antlion Larvae are predators. They feed mostly on ants, but also other small insects.



Larva
0.5 - 1 cm

Adult
4 cm

The adult antlions have wings. The larvae (the undeveloped young) have no wings and live under the ground in shallow holes that are open to the surface. The holes are surrounded by sloping walls of sand which trap small ants and insects that they eat.

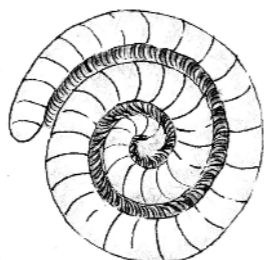
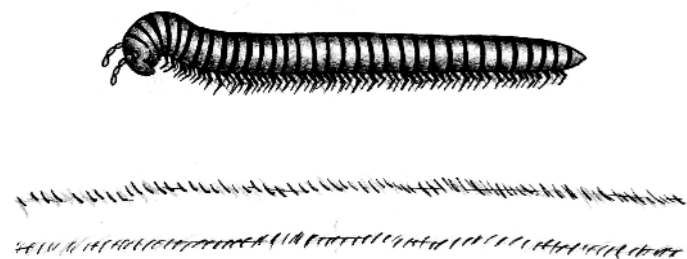


Larva hole with sand trap

MILLIPEDE

Diplopoda

DETRITIVORE - Millipedes feed on rotting plants. Millipedes are also called shongololos.



0.3 - 0.5 cm pellets

LONG-LEGGED DARKLING BEETLE

Stenocara dentata

DETRITIVORE - Darkling beetles feed on rotting plants and animals.



2.5 - 3.8 cm (whole beetle)



They also eat live seeds, fruit and living plants. Often, they do not need to drink water as they get everything they need from their food.

CAMEL-THORN

Vachellia (Acacia) erioloba



Their thorns are mostly white, but brownish on the tip. The base of the thorn is thick. Their branches grow in a zig-zag. The fruit (pods) is grey and shaped like an ear. We use the wood for fuel (cooking). We can eat the sticky yellow gum, and the bark and pods are used as medicine. Animals love to eat the leaves and sweet-tasting pods.

SWEET-THORN

Vachellia (Acacia) karroo



Their thorns are straight and they shine brightly white against the bright green leaves. Their fruit (pods) is brown and are shaped like a curve. The *Vachellia (Acacia) erioloba* and the *Vachellia (Acacia) karroo* flower and make their fruit at different times, which helps to make sure there is food for the animals for many months. We use the bark to make rope. We eat the sticky yellow gum and we use the roots for medicine. The seeds can be roasted as coffee.

BLACK-THORN

Senegalia (Acacia) mellifera



Their thorns are a pair of curved hooks, which are grey with black tips. This tree is often called the wait-a-bit thorn tree because when you get caught in their hooked thorns, it takes a lot of patience and waiting to untangle your clothes from them. Their pods are pale brown and thin, like paper. The pods, leaves and flowers are much eaten by livestock and wild animals. We use the wood for cooking and making charcoal. The leaves or bark is made into a tea and used as treatment for malaria and pneumonia.

BUFFALO-THORN

Ziziphus mucronata



Their thorns are brownish and grow in pairs - one is curved and one is straight. The leaves are different to the Camel-thorn trees because they are bigger and more shiny. Even though we can eat the fruit (berries), they are very bitter. The bark and the leaves are used for medicine and the wood is used to build houses.

GLOSSARY

Atmosphere is the layer of gas that surrounds the Earth. It is often called air, and is made up of many gases like oxygen, nitrogen, carbon dioxide, argon and water vapour.

Carbon dioxide is a colourless gas that is important for life on Earth.

Carnivores are animals that only eat meat.

Cathemeral animals are active during the day and at night.

Climate describes the weather in a certain area over a long time, like over many years. For example, the Khomas Hochland's summer seasons are usually wet and rainy, and the winter seasons are dry with no rain.

Deforestation is the loss of trees. Deforestation is usually caused by the cutting of trees for firewood and timber for building, by the clearing of land for growing crops, or by overgrazing of livestock (domestic animals).

Diurnal animals are only active during the day - the opposite of nocturnal.

Droughts are very long periods of time with no rain.

Ecosystems are all the living plants, animals and other creatures and the non-living things that interact with each other in a particular environment.

Endangered plants, insects and animals are in danger of disappearing forever.

Environment is everything around us. It includes living, non-living and man-made things.

Evaporation happens in the water cycle, when water in rivers, pans, dams and the ocean is heated up by the sun and turns into gas (vapour) in the atmosphere.

Extinct is when certain plants, insects or animals no longer exist on Planet Earth.

Flora and Fauna are the plants (flora) and animals (fauna) that live in an area.

Food chain is the order in which living things eat one another, and it is the flow of energy from one level to the next in an ecosystem.

Geology is the study of the structure of our planet Earth. It tries to explain how rocks and mountains were made, and how they have changed over a long time. When the people who study geology (geologists) talk about a long time, they mean millions of years.

Habitat is the environment in which a plant, insect or animal lives.

Herbivores are animals that eat only plants.

Khomas Hochland is the mountain range where Daan Viljoen is located.

Natural resources are found in nature and they are used by people. Earth's natural resources include the sun, air, water, trees, plants, animals and soil.

Nocturnal animals are active only at night (opposite of diurnal).

Nutrients are all the important things (like vitamins and minerals) found in healthy foods that keep you alive, healthy and strong.

Omnivores are animals that eat both plants and meat.

Oxygen is a gas in the atmosphere that is important for respiration (breathing).

Photosynthesis is the process through which plants use water, sunlight and carbon dioxide to create their own food, to grow, and release oxygen into the air. All living things need oxygen to breathe.

Pollution is harmful waste that damages the environment.

Quartz is a very hard mineral that is found in rocks in Namibia.

Ruminants are animals (like cows and giraffe) whose stomachs are divided into three or four parts, and because of this they have four chances to digest their food. After they swallow, they bring the food up from the stomach (regurgitate), chew it again, and then swallow it again.

Schist is quite a soft rock compared to quartz. A lot of the Khomas Hochland is made up of schist.

Sustainability is the small changes we can make to help look after our natural resources, so that future generations can enjoy them.

Topography is the description of what an area looks like. The topography of one area can be made up of mountains, valleys and rivers, like the Fish River Canyon. The topography of another area can be flatter with lots of sand, like the Namib Desert.

Weather tells us what is happening in the atmosphere in a short time, like in one day. For example, whether it is sunny or cloudy, or hot or cold on a particular day?

0cm

1cm

2cm

3cm

4cm

5cm

6cm

7cm

8cm

9cm

10cm

11cm

12cm

13cm

14cm

15cm

16cm

17cm

18cm

19cm

20cm

21cm

22cm

23cm

24cm

25cm

26cm

27cm

28cm

Goodbye!
Carry on looking!
Keep on learning!

