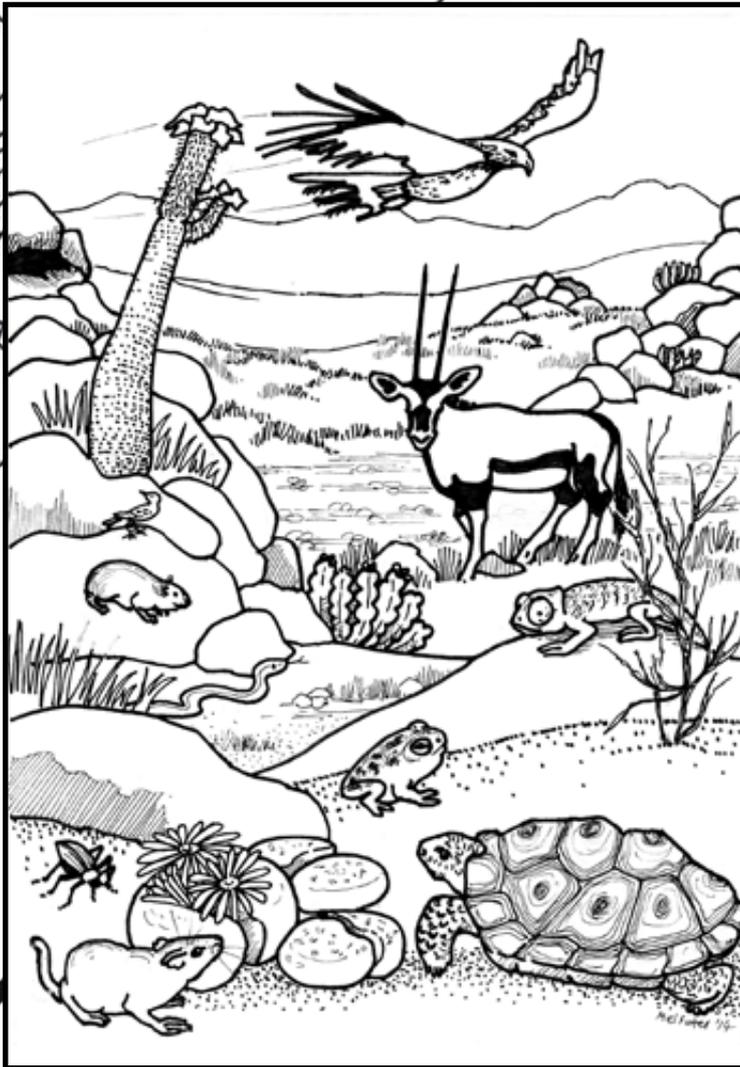


Khomas Environmental Education Programme (KEEP)



Field Day Workbook

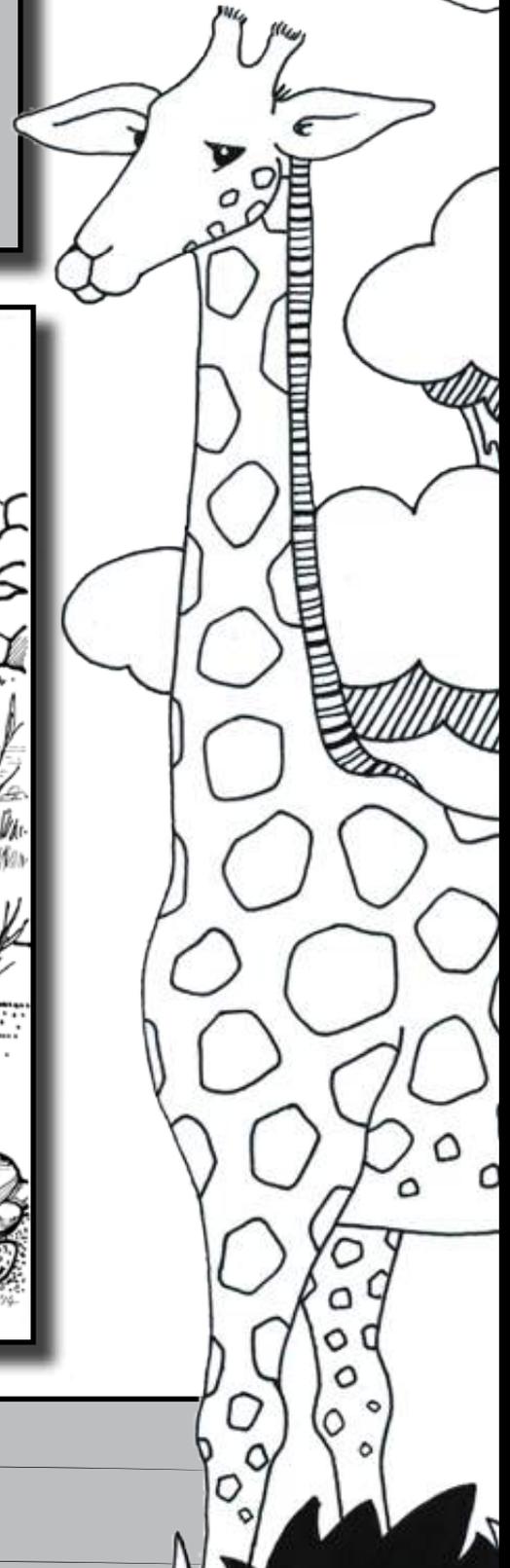
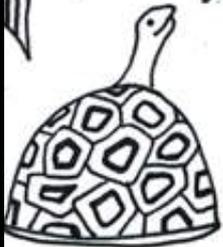


Group name: _____

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 Namibia.

This workbook was developed by the Giraffe Conservation Foundation (GCF) for its Khomas Environmental Education Programme (KEEP).

Written by Rachel du Raan. Edited by Marie Mott-Adams.

Illustrations by Rachel du Raan. Contributions by Mel Futter (cover insert, pages 17 & 29 centre) and Marie Mott-Adams (pages 13 centre, 15 bottom, 19 background, header to 23, 34, 42, 44 and back cover).

Layout by Rachel du Raan and Marie Mott-Adams.

Graphic Design by Suzi Seha.

Copyright © Giraffe Conservation Foundation 2017

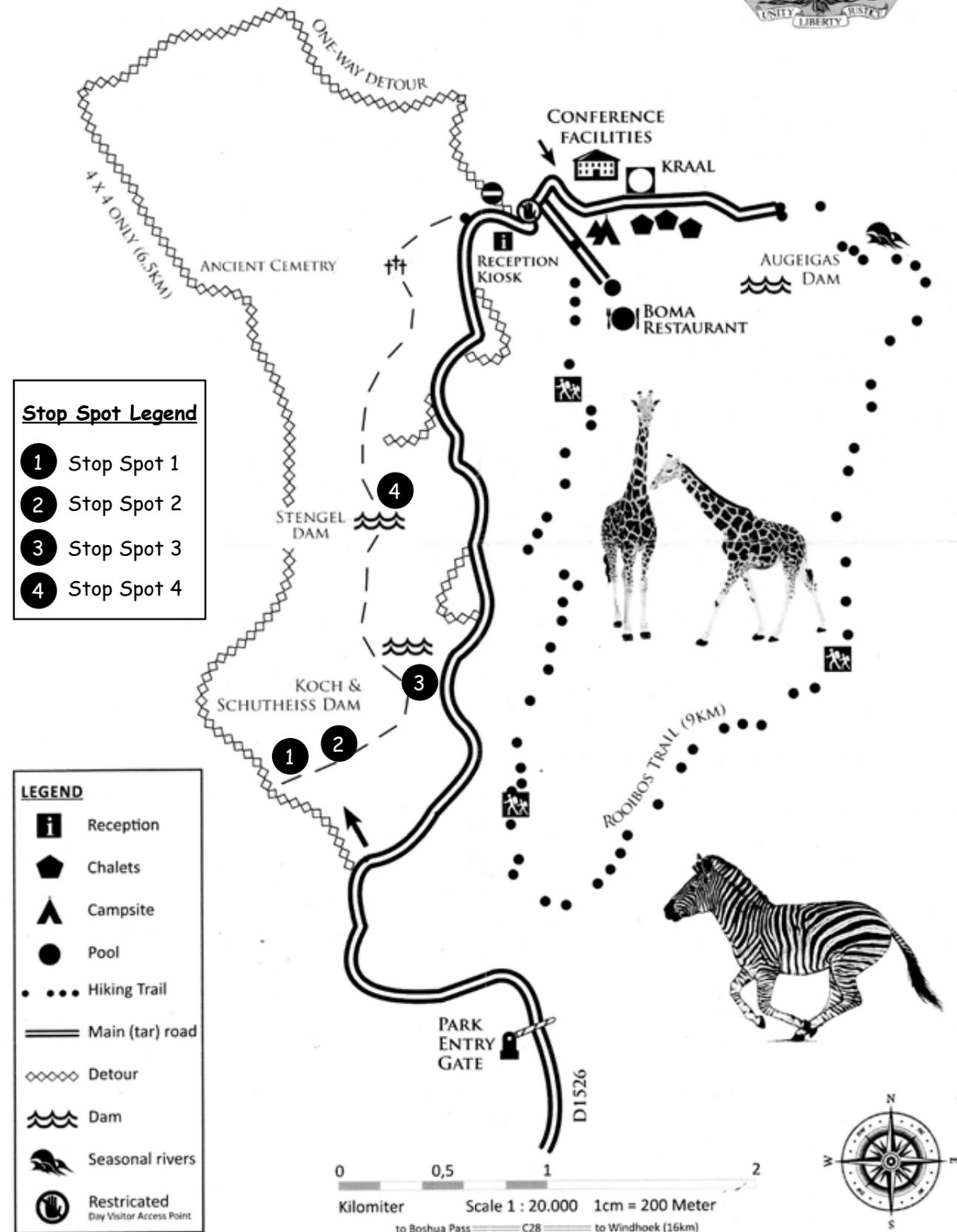
Giraffe Conservation Foundation
 PO Box 86099, Eros, Namibia
info@giraffeconservation.org
<https://giraffeconservation.org>

This programme is supported by



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

DAAN VILJOEN VISITORS MAP



- Stop Spot Legend**
- 1 Stop Spot 1
 - 2 Stop Spot 2
 - 3 Stop Spot 3
 - 4 Stop Spot 4

- LEGEND**
- Reception
 - Chalets
 - Campsite
 - Pool
 - Hiking Trail
 - Main (tar) road
 - Detour
 - Dam
 - Seasonal rivers
 - Restrictated Day Visitor Access Point

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 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.

BUSH SCHOOL RULES



Rule 1

NO LITTERING

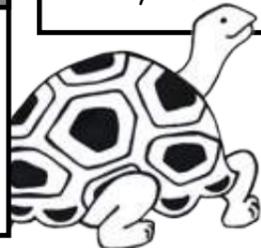
We do not leave a mess when we visit other people's homes. So, clean up after yourself! While we are on our walk, make sure that you put your litter safely in your pocket, or in the rubbish bag that we will have with us.



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

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 creatures (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, 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.

Weather tells us what is happening in the atmosphere in a short time, like in 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.

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

ANIMAL DETECTIVE



Use your KEEP Field Guide to help you.

LEGEND	
	Moon & Stars means these animals are <u>nocturnal</u> . They are active at night.
	Sun means these animals are <u>diurnal</u> . They are active during the day.
	Moon & Stars & Sun all together means these animals are <u>catheameral</u> . They are active both day and night.

SHHHH!!!

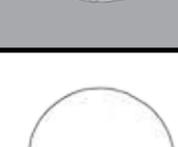
Use your bush voice and keep your eyes and ears sharp! You might get to see the animal you are tracking.

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 rolling bath.

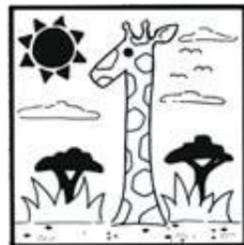
ANIMAL DETECTIVE CHECKLIST



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? _____ Herbivores are animals that only eat plants.
	HERBIVORE POOP <input type="checkbox"/> Whose is it? _____ You can learn a lot about which animals are in the area by the poop 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> .
	A VACHELLIA (ACACIA) TREE <input type="checkbox"/> Which one is it? _____ The giraffe's favourite food are Vachellia (Acacia) 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 DUST BATH <input type="checkbox"/> Whose is it? _____ Animals have dust baths to get rid of ticks and other parasites that live on their skin. If you look closely, you might even find some of the animal's hair that rolled in this dust bath.
	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.

ENVIRONMENT

What is an environment?



Wherever you are, everything that is around you is your environment. When you are at home, at school, or somewhere out in nature, these areas are your environments.

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

Inside an environment, there are many living, non-living and man-made things. How can you tell the difference? Well, it is easy when you know what to look for!



LIVING THINGS



GROW
Living things grow bigger in size, and many of them are able to fix themselves when they are injured. Think of a scab on your knee!

REPRODUCE
All living things are able to make new life (reproduce). Humans and animals give birth to babies, other creatures lay eggs in a nest or in the water, and plants grow again from the seeds they make. Life can only come from life!

ARE MADE OF CELLS
Some living things have lots of cells, and others have less. All these different cells do different jobs and they all work together to keep us alive! For example, your white blood cells fight off infections, and your red blood cells carry oxygen to your whole body.

EAT FOOD TO GET ENERGY
All living things need food. Food is the fuel that keeps you alive. Healthy food protects you from sickness, it makes your body strong and healthy, and it gives you energy so that you can play and learn. **Did you know** that you need energy to breathe, think, and even poop?

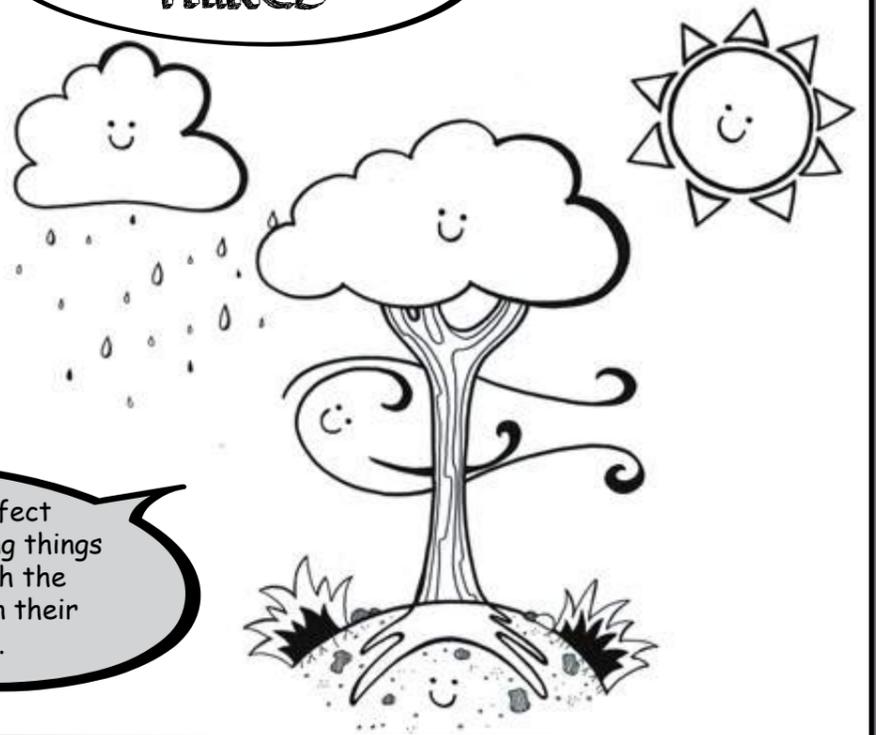
ADAPT
Living things are able to change (adapt) something about themselves when their environment changes. These changes (adaptations) help them to survive healthily and happily. Some of these changes take a short time. For example, many animals grow thicker fur to keep themselves warm during the cold winter period. Other changes take a much longer time. For example, it took a very long time for giraffe's necks to become as long as they are today. Have you seen a giraffe's long neck? This change took millions of years to happen!

NON-LIVING THINGS

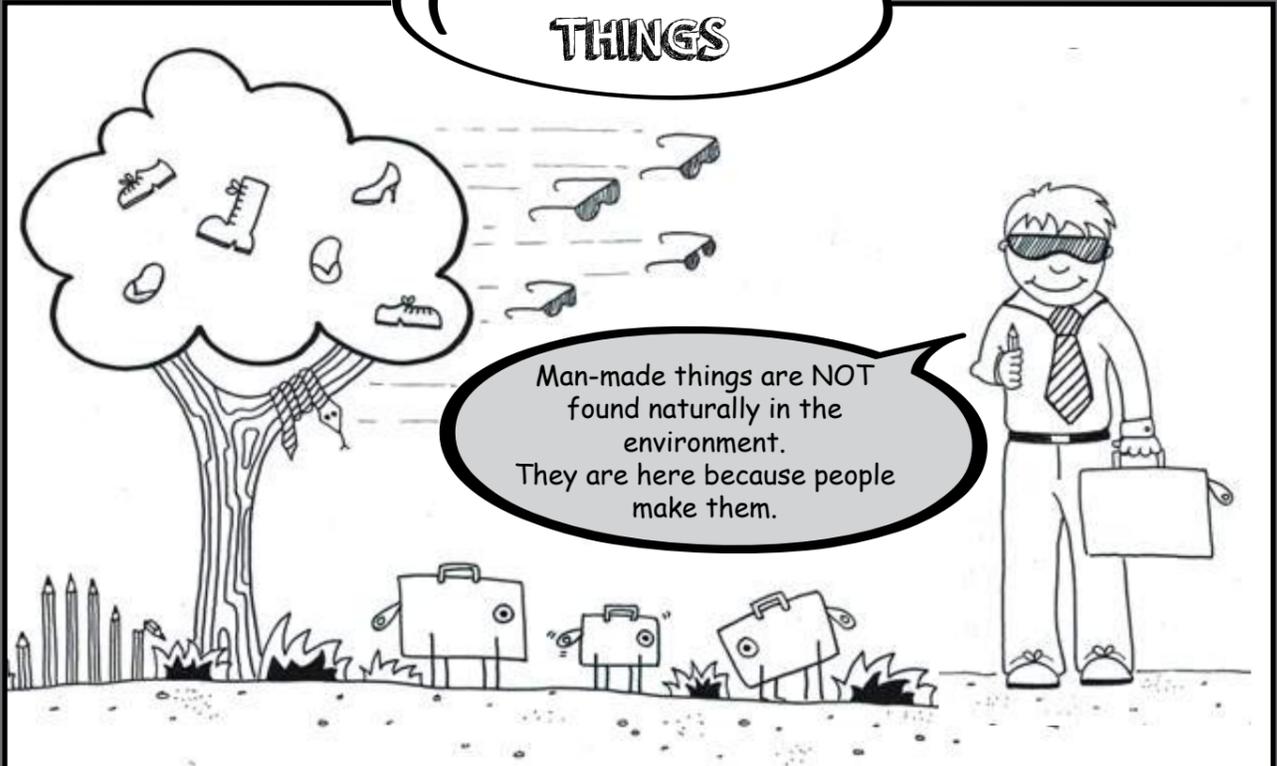
We find non-living things naturally in the environment, but they do not grow, they are not made of cells, they do not eat, they cannot make new life (reproduce), and they do not need to adapt.

All living things need non-living things to survive! Think of a tree...

Plants are a perfect example of how living things join together with the non-living things in their environment.



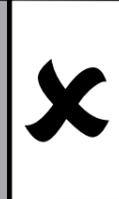
MAN-MADE THINGS



Man-made things are NOT found naturally in the environment. They are here because people make them.



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.

Write about what you have seen.

Draw what you have seen. You can do this in your free time.

Sunlight



Water



Air



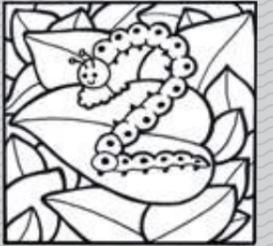
Food



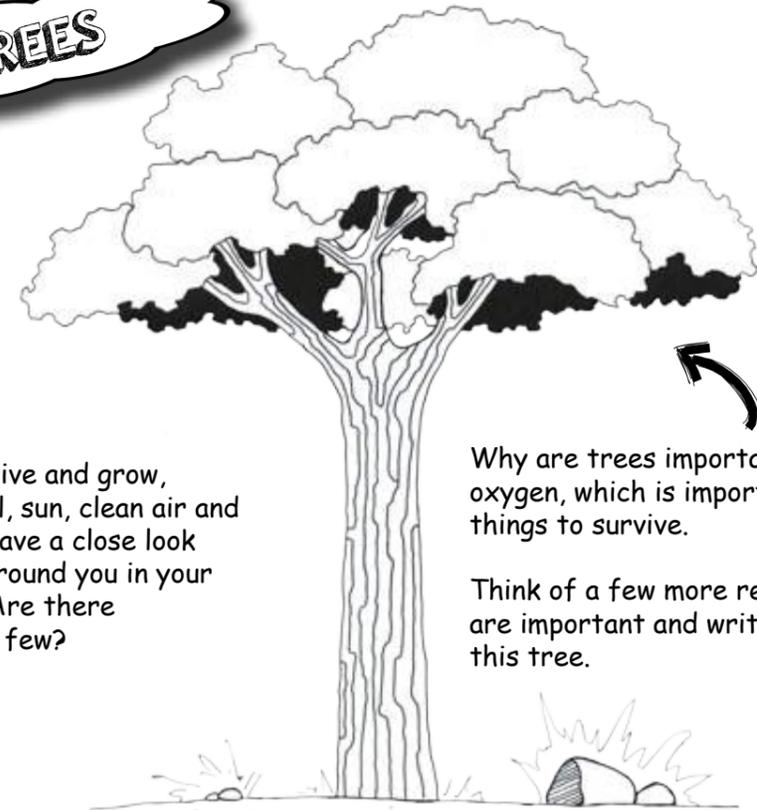
Home



PLANTS



TREES

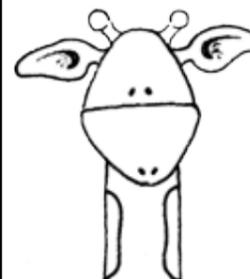


To be able to live and grow, trees need soil, sun, clean air and clean water. Have a close look at the trees around you in your environment. Are there many or only a few?

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 down in this tree.

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.

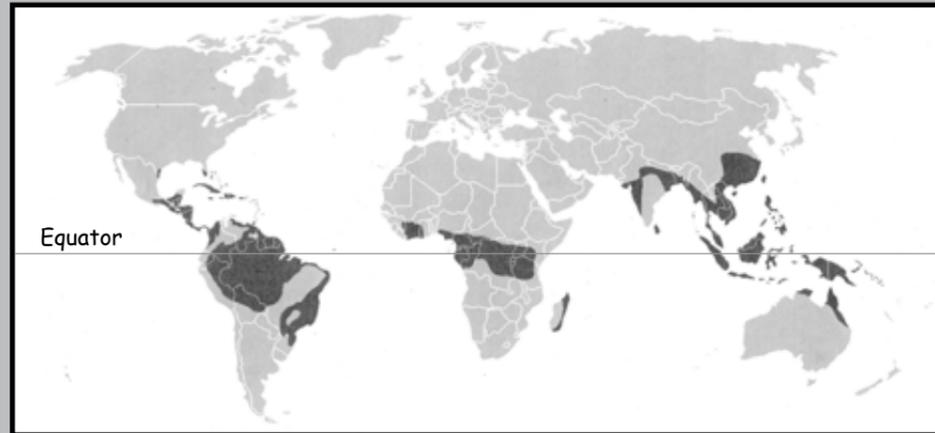


If you want to grow more trees and plants at home or at school, choose plants that belong to Namibia! Also, choose the Namibian trees and plants that have fruit in the summer to attract more birds to the garden.



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 50% of the Earth's plants and creatures.
-  Rainforests provide 20% of the Earth's oxygen.

DID YOU KNOW?

 Rainforests are disappearing fast. Every second, a piece of rainforest almost the size of a soccer field disappears.

 Rainforests are disappearing because their trees are being cleared for crop and cattle farms, and their trees are being chopped down to use for building and furniture.

 In 1940, rainforests covered 15% of the Earth's surface. Today, they cover only 7%.

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 and vegetables, and meat. Baboons are also omnivores - they eat plants and meat. Not everything we eat is good for us! 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, of course, 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. 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 us a healthy and delicious lunchtime meal. The main meal must be a potjie (pot stew). For all the foods you are going to use in your potjie, draw arrows from them into the potjie pot.



Look at the picture again, and draw a circle around all the healthy foods you can use to make a dessert for us to eat after our lunch. Choose only the healthy foods that are full of nutrients - pick your ingredients carefully.

You cannot live only on lollipops, biscuits and sweets.

FOOD CHAIN

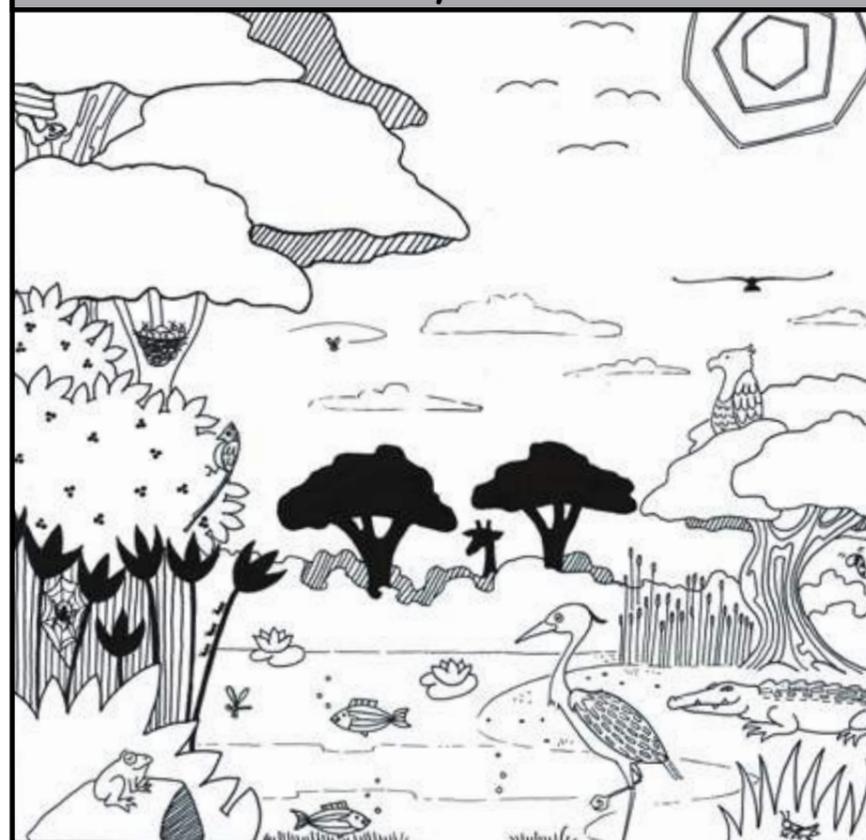
Where do you get your energy from? In nature, it works the same way.

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 below. Let us build a few food chains together. Write each food chain you find on the lines next to the drawing.



LITTER

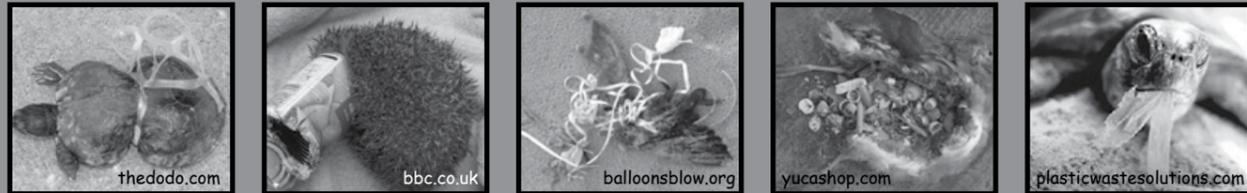


Litter is man-made rubbish that has been dumped or left in a place where it does not belong.

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 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 as well as all the insects and beetles that live on or in the ground.



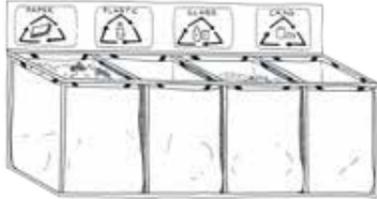
Even though it is important to throw your rubbish in a bin, did you know that there are other things you can do. You can also

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?

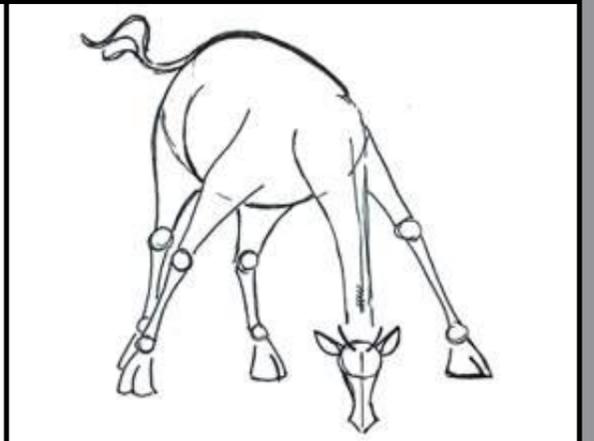


WATER



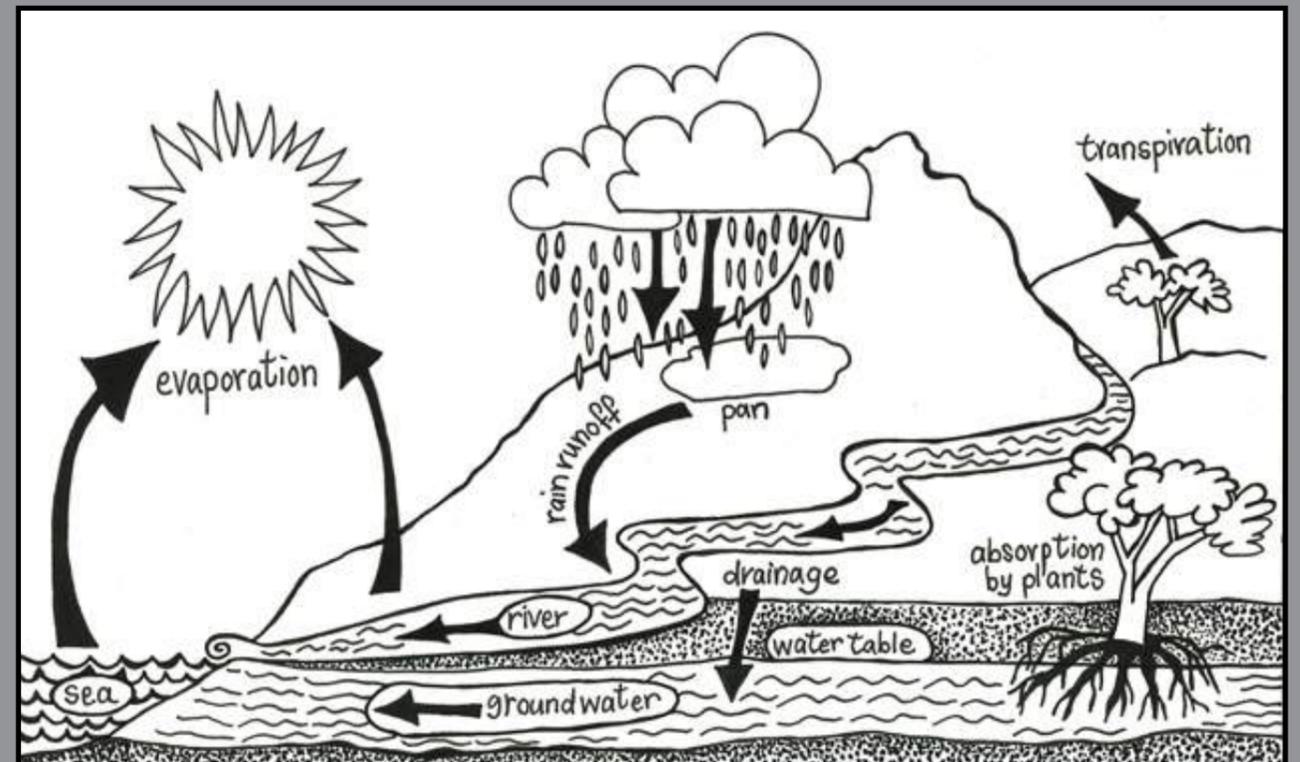

All living things need water to live.

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 poop is dry and made up of lots of really small pellets. This is because they do not waste any water.

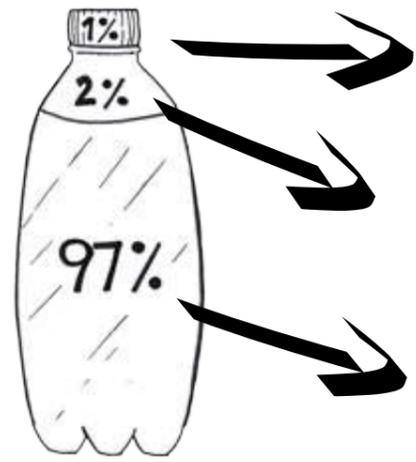


WHERE DOES WATER COME FROM?

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. So, imagine, you could be drinking the same water that dinosaurs drank!



WATER ON EARTH



1% of the water on the planet is there 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 and polar bears live.

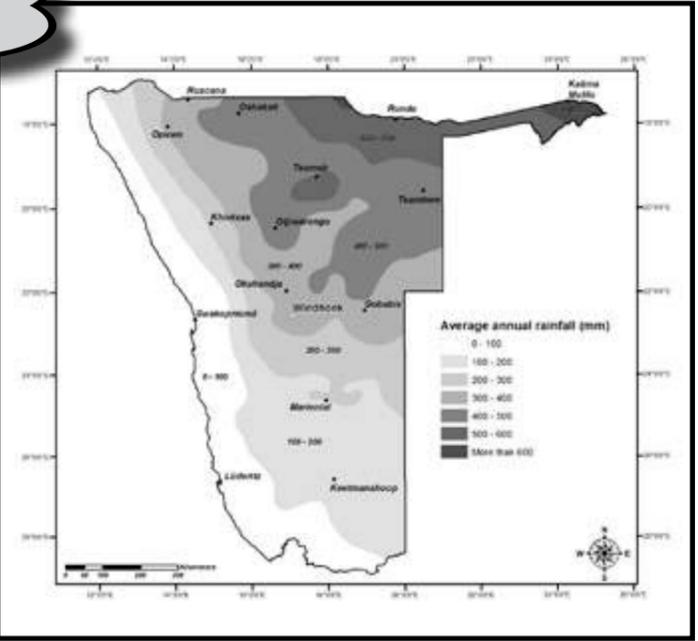
97% of the water on the planet is in the oceans. Can we drink this water? No, of course not, sea water is salty!

RAIN IN NAMIBIA

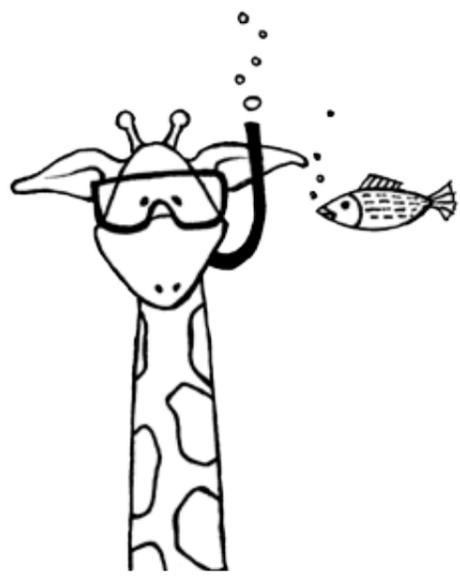
Some countries get more rain than others. Also, the rain inside one country does not always fall evenly. Think about Namibia - are some areas drier than others?

Which area gets the most rain in Namibia?

Which area gets the least rain in Namibia?



Data: Atlas of Namibia/map: SASSCAL



SAVE our 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.

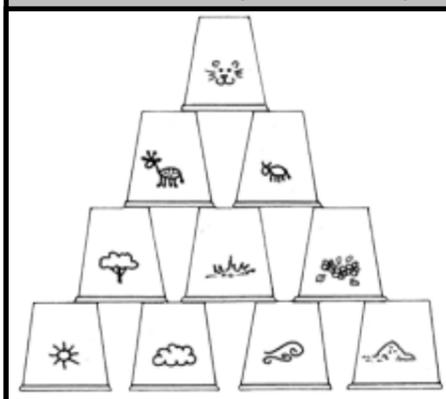
When a group of different living things live together with non-living things in an environment, this is known as an ecosystem. In a community, everything is connected because they all need each other to survive. An ecosystem works the same way as a community.

Remember, everything is important to something or someone!

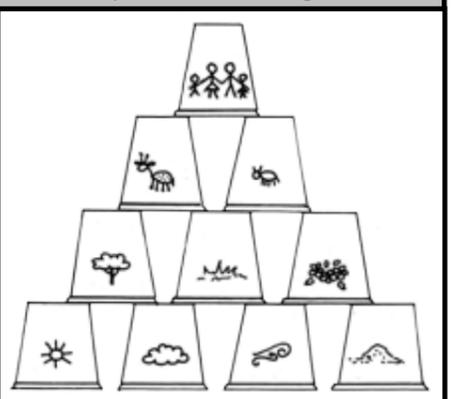


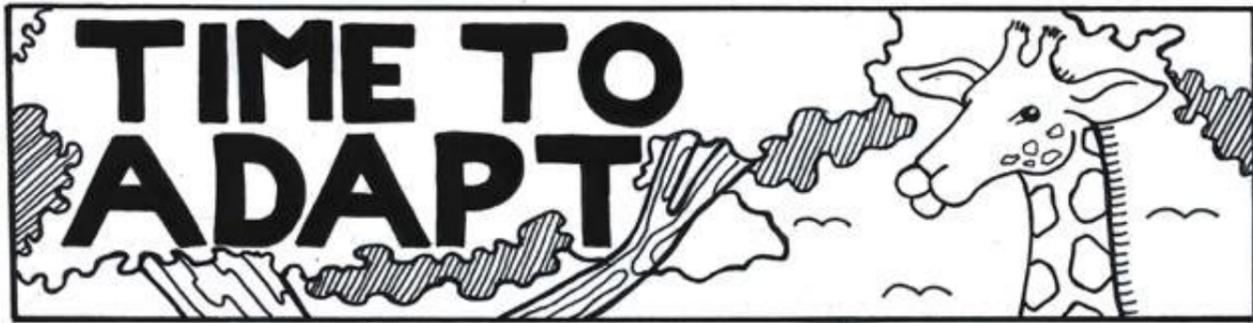
KEEP our ecosystems healthy!

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 -

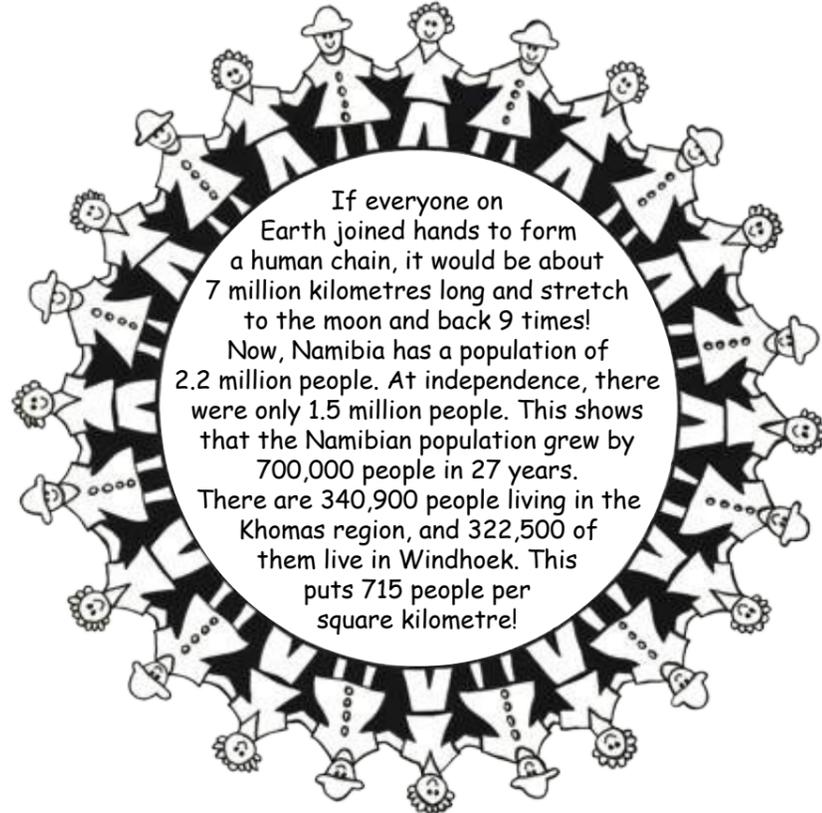


they become endangered. And sometimes, certain species die out completely - they become extinct. Whatever we do to nature, we also do to ourselves. For humans, this change of balance can lead to a shortage of our five basic needs, which can also make us sick.





THERE ARE 7.4 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 2.2 million people. At independence, there were only 1.5 million people. This shows that the Namibian population grew by 700,000 people in 27 years. There are 340,900 people living in the Khomas region, and 322,500 of them live in Windhoek. This puts 715 people per square kilometre!

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	



LET'S MEET ALL THE GIRAFFE

There are 4 different kinds of giraffe - they are known as **species**. They are the Northern giraffe, the Southern giraffe, the Reticulated giraffe, and the Masai giraffe. The Northern and Southern giraffe have relatives - they are known as **subspecies**.

FAMILY TREE

SPECIES	SUBSPECIES
Northern giraffe	Kordofan giraffe Nubian giraffe West African giraffe
Southern giraffe	Angolan giraffe South African 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 actually look different?

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**.

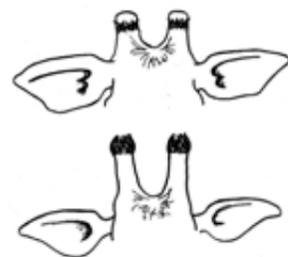
Giraffe can **run up to 50 kilometres an hour!** This is as fast as a horse galloping at full speed.

Giraffe usually have a lot of **ticks living on them**. And 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.

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**.

Giraffe like to browse on different kinds of trees. **Camel-thorn trees** are by far their favourite!



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

A giraffe can eat up to **70 kilograms of food in a day**, but only **poops 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!

ARE GIRAFFE ALWAYS HAPPY AND SAFE?

There is a list (IUCN Redlist) of animals all around the world that are in trouble. On this list, giraffe are listed as **vulnerable** - which means they are in danger of dying out.

Many years ago, giraffe lived all over Africa and there were more than 1 million of them. Today, there are fewer giraffe and they can only be found in small population groups across the African continent.

There are less than 100,000 giraffe left in the whole of Africa. 30 years ago, there were more than 150,000 of them.



THEIR BIGGEST THREATS ARE:

Losing their homes

This means that the areas that were perfect for giraffe to live have been lost because, now, humans live there instead.

Running out of space

This means that once upon a time giraffe could walk freely over long distances, but now they only have small islands of nature to live in.

More and more people

There are more and more people living in the world, especially in Africa. People need more and more space to live and grow food. And because people need more space to live and grow food, the space for wild animals gets smaller and smaller.

Poaching

There is a lot of meat on a giraffe, and they are easy to hunt. Imagine how many people you could feed from the meat of one single giraffe. But if everyone hunted giraffe, there would very quickly be none of them left.

LET US
CELEBRATE GIRAFFE!

21 JUNE IS
WORLD GIRAFFE DAY

GET CREATIVE AND CELEBRATE IN YOUR CLASSROOM

There are many ways you and your class can celebrate the World's Tallest Animal

BE A GIRAFFE FOR THE DAY

You can photo-copy or redraw the Giraffe Mask on page 32 on to another piece of paper. You can then cut it out and colour it in.

Lopie lives in Namibia, so he is an Angolan giraffe - a subspecies of the Southern giraffe.

Which giraffe **species** or **subspecies** will you be? _____

DRAW YOUR OWN GIRAFFE

Page 30 shows you how to do this. Also, your whole class could create a herd of giraffe, which you could arrange and stick on a wall somewhere in your school for everyone to see.

Check towards the back of your workbook for some more great ideas. All of the fun art is available to download on the GCF Website: <https://giraffeconservation.org>

HAVE A POSTER DRAWING COMPETITION

What do you like most about what giraffe do - is it

how they look when they run, how they stretch their necks to eat, or the way they drink water? This is one idea for the poster competition. Ask your teacher to help you organise the competition.

YOU CAN TEACH OTHERS

You can help other people to understand about protecting the environment and saving giraffe by sharing what you know with them. Also, you can get your class, your school, and your family and community to take part in learning about giraffe in any way you can think of.

SHARE FUN GIRAFFE PICTURES WITH US

A giraffe's tongue can be as long as 50 centimetres?

Send us a picture of how far you and your friends can stick out your tongues.

Have you ever seen a giraffe drinking?

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.

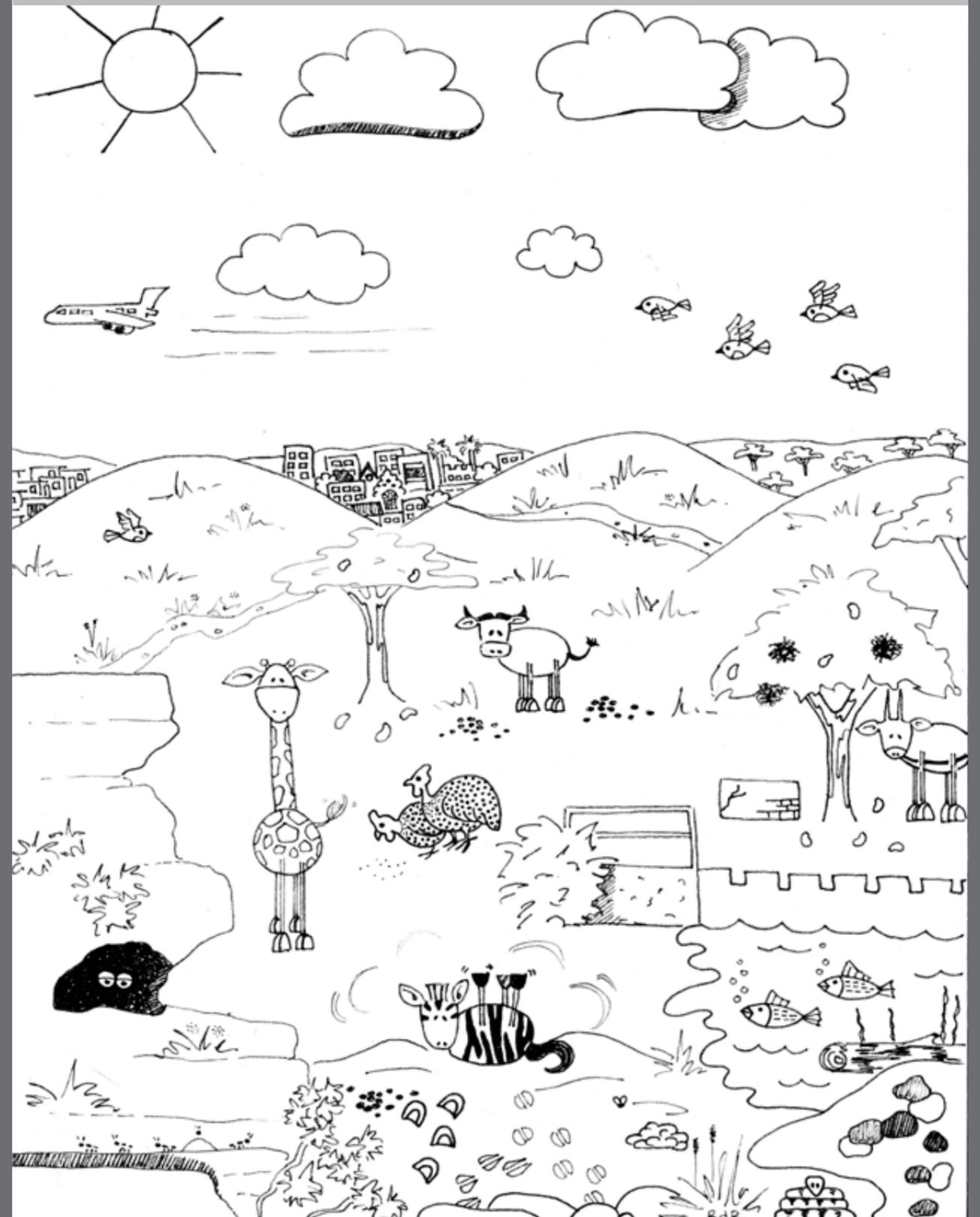


Share your World Giraffe Day fun with us on our Facebook page: (www.facebook.com/giraffeconservationfoundation) or (www.facebook.com/worldgiraffeday)

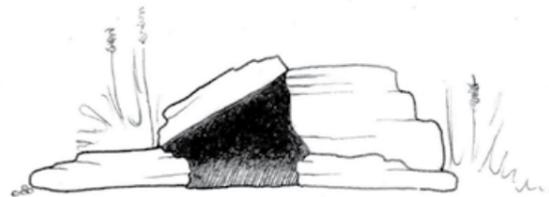
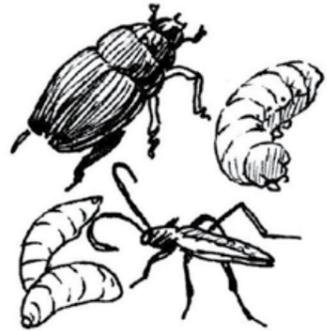
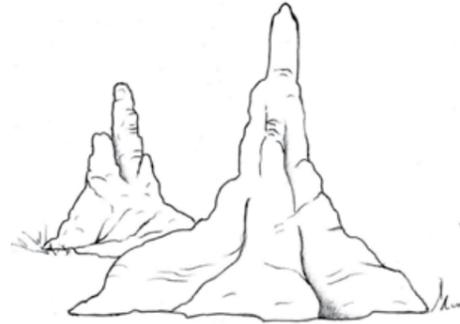
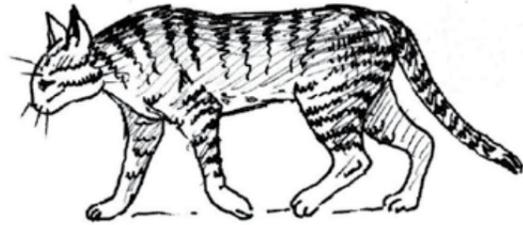
FUN THINGS

to do at
home

COLOUR IN Lopie and his friends in the Daan Viljoen Game Reserve.



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



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

WASTE WATCH WORD SEARCH

ANIMALS
BALLOONS
BUBBLEGUM
CAN
CIGARETTE BUTT

ENVIRONMENT
GLASS
LITTER
PAPER
PLASTIC

POISON
POLLUTION
RECYCLE
REDUCE
REUSE

RUBBISH
SUSTAINABLE
WILDLIFE

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	N	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



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:

Hint: There are 60 minutes in an hour

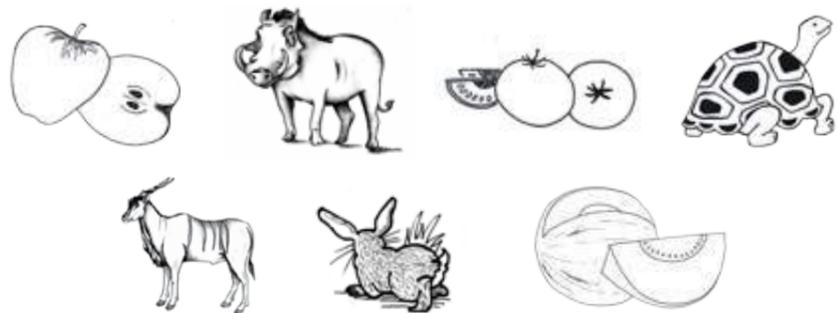
Hint: There are 24 hours in a day

1 Hour? _____

1 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.



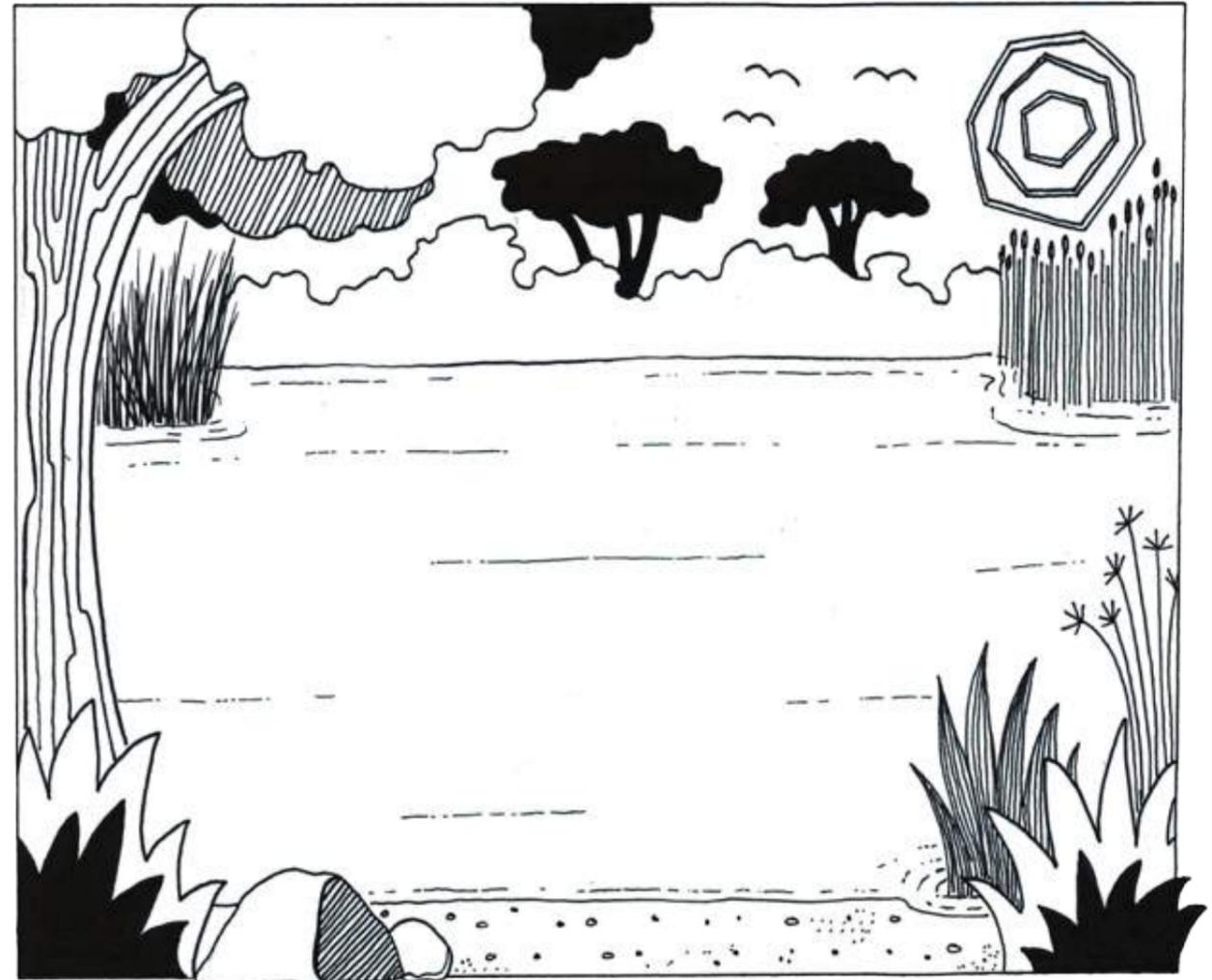
	W	A	T	E	R
Wild Animals		Aardvark			
Fruit or Vegetables				Eggplant	Raisin

WATER-LIVING CREATURES

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

For each animal that lives some or all of the time in water, draw an arrow from it to the bottom edge of the river.

If you want to, you can draw the animals in or on top of the water and colour the whole picture in.



Guineafowl

Warthog

Frog

Hippo

Duck

Tadpole

Fish

Tortoise

Crocodile

INQUIZITIVE GIRAFFE

WHAT IS WHAT?

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

a) Nocturnal

b) Diurnal

c) 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

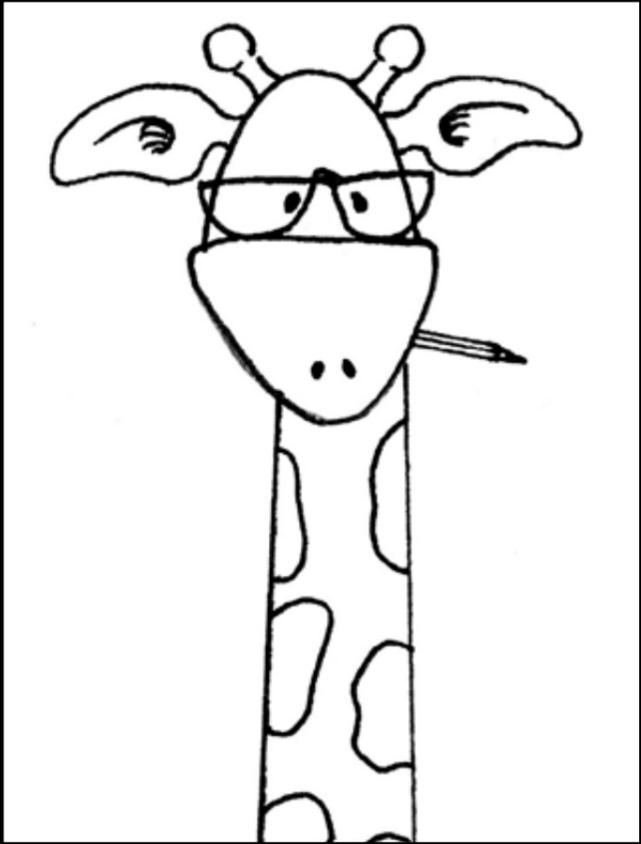
c) Tongues

8. How are giraffe listed in the IUCN Redlist for animals that are in trouble?

a) Least Concern

b) Vulnerable

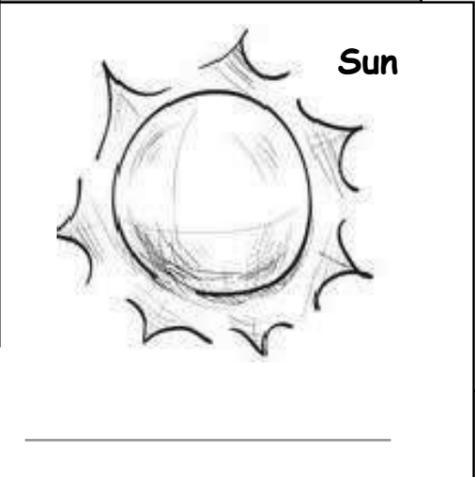
c) Endangered



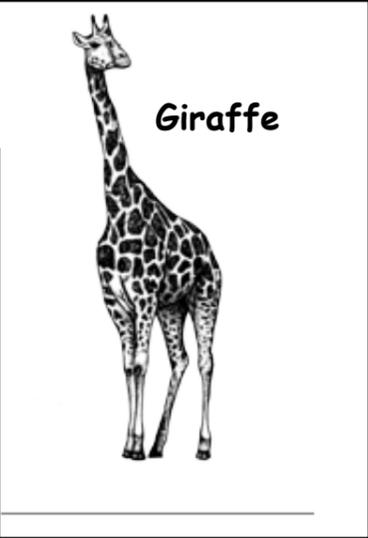
Identify which of these pictures is living, non-living or man-made. Write your answer for each picture on the line underneath it.



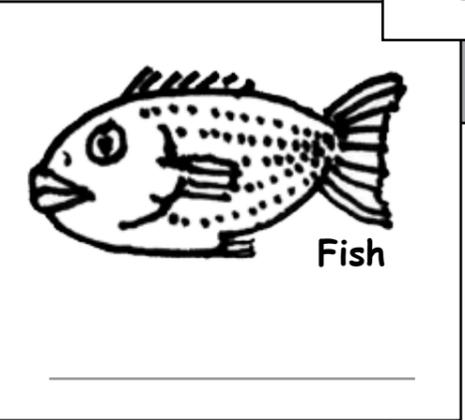
Bee



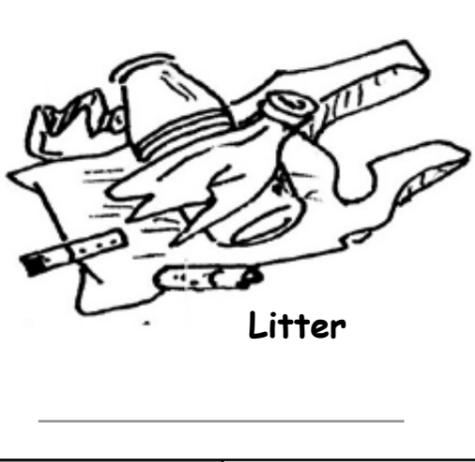
Sun



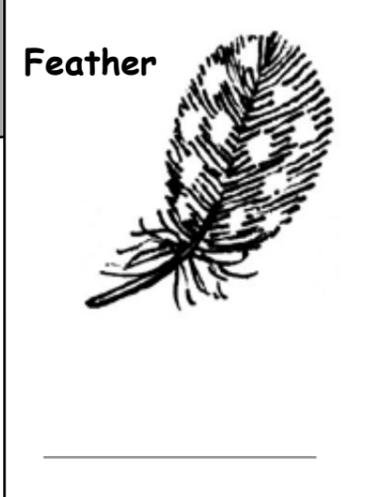
Giraffe



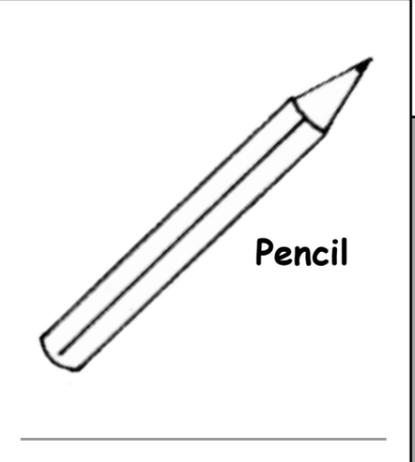
Fish



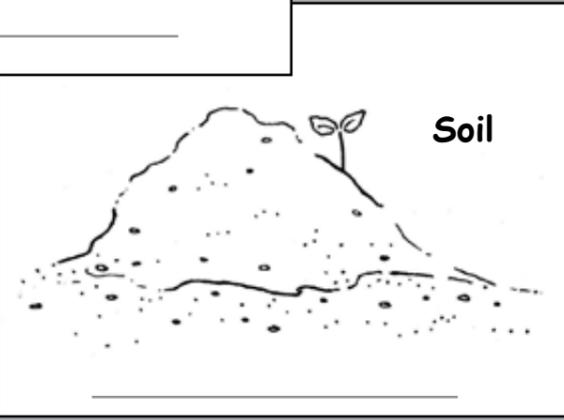
Litter



Feather



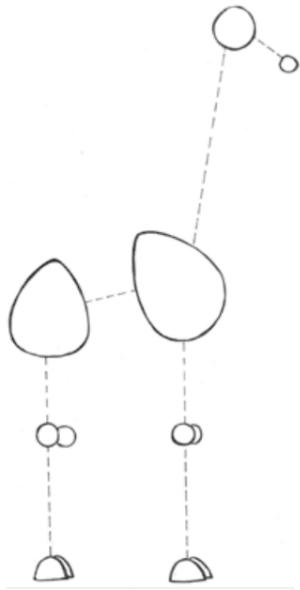
Pencil



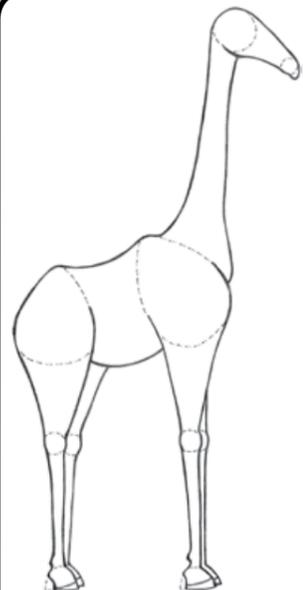
Soil

Answers: Bee → LIVING, Sun → NON-LIVING, Giraffe → LIVING, Fish → LIVING, Litter → MAN-MADE, Feather → NON-LIVING, Pencil → MAN-MADE, Soil → NON-LIVING

LEARN HOW TO DRAW A GIRAFFE!

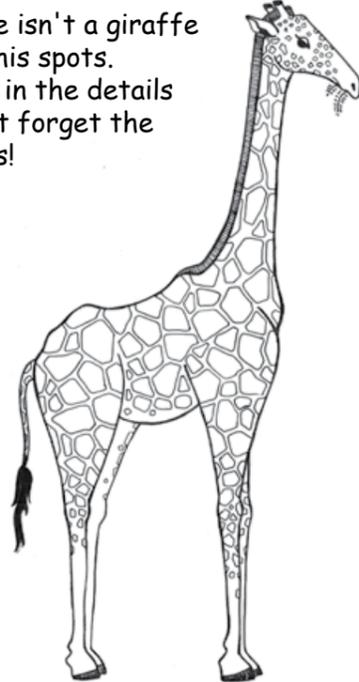


First, draw these basic shapes and the dotted lines between them. Remember to do them softly in pencil so you can rub them out later.



Now let's draw around the shapes to get the outline of our giraffe. Take your time, there is no rush!

A giraffe isn't a giraffe without his spots. Let's fill in the details and don't forget the ossicones!



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

DRAW YOUR ENVIRONMENT

An environment is everything around us. It includes all living, non-living and man-made things.

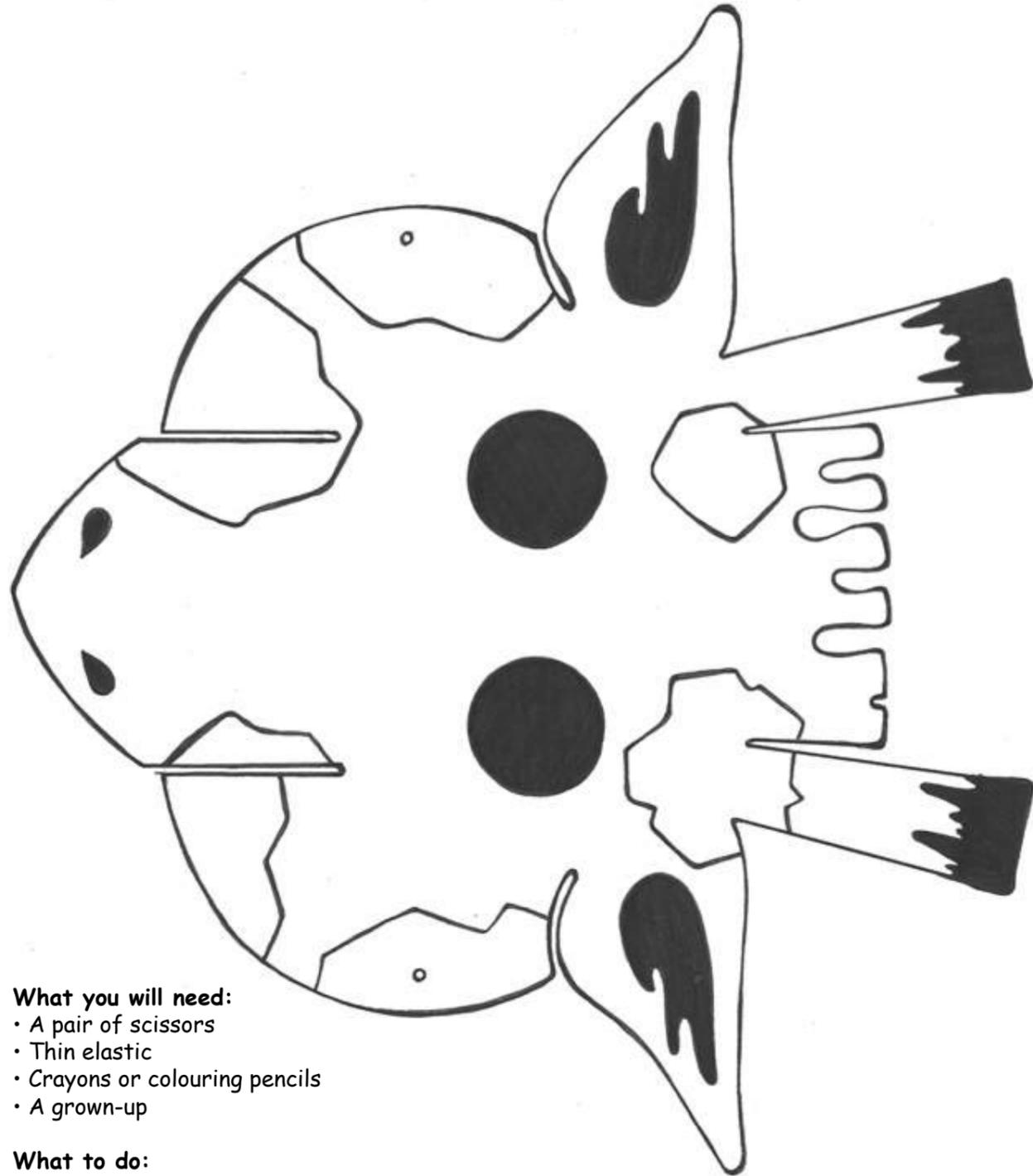
Your environment can be the school environment, home environment and, of course, the natural environment.

Tip:

Try to use all your senses to notice what is around you.

BE A GIRAFFE FOR THE DAY

MAKE A GIRAFFE MASK



What you will need:

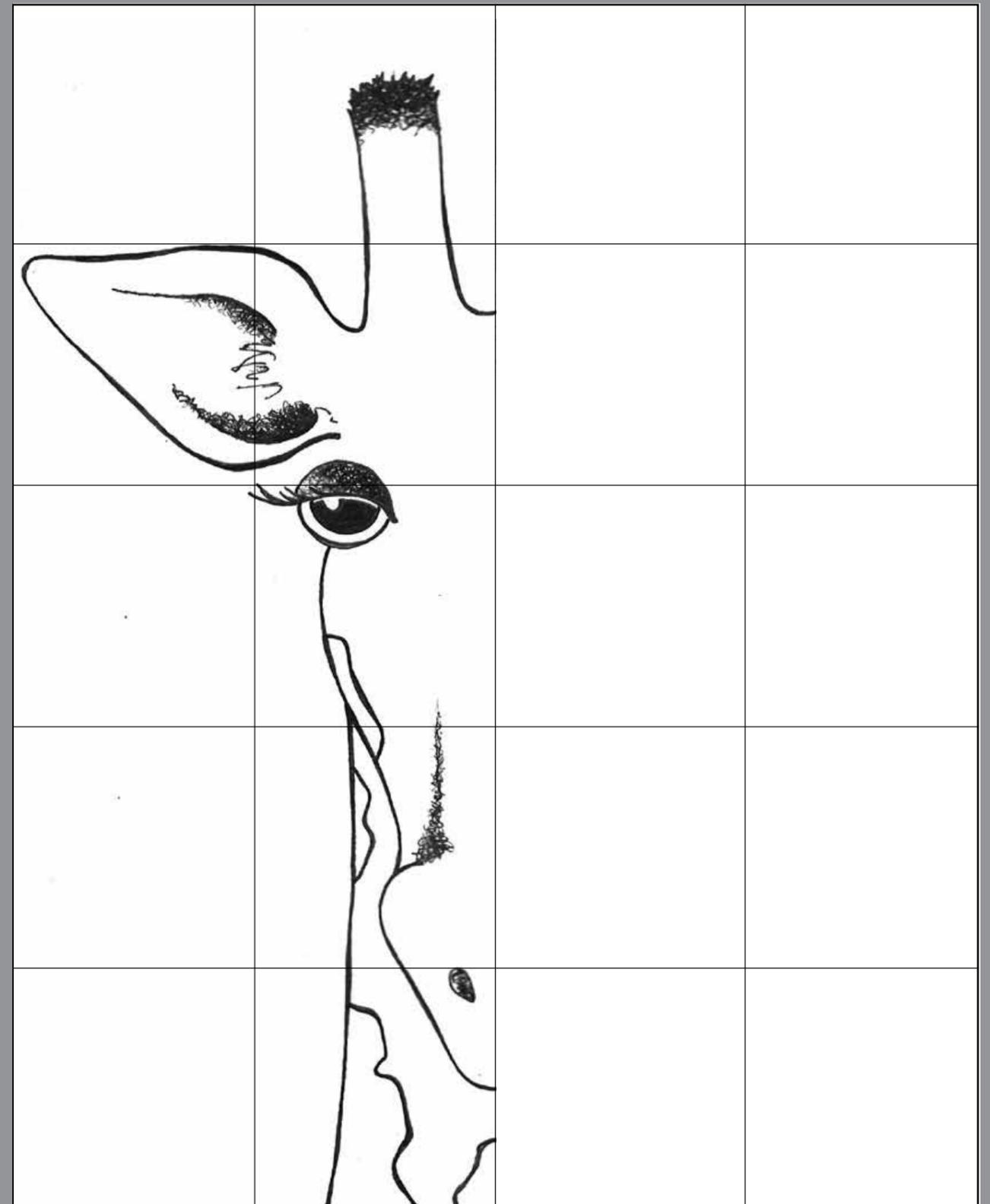
- A pair of scissors
- Thin elastic
- Crayons or colouring pencils
- A grown-up

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 Acacia which we now call Vachellia . The grandest of trees home to so many, like birds and the bees.
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 as they zoom, 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!

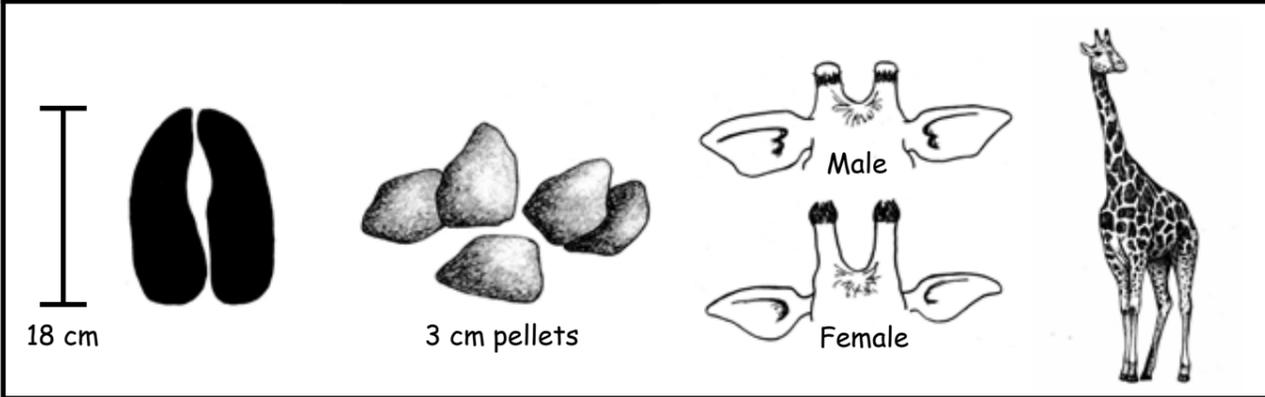
As Lopie slipped quietly away, he thought how lovely it must be to be a young chick.

Now, this story has a lesson... Have you spotted it yet?

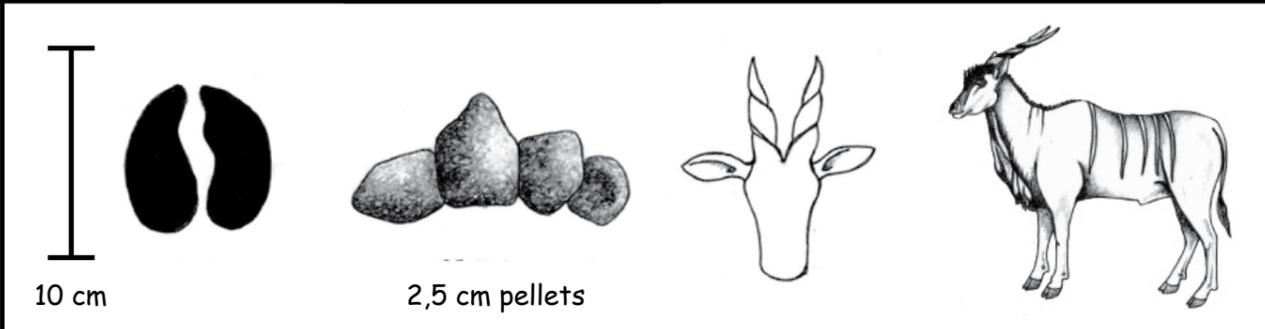
We are all part of nature. We are family, we are friends, and we are in it together, from insects to mammals no matter the weather. Look after your environment, not just for you and for me, but for those little chicks too, high up in the tree.

FIELD GUIDE

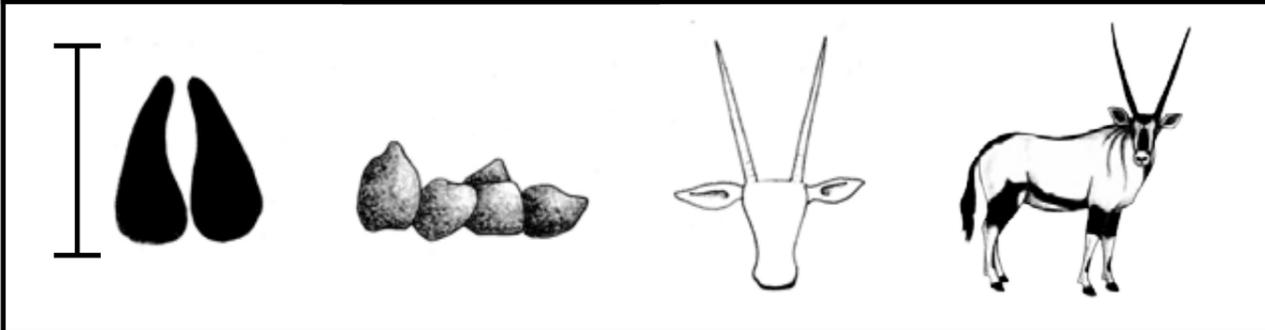
ANGOLAN GIRAFFE  *Giraffa giraffa angolensis*
HERBIVORE - Browsers (trees)



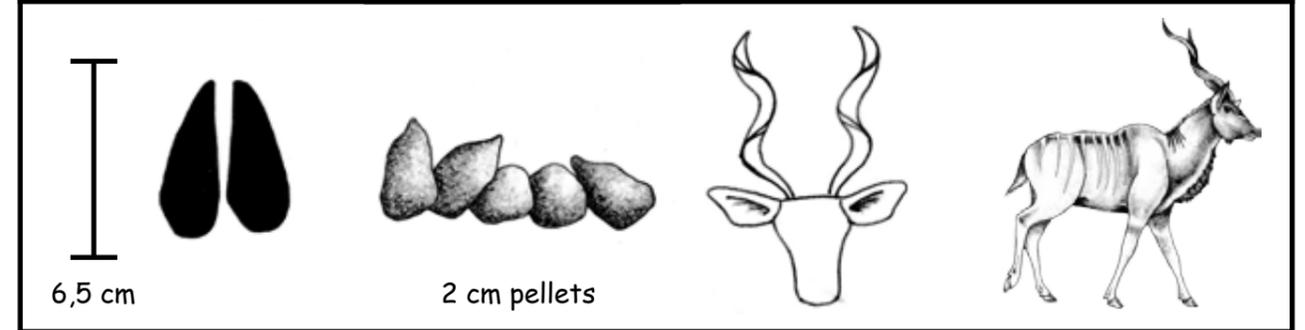
ELAND  *Tragelaphus oryx*
HERBIVORE - Grazers and browsers (trees and grass), and also digs for bulbs and eats fruit.



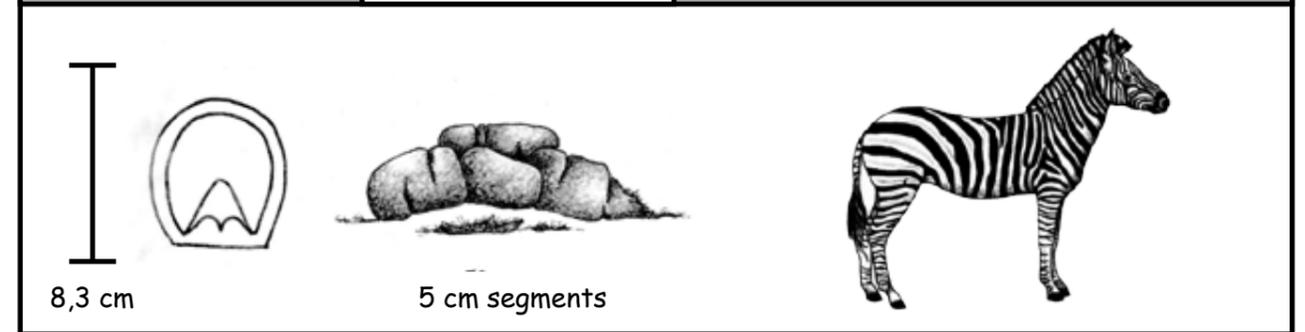
ORYX  *Oryx gazella*
HERBIVORE - Grazers and occasionally browsers (seeds, pods and fruits), and also sometimes dig for bulbs and roots.



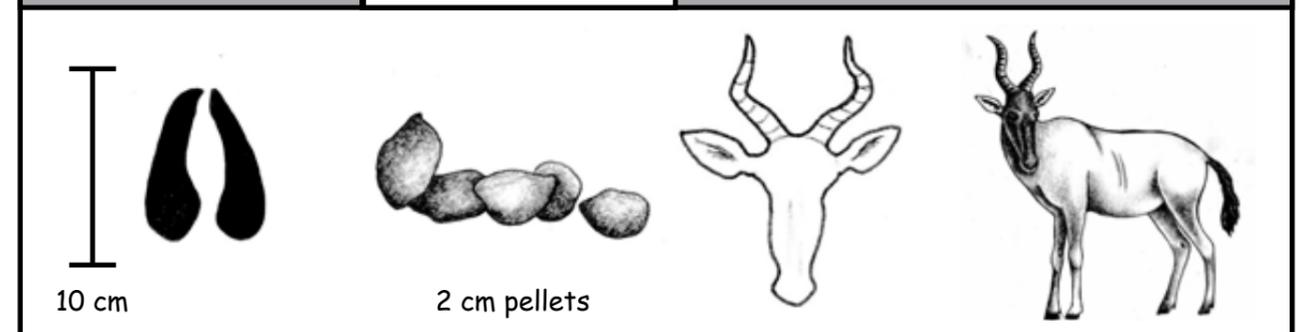
KUDU  *Tragelaphus strepsiceros*
HERBIVORE - Browsers (trees and bushes)



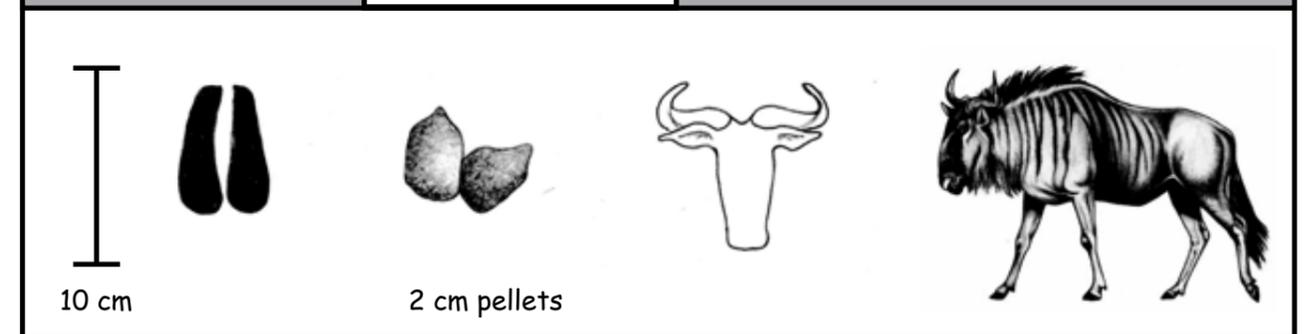
HARTMANN'S ZEBRA  *Equus zebra hartmannae*
HERBIVORE - Grazers (grass)

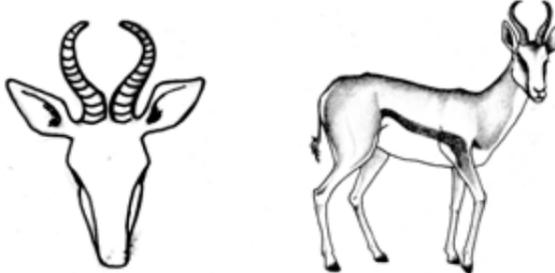


HARTEBEEST  *Alcelaphus buselaphus*
HERBIVORE - Grazers (grass)



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

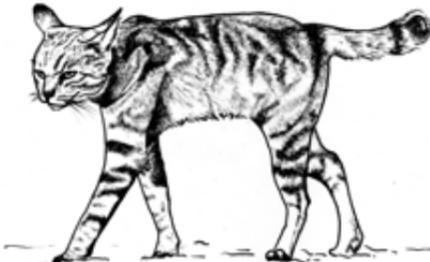


SPRINGBOK		<i>Antidorcas marsupialis</i> HERBIVORE - Grazers (grass) and browsers (trees), but will also dig for roots and bulbs.
 5,4 cm	 1,2 cm	

STEENBOK		<i>Raphicerus campestris</i> HERBIVORE - Browsers (seeds, pods and fruits), and also sometimes dig for bulbs and roots.
 3,8 cm	 1 cm pellets	

BABOON		<i>Papio cynocephalus</i> OMNIVORE - Flowers, seeds, bark, insects, scorpions, mice and reptiles.
 14 cm	 Segments	

WARTHOG		<i>Phacochoerus africanus</i> HERBIVORE - Grazers (short grasses and roots).
 4,5 cm	 5 cm segments	

AFRICAN WILD CAT		<i>Felis silvestris</i> CARNIVORE - Rodents, small mammals, birds, reptiles, amphibians and insects.
 3,6 cm	 1,2 - 1,5 cm segments (buried)	

LEOPARD		<i>Panthera pardus</i> CARNIVORE - Insects, rodents, birds and medium-sized antelope.
 7 - 9 cm	 2 - 3 cm segments	

BLACK-BACKED JACKAL		<i>Canis mesomelas</i> 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	

BROWN HYENA		<i>Parahyaena brunnea</i> OMNIVORE - Insects (termites), birds, rodents and fruit.
 8,5 cm	 2 - 3 cm segments	

CAPE PORCUPINE



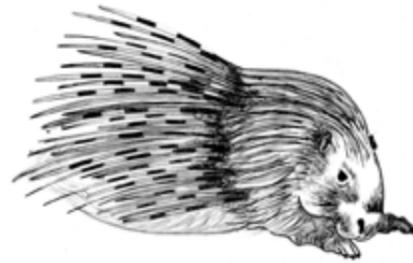
Hystrix africae australis
HERBIVORE - Roots, bulbs and bark, and they have been recorded to eat meat from dead animals.



7 - 8 cm



4 - 7 cm segments



HELMETED GUINEA FOWL



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



8 cm



2 - 3 cm tubes



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 camouflage themselves in the long grass or against rocks.



LONG-LEGGED DARKLING BEETLE

Stenocara dentata
DETritivORE - Darkling beetles feed on rotting plant and animal matter.



2.5 - 3.8 cm (whole beetle)

They also eat live plants, buds, fruit, fungi and seeds. 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 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.

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.

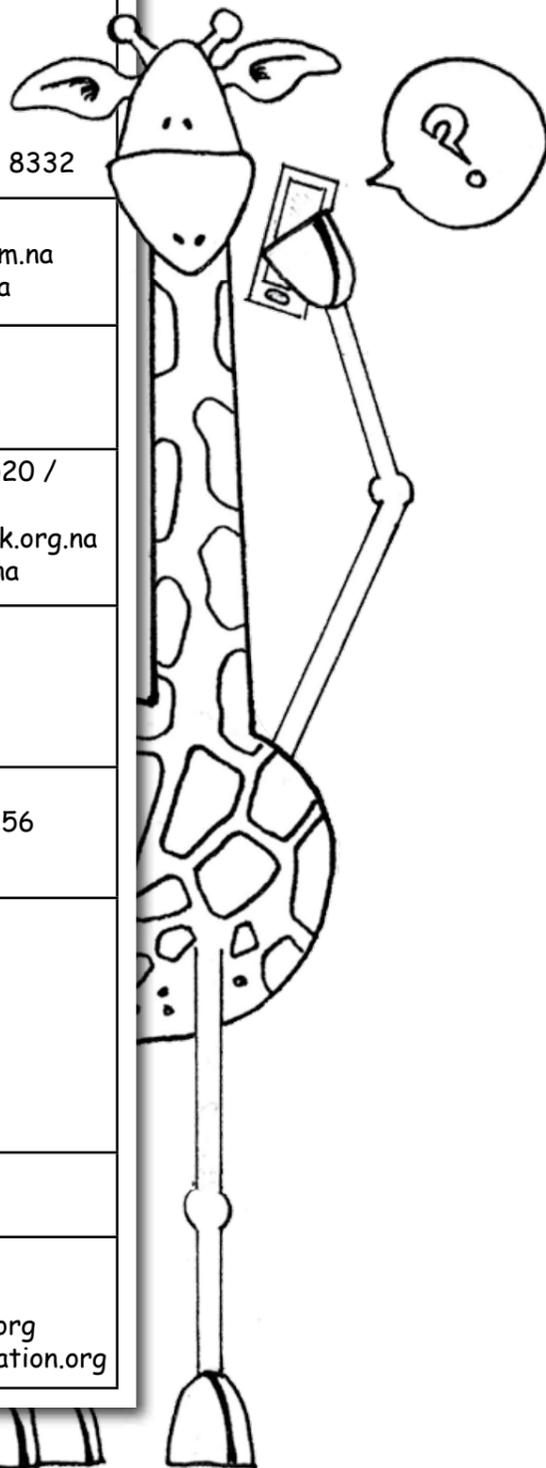


Atmosphere is the layer of gas that surrounds the Earth. It is often called air, and is made up of many gases like oxygen, nitrogen, <u>carbon dioxide</u> , argon and water vapour.
Carbon dioxide is a colourless gas that is important for life on Earth.
Carnivores are animals that only eat meat.
Cathemeral 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.
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.
Photosynthesis is the process through which plants use water and <u>carbon dioxide</u> 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 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.
Sustainable is to look after our water, plants, soil, animals and air carefully, so that they stay healthy for future generations of people to also use.
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?

USEFUL CONTACTS

CITY POLICE	Crime Prevention - Phone: 061-290 2239 / 061-290 2018 Ambulance, Accidents, Fire - Phone: 061-211 111
CITY OF WINDHOEK	Phone: 061-290 2690 Website: www.windhoekcc.org.na Water leaks and burst pipes: Phone: 061 250 084 After hours: 061 290 2423 To report water wasting: 081 122 8332
RENT-A-DRUM	Phone: 061-244 097 Email: reception@rent-a-drum.com.na Website: www.rent-a-drum.com.na
RECYCLE NAMIBIA FORUM	Phone: 061-238 919 Email: coordinator@rnf.com.na Website: www.rnf.com.na
SPCA WINDHOEK	Phone: 061-238 654 / 0811 244 520 / 061-225 715 Email: management@spcawindhoek.org.na Website: www.spcawindhoek.org.na
SNAKES OF NAMIBIA (If you have a snake in your house and need it removed)	Francois Theart Phone: 081 290 0343
NARREC (Namibia Animal Rehabilitation, Research and Education Centre)	Liz Komen Phone: 081 129 0565 / 061-264 256 Email: liz@narrec.fm
INJURED AND ABANDONED BIRD RESCUE (If you find an injured bird or abandoned baby bird in your garden or while travelling)	Sonja Michel Phone: 0811 49 2313
LIFELINE / CHIDLIN	Phone: 061-226 889 Email: admin@lifeline.org.na
GIRAFFE CONSERVATION FOUNDATION	Phone: 081 642 3271 WhatsApp: 081 6692666 Email: info@giraffeconservation.org Website: https://giraffeconservation.org



CERTIFICATE of PARTICIPATION

WELL DONE!!

This Certificate is awarded to

for the participation and completion of the

Khomas Environmental Education Programme (KEEP)



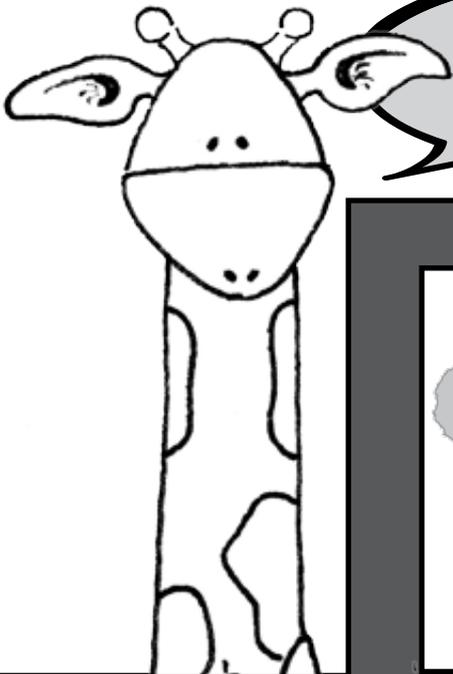
Date _____






FIELD NOTES





**Bye-bye,
see you next time!**



GCF

GIRAFFE CONSERVATION FOUNDATION