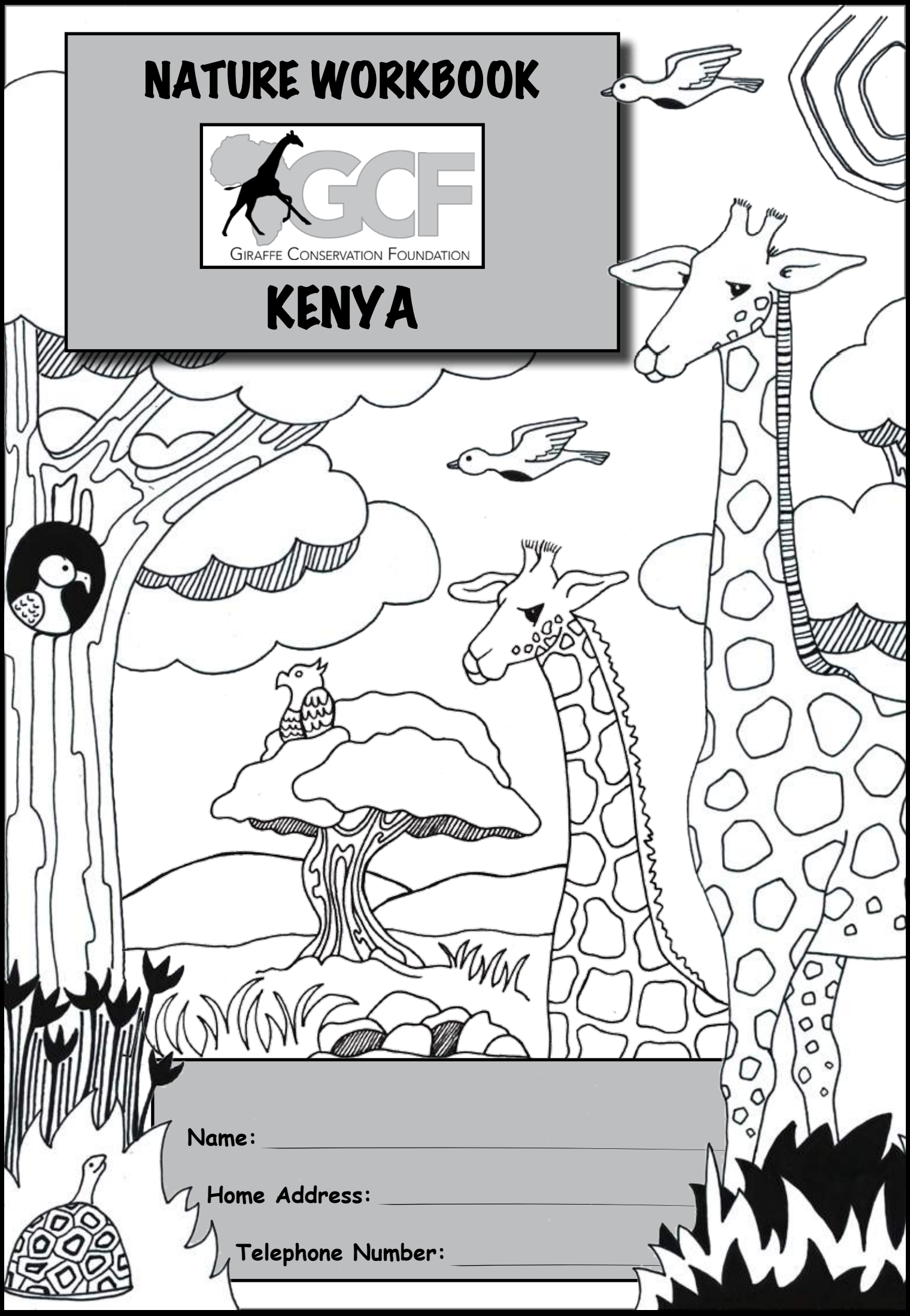
NATURE WORKBOOK

GCF

GIRAFFE CONSERVATION FOUNDATION

KENYA



Name: _____

Home Address: _____

Telephone Number: _____

GIRAFFE CONSERVATION FOUNDATION

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

This Nature Workbook was developed by the Giraffe Conservation Foundation (GCF) with input from Big Life Foundation and African Fund for Endangered Wildlife.

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Illustrations by Rachel du Raan. Contributions: Mel Futter (pages: 15 centre; 23) Marie Mott-Adams (pages: 11 centre; 13 bottom; 16 centre; 20; 36 giraffe on left; 39; 41 cheetah, wild dog, spotted hyena; 42 slender mongoose; 43; 45 baobab, desert date, sycamore fig; 46).

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Our National Parks and Nature Reserves are home to many wonderful living and non-living things, and you are just a visitor. And when you visit, there are a few rules you need to follow, just like at home and at school.

BUSH RULES

Rule 1

NO LITTERING

We do not leave a mess when we visit other people's homes. So, while you are visiting a natural environment (a National Park or a Nature Reserve) where wild animals live, it is very important that you take all your rubbish with you. Do not leave any of it behind. It does not belong in their environment.

Rule 2

DO NOT DISTURB OR KILL THE WILDLIFE

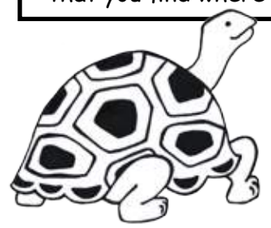
DO NOT BREAK OR DAMAGE PLANTS

Remember to be kind to all living things, big and small! Use a quiet bush voice. This way, you will not scare the birds and animals while you are visiting them.

Rule 3

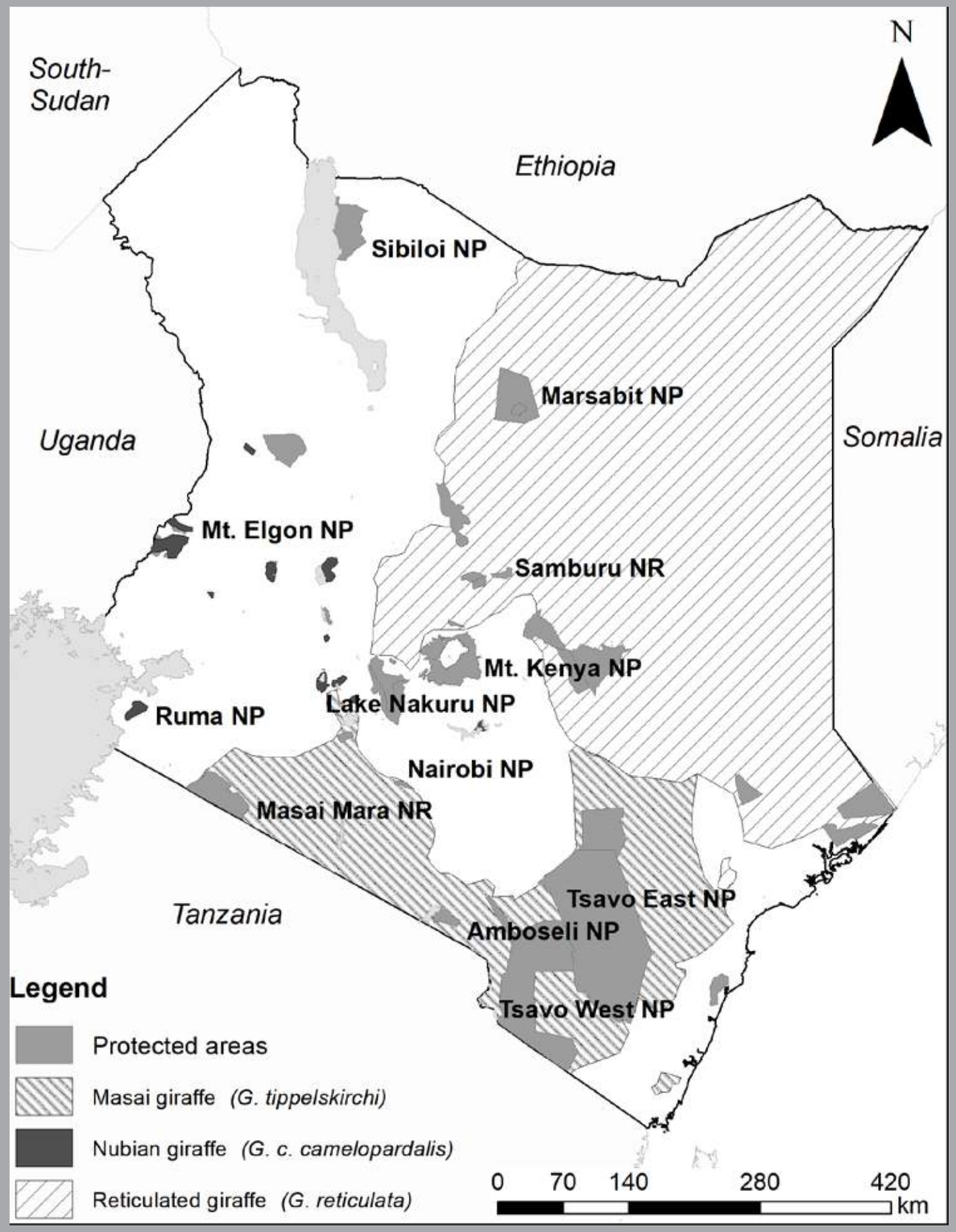
NO STEALING

You will find and see lots of interesting things out 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**

NATIONAL PARKS AND NATURE RESERVES



Flora and Fauna

These are the plants (flora) and the animals (fauna) that live in an area. Kenya has many different kinds of flora and fauna. An ecosystem is a community formed by flora and fauna inside their environment, and they all function together as a unit. In Kenya, there are different ecosystems and each ecosystem has different wildlife. Wildlife is the animals that are found in the wild – they have not been domesticated by people. The main ecosystems in Kenya are: forest, bush and woodland; savanna and grassland; bare areas; and water ecosystems. Examples of plants (flora) found in Kenya are fig trees (Mugumo), the baobab, thorny Vachellia and Senegalia (Acacia) trees, star grass, water hyacinth and lantana. Different plants grow in different places in Kenya, and they are eaten by different animals. Do you know which plants giraffe eat? Many different wild animals (fauna) live in our National Parks and Nature Reserves, for example, African elephant, zebra, buffalo, wildebeest, rhino, lion, cheetah, baboon, giraffe and antelope. The famous Big Five animals in Kenya are the African elephant, Black rhinoceros, Cape buffalo, African lion, and the African leopard.

There are 24 National Parks and 16 Nature Reserves in Kenya. These parks and reserves give wild animals a safe place to live. Turn to page 2 and have a look at the map that shows Kenya's **most important** National Parks and Nature Reserves. Which of these National Parks and Nature Reserves are closest to where you live?

Geology and Topography

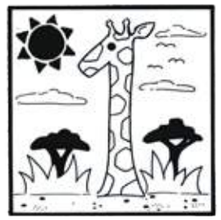
Geology is the study of the structure of our planet Earth. It explains how mountains and rocks were made, and how they have changed over a long time. People who study geology are called geologists. There are many different types of rocks in Kenya. For example, fossil coral reefs and sandstones in the coastal region; volcanic rocks in Mount Kenya, Hell's Gate National Park and Mount Elgon; and schist and quartz. Minerals like copper and gold are found in rocks.

Topography is a description of what an area looks like. In Kenya, we have mountains (Mount Kenya and Mount Elgon) and hills, rivers (Tana and Athi), lakes (Lake Victoria and Nakuru), the ocean (Indian Ocean), plateaus (Yatta plateau), and Rift Valley escarpments. 85% of Kenya is rangeland, and most of our wildlife is found here. Rangeland is land that is not suitable for growing crops because of mountains, low rainfall and high temperatures, but this land does provide space and plant food for livestock and wildlife.

Climate

Kenya has a warm and humid tropical climate. A tropical climate is one which has two seasons, a wet season and a dry season. In Kenya, it is hot and humid in the coastal region, mild in the central and western regions, and very dry in the south, north and northeast regions. The hottest months are from December to March, and it is cold in June and July. We get our long rains in April and May, and short rains from October to November.
Climate describes the weather in a certain area over a long time, like over many years. 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.

ENVIRONMENT



What is an environment?

Wherever you are, everything that is around you is your environment. When you are at home, at school, at the market, at your friend's house, or somewhere out in nature, these areas are your environments when you are there.

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

happy

wet

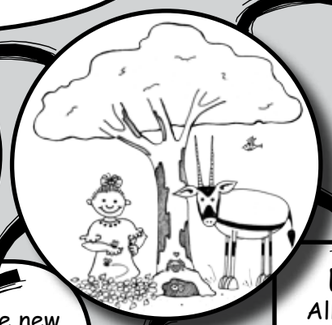
cold

afraid

dry and warm

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!

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.

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!

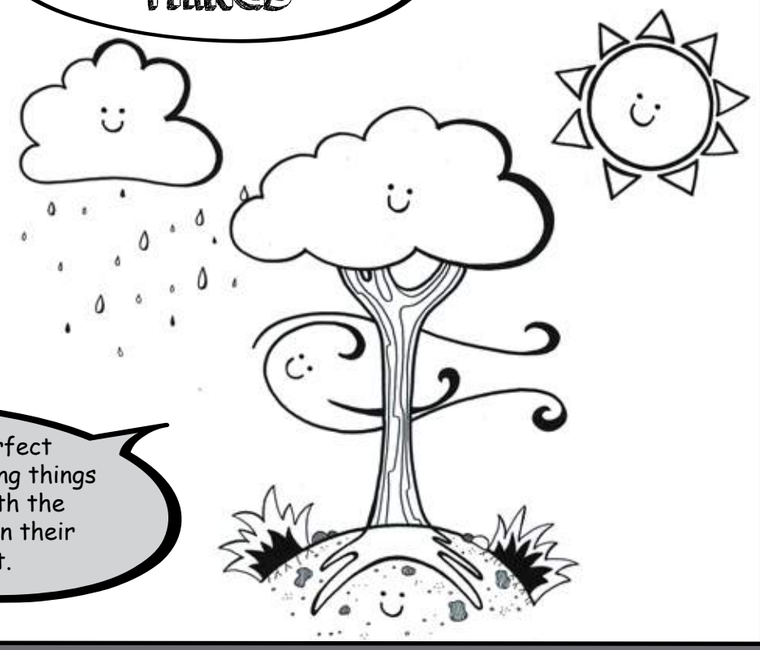
EAT FOOD TO GET ENERGY
All living things need food. Food is the fuel that keeps you alive. Healthy food protects you from sickness, it makes your body strong and healthy, and it gives you energy so that you can play and learn. **Did you know** that you need energy to breathe, think, and even poop?

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

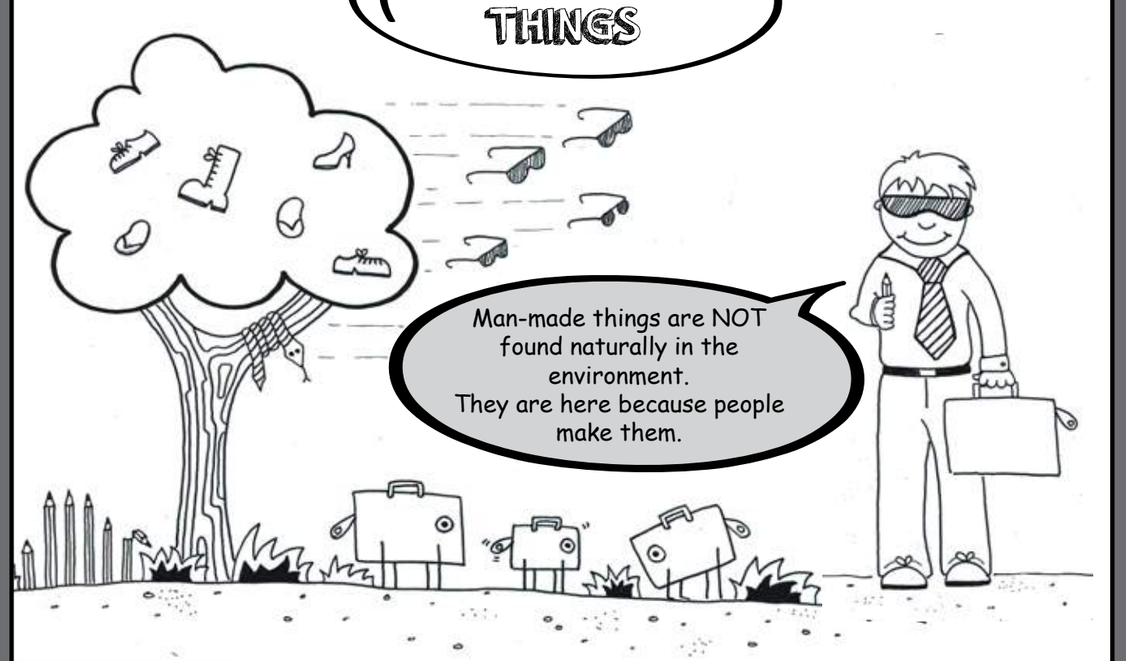
We find non-living things naturally in the environment, but they do not grow, they are not made of cells, they do not eat, they cannot make new life (reproduce), and they do not need to adapt.

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.

Sunlight

People:

Animals:

Plants:

Water

People:

Animals:

Plants:

Air

People:

Animals:

Plants:

Food

People:

Animals:

Plants:

Home

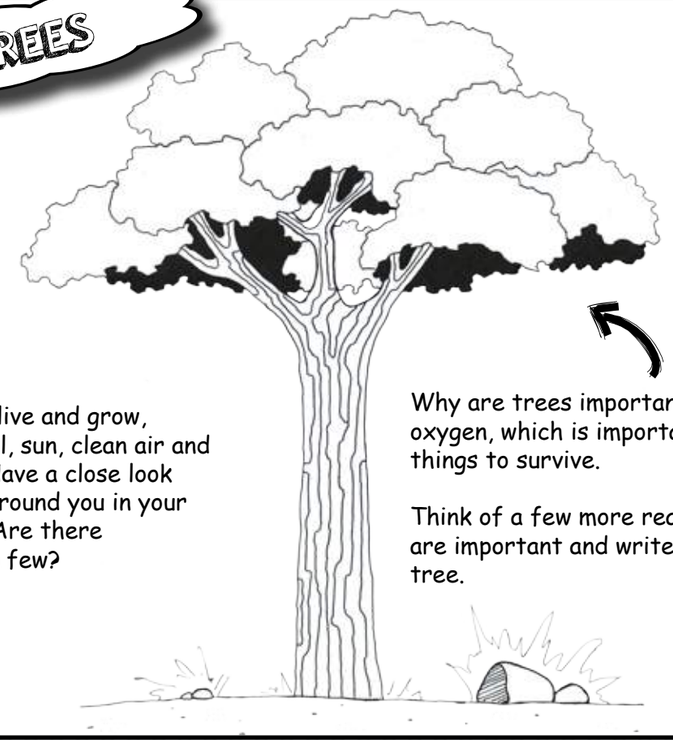
People:

Animals:

Plants:

PLANTS

TREES

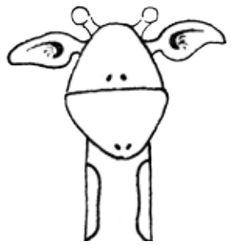


To be able to live and grow, trees need soil, sun, clean air and clean water. Have a close look at the trees around you in your environment. Are there many or only a few?

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

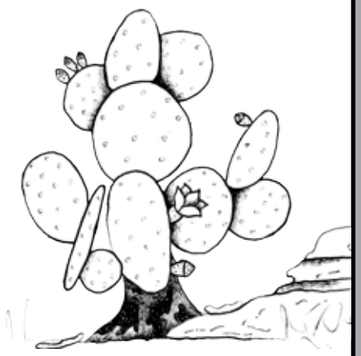
Think of a few more reasons why trees are important and write them inside this tree.

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 Kenya are called **indigenous**.

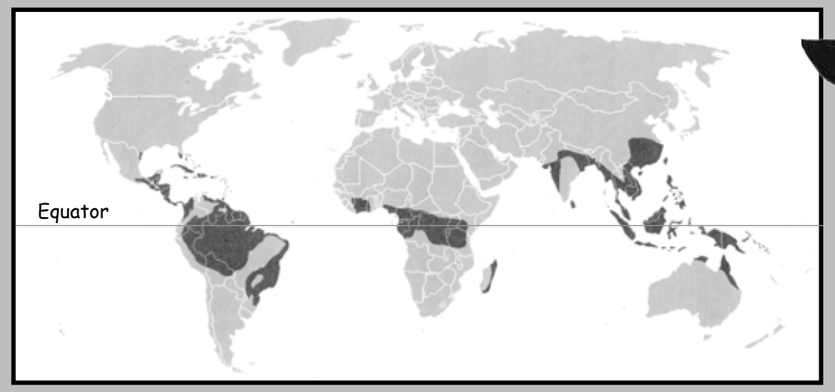
Alien trees and plants spread out in the natural environment where they steal growing space, water, food in the soil and sunlight from the **indigenous** Kenyan plants. This makes it difficult for indigenous plants to grow in a healthy way.



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

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.

IS THERE RAINFOREST IN KENYA?

Look at the map of rainforests in the world.
Notice that the equator-line goes through Kenya, and that the left side of Kenya is black. This means that Kenya has rainforest!

Kenya has one rainforest, and it is called KAKAMEGA FOREST.
This forest is found through the Nandi and Vihiga Counties, northwest of the capital Nairobi and near the Ugandan border. Today, the Kakamega Forest is much smaller than it once used to be.

In the Kakamega Forest, there are about 150 different kinds of trees and shrubs, 60 different kinds of ferns, and 170 different kinds of flowering plants.
The forest is well-known for its strange and interesting birds and insects. There are about 367 different kinds of birds, and 489 different kinds of butterflies. There are also many different animals that live in the forest, like monkeys, tree pangolins, squirrels, mongoose, otters, porcupines, bushbuck, duiker, bush pigs and bats.

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.
Look after our trees and forests.
Grow more indigenous Kenyan 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. Now, you are going to cook a healthy and delicious lunchtime meal for your family. The main meal must be a pot stew. For all the foods you are going to use in your pot stew, draw arrows from them into the pot.

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

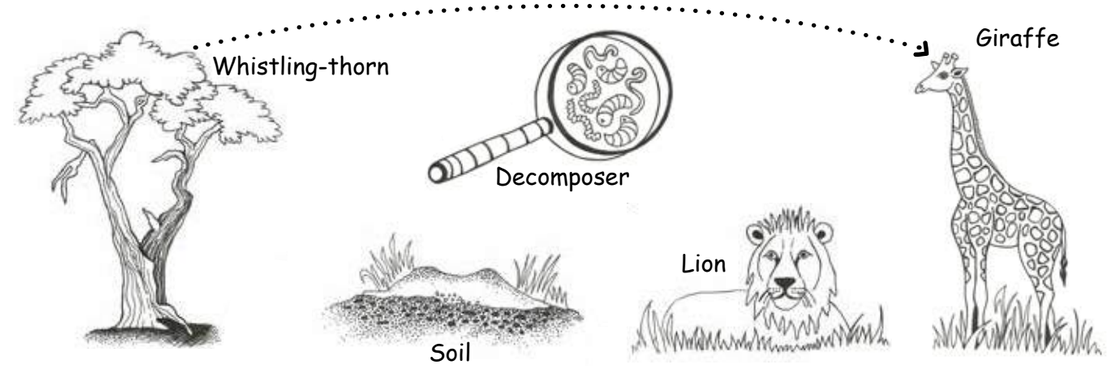
You cannot live only on lollipops, biscuits and sweets.

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.

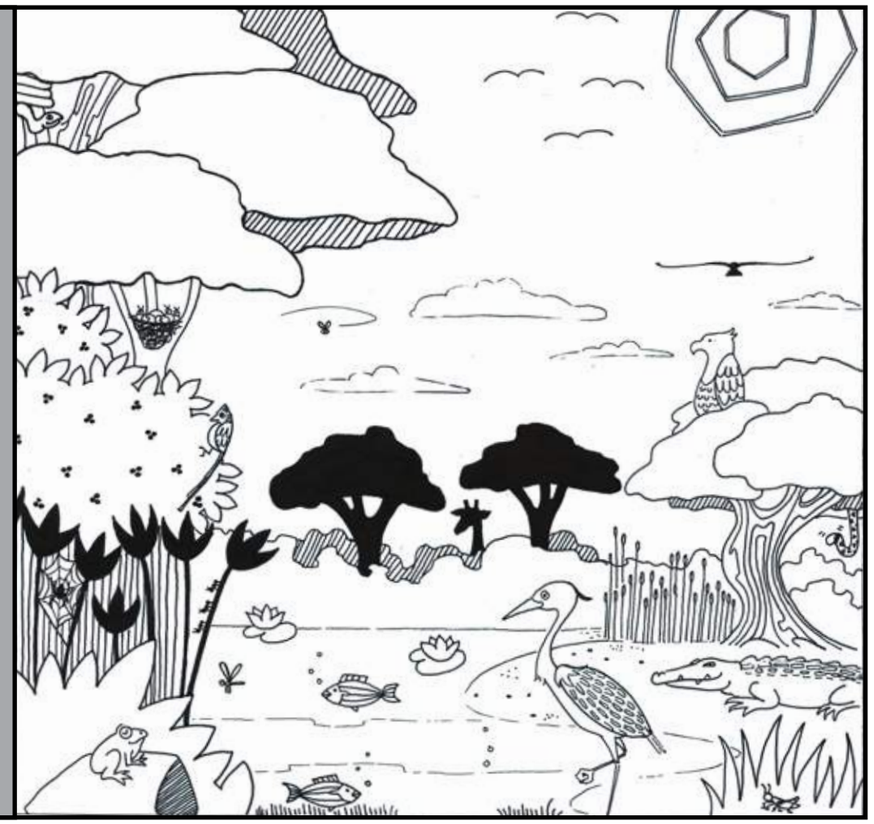
Create this food chain by drawing arrows in the correct order that these creatures eat each other.



Look at the environment on the right.

Build as many food chains that you can find.

Use a different colour for each food chain you find.



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.


thedodo.com


bbc.co.uk

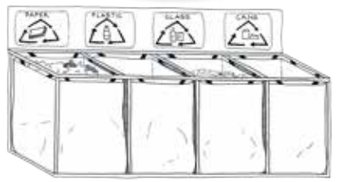

balloonsblow.org


yucashop.com


plasticwastesolutions.com

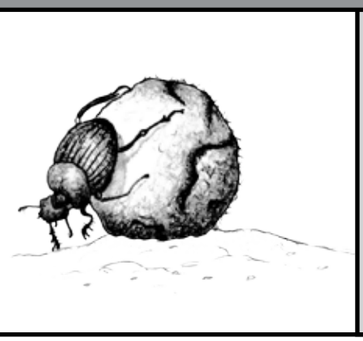
Even though it is important to throw your rubbish in a bin, did you know that there are other things you can do. You can also

RECYCLE **REDUCE** **REUSE**



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

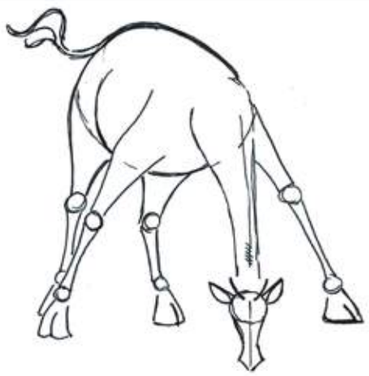
Nature is full of re-users. Can you think of any others?



WATER

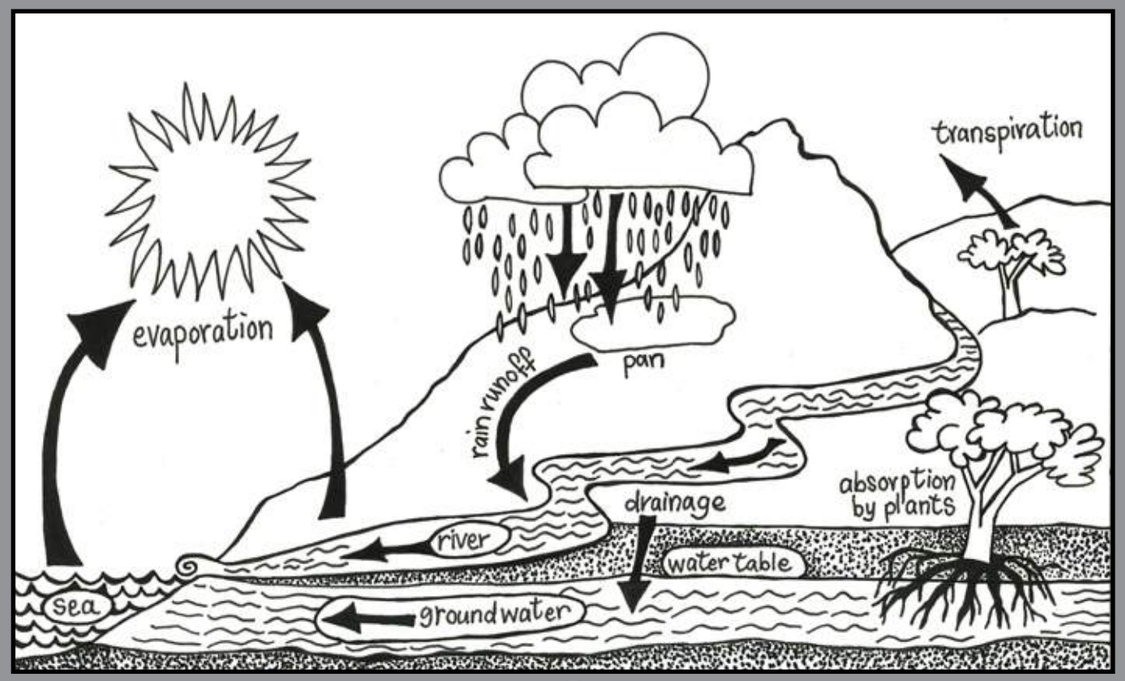
All living things need water to live.

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.

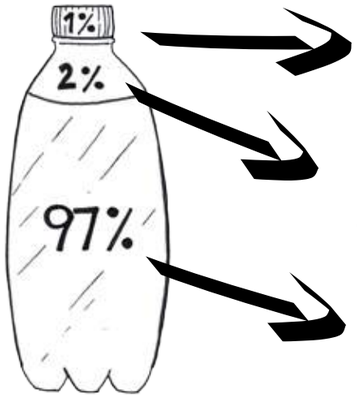


WHERE DOES WATER COME FROM?

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 KENYA

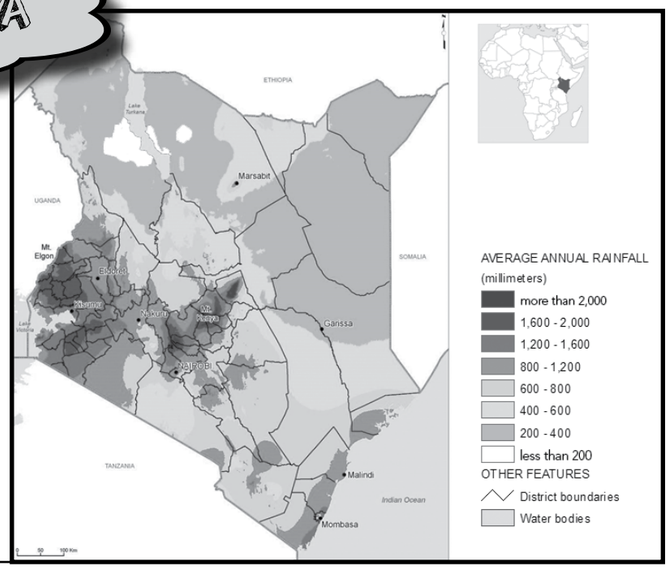
Some countries get more rain than others. Also, the rain inside one country does not always fall evenly. Think about Kenya – are some areas drier than others?
Look at the rainfall map.

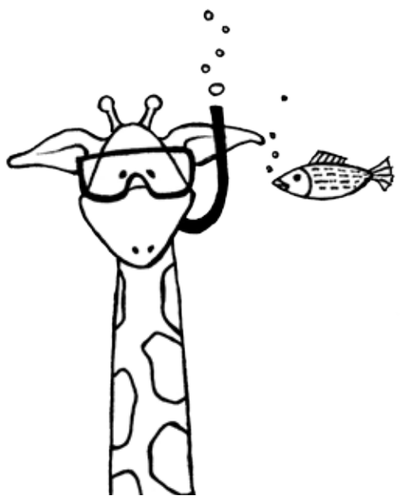
Which area gets the most rain in Kenya?

_____

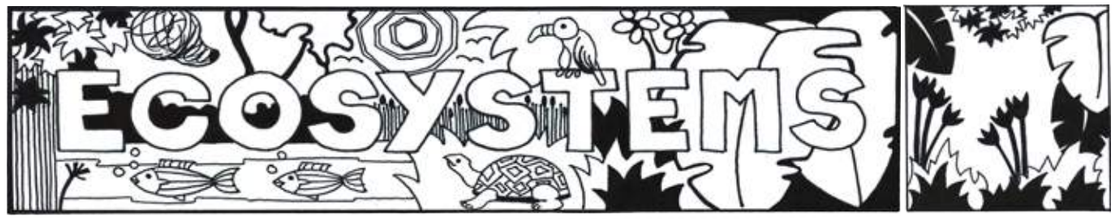
Which area gets the least rain in Kenya?

_____





**SAVE our water.
Turn off your taps properly
and report burst pipes.**



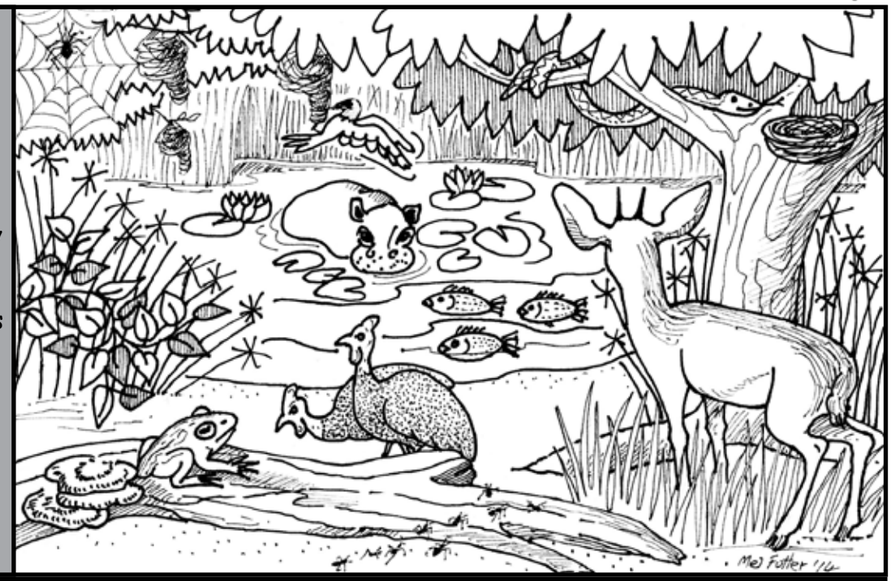
Have you ever wondered why plants and all the different kinds of creatures live where they do? To be able to survive, they all live where they have the right amount of sunlight, water and air, and the right kind of food. For example, frogs have very thin skins which dry out very quickly, so they need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

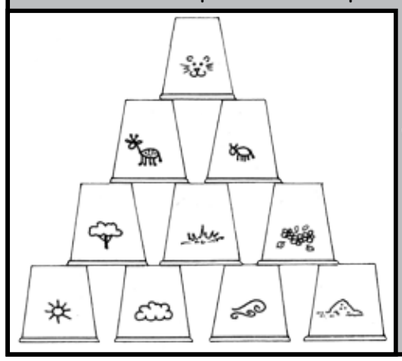
In a healthy ecosystem, everything gets just enough of what is needed to live and be healthy and happy.

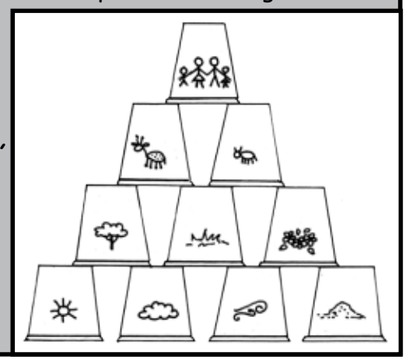
For example, trees grow in the soil, birds build nests in the trees, and snakes eat the birds' eggs in the nests.



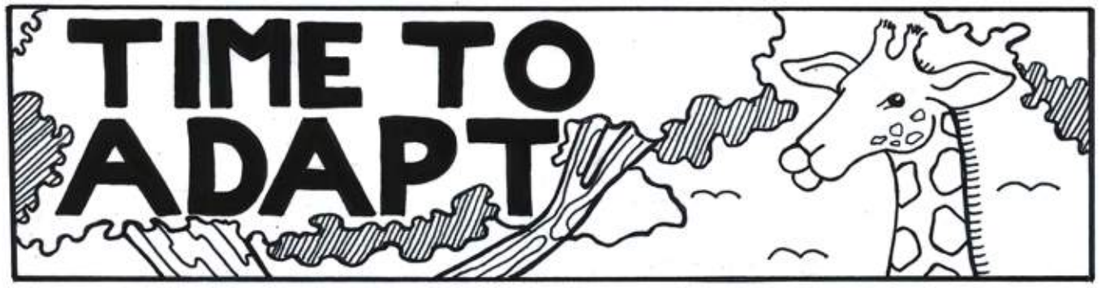
KEEP our ecosystems healthy!

When humans disturb or take away or pollute one part of an ecosystem, it can unbalance the balance of the whole ecosystem. Look at the two pot pyramids. Now, because all the trees have been chopped down in an area, the tree pot must be taken out from the pyramids. What do you think will happen to all the other pots? If one pot is taken away from under the pot at the top, all of the pots will collapse. 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.

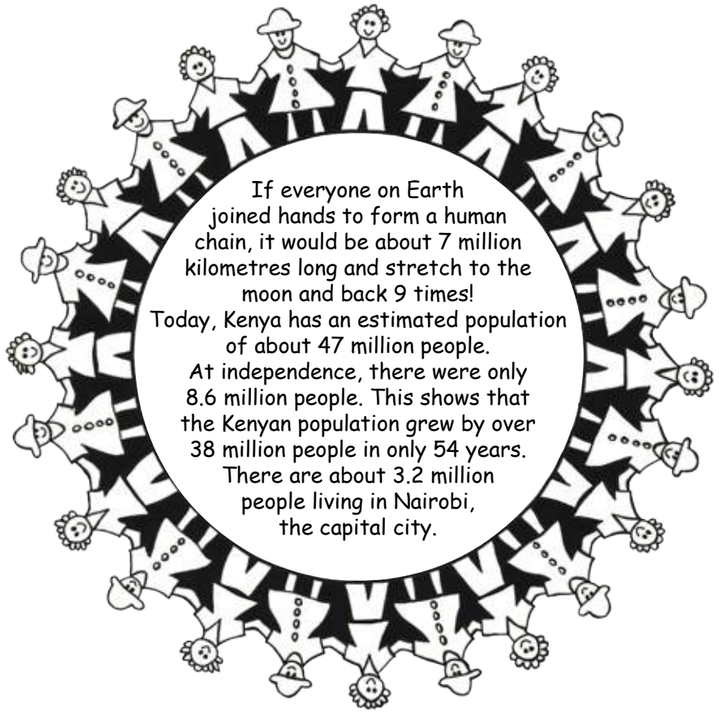




TIME TO ADAPT



THERE ARE 7.5 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!
Today, Kenya has an estimated population of about 47 million people.
At independence, there were only 8.6 million people. This shows that the Kenyan population grew by over 38 million people in only 54 years.
There are about 3.2 million people living in Nairobi, the capital city.

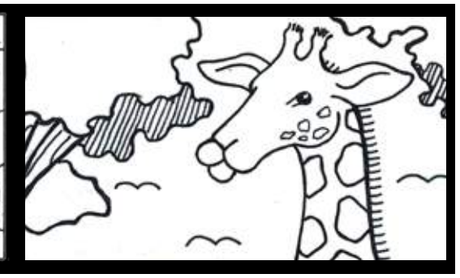
SO, HOW DO WE ALL GET WHAT WE NEED TO BE HAPPY AND HEALTHY? **WE ADAPT!**

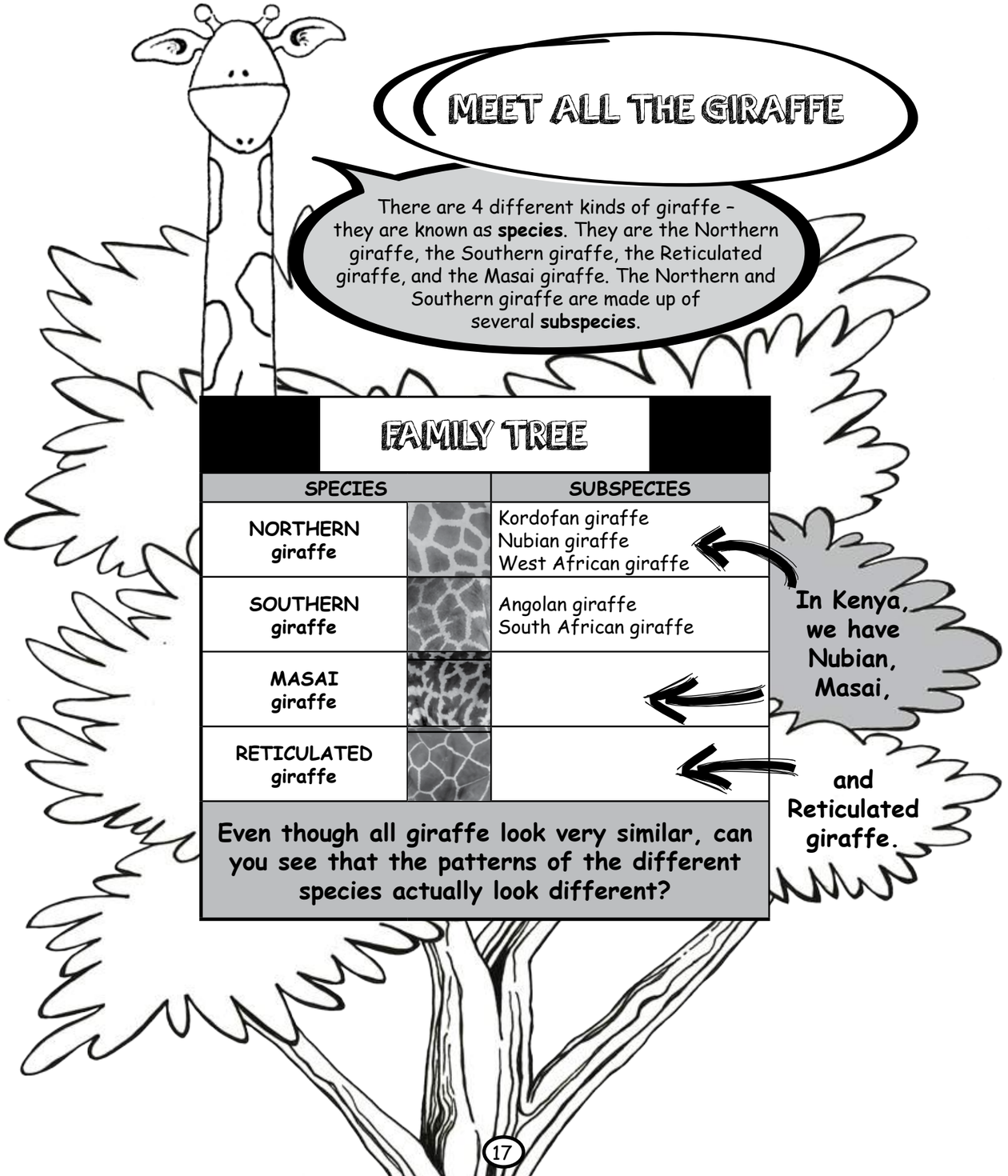
YOU CAN TEACH OTHERS

Remember, all living things change and adapt to their environment. It does not matter if you are still in school or not, you can adapt by also becoming a teacher. You can help people in your environment by teaching them all the important things you have learnt.

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

GIRAFFE





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 are made up of several **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		

Even though all giraffe look very similar, can you see that the patterns of the different species actually look different?

In Kenya, we have Nubian, Masai, and Reticulated giraffe.

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**.

A full-grown giraffe's **neck** is about **2 metres long**.

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

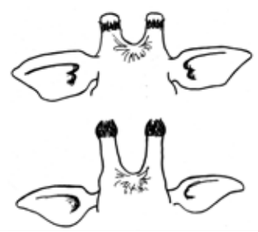
When giraffe need to defend themselves, they are able to **kick in all directions**.

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**. 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.

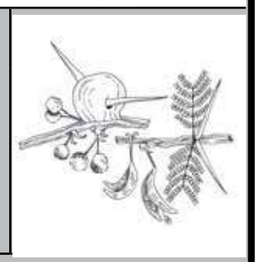
Giraffe's horns are called **ossicones**. When they are born, giraffe's ossicones lie flat on their head. As they grow older their ossicones grow straight, and after some more time they become part of the scull.

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. They especially like the flowers of the Whistling-thorn, the ***Vachellia (Acacia) drepanolobium*** tree.



Giraffe can p**oop 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**.

ARE GIRAFFE ALWAYS HAPPY AND SAFE?

There is a list (IUCN Red List) 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.

GIRAFFE IN KENYA

Where do giraffe live in Kenya?

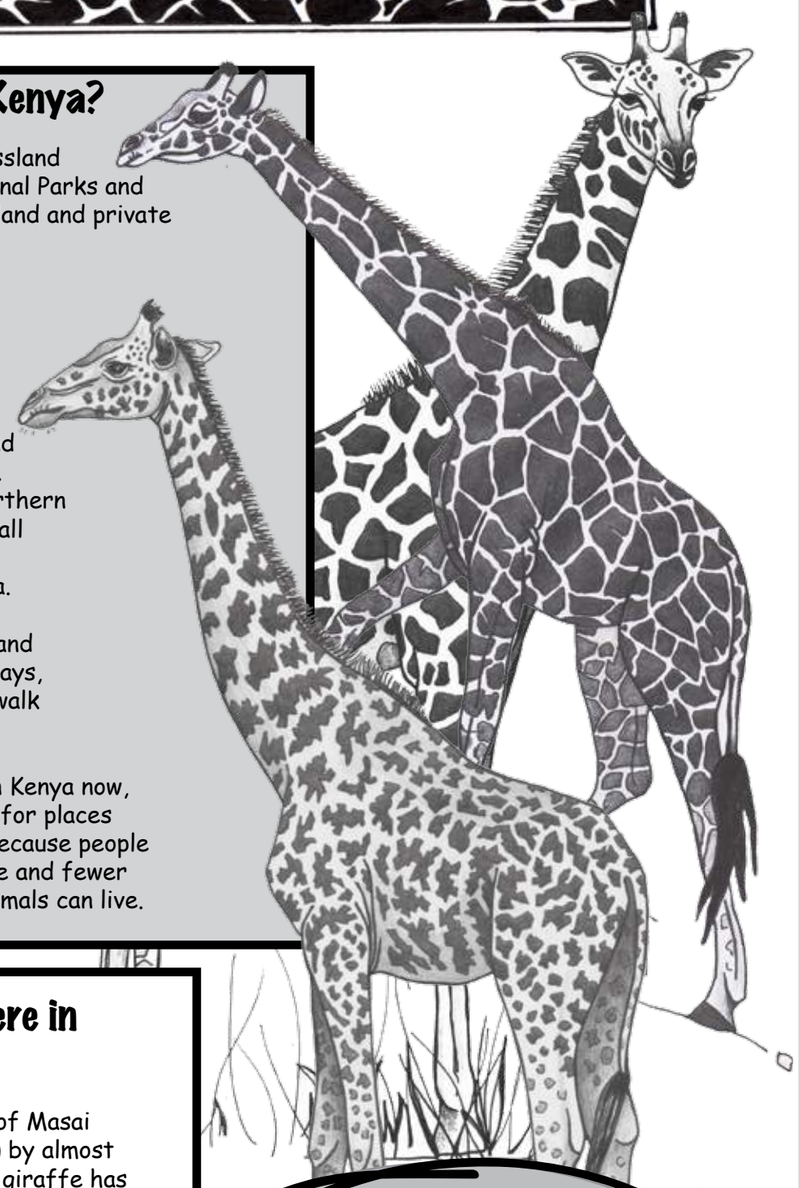
Giraffe in Kenya live in savanna grassland and woodland environments in National Parks and Nature Reserves, and on communal land and private ranches.

3 out of the 4 giraffe species are found in Kenya.

Reticulated giraffe live in northern and eastern Kenya.
Masai giraffe live on the savanna and in the woodlands of southern Kenya.
Nubian giraffe (a subspecies of Northern giraffe), which are only found in small population groups, are scattered around in western and central Kenya.

In the past, giraffe walked around and lived in most parts of Kenya. Nowadays, in our time, giraffe do not live and walk so freely around Kenya.

There are a lot more people living in Kenya now, and a lot more space has been used for places to live and for growing food. And because people need more space, there is less space and fewer natural environments where wild animals can live.



How many giraffe are there in Kenya?

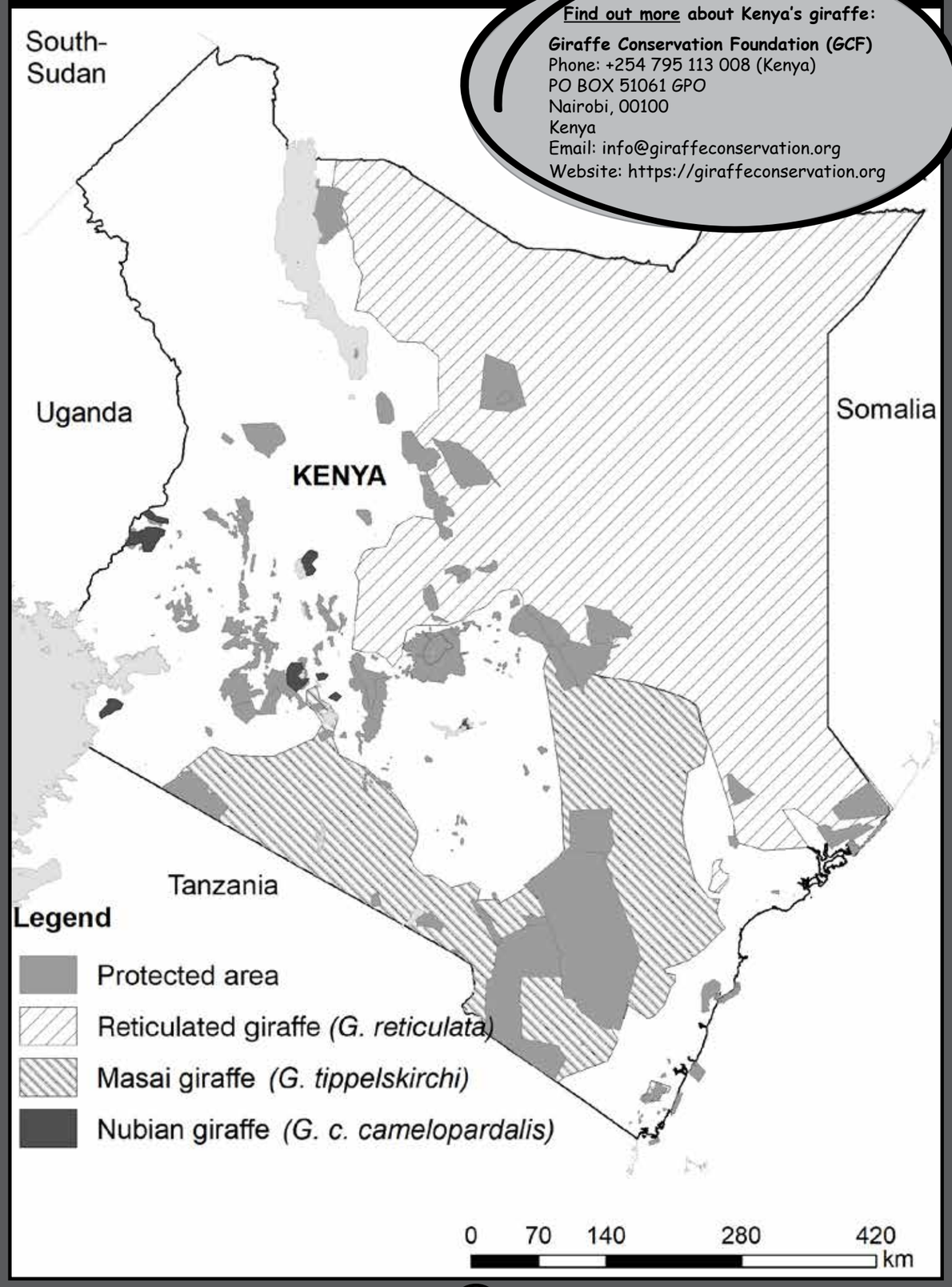
Over the last 30 years, the amount of Masai giraffe has decreased (become less) by almost 50%, and the amount of Reticulated giraffe has decreased by almost 80%.
It is different with the Nubian giraffe (which is a subspecies of Northern giraffe). Even though there are very few Nubian giraffe living in Kenya, their total amount has stayed more or less the same over the last 30 years.

Masai giraffe: about 12 000 individuals
Reticulated giraffe: less than 8 700 individuals
Nubian giraffe: ONLY about 400 individuals

Local names for giraffe in Kenya

twiga (Swahili), ekorii (Ateso), kanyiet (Elgon), ndûiga (Gikuyu), tiga (Kalenjin and Luo), ndwiya (Kamba), etiika (Luhya), oloodo-kirragata or olchangito-oodo (Maasai), lenywa (Meru), iment (Samburu)

WHERE GIRAFFE LIVE IN KENYA



Find out more about Kenya's giraffe:

Giraffe Conservation Foundation (GCF)
Phone: +254 795 113 008 (Kenya)
PO BOX 51061 GPO
Nairobi, 00100
Kenya
Email: info@giraffeconservation.org
Website: https://giraffeconservation.org

LET US CELEBRATE GIRAFFE!

21 JUNE IS WORLD GIRAFFE DAY

GET CREATIVE TO CELEBRATE GIRAFFE

There are many ways you and your friends and family can celebrate the World's Tallest Animal.

BE A GIRAFFE FOR THE DAY

You can photo-copy or redraw the Giraffe Mask on page 30 on to another piece of paper. You can then cut it out and colour it in.

Lopie lives in Kenya, so he could be a Reticulated, Masai, or Nubian giraffe.

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

DRAW YOUR OWN GIRAFFE

Page 29 shows you how to do this. Also, together with a group of friends or family members, you could create a herd of giraffe, which you could arrange and stick on a wall somewhere for other people to see.

Look on page 31 for another great idea.

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. You can also ask someone to help you organise the competition.

YOU CAN TEACH OTHERS

You can help other people to understand why we should protect the environment and giraffe by sharing what you know with them. Also, you can get your school, your family, or your community to take part in learning about giraffe in any way that 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.

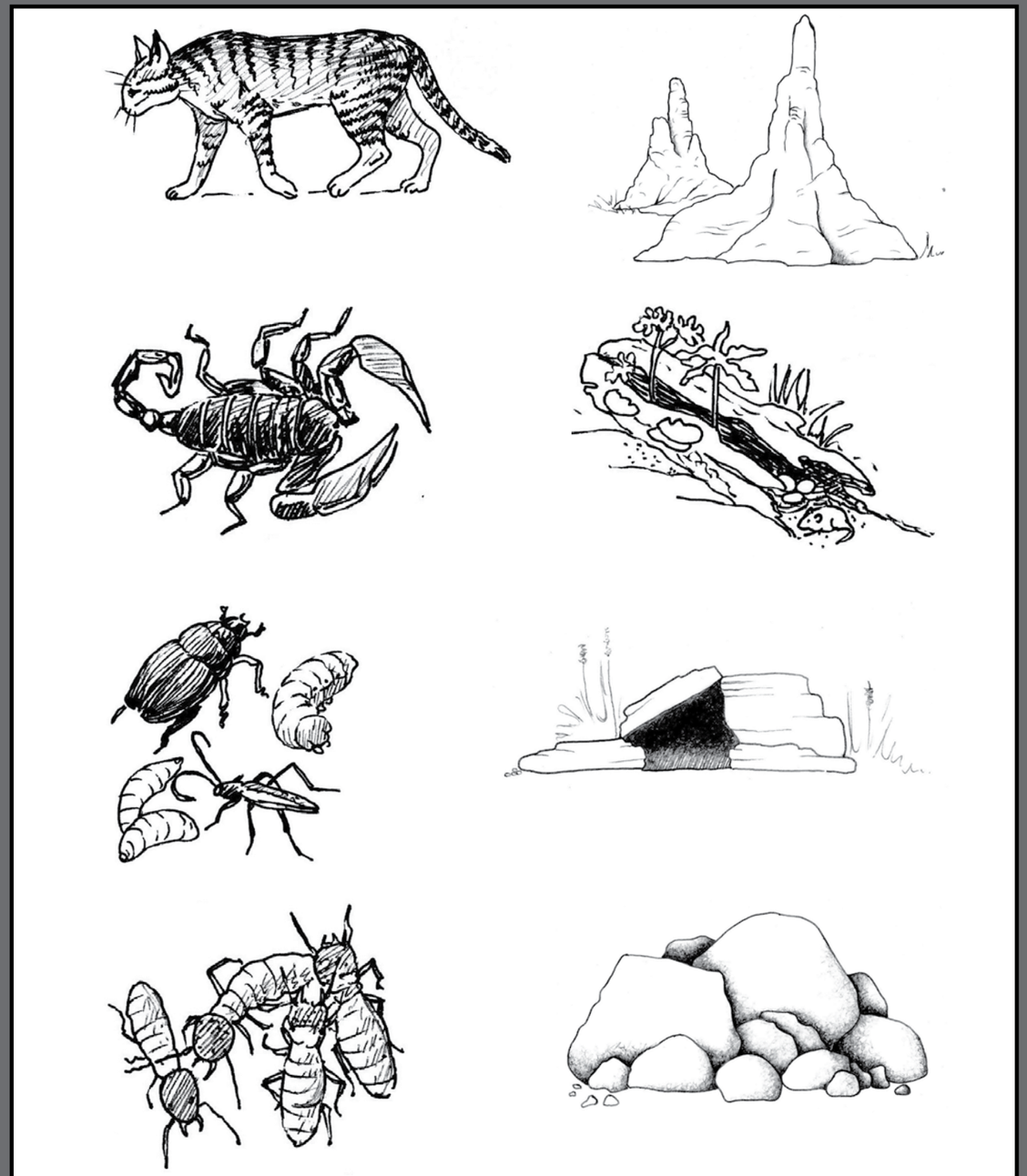
Have you ever seen a giraffe drinking?

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/KhomasEnvironmentalEducationProgramme

FUN THINGS to do at home

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 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	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

WASTE WATCH MATHS

Work out how much water has been wasted…

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

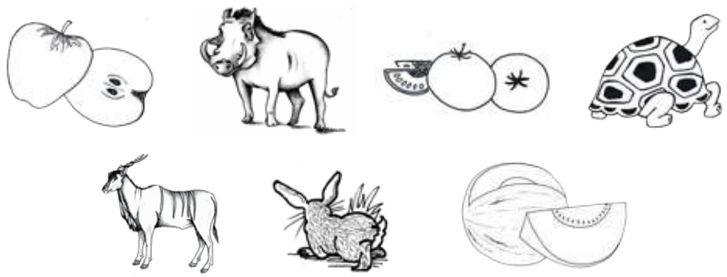
1 Hour? _____

Hint: There are 24 hours in a day

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		Antbear			
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

All the answers are in this workbook.

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

1. Giraffe are

a) Nocturnal ☐
b) Diurnal ☐
c) Cathemeral ☐

2. Which giraffe do NOT live in Kenya?

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 can run up to

a) 15 kilometres per hour ☐
b) 50 kilometres per hour ☐
c) 65 kilometres per hour ☐

6. Which giraffe has the largest population of individuals in Kenya?

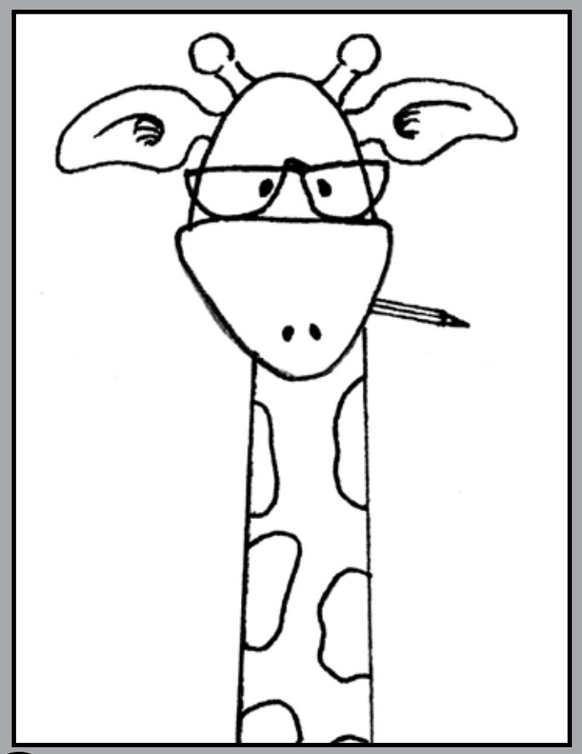
a) Nubian giraffe ☐
b) Masai giraffe ☐
c) Reticulated giraffe ☐

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

a) Tails ☐
b) Ossicones ☐
c) Tongues ☐

8. How are giraffe listed on the IUCN Red List for animals that are in trouble?

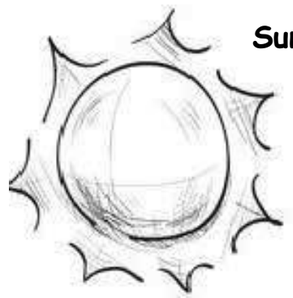
a) Least Concern ☐
b) Vulnerable ☐
c) Endangered ☐



WHAT IS WHAT?

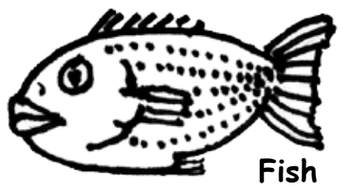
Identify which of these pictures is **living**, **non-living** or **man-made**.
Write your answer for each picture on the line underneath it.

Bee

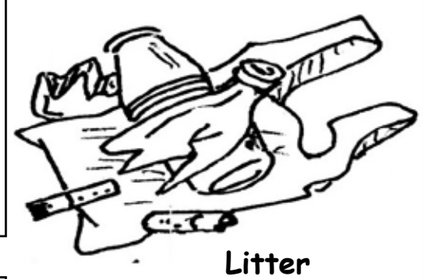


Sun

Giraffe

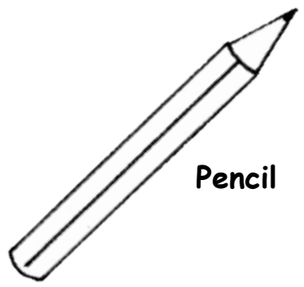


Fish



Litter

Feather

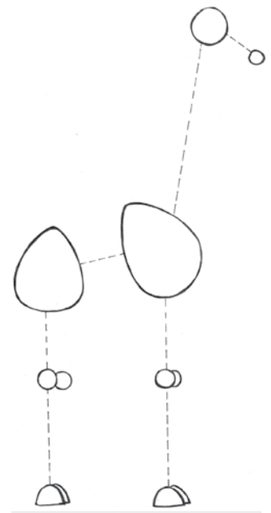


Pencil

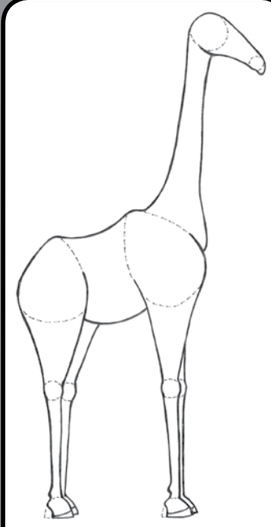
Soil

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!

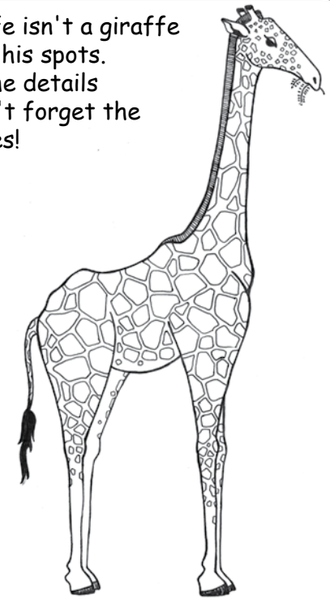


First, draw these basic shapes and the dotted lines between them. Remember to do them softly in pencil so you can rub them out later.



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

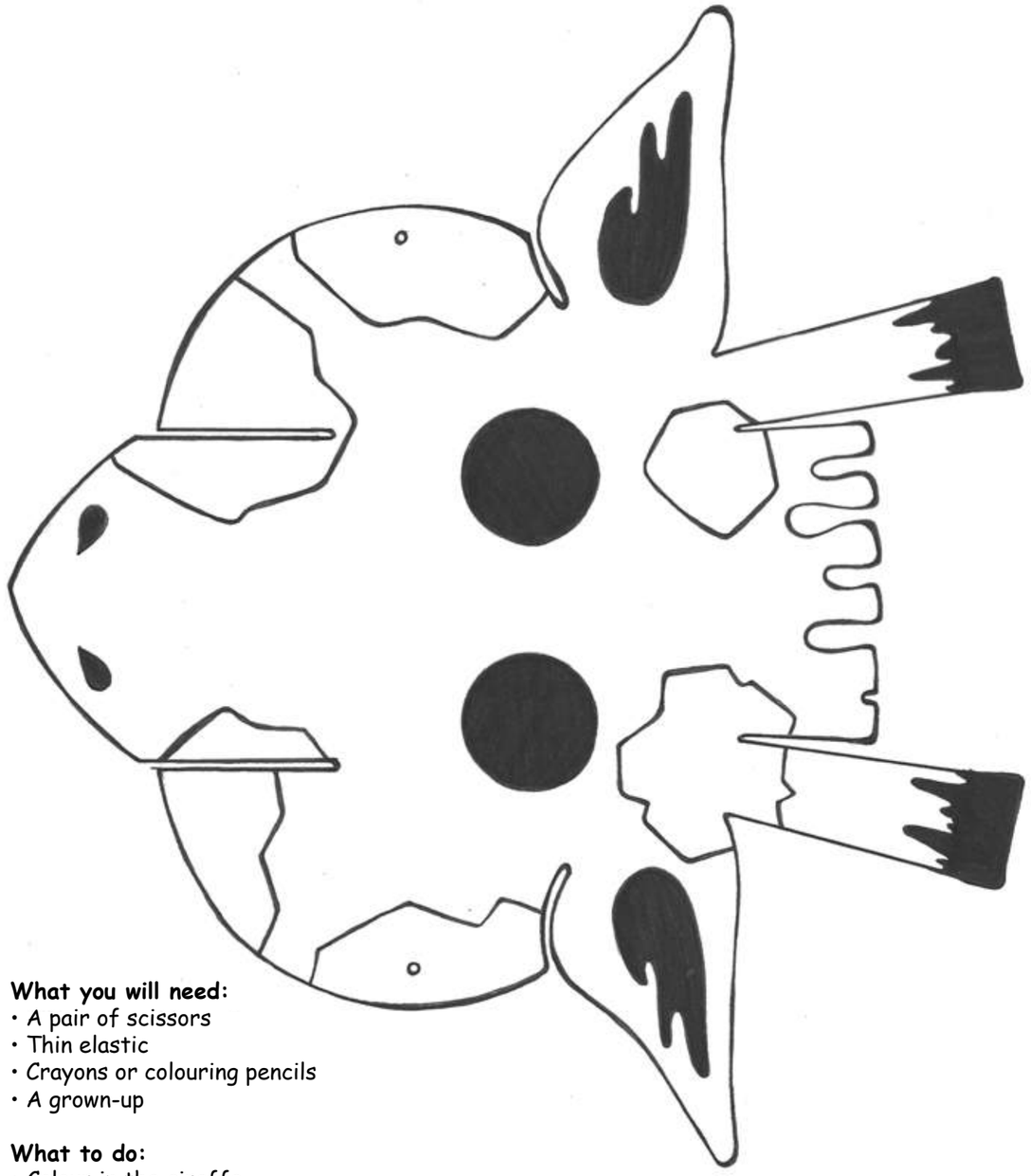
A giraffe isn't a giraffe without his spots.
Fill in the details and don't forget the ossicones!



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

BE A GIRAFFE FOR THE DAY

MAKE A GIRAFFE MASK

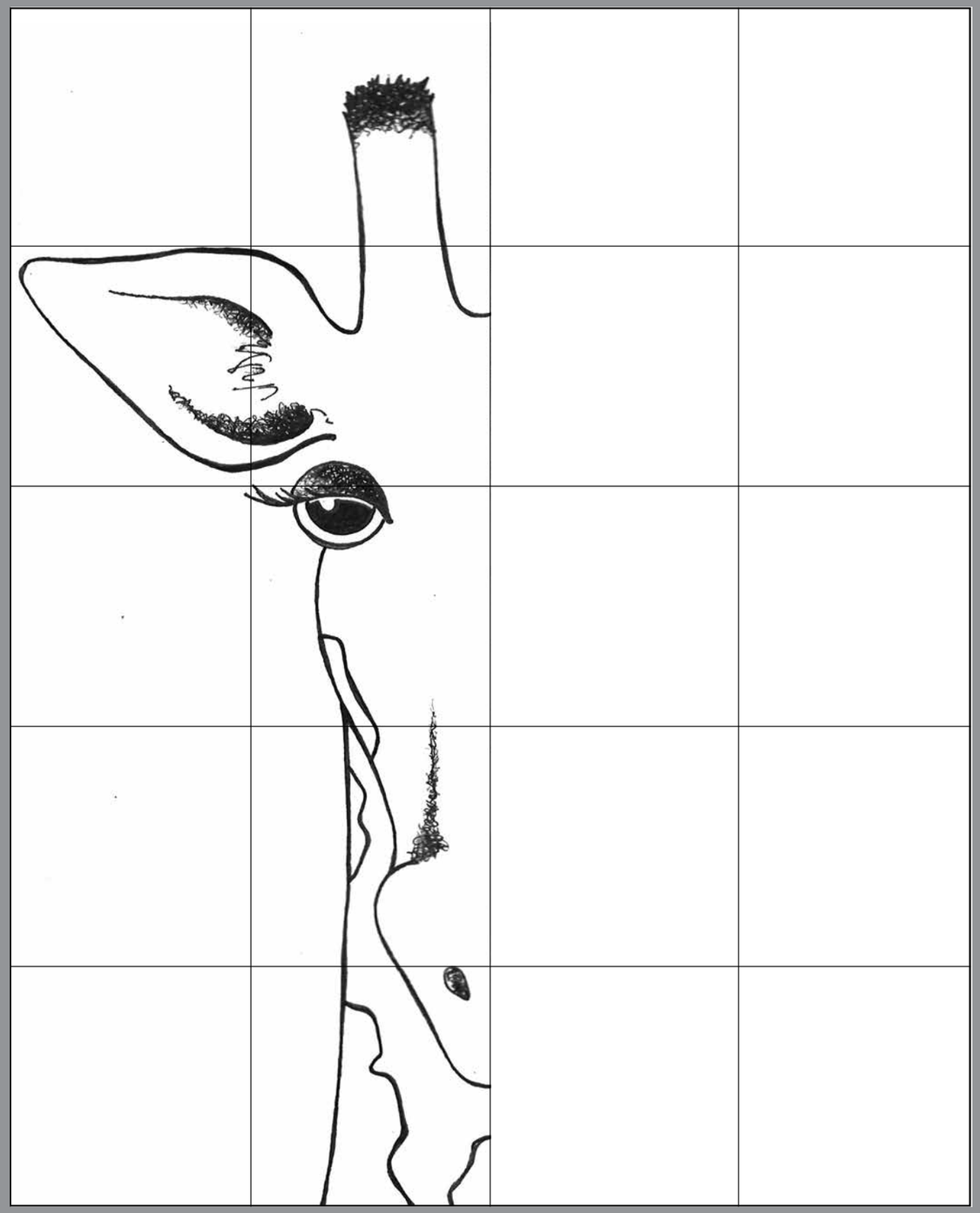


What you will need:
- A pair of scissors
- Thin elastic
- Crayons or colouring pencils
- A grown-up

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 knobbly 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! Suba!" Lopie calls to the mongoose and the antbear with claws.
"Jambo! Wimwega!" 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 **African animals**. There are so many different kinds, and it is their safety that we must keep in mind.
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 **Kenya**, our wonderful land. Its environment is special, so let us give it a hand.
Ll	is for **litter**. No excuse, silly goose! Put it in the bin! Paper, glass, and even tin!
Mm	is for **Masai** giraffe, one of the four giraffe species. For them we must stand tall, as their numbers fall.
Nn	is for the **nutrients** found in healthy food. They keep you alive, happy and strong.
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 photosynthesis.
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 **teamwork**. 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 the 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>cathemeral</u>. They are active both day and night.

SHhhhh!!!

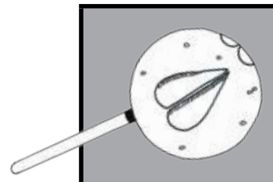
Use your bush voice and keep your eyes and ears sharp!
You might get to see the animal you are tracking.

Do not just look, try to also SEE.
Take your time and search for any clues.
Where are the tracks? Are they on a road, in a river, or under a tree? Is the ground hard or soft?
What other signs of activity can you see in the area?
For example, is there a waterhole, or a place where animals roll in dusty sand?

NATURE DETECTIVE CHECKLIST

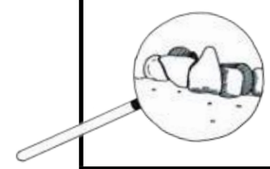
Using the FIELD GUIDE, try to find the following things…

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



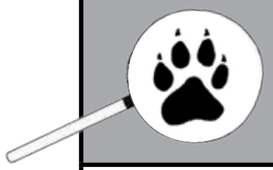
A HERBIVORE TRACK ☐ Whose is it? _____

<u>Herbivores</u> are animals that only eat plants.



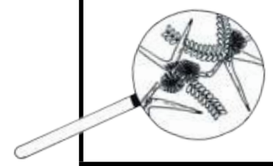
HERBIVORE POOP ☐ Whose is it? _____

You can learn a lot about which animals are in the area by the poop you find.



PREDATOR TRACK ☐ 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 omnivore?

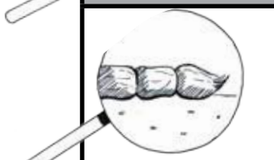


A VACHELLIA or SENEGALIA (ACACIA) TREE ☐ Which one is it? _____

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.

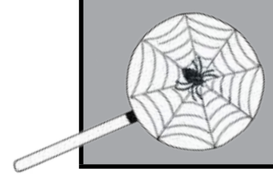
A TERRITORY PATCH ☐ Whose is it? _____

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 ☐ 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 ☐ Whose is it? _____

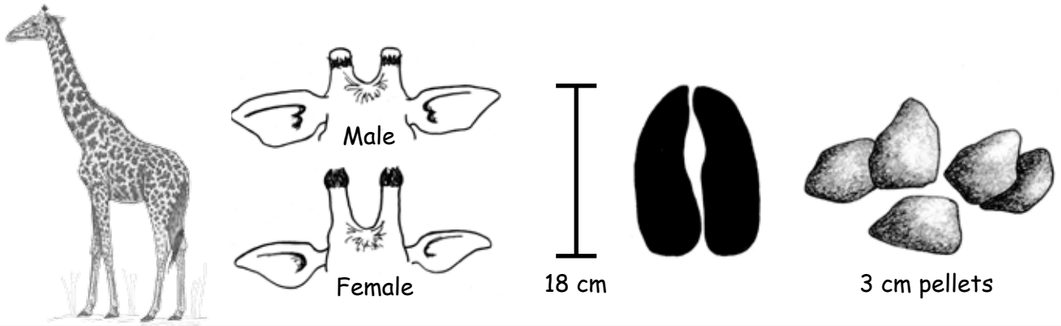
Look high, and look low. Many insects build clever traps to catch their food. Insects that eat other insects are also called predators.

FIELD GUIDE

MASAI GIRAFFE

Giraffa tippelskirchi

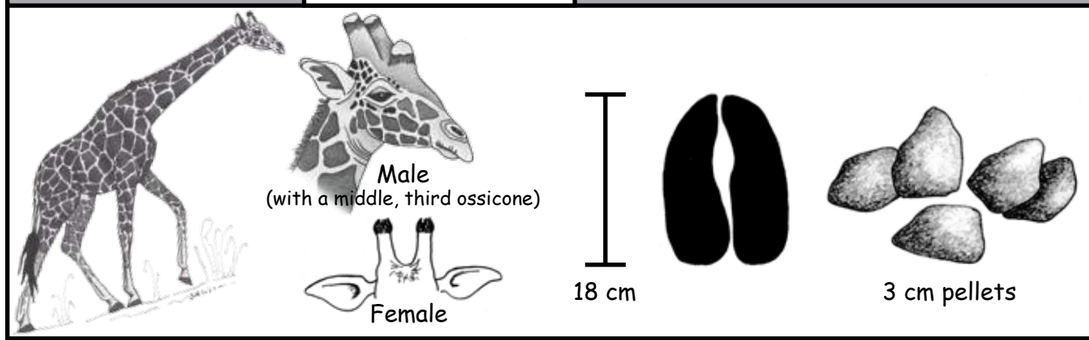
HERBIVORE – Browsers (trees)



RETICULATED GIRAFFE

Giraffa reticulata

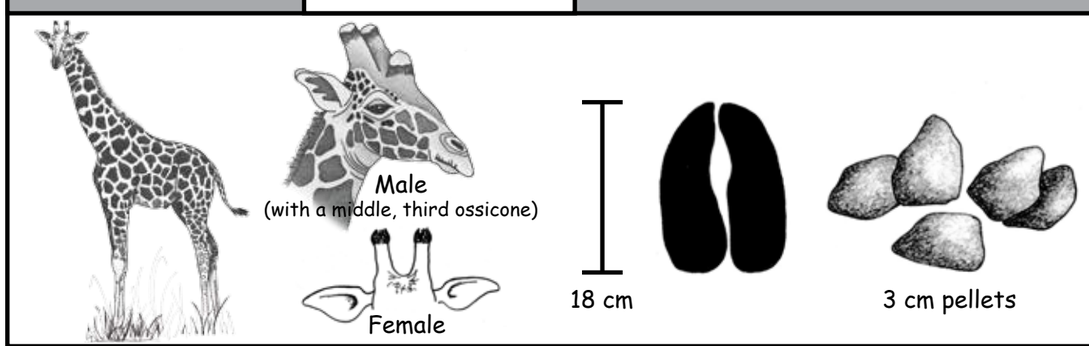
HERBIVORE – Browsers (trees)



NUBIAN GIRAFFE

Giraffa camelopardalis camelopardalis

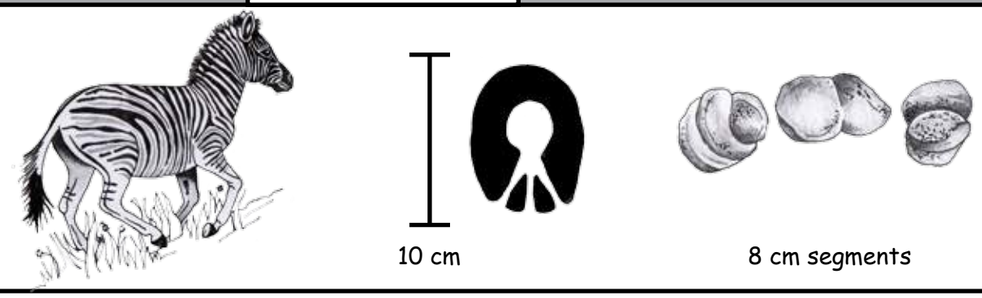
HERBIVORE – Browsers (trees)



BURCHELL'S ZEBRA

Equus burchellii

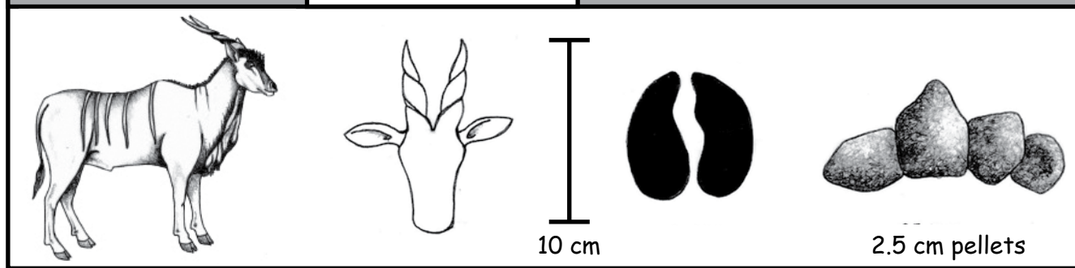
HERBIVORE – Grazers (grass)



ELAND

Tragelaphus oryx

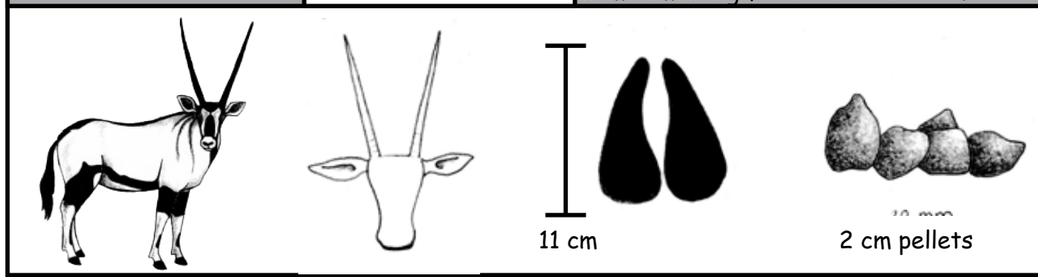
HERBIVORE – Grazers and browsers (grass and trees), and also digs for bulbs and eats fruit.



ORYX

Oryx gazella

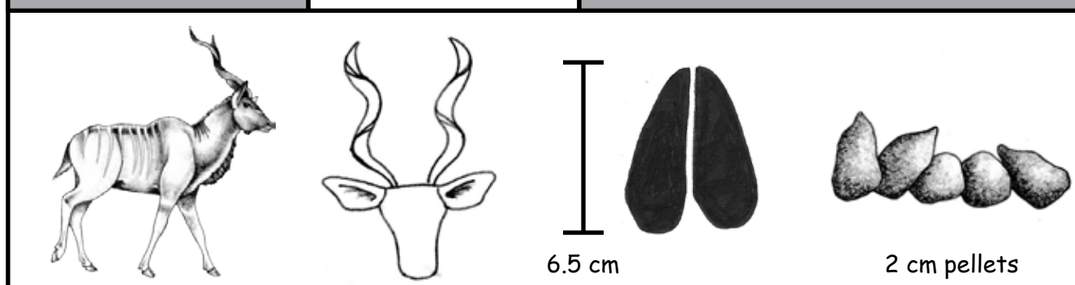
HERBIVORE – Grazers and occasionally browsers (seeds, pods and fruits), and also sometimes dig for bulbs and roots.



KUDU

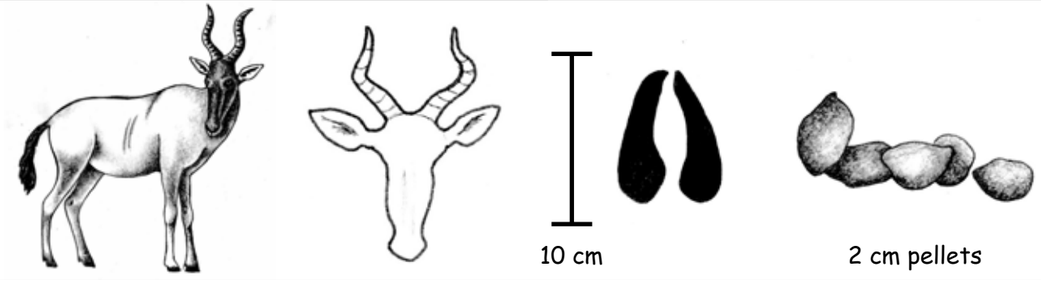
Tragelaphus strepsiceros

HERBIVORE – Browsers (trees and bushes)



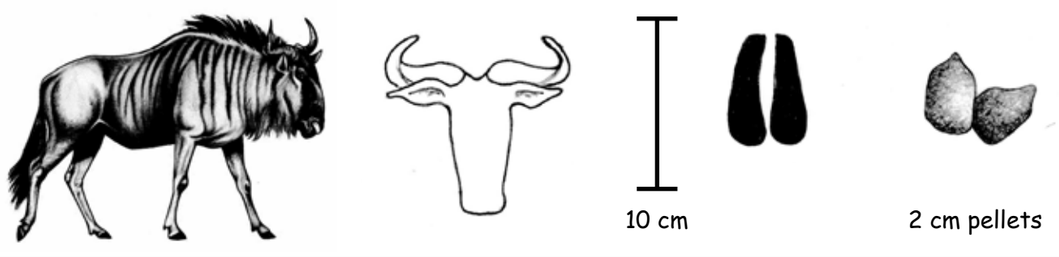
HARTEBEEST

Alcelaphus buselaphus
HERBIVORE – Grazers (grass)



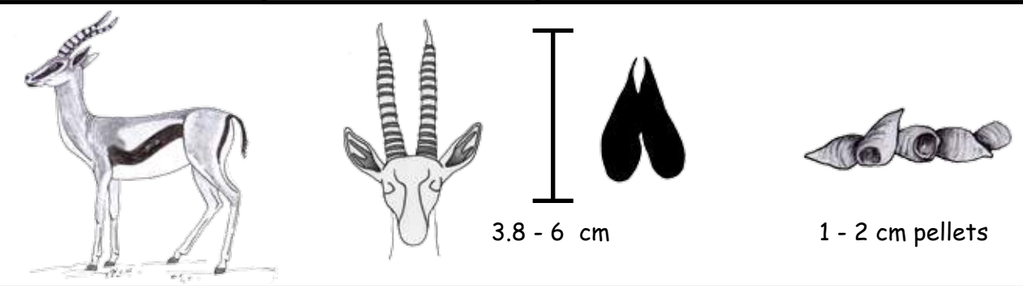
BLUE WILDEBEEST

Connochaetes taurinus
HERBIVORE – Grazers (grass)



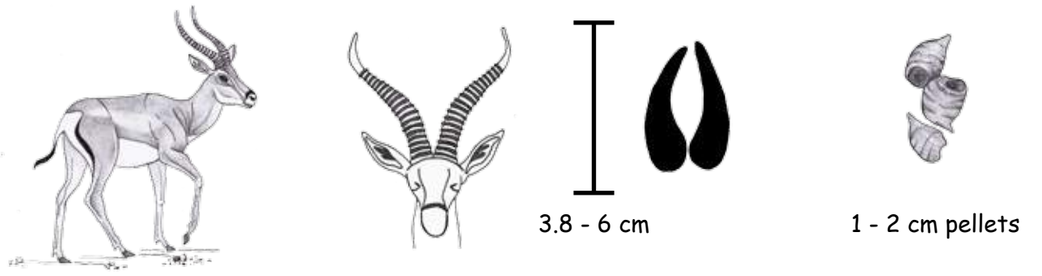
THOMPSON'S GAZELLE

Eudorcas thompsonii
HERBIVORE – Browsers (trees and bushes)



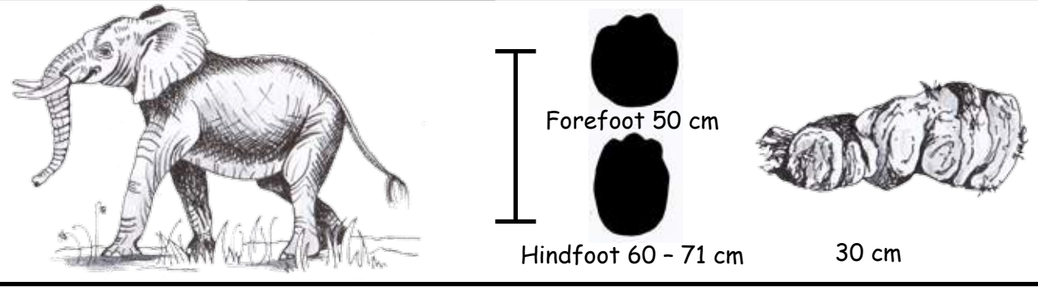
GRANT'S GAZELLE

Gazella granti
HERBIVORE – Browsers (leaves and herbs) and Grazers (short grasses).



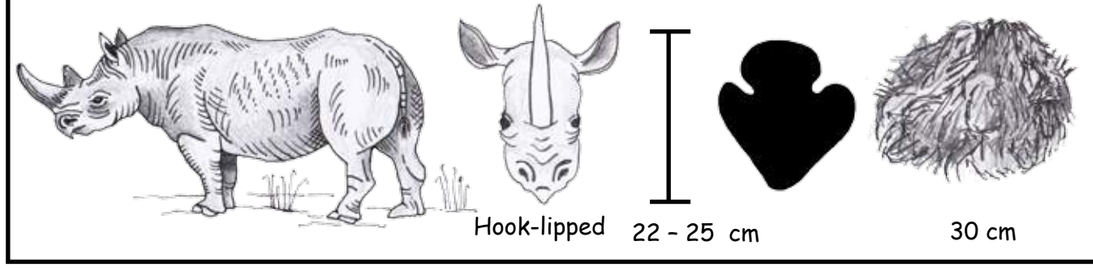
ELEPHANT

Loxodonta africana
HERBIVORE – Graze and browse most kinds of vegetation, and the bark of certain trees.



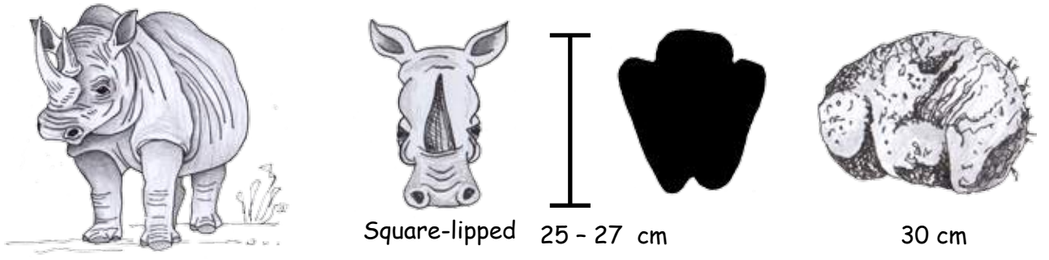
BLACK RHINOCEROS

Diceros bicornis
HERBIVORE - Browsers (leaves and twigs)



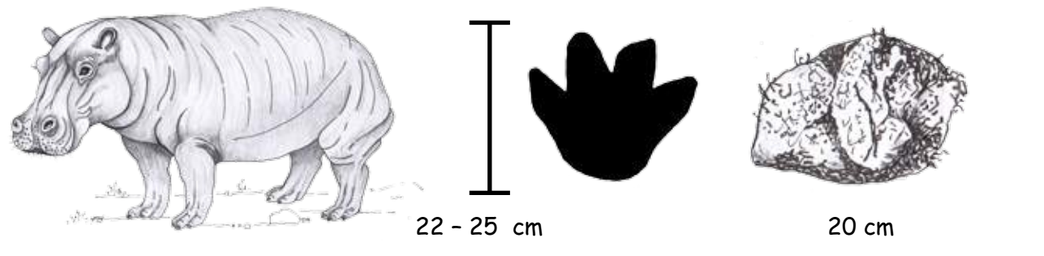
WHITE RHINOCEROS

Ceratotherium simum
HERBIVORE – Grazers (grass). They prefer to eat short grass.



HIPPOPOTAMUS

Hippopotamus amphibious
HERBIVORE – Grazer (grass). They prefer short green grass and feed in open areas.



WARTHOG

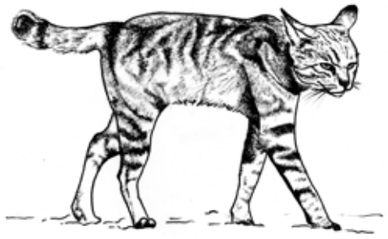
Phacochoerus africanus
HERBIVORE – Grazers (short grasses and roots)

4.5 cm

5 cm segments

AFRICAN WILD CAT

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

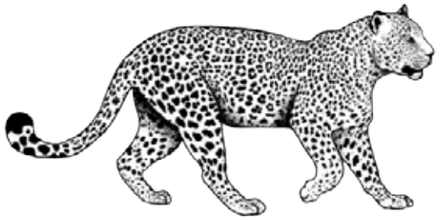


3.6 cm

1.2 – 1.5 cm segments (buried)

LEOPARD

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



7 – 9 cm

2 – 3 cm segments

LION

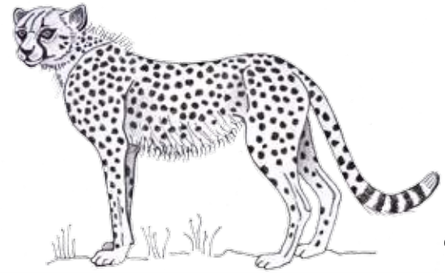
Panthera leo **CARNIVORE** – Large antelope, as well as mice, insects and carrion (meat of animals that have already died).

11 - 13 cm

15 – 20 cm long

CHEETAH

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



9 - 10 cm

10 – 15 cm long

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

WILD DOG

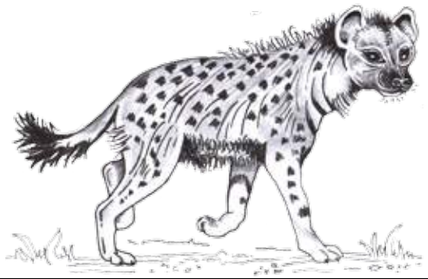
Lycaon pictus
CARNIVORE – Small to medium-sized antelope, as well as hares.

6.8 - 7 cm

5 - 10 cm long

SPOTTED HYENA

Crocuta crocuta **OMNIVORE** – Carrion (meat of animals that have already died), large antelope, birds, tortoises, hares, fruit and termites.



10 - 12 cm

15 cm long (dog-like dropping, green when fresh and white when dry)

BABOON

Papio cynocephalus

OMNIVORE – Flowers, seeds, bark, insects, scorpions, mice and reptiles.

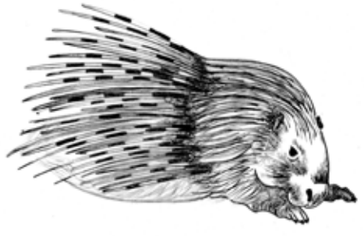
14 cm

5 - 10 cm segments

CAPE PORCUPINE

Hystrix africaeaustralis

HERBIVORE – Roots, bulbs and bark, and they sometimes eat the meat of dead animals.



7 – 8 cm

4 – 7 cm segments

SLENDER MONGOOSE

Herpestes sanguineus

OMNIVORE – Insects, mice, lizards, small snakes, small birds, eggs and wild fruit.

Right Front Foot

2.3 cm (front) 2.5cm (hind)

10 – 13 cm
(long and twisted, dark in colour, and very smelly)

HELMETED GUINEAFOWL

Numida meleagris

OMNIVORE – Ants, termites, snails, worms, frogs, lizards, insects (grasshoppers), fruits and certain grass seeds.

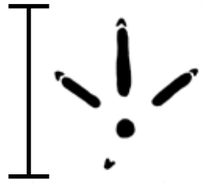
8 cm

The Helmeted Guineafowl are grey-brown and covered in lots and lots of white spots. Their heads are red and blue. Many farmers in Africa welcome these birds in their crop fields because they eat insects that are pests. They live on the ground, but sleep together in trees at night. When they travel to water, they walk in a single line – going one after the other.

YELLOW-NECKED FRANCOLIN

Pternistis leucoscepus

OMNIVORE - Grass, seeds, roots and insects.



5 cm

Yellow-necked Francolins have an orange-red patch of skin around their eyes, a bright yellow patch of skin at the front of their necks, lots of white spotty feathers in the front, and dark legs. Even though they can fly very well, they live mostly on the ground where they spend time looking for food. They are most busy during the early morning hours and later in the afternoon.

OSTRICH

Struthio camelus

OMNIVORE – Grass, fruit, seeds, fleshy plants, small lizards, and insects.

19 cm (the long toe)

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!

GREY CROWNED CRANE

Balearica regulorum

OMNIVORE – Frogs, crabs, insects, lizards, grass seeds and crop grain.

12.5 cm

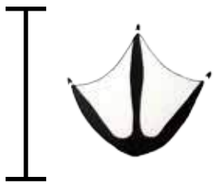
The Grey Crowned Crane has, over time, been used in many African traditional stories. See if you can find any stories about this bird.

They live in marsh areas, open grassland and cultivated crop fields, but they breed especially in marsh areas.

LESSER FLAMINGO

Phoeniconaias minor

HERBIVORE – Microscopic algae.

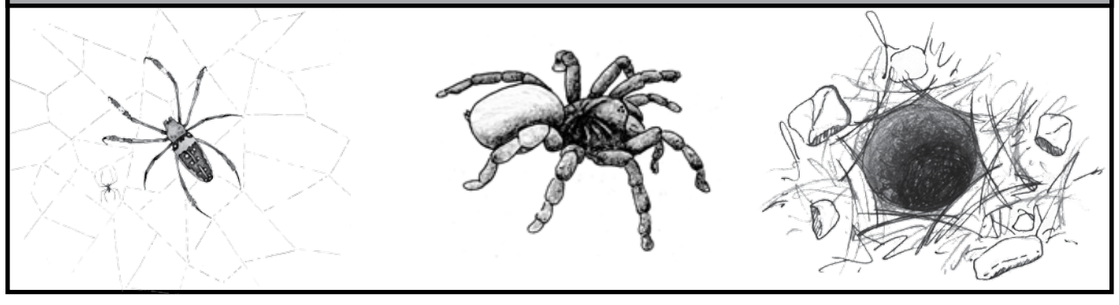


9 cm

More than half of the world's beautiful pink Lesser Flamingos live on the lakes in Kenya, Ethiopia, and Tanzania. They live in large groups, from hundreds to thousands. Their big bill is a clever filter, which they move from side to side on the surface of the water to catch the tiny algae they live on. Algae are very, very small plants that live in water.

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.

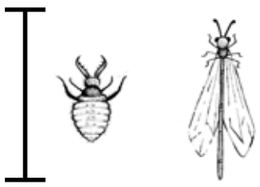


SNAKES

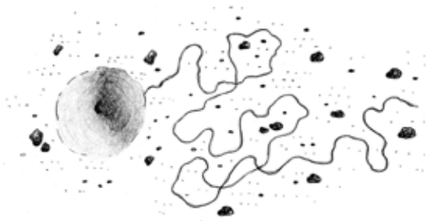
They are PREDATORS that eat small mammals, rodents and birds, as well as other snakes. Some dig holes, some hide in caves and others camouflage themselves in the long grass or against rocks.

ANTLIONS

Myrmeleon
INSECTIVORE – The Antlion Larvae are predators, feeding on mostly ants and other small insects.



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 sloping sand trap

MILLIPEDE

Diplopoda
DETRITIVORE – Millipedes feed on rotting plant matter.

Millipedes can curl up into tight spirals. There are many different kinds of millipedes. They are either black or brown, and some of them have orange or yellow bands. Some of them can grow to 30 cm long. Most predators do not eat them because they give off poisonous gases.

BAOBAB TREE

Stenocara dentata *Mbuyu (Swahili)*

The baobab grows very tall, up to 25 metres. They lose their leaves for up to 9 months of the year. These strange-looking trees live for an extremely long time – the oldest tree is 3000 years old. Their long round-shaped fruit hangs on long stalks, and they are covered with soft hair. The soft white pulp inside the fruit is soaked in water to make a tasty drink. Their leaves are used as a vegetable, and the bark is used for weaving and making rope.

SYCAMORE FIG

Ficus sycomorus *Mugumo (Swahili)*

These fig trees become very tall and wide, they can grow up to 21 metres high. Their fruit, the figs, grow from the base of the leaf stalks or in bunches on the main branches and the trunk. The figs are shaped like pears and when they are ripe, they are yellow or red in colour. When the figs are ripe in summer, they are a very important food source for birds, monkeys and baboons.

DESERT DATE

Balanites aegyptica *Mjunju (Swahili)*

These trees are spiky, but they do not have thorns. It is their young, new branches that are very sharp and pointy.
The leaves always grow in pairs, and they are a grey-green colour.
The fruit is like a date, and is yellow when ripe. Lots of animals eat the leaves and fruit, like goats, camels, and wildlife – especially giraffe. The roots and bark are used to treat malaria. The fruit is poisonous to freshwater snails and is used for the treatment of bilharzia.

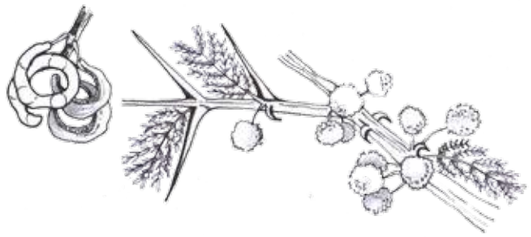
BUFFALO-THORN

Ziziphus mucronata *Mkunazi (Swahili)*

Their thorns are brown and grow in pairs – one thorn is curved, and the other one is straight. Their leaves are very smooth and on a sunny day, they shine like glass. The fruit is small dark red berries. Even though we can eat the berries, they are very bitter. The wood is very strong and is used for building. The roots and leaves are used to treat skin infections and stomach problems.

UMBRELLA-THORN

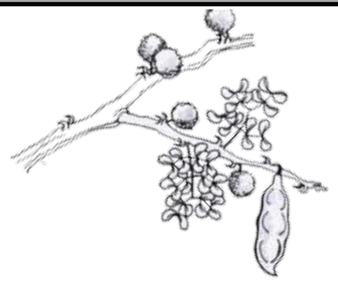
Vachellia (Acacia) tortilis *Mgunga / Mugumba (Swahili)*



These trees are easy to spot, as they have the shape of an umbrella. They have two different kinds of thorns, straight ones and hooked ones. Their pods are pale brown and twisted, and often curled into rings. The pods are very rich in protein and are eaten by livestock and wild animals. The bark is made into a tea and used to treat malaria and stomach ache.

HOOK-THORN

Senegalia (Acacia) mellifera *Kilawata / Kikwata (Swahili)*

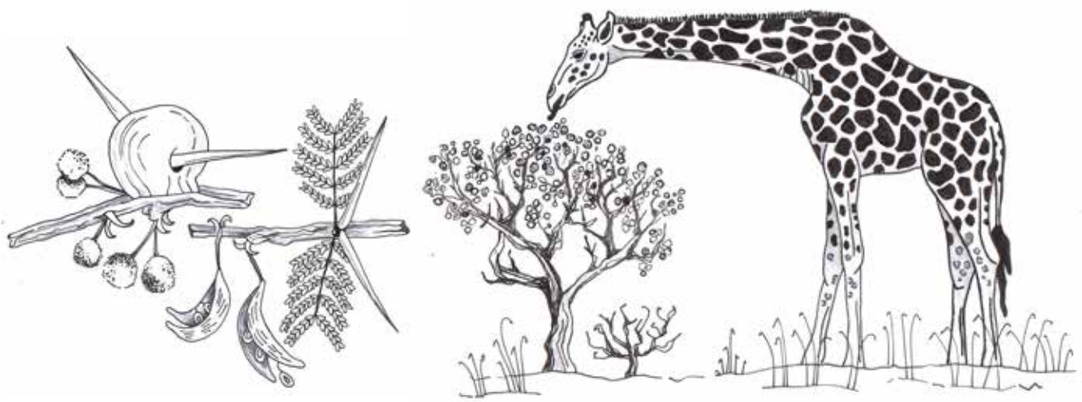


Their thorns are a pair of curved hooks, which are grey with black tips. This tree is often called the wait-a-bit thorn tree because when you get caught in their hooked thorns, it takes a lot of patience and waiting to untangle your clothes from them. Their pods are pale brown and thin, like paper. The 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.

WHISTLING-THORN

Vachellia (Acacia) drepanolobium *Eluai (Swahili)*

These trees are easy to recognise because they have strange round blister-balls which grow at the bottom of thorn-pairs. These blister-balls are hollow, and many ants live inside them. They have two kinds of thorns: pairs of small, hooked ones; and pairs of long, straight white ones.
Their fruit (pods) is brown or black, and shaped like a new moon. The pods split open while they are still attached to the branch, and their seeds hang out on thin little stalks.
In the summer season, the sweet-smelling creamy-white flowers bloom before the new green leaves appear. The flowers are eaten most especially by giraffe. The pods and leaves are also eaten by giraffe, as well as other wildlife.



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.

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.

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 explains 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.

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 **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 rock, and wind and rain break it down very slowly.

Rangeland is land where crops do not grow because of low rainfall or too many mountains. Instead, this land is perfect for animals to live, like livestock and wild animals. These animals eat the vegetation that grows naturally in the area.

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.

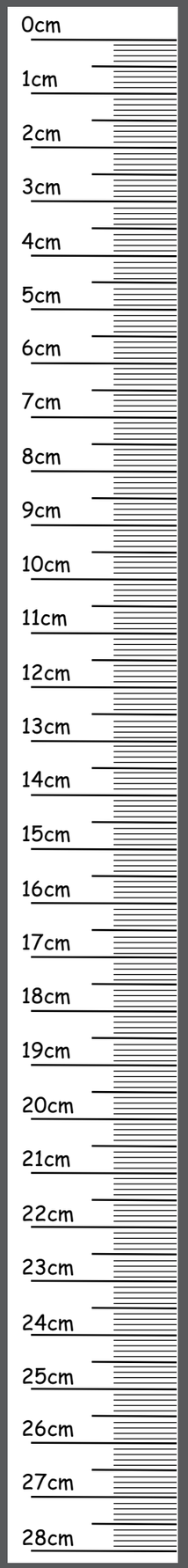
Schist is quite a soft rock, and wind and rain break it down easily.

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. The topography of another area can be flatter with lots of grass and few trees.

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.

Wildlife is the animals that are found in the wild – they have not been domesticated by people.



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