Research Cards Year 4

Research cards can be laminated and used for individual pieces of research.

It is not necessary to follow through the pages in order.

This means that in a class of 30, a few sets can be prepared and shared around.

Students can work together in pairs.

Research topics

God is Love: The Elderly
God is Provider: Water
God is Creator: Desert Animals; Ecosystems; Environmental Conservation
God is Wise: Healthy Me; Keeping Safe
God is Protector: Taste and Smell
God is Truth: Rocks

The Elderly 1

As people grow older, they slow down and cannot react quickly.

1. Think of an elderly person you know.

- *Which daily jobs do they find difficult to do?*
- *When might they sometimes feel unsafe?*
- *What kind of help do they need?*
- *Do they have any physical problems?*

Moving around

Try moving your arm at the elbow. Try moving your hand at the wrist. The points where the body moves are called joints. They are like hinges. As we get older, the joints don't work as well. They can become stiff and it is hard to move around.

If they are about to trip over they react more slowly than younger people. They might fall. They might feel afraid of people rushing by them and might feel afraid that someone will bump into them.

2. How would you move around an elderly person who cannot walk well? Be careful not to cause them to trip over.

3. What serious injury could happen to an elderly person if they trip over?

The Elderly 2

Eating the right food

An elderly person needs to eat wisely. The body cannot break down and use as much sugar when we get old.

Muscles

An elderly person may not be able to exercise as much as younger people. Why?

An elderly person may therefore have less muscle. Protein foods can help to build muscle. Protein foods are meats, eggs, dairy products, nuts, seeds, lentils and chickpeas.

Bones

As people get older their bodies start to wear out. The body cannot mend itself as well as it used to. Bones get brittle and break easily and take a long time to mend.

Elderly people need to eat foods to help their bones stay strong. These foods are green leafy vegetables, fruits, vegetables, seeds and some dairy products.

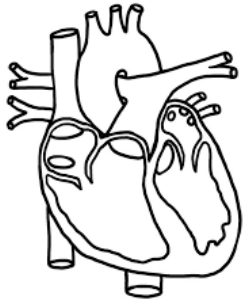
Now that you know what foods an elderly person needs, and doesn't need, plan three healthy meals for an elderly person – breakfast, lunch and dinner.

The Elderly 3

Heart
In an elderly person, the blood doesn't flow as quickly around the body. The arteries allow blood to flow around the body from the heart. But if they become blocked, it can cause a heart attack. To stop this from happening, an elderly person needs to eat good foods from nature. Junks foods can cause the arteries to gradually become blocked. This may start from when a person is much younger.

Teeth
Some elderly people have false teeth, or teeth missing, and can't chew as well as you can. This means they may not be able to eat hard foods like raw carrots or nuts.

1. Why should everyone eat good food from nature?
2. Why should we take good care of our teeth?
3. Draw a heart and colour the arteries red.
4. What would you do if someone you knew collapsed?



The Elderly 4

Hearing and eye sight
Most elderly people cannot see or hear as well as they used to.

When we speak to someone who cannot hear well we should talk to them close up and always look at them so they can see our lips.

1. What are some of the things they may not be able to do if they can't see well?

2. How would you feel if you couldn't hear well and there was loud music playing while someone was trying to talk to you?

3. How would you speak to an elderly person if they could not hear well?

The Elderly 5

God is patient, God is kind
The Bible says, “Love is patient, love is kind.” (1 Corinthians 13:4).

Jesus was patient and kind with all people. Jesus was especially patient and kind with children. One day Jesus was going to teach about God, as He often did. But this day lots of children came up to Jesus. The disciples, (friends of Jesus), said, “Send these children away. They are being a nuisance.” But Jesus said, “No, let the children come to me, because I love children, and children are part of the Kingdom of God.” (Matthew 19:13-14)

Children can be God’s servants by helping elderly people.

1. What could you do to help an elderly person?
2. Why should we be especially kind to elderly people?

The Elderly 6

Children have more energy than older people. Children are more active. A child might think it’s boring to sit down quietly and have a chat with an elderly person. But remember, Jesus is patient with you, so He wants you to be patient with others. Some elderly people may be lonely or sad. Think about how much joy you could bring to an elderly person by spending time with them!

Elderly People can teach us many things
The Bible says, “Listen to your father, and when your mother is old show her your appreciation. (Proverbs 23:22 GNB)

Elderly people should be respected. They have a life time of experience to share with younger people. Grandparents can help their grandchildren to understand more about God.
2 Timothy 1:5 tells us about the faith of a grandmother called Lois.

1. Why would you need to show patience when helping an elderly person?
2. Why should we respect elderly people?

Water 1
Water for life

All living things need water….the plants, the animals and us.
God created water to keep us alive.

People can only live for about 4 days without water.

Did you know that two-thirds of your body is made of water?

Think about where the water might be inside your body.

Water gives life. But Jesus said that there is a special kind of living water that only He can give. The living water that Jesus gives is the Holy Spirit. You can read about it in John 7:37 – 39.

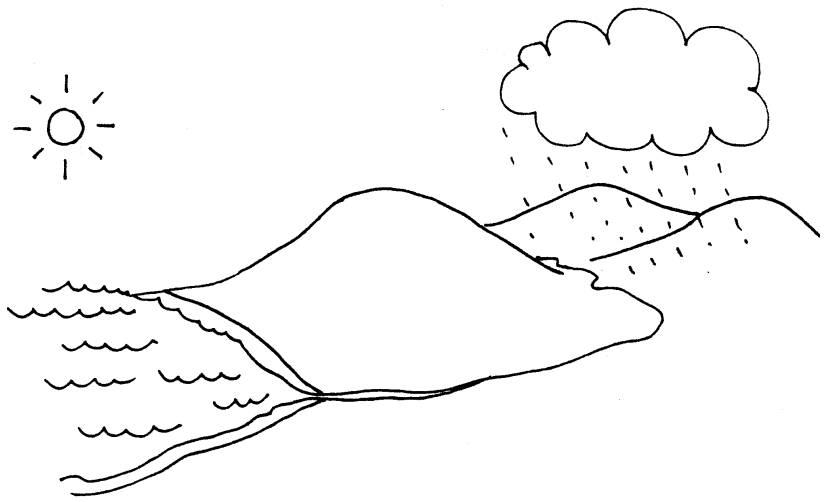
Copy:
Jesus said, "Let anyone who is thirsty come to me and _ _ _ _ _."

Water keeps all humans, plants and animals alive.
What kind of life does the Holy Spirit give us?

Water 2
The Water Cycle

Heat from the **sun** causes water to evaporate from the **sea**.
The **water vapour** rises and it becomes a **cloud**.
The water vapour changes to tiny water droplets when it is cooled.
These tiny droplets change to bigger droplets and it starts to **rain**.
The water goes into rivers and goes to the sea.
The water cycle starts over again.

Draw this diagram and use the words above in **BOLD** to label the diagram. Draw arrows to show how the water goes around.



Water 3

Water for life and health
Let's find out what happens to dirty water.

We use a lot of water keeping ourselves and our homes clean. BUT where does that dirty water go?

All of our household wastes (dirty water) wash away through underground pipes called sewage pipes. The pipes go to sewage farms where the dirty water is treated with chemicals and made safe to use again. If the sewage or dirty water is not treated properly it can be very dangerous and unhealthy.

In the old days, sewage or dirty water ran down open drains in the streets and into town water and rivers. Many people got sick and died because of the germs.

Today the pipes are underground and do not go near our water. After the sewage has been treated, some water can be used for the garden, (but not for drinking!)

Write the heading "**SEWAGE**" and answer the following questions in full sentences:

1. Where does all the dirty water from our homes go to?
2. What happens to the sewage once it gets there?
3. Why is this important?
4. What happened to the sewage in the old days?
5. What was wrong with this? What happened to the people in the old days and why?
6. Can we use sewage again after it is treated? What is it used for?

Water 4

Are you a good detective?

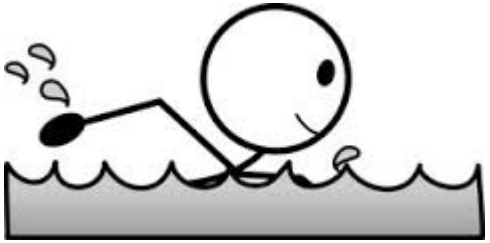
Add the correct vowels to complete this poem. It has to rhyme.
Clues: There are three As, one E, one I, three Os and one U.

SPL__SH, SPL__SH, SPL__SH,

Y__ __ H__V__ T__ W__SH!

Water 5
How we use water

Copy the drawings and write a sentence for each.



Water 6
Search for the words

Find the following words in the grid below:

Chemicals	Clean	Clothes
Dishes	Drains	Germs
Hair	Hands	Healthy
Pipes	Sewage	Sick
Soap	Teeth	Wash
Water		

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

Water 7
Write a poem

Dishes, dishes, dishes

Dishes, dishes, dishes,
Doing them is really against my wishes,
But if we let them build up high,
Nearly to reach the sky,
All the germs would think it was a good trick
And we would soon get very sick.

Dishes, dishes, dishes,
Doing them is a pain.
They keep coming round and round again.
But I'll help Mum
Because she doesn't have much fun
When she's the only one
Doing dishes, dishes, dishes

Now try writing your own poem about one of these:
1. dishes
2. showering
3. washing
4. water

Try to tell us something you think is important.

Water 8
Keeping clean

Make a poster about the importance of keeping clean and the ways we need to keep clean. This poster is to teach young children about keeping clean.

Desert animals 1

The Camel

Read the information and write 3 sentences about the camel.

What do I eat?

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

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

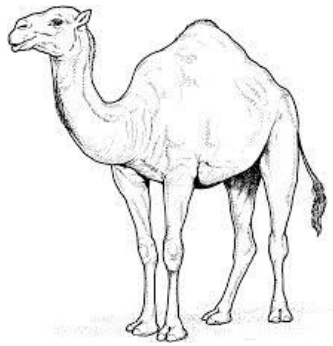
What is my hump for?

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

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

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

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



Desert animals 2

The Camel

How much water can I drink?

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

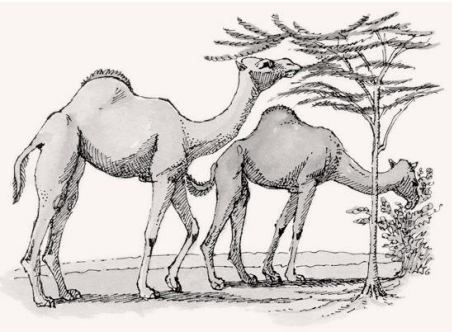
Where does the water go?

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

The water I swallow first goes into my stomach.
Then my blood vessels carry it to every part of my body.
My stomach is empty about ten minutes after I've drunk 100 litres of water.

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

1. *How much water can a camel drink in 10 minutes?*
2. *What happens to the water when it goes into the stomach?*



Desert animals 3
A camel’s nose and eyes

My nose
My nose is very special because it helps my body save water. God has made my nose so that when I breathe out, I don't lose much water.
My nose traps that warm, moist air from my lungs and the water stays in the cells around my nose.
This makes my nose feel cool.
I have special muscles in my nostrils that can close when there is a sand storm. The sand doesn’t get in, but I can still breathe.

My eyes
My eyelashes come down over my eyes like screens, keeping the sand and sun out but still letting me see clearly.
If a grain of sand slips through and gets in my eye, the Creator took care of that too.
He gave me an inner eyelid that wipes the sand off my eyeball just like a windshield wiper.
My eyebrows are so thick and bushy. I have to hold my head high to peek out from underneath them. I'm glad I have them though. They shade my eyes from the bright sun.

1. *What is special about a camel’s nose?*
2. *What is special about a camel’s eyes?*

Desert animals 4
A camel’s legs and feet

My feet


In the desert I walk on sand. My Creator gave me special sand shoes for feet. My hooves are wide, and they get even wider when I step on them.
Each foot has two long, bony toes with tough, leathery skin between my soles.
My feet are a little like webbed-feet.
They won't let me sink into the soft, drifting sand.

My knees
When I was six months old, special knee pads started to grow on my front legs. They are very tough. My Creator knew I had to have them.
They help me lower my heavy load to the ground. I can fall on my knees without my knees getting hurt.
If I didn't have them, my knees would soon become sore and infected, and I could never lie down. I'd die because I would never be able to rest.

My legs
When I walk, I sway from side to side.
Some of my riders get seasick.
I sway from side to side because of the way my legs work. Both legs on one side move forward at the same time.

1. *What kind of feet does a camel have?*
2. *Why are they good for the desert?*
3. *What are the camel’s knee pads used for?*
4. *How does a camel walk?*

5. Desert animals 5

How the camel helps desert people

Desert people depend on me for many things.
They need me for:

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

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

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

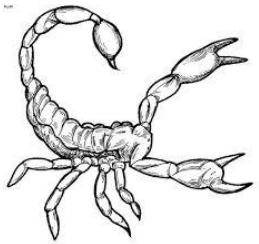
Camels in the Bible
How did people of the Bible use camels to help them? Write about some Bible people who rode on camels.

Desert Animals 6

The Desert Scorpion

The desert scorpion spends much time on the sand.
This exposes it to harsh sandstorms that could cause damage to its outer skeleton (called an exo-skeleton).
But the scorpion is protected by rough coat of armour.
The bumps on the armour protect it.

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



1. *How is the scorpion protected from sand storms?*
2. *Where would you find a desert scorpion?*
3. *Why is it dangerous?*
4. *What do they eat?*
5. *How do they catch food?*
6. *What happens if it does not get water?*

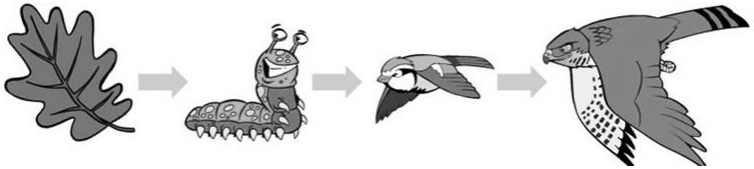
Ecosystems 1
Food chains

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

Here is a list of animals and the foods they eat:
Grass
A leaf
An eagle
A small bird that eats insects
A caterpillar
A cat
A mouse
A vegetable
A cow

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

We can show what eats what by drawing a food chain.
For example:
A LEAF → (is eaten by) A CATERPILLAR → A BIRD



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

Ecosystems 2
Food chains and food webs

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

1. PLANTS get energy from the sun to make their own food. (They are the PRODUCERS)

2. HERBIVORE animals eat the plants.

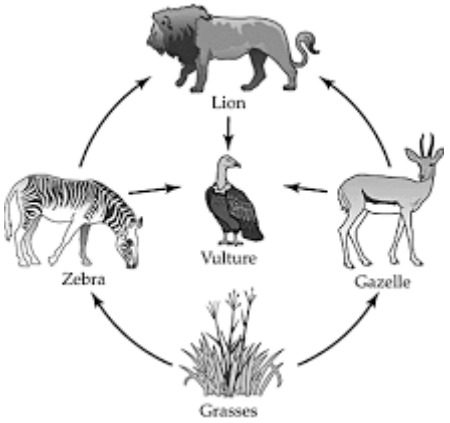
3. CARNOVORE animals eat the herbivores.

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

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

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

Draw a diagram of a different food web.



Ecosystems 3
What is an ecosystem?

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

There are two parts to the community:
The non-living part:
Rain, sunlight, temperature, soil

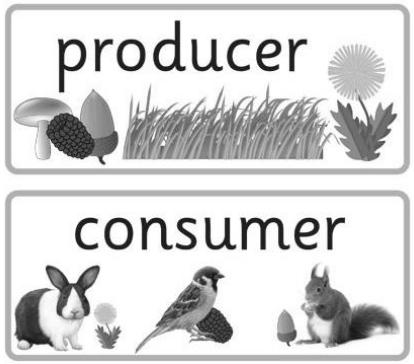
The living part:
Plants, animals, bacteria

In the living part there are producers and consumers.
The plants produce food. The animals consume food.

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

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

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



Ecosystems 4
Dependence

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

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

This is called the balance of nature.
Changes to ecosystems can be caused by:

- Humans
- Climatic changes

What would happen if:

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

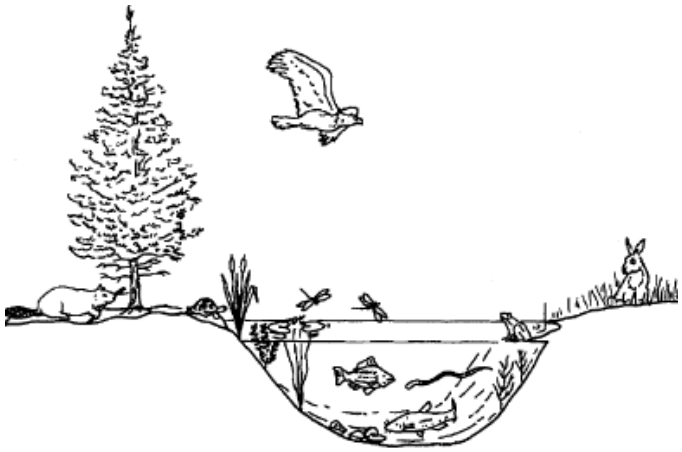
Ecosystems 5
Types of ecosystems

Deserts
Oceans
Savannah grasslands (e.g. Africa)
Rainforests
Lakes and ponds
Rivers

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

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

Now draw your ecosystem.



Ecosystems 6
Climate

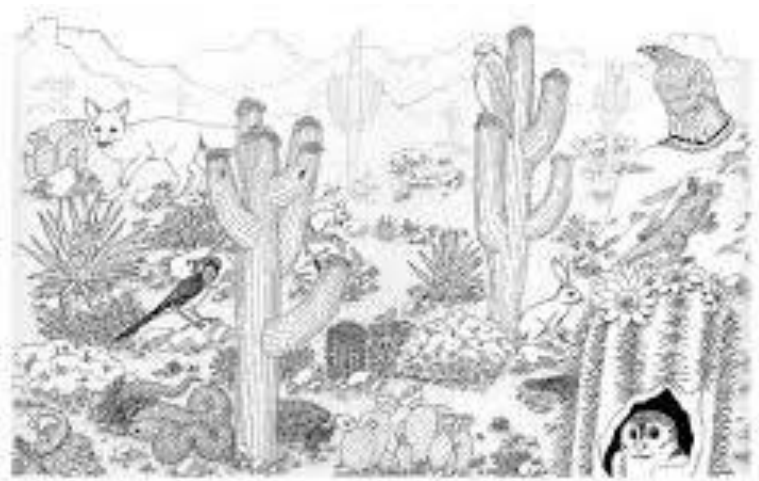
Climate is the usual pattern of weather for a particular place. In some places, it is hot all of the year. In some places, it is cold all of the year. In some places, it is hot in the summer and cold in the winter. Some places have lots of rain and some don't.

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

The climate affects the type of ecosystem.

Where in the world would you find:

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



Ecosystems 7
Rainforest animals

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

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

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

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

Ecosystems 8
The North and South Pole

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

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

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

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

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

Whales including Killer Whales also live in Antarctica.

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

Ecosystems 9
Grasslands

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

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

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

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

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

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

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

Ecosystems 10
The coral reef

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

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

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

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

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

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

Environmental conservation 1
Our environment

The Earth is the beautiful home that God made for us. There is no other planet where people can live. God made the Earth just for us.

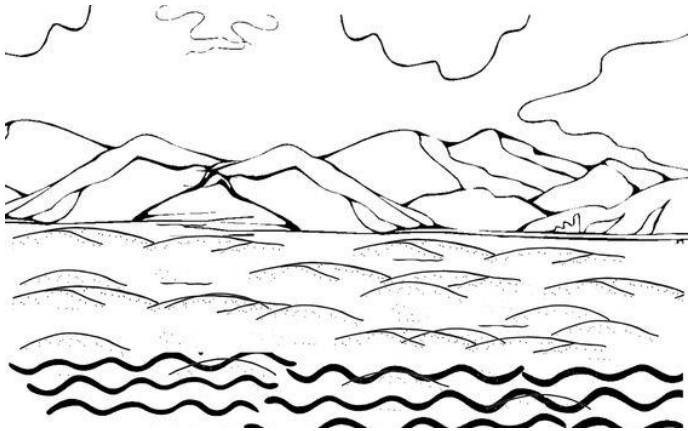
Our Earth provides all the food, water and air that living things need to survive.

It also provides the energy and other natural resources that humans use.

There are three main parts of the environment: the land, the water and the atmosphere.

Plants, animals and humans live in and use all three parts of the environment.

1. Why is the Earth special?
2. Name some of the natural resources that God has provided.
3. What are the three main parts of the environment?
4. What is the atmosphere?



Environmental conservation 2
What happens when the environment changes?

Changes in the environment can be caused by nature. Here are some examples:

An erupting volcano can quickly burn away plants in the surrounding area.

Animals can change the environment by building homes or eating the plants in their environment.

Many changes in the environment are caused by humans. Some of these changes are for good, but some cause great damage.

Examples of things that cause damage: pest killers, dumping rubbish, poisonous fumes from factories, cutting down forests.

1. How does a cyclone change the environment?
2. How could a herd of elephants change their environment?
3. What are some good changes that humans can make to the environment?
4. Give two examples of how humans can cause damage to the environment?

Environmental conservation 3
Natural resources

We use many things from nature.

Trees are cut down to clear the land to make buildings, furniture and paper. Trees are also cut down to make land for farming.

Fuels like coal, oil and natural gas come from under the ground.

God has provided these things for our use. They are called natural resources. However, we should use these resources carefully. We should not take more than we need.

We should use the resources without causing damage to plants and animals.

Instead of destroying a forest by taking all the trees, we can plant trees in plantations instead. Sadly, the rainforests of the world are being cut down at such a rate that there will be no rainforests left in 100 years if it continues at this rate.

Instead of using coal and oil from the ground for energy, we can use solar power or wind power.

1. What are the problems caused by cutting down rainforests?
2. Why is solar and wind power a good idea?

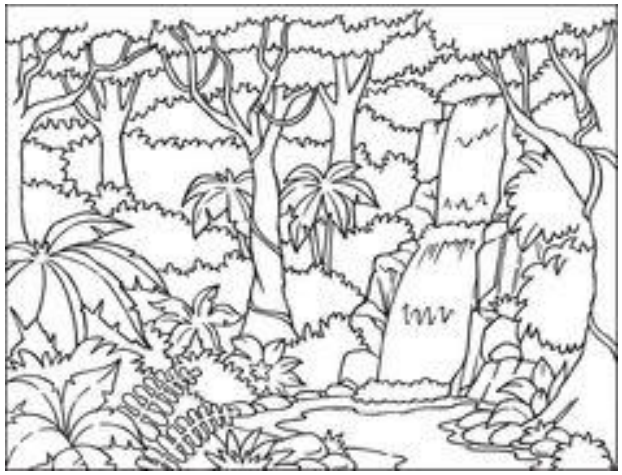
Environmental conservation 4
Rainforests

Rainforests have more types of animal and plant species than any other environment on Earth. A species is the name we give to one particular type of animal or plant.

As trees are cleared, many animals and birds lose their homes. When all the members of a species die, the species becomes extinct. At least 100 species of rainforest plants and animals are becoming extinct every day.

Many medicines have been made from the plants in rainforests. Doctors use these to treat serious diseases such as malaria and cancer. Scientists are discovering medicines make from plants all the time. It would be a great shame if some special plants become extinct before we discovered how they might help us.

1. What is a ‘species’?
2. What if all the rainforest plants and animals became extinct? How would it affect us?



Environmental conservation 5
Soil erosion

Leaves and roots of plants protect the soil. They stop soil erosion. This means that they stop soil being blown away or washed away into rivers, lakes and the sea.

When too many animals feed in one area of land, the grass becomes eaten away completely. Then the soil is blown or washed away by wind and rain. This is called overgrazing. Most plants cannot grow without soil. When soil is lost, we cannot easily replace it.

In Asia soil erosion on hillsides is stopped by cutting steps or terraces into the hill.

1. What happens if a farmer puts too many sheep or cattle in one area?
2. What would a wise farmer do to prevent soil erosion?

Experiment:
Prepare two trays of soil.
In one tray, plant some grass seeds and wait for the grass to grow.
Put both trays on a steep slope. Water them with a watering can.
The soil in the tray with grass will be held in place by the grass roots. The soil in the other tray will be washed away.

Environmental conservation 6
Wildlife in danger

The rate at which animals and plants are becoming extinct is now higher than ever before. Hundreds of species die out every day. Extinctions have always happened. The Tasmanian tiger of Australia became extinct because farmers shot them. The dinosaurs died out because the world's climate changed after the Great Flood and it became too cold for some animals. This was called the Ice age.

Today the animal extinction is mainly caused by humans. Thousands of animals and plants are in danger because the places where they live are being destroyed.

Hunting is another danger to wildlife. People hunt animals for food and fir their fur, hide and horns. Sometimes they hunt just for fun.

Sometimes animals are put in danger by careless fishing methods. When large fishing nets are used they often catch dolphins and turtles as well as fish. These animals die in the nets.

1. What climatic event in history caused many animals to become extinct?
2. Give examp0les of how animals have become extinct through the activity of humans.
3. What is wrong with hunting just for fun, without using whatever is killed for food.
4. What method of fishing can you suggest that does not put dolphins and turtles in danger?

Environmental conservation 7
Orang-utans in danger

Orang-utans are large apes that live in the trees of the rainforests on the islands of Sumatra and Borneo in Indonesia.

Female orang-utans usually have just one baby at a time. The baby stays with its mother and learns from her for seven years.

The orang-utans' rainforests are being destroyed. Now they only live in a small area of rainforest.

Orang-utans eat many different sorts of food such as fruit, leaves, birds' eggs, snails and termites. They have to travel long distances through rainforest to find their food. They mostly travel above the ground, using their powerful arms to swing from one branch to another.

The islands where the orang-utans live are crowded with people. Many people are poor. They cut down the rainforest and sell the timber to get money. They also clear the forests to grow crops. The biggest crop is palm oil, which is sold to companies all around the world to be used in bread, cakes, biscuits, soap powders and many other products.

Some people kill or capture orang-utans. This is called poaching. People sell baby orang-utans for pets. The poachers treat the orang-utans very cruelly. Often the mother is killed to make it easier to take the baby.

Unless more is done to protect orang-utans they could become extinct in the wild very soon. Write your ideas about what should be done to save the orang-utan.

Environmental conservation 8
Saving the orang-utan

Orang-utans are disappearing because:

1. their rainforest home is being destroyed.
2. The babies are being captured and sold as pets
3. Farmers are killing orang-otans that come and eat the food crops, because they can no longer find enough food in the forest.

Some people are trying to help.
Some people have set up rescue centres. They care for babies whose mothers have been killed. They also care for pet orang-utans when the owner no longer wants it. When the babies grow up they are very strong and can be bad tempered. This is when people decide that they no longer want them.

At rescue centres vets check the orang-utans for illness. They also teach them how to find their own food.

In the wild, young orang-utans learn what food is safe to eat and where to find it. They also learn how to travel through the rainforest and how to stay safe. Babies that have been kept as pets do not know how to do these things.

The rescued orang-utans are released into nature reserves. Forest rangers patrol the nature reserves and keep away loggers and poachers. But governments of the countries where orang-utans live cannot pay enough people to help them.

What is being done to help the orang-utans?

Environmental conservation 9
Waste disposal

Waste disposal is the method by which people get rid of their rubbish. Here are some ways that we can get rid of it:

Landfill
Landfill is the name given to a large pit that is dug into the ground so that waste can be placed into it and buried. Landfill can also be called a ‘tip’. The tip is located well away from where people live. Huge machines squash the rubbish flat and push it deep under the ground. It is then covered with a layer of dirt to reduce the smell. This process happens over and over until the landfill pit is completely filled and then another one needs to be dug.

Burning
Paper, cardboard and wood can all be burnt but too much smoke may cause air pollution.

Composting
Plant materials such as vegetable scraps and garden waste will eventually turn back to soil if it is buried in the ground or put in a compost bin so that the earthworms can process it.

Recycling
This is when products made of metal, plastic and glass are collected and sorted. They go to a factory where they are melted down and made into new products.

1. *What would be the problem if everyone in the world only used the landfill method of getting rid of their rubbish?*
2. *Why are the other three methods better?*

Environmental conservation 10
Recycling

Recycling is when we make new things from things we don’t want anymore. Products that can be recycled are made of metal, plastic and glass. Recycling can be done in factories.

Metal
Aluminium and steel are both expensive metals and take about 100 years to break down if buried in the ground. Aluminium and steel come from the ground and are processed to make the metal that is used in products. But another way is to recycle the products that have already been made. Aluminium and steel cans can be recycled to make new cans, steel for building, car parts and other products. It takes as much energy to produce one new steel can as it does to make 20 cans from recycling.

Plastic
Plastic is made from oil. Oil is found in the ground. It has been formed from plant material that is thousands of years old. If the Earth runs out of oil, we cannot replace it. By recycling plastic, we can save the Earth’s oil resources.

Glass
Glass is made from sand. It takes a lot of energy to make glass in a factory. By recycling the glass that has already been made we can save energy.

1. *Make a plan for getting used metal, plastic and glass containers from the rubbish bin to the factory. Think about the easiest way to sort the rubbish.*
2. *a) What’s wrong with using lots of energy (electricity) to produce a product? b) How can we use less energy?*

Environmental conservation 11
Litter

Litter is the name given to food waste, packaging and other rubbish left in public places. Items include cigarette butts, plastic bags, water bottles, drink cans, glass bottles, food containers and left over food.

In the cities, litter is sometimes cleaned up by government employees. However, more often it remains where it is or carried on the wind, or washed into rivers and the sea. It builds up to become a nuisance and makes our cities or countryside look awful.

Litter left around rivers and the sea causes death to many animals. Fish, birds and other marine animals mistake litter for food and eat it, or get it caught around their legs, their bills or even in their mouths, choking them. Litter pollutes the environment making it harder for animals to survive.

Cigarettes take 15 years to break down. They wash down drains, pollute the soil and have been found in the stomachs of birds, turtles and other marine animals.

Plastic bags kill thousands of marine animals every year. The animals get caught up in the bags, or the animals might eat the plastic bags by mistake. Plastic bags take about 400 years to break down.

1. *What type of litter might attract rats and cause disease?*
2. *Why should we keep our cities and countryside looking beautiful, free of rubbish?*
3. *What types of rubbish endangers animals?*

Environmental conservation 12
Hazardous waste

Hazardous waste is waste material that can cause serious injury or death to humans, wildlife and the environment. It can be explosive, flammable (burns easily), toxic (poisonous) or infectious (causes disease). It can be solid, liquid or gas.

Hazardous waste usually comes from factories, but can also come from farming, the military, homes or hospitals.

Household hazardous waste includes motor oil, drain cleaners, bleach, toxic cleaning chemicals and poisons such as medical drugs.

Old batteries, mobile phones, computer and televisions can also produce hazardous waste if not recycled properly.

Exposure to hazardous waste can cause cancer.

We must be very careful about how we dispose of hazardous waste. It should not be put down the drain.

Most garbage dumps today are built with a special protective barrier at the base of the pit, to prevent hazardous waste seeping into the ground. If it gets into the ground, then it can eventually get into the rivers and seas.

1. *List four types of hazardous waste.*
2. *What toxic chemicals might be used on a farm?*
3. *What products in the home may be a source of hazardous waste? What safe non-toxic cleaning products could you use instead of some of these?*

Healthy Me 1
About water

Without water, your body would stop working properly. Water makes up more than half of your body weight, and a person can't survive for more than a few days without it. This is because your body has lots of important jobs to do, and it needs water to do many of them. For instance, your blood, which contains a lot of water, carries oxygen to all the cells of your body. Without oxygen, those tiny cells would die and your body would stop working.

When the weather is hot, or when you're exercising, you'll need more.

When your body doesn't have enough water, it becomes *dehydrated*. You might feel tired when you are dehydrated, and when you are really dehydrated you can a head ache or feel sick.

You can help your body by drinking 5 to 6 glasses of water each day, and drinking extra water when you exercise and when it's hot.

1. How long can a person survive without water?
2. Why does the body need water?
3. What is it called when the body does not have enough water?
4. How might feel if your body does not have enough water?
5. How much water should you drink?
6. When should you drink extra?

Healthy Me 2
Water challenge

Water	rating
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
week-end	
Total score:	

Draw this table in your book or on paper.

Challenge
Drink plenty of water each day - no sweet or fizzy drinks.
Drink 5-6 glasses of water.
(1 glass holds 250 ml.)

Give yourself a score (rating) each day: 0 points for not drinking any water; 5 points for drinking the right amount of water.

Remember that other drinks like fizzy drinks, juice and cordial get no points.

Healthy Me 3
About Fruit and vegetables

Children need vitamins and minerals for their growing bodies. Our bodies are made of tiny things called cells. Vitamins and minerals are like little sparks that tell the body to grow and to make new cells. If you are sick, or have a cut, the body can repair itself. It needs vitamins and minerals to do this.

Many fruits like oranges, lemons, apples and pineapples have Vitamin C, which helps keep colds away. Carrots have Vitamin A for healthy eyes. Green vegetables have many minerals. Eating fruits and vegetables in a rainbow of colors will provide many different vitamins and minerals to keep you healthy.

Children with healthy diets, especially those who eat a variety of coloured fruit and vegetables, do better on school tests than children who don't eat a healthy diet. Studies have been done to prove this.

1. What do vitamins and minerals do for our health?
2. In which foods do we find vitamins and minerals?
3. Name a fruit that can help to keep colds away.
4. Name a vegetable that is good for your eyes.
5. Why is it good to eat fruit and vegetables of many different colours?
6. How do we know that eating healthy food can help you get better marks in your tests?

Healthy Me 4
Fruit and vegetables

Fruit and vegetables	rating
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
week-end	
Total score:	

Draw this table in your book or on paper.

Challenge
Try to eat at least 2 pieces of fruit each day and 5 different kinds of vegetables each day, including raw vegetables.

Give yourself a score (rating) each day. 0 points for not eating fruits or vegetables; 5 points for eating lots of fruits and vegetables.

Healthy Me 5
Snacks

Snacking is eating a little bit of food when it's not a meal time.
Too much snacking is not good because:

- It can be bad for your teeth.
- It may spoil your appetite if it's too close to dinner time.
- For some people, it can cause them to put on too much weight.

There are healthy snacks and unhealthy snacks, but we should not do too much snacking, even if the snacks are healthy. One small mid-morning snack and one small mid-afternoon snack is all you need.

Good snacks:
Milk, fruit, raw carrots, coconut, plain crackers with tomato or peanut butter.

Unhealthy snacks:
Sweets, sweet drinks, sweet biscuits, salty things like crisps and chips

Snacking while watching TV…not a good habit
Some children start snacking on a packet of chips while they watch TV. Before they know it, they have eaten the whole packet.

1. Why is too much snacking not a good thing?
2. Make a list of some good snacks that you could eat. Draw pictures.

Healthy Me 6
Healthy snacks

Snacks	rating
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
week-end	
Total score:	

Draw this table in your book or on paper.

Challenge

This week you have to make all your snacks healthy snacks. Try not to eat potato crisps/chips and sweets. Instead choose nuts, fruit, raw vegetables, and healthy home-made snacks.
Give yourself a score (rating) each day. 0 points for not eating healthy snacks; 5 points for eating all healthy snacks.

Healthy Me 7
Healthy Breakfast

Why do we need a healthy breakfast?
When you wake up, your body has been without food for about 12 hours. You need to refuel, like a car needs to refuel with petrol.
If you don't have breakfast you will feel tired and cranky.

Breakfast is brain power
What you eat in the morning is very important. A healthy breakfast will help you pay attention, concentrate, and help you remember the things you have to learn at school.

A healthy breakfast gives you the nutrients your body needs to grow and keep active.

What is a healthy breakfast?
Foods from nature are best. There are many traditional foods that are good to eat for breakfast.
Breakfast foods should not contain sugar. Sugar is not a brain food. It does not help you concentrate. It makes you tired instead.

1. Make a list of healthy breakfast foods that you would like to eat.
2. How does a healthy breakfast help you?

Healthy Me 8
Healthy Breakfast

Healthy Breakfast	rating
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
week-end	
Total score:	

Draw this table in your book or on paper.

Challenge
This week you have to eat a healthy breakfast each day. Try fresh fruit, wholemeal toast, porridge, an egg or cereal that has low salt and no sugar. You could also eat rice, vegetables and other traditional foods.

Give yourself a score (rating) each day. 0 points for not eating healthy breakfast; 5 points for eating a healthy breakfast.

Healthy Me 9
Healthy Lunch

A healthy lunch is one that gives you energy to work and play. It should also give you the nutrients your body needs to grow and stay healthy.

Sweet, sugary foods like sweet biscuits are not the way to go. Sugar gives you energy for a very short time. After that, you suddenly feel tired. So, sugar really makes you tired, even though it might give you energy for just a little while.

Sugar is bad for your teeth and causes tooth decay.

Good foods to pack for a school lunch could be:

- Sandwiches with fillings such as peanut butter
- Flat breads such as roti, with vegetable fillings
- Raw vegetables such as carrots, tomato, cucumber
- Fruit

Healthy Me 10
A healthy Lunch

Healthy Lunch	rating
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
week-end	
Total score:	

Draw this table in your book or on paper.

Challenge

This week you have to eat a healthy lunch each day. Pack a lunch of healthy foods like fruit, raw vegetables and healthy bread.

Give yourself a score (rating) each day. 0 points for not eating healthy lunch; 5 points for eating a healthy lunch.

Healthy Me 11
The family meal

Meal times are times when families can get together and talk about what they did during the day.

It is good for families to sit together to eat a meal that has been specially prepared at home.

Sometimes there are special meals for your extended family, including aunts, uncles, cousins and grandparents.

Meals can be a time of celebration.

1. Why is it good for families to eat together?
2. Why is it better to make your own food rather than going to buy ready cooked food from a take-away shop?
3. What kind of healthy foods are cooked in your home?
4. What is an extended family?
5. Think of some occasions when family meals are a time of celebration.
6. Draw your family table looking down from above. (This is called a “birds-eye view”). Draw the food on the table, and draw the family members around the table.

Healthy Me 12
The family meal

Challenge
This week you have to help Mum or Dad prepare a family’s main meal. Only healthy ingredients allowed!

Ask Mum or Dad if you can help them plan the meal. You can also help to set the table in a special way.

Draw this table in your book or on paper.
Give yourself a score (rating) for each category.0 points for not doing well; 5 points for doing very well.

The Family meal	rating
1. Meal planning	
2. Table setting	
3. Food preparation and cooking	
4. Serving and presentation	
5. How healthy is the meal?	
6. How did the family enjoy the food?	
Total score:	

Keeping safe 1
Safety at home

Here are the things you should never do at home. Write the rules and draw a picture for each:

Rule 1: Never play with matches.
(Fire spreads quickly!)

Rule 2: Only take medicine given to you by your parent or the person looking after you.

Rule 3: Be safe with electrical things.
(Don't use electrical things that have damaged cords. Watch out for wet hands.)

Now write three more rules for:

- Boiling kettles
- Hot ovens
- Sharp knives

Keeping safe 2
What to do in an emergency

You should know your Mum or Dad's phone number.

If there is an emergency call the emergency services.
Give your address and phone number.

In the case of a fire, go out of the building.

1. Do you know your parents' phone number? (yes or no)
2. If your answer is 'no', what are you going to do?
3. What is the number you would call in an emergency?

Keeping safe 3
Safety with TV, internet and computer games

If you have a computer of the internet, then there are some things to remember to keep safe.

The internet is very good for finding out things, but there are some websites that can damage our minds and emotions. Only go on websites that your parents or teachers tell you to look at.

If you watch TV, make sure that your parents know what you are watching. There are some things on TV that are frightening or upsetting.
Only some films are meant for children.

Computer games can also be harmful to our minds and emotions.

Always let an adult know if you come across something that is frightening or upsetting.

Finish this sentence:
I must take care that I only look at the right things on ……and…….

Keeping safe 4
Keeping safe when having fun outside

Write and draw a picture for each of these:

Never play near busy roads.

Be careful around water. Don’t go in rivers or deep water.

Be careful when riding a bike. Wear a helmet.

Keeping safe 5
Safety with people

- Never go with anyone you don’t know.
- If a stranger tells you that your Mum or Dad has sent him to pick you up, go and see a teacher or an adult you trust.
- Don’t play in dark lonely places. Play where people can see you.
- If someone treats you in a way that you think is wrong, tell an adult that you trust.

What should you do if a stranger asks you to go with him?

Keeping safe 6
Keeping safe in storms

If there is a storm, keep safe from lightning strikes. Do not stand in an open space.

If there is strong wind, find shelter in a building. Falling branches can be dangerous.

What should you do if there is a strong storm?

Keeping safe 7
Keeping safe at the river or beach

If you are swimming in a river or at the beach, here are some important rules:

1. Always have an adult with you when you are swimming.
2. If you are not a good swimmer, don't go into water above your waist.
3. Look for danger signs before you go into the water. Look and see if there are strong currents, big waves, or if the water is too deep.
4. Don't go out too far from the shore.
5. If you do get into trouble, shout for help and wave. Float on your back.

Keeping safe when in a boat

1. Always wear a life jacket.
2. Don't hang over the edge of the boat.

Make a poster about water safety. Use words and pictures.

Keeping safe 8
Keeping safe at the swimming pool

If you are swimming at a swimming pool, here are some important rules:

1. If you are not a good swimmer, swim only at the shallow end.
2. Swim with a friend, and look out for each other.
3. If you can dive, check the depth of the water before you dive in.
4. Don't run around the pool.
5. Watch out for little children. They can drown very easily and must have an adult, or an older brother or sister with them the whole time.

Write the letters SAFE and write a message for each letter.

S – Swim with a ……..

A – Always ……

F – Friends can look out for ……..

E – Every young child must have someone …….

Gifts and talents 1
We all have gifts and talents

We all have different strengths and weaknesses.
The things we are good at are gifts from God.
We are good at some things but not so good at other things.
We have different likes and dislikes.
That's how God made us.

Some people are better at understanding some things than others.

Some of us find it easy to understand how a flower grows, but find it difficult to learn how to play a musical instrument. For others, music might be easy, but playing football is difficult.

Here is a list of things that people can be good at:
Sport, maths, reading and writing, making friends with people, being organized, music, art, knowing about animals and nature

1. Write a list of the things you are good at.
2. Write the names of your family members. Now write what they are good at. Which gifts are the same as yours?
3. Write a list of the things your best friend is good at.
4. Read 1 Peter 4:10. How does God want us to use our gifts and talents?

Gifts and talents 2
Body-Smart

You may be body-smart. You will enjoy sports and are good at swimming, athletics, football, gymnastics and other sports.

You enjoy learning through 'doing something'.

1. How do you learn best?
    - Listening
    - Reading
    - Watching
    - Doing the thing you are trying to learn

2. Who do you know that is body-smart? What are they good at?

3. If you were in a team and someone was not good at the sport, how should you treat them? Should you shout at them for missing the ball? How would this make them feel?

Gifts and talents 3
Number-Smart

You may be number-smart.
You will be good at mathematics and other number activities.
You will also be good at solving problems.

1. Who do you know that is number-smart?
2. If you are not number-smart, what should you do?
    - Get worried when you find maths difficult
    - Ask the teacher for help
    - Try your best because maths is useful
3. What can maths be used for in every-day life?
4. Give an example of a problem that can be solved by using maths.

Gifts and talents 4
Word-Smart

You may be word-smart.
You will enjoy reading, writing and talking about things.
You will find learning new languages easy.
You will be good at spelling, reading and writing.
You will be good at word games like Scrabble and crossword puzzles.

1. Who do you know that is word-smart?
2. If you are not word-smart, what should you do?
    - Get worried when you find reading, spelling and writing difficult
    - Ask the teacher for help
    - Try your best because reading, spelling and writing are useful
3. Why is reading useful in every-day life?
4. Why is spelling useful in every-day life?
5. Why is writing useful in every-day life?
6. Who do you know that speaks two languages well?

Gifts and talents 5
People-Smart

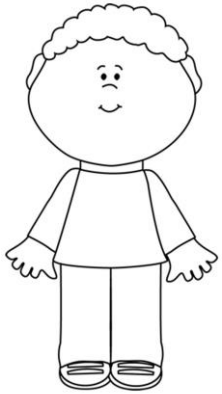
You may be people-smart.
You will like to mix with other people.
You like parties.
They are good at talking to people.
You like to belong to lots of clubs.
You like team games and are good at sharing your ideas.

1. Who do you know that is people-smart?
2. How can a people-smart person use their gift to share the Gospel?
3. Why are people-smart people lots of fun?
4. If you meet someone who is very quiet and not good at talking, should you:
    - Ignore them and go and talk to someone who is good at talking?
    - Ask them questions and help them make a conversation?
    - Try and get to know them because they might have something they can share with you?

Gifts and talents 6
Myself-Smart

You may be myself-smart.
You will know about yourself, and your strengths and weaknesses.
You will probably keep a diary.
You will be good at setting goals for yourself.
You will be good at keeping your homework and your personal things organized.
You will be able to work well alone and not be distracted by other people.
You will think deeply about ideas.

1. Who do you know that is Myself-smart?
2. How can a Myself-smart person use this gift to help others?
3. What are the good points about a Myself-smart person?



Gifts and talents 7
Music-Smart

You may be music-smart.
You will enjoy music and can recognise sounds
You will have a good sense of beat and rhythm.
You might be good at singing or playing a musical instrument.

1. Who do you know that is Music-smart?
2. How can a music-smart person use their gift to spread the Gospel?
3. If you are not music-smart, can you still enjoy music?
4. If you are not music-smart can you still worship God through music?

Gifts and talents 8
Picture-Smart

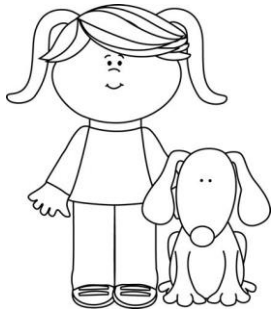
You may be picture smart.
You will be good at art and also at other activities where you look at pictures, like map reading, finding your way out of mazes and graphs.
You could be good at photography.
You find it easy to think in pictures.

1. Who do you know that is picture-smart?
2. How can a picture-smart person use their gift to serve God?
3. How can a picture-smart person help you if you get lost?
4. How can a picture-smart person explain to someone something that is difficult?
5. If you are not good at art or drawing, what should you do?
    - Feel sad that you are not as good as others?
    - Try to improve your drawing skills?
    - Encourage and appreciate others who are good at art?

Gifts and talents 9
Nature-Smart

You may be nature-smart.
You like the world of plants and animals, and like learning about them.
You would like to have a pet.
You enjoy being outdoors in nature.
You care about animals and hate animal cruelty.

1. Who do you know that is nature-smart?
2. Why is it easy for a nature-smart person to praise God?
3. How can a nature-smart person serve God?
4. Even if you don't think you are nature-smart, we can still appreciate God's wonderful creation. What can we do to stop:
    - animals from suffering
    - rainforests being destroyed



Gifts and talents 10
God knows us

God knows us better than anyone because He made us.
He knows how many hairs are in our head.
He knows what we are good at, and what we are not good at.

Read and write out Luke 12:6-7.

We don't have to be good at everything
God loves us for who we are.
God can help us get better at the things we are not good at.
Maybe there are some things we will never be good at.
That's OK. Trying your best is all that matters.
Think about the things you *are* good at. These are your special gifts from God.
Work on your gifts so that you can serve God in a really special way.

God made you to be the person you are.
He did not make a mistake when He made you.

> *You created every part of me; you put me together in my mother's womb…When my bones were being formed, carefully put together in my mother's womb, when I was growing there in secret, you knew that I was there – you saw me before I was born. (Psalm 139)*
>
> *Before I formed you in the womb I knew you; before you were born I set you apart. (Jeremiah 1:5)*

Five senses: taste and smell 1
Taste and smell facts

Name two of your favourite tastes.
Name two of your favourite smells.

How does our body give us a sense of taste or smell?
The nose contains millions of little cells called *receptors.* A receptor is part of a *nerve*. Nerves are like very thin threads that carry messages to the brain.

The receptors in the nose are found in the tiny hairs inside the nose. They recognize particles in the air and tell the brain about it. That is when we smell something.

There are sweet smells, delicious smells and bad smells.

What smells sweet?
What smells delicious?
What smells bad?

Sometimes smells can tell us that there is something wrong. Perhaps the food smells “off”. Then we know not to eat it. Perhaps there is a smell of gas. It may be a leak of poisonous gas. Our nose tells us to get out of the room or else the gas will make us sick. This is the protection God has given us through our nose.

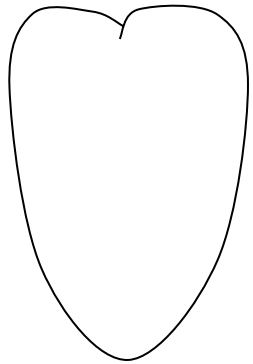
How does our sense of smell protect us?
How does our sense of taste protect us?

Five senses: taste and smell 2
Taste buds

There are four kinds of tastes: sweet, sour, bitter, salty.

Taste is when you can tell the flavor of food and how nice the food tastes. Taste gives you signals of dangerous gases and toxic food. All over your tongue, there are little bumps called taste buds. There are four different types of ***taste buds***: sweet, sour, bitter, salty.

You can taste:
sweet things in the front of your tongue
sour things at both sides of your tongue
bitter things at the back of your tongue
salty things all over your tongue



Name a food that tastes sweet.
Name a food that tastes sour.
Name a food that tastes bitter.
Name a food that tastes salty.

Label the parts of the tongue.

Draw the tongue and draw arrows to the different parts. Also write the different kinds of taste.

tip: sweet

sides: sour

back: bitter

What part of the tongue allows us to taste salty foods?

Five senses: taste and smell 3
Getting used to tastes and smells

Did you know that taste buds and smell receptors have the ability to *adapt.* 'Adapt' means 'to get used to something'. This means that when you first taste something new, the taste or smell may be very strong. But the more you taste that food, it becomes not so strong. This is very important to remember when trying new foods. At first you may think. "Oh no, I could never eat that!" But keep trying it, and before long your taste buds will adapt.

Indian food is very spicy. Even young Indian children eat very spicy food. If you tasted it for the first time, you would probably think this food is far too spicy for you. This is not because Indian children have different taste buds to everyone else. It is because they have adapted, or got used to spicy food.

Sadly, there are some children who think they cannot accept the taste of fruits and vegetables. This is because they have been allowed to eat mostly junk food. Can you imagine that! Some children have never even tried vegetables. If they were to try them, at first their taste buds would tell them that these foods are far too strong.

1. Where are your taste buds?
2. How would hot curry taste if you had never tasted it before?
3. How could you help a child who does not eat fruits and vegetables? What would you say to them?
4. Name a new healthy food that you would like to try.

Five senses: taste and smell 4
Taste and smell work together

Our sense of taste and sense of smell are very similar. In fact they work together. The receptors we use for tasting are found mostly on the tongue, and some in the roof of the mouth. Taste buds are connected to nerves that send messaged to the brain. When the brain receives the message, we "taste" something.

Our sense of taste protects us from eating food that has gone "off". Our taste buds can also protect us from eating things that are poisonous. If something tastes unusual then we shouldn't eat it.

1. Why is it important to be able to smell?

2. Why is it important to be able to taste?

3. What happens to your sense of taste when you hold your nose?

4. What happens to your sense of taste when your nose is blocked from a cold?

5. Which foods smell delicious to you?

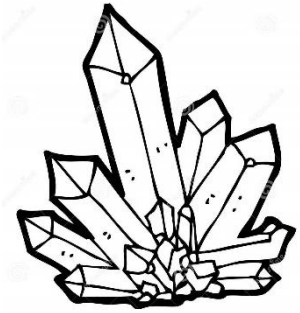
Rocks 1
What are rocks made of?

Rocks are made up of different minerals. Minerals are part of God's creation. They are found in the ground. You will know some of them: silver, gold, iron, aluminium and silicon. Silicon is the mineral that sand is made from.

Some rocks are made from crystals. Crystals form when the mineral particles are arranged in repeated patterns. The particles can be coloured. Gemstones are made of coloured crystals. These are very valuable.

To see them sparkle and shine they have to be cut and polished. Here are some examples of gemstones. You may have even seen one in someone's jewellery… diamonds (clear), rubies (red), sapphires (blue), emeralds (green).

1. What are rocks made from?
2. Draw a crystal.
3. Draw some gemstones, label and colour them the right colour.



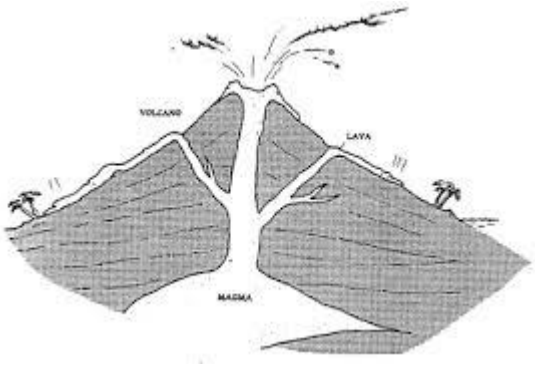
crystals

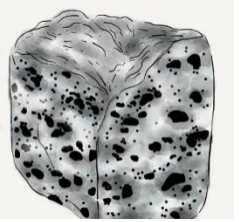
Rocks 2
Types of rocks: Igneous

There are three types of rocks: Igneous, Sedimentary and Metamorphic.

Igneous Rocks
These rocks are formed from the lava of a volcano. Deep inside the earth, rocks are melted and become magma. When magma comes out of a volcano it is called lava. When the lava cools down, it forms igneous rock. If the lava cools quickly, the rocks will look smooth and shiny. But if the lava cools slowly, the rocks will have plenty of texture, gas bubbles, tiny holes and spaces. These rocks are hard.

Examples: granite, basalt





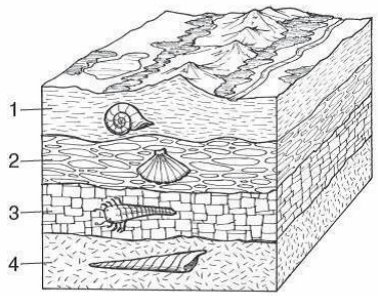
1. How are igneous rocks formed?
2. Why are there often holes in igneous rocks?

Rocks 3
Types of rocks: Sedimentary

There are three types of rocks: Igneous, Metamorphic and Sedimentary

Sedimentary Rocks
Sedimentary rocks are formed by years and years of sediment, like sand and gravel, pressed together to become hard. A stream or river will carry lots of small pieces of rocks and sand. Over time these pieces will settle at the bottom and they will get pressed into layers of solid rock. Fossils are often found in sedimentary rocks.

Examples:
Sandstone (a rock made of sand cemented together)
Shale (compressed hard mud)
Limestone (made from layers of sediment which is soft when in water but becomes hard when out of water)

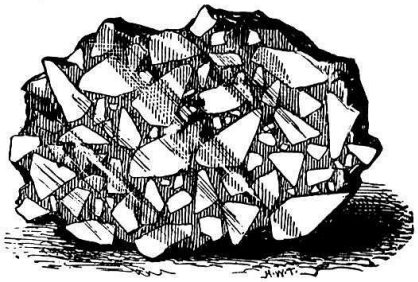


1. How are sedimentary rocks formed?
2. What do sedimentary rocks look like?
3. What is sediment?

Rocks 4
Types of rocks: Metamorphic

There are three types of rocks: Igneous, Metamorphic and Sedimentary

Metamorphic Rocks
These rocks form from great heat and pressure. Metamorphic rocks are often made from other types of rock. They are rocks that started off as igneous or sedimentary, but have been changed into another type of rock. For example, when sandstone is heated under pressure, the grains join together to form quartz. The same happens with limestone which changes into marble. Some metamorphic rocks have shiny crystals on their surface. These rocks are hard.



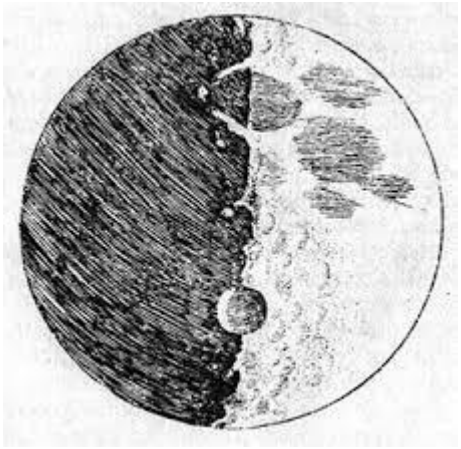
Examples: quartz, marble

1. What are quartz and marble made from?
2. How are metamorphic rocks formed?
3. Find out how marble is used.

Rocks 5
Meteorites

Meteorites are chunks of rock that fly onto the earth from space. Most meteorites are burned up by our atmosphere, but some still make it through as small rocks.

Craters on the moon
If you look at the moon you will see darker areas. Those are actually huge craters from the impact of meteors. The moon does not have an atmosphere to protect it like the earth does. Large meteors can do a lot of damaged because of the fast speed at which they travel through space.



1. How were the craters on the moon made?
2. Why doesn't the earth get hit by large meteors?

Rocks 6
The age of rocks

It is not always possible to tell how old rocks are because no one was there to see certain rocks formed.

When there is a volcanic eruption, rocks called "igneous rocks" will form from the lava when it cools. If we see a volcanic eruption, we can go and look at the rocks formed around the volcano once the rocks have cooled. We know how old these rocks are because we have just seen the volcano erupt. But that doesn't mean we know the age of every rock in the world.

Many scientists think that rock layers took millions of years to be laid down. But because the scientists were not there to see the formation of the layers they can only guess.

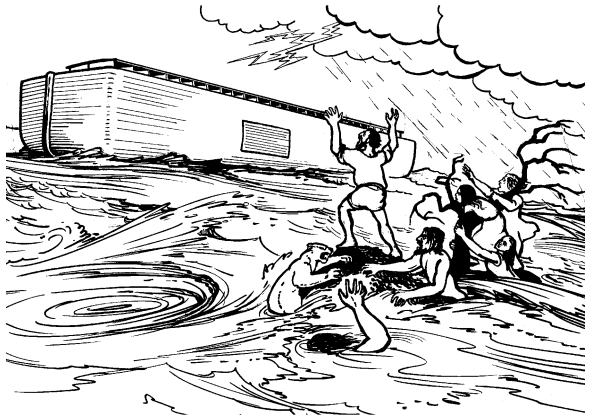
We know from the Bible that many layers of mud were laid down very quickly during the Great Flood. Many sedimentary rocks were formed at this time, about 4,000 years ago. Sedimentary rocks are rocks that have formed through layers of mud, sand or gravel. Many of these rock layers contain fossils because during the Great Flood many animals died and were buried quickly in the mud layers. These rocks did not take millions of years to form. So when you hear someone say that a rock is millions of years old, remember that this cannot be proven. According to the Bible the earth is thousands of years old, not millions.

1. When did most fossils form?
2. What do we find them in?

Rocks 7
Sediment becomes hard rock

The earth's crust moved a lot during the Great Flood. Volcanoes were exploding. Fountains of water were gushing out of the earth. Rocks bumped into each other and broke into smaller pieces. All this made a lot of muddy water. The mud was carried along quickly by strong Flood currents and settled as sediment when the Flood waters slowed down. The sediments settled in layers.

Sediments become hard rock when they are squeezed together by pressure. During the Flood, the weight of each new layer of sediment increased the pressure and squeezed the sediments together. They were cemented together by silica and limestone which dissolved in the water during the Great Flood.



1. What is the "earth's crust"?
2. What happened to the mud and rocks during the Great Flood?
3. Which two minerals can act as cement?

Rocks 8
Limestone Caves

Limestone caves are found in limestone rock. Many of these caves have large rooms are exciting places to explore. Rivers and streams sometimes run through passage ways. Stalactites hang from the ceiling. (Satalactites hold 'tight' to the ceiling.) Stalagmites rise up from the cave floor. They often look like cones. They are formed from dripping water that is loaded with dissolved limestone. The limestone hardens and forms beautiful and colourful shapes. Chalk is made from limestone.

1. Draw a picture of a limestone cave and label the stalactites and stalagmites. Use colours: yellow, orange, brown, white and grey.
2. Look at the picture below. What do we call it when a stalactite and stalagmite join?
3. Write three facts about limestone.