

Dear Parents

Firstly, we are sorry about the delay in the move and thank you for your understanding.

I have put together a work pack, which is aimed at providing about 3 days' worth of work focused round the theme of the environment, which has been in the news a lot recently. Pupils work at different paces and in different ways and so I have tried to make sure that there is enough to keep most pupils busy. As this was not a planned closure we have not had much time to put this together and during the build many of the materials we usually have available have not been accessible due to the move.

I know many pupils will need help with reading and will probably need to talk through the ideas. The main aim is to raise the pupil's awareness and understanding of global warming and how it affects the weather and things like animals habitats. All pupils are being asked to think about they can make changes to help reduce global warming.

You are welcome to add to the pack with internet research and any interactive tasks you find. We will add links to the website.

I have added some colouring pages, as I know many pupils enjoy therapeutic colouring. Many others hate colouring - If this is not your child's thing they do not need to do these.

We are looking forward to welcoming all the pupils back as soon as possible.

Kind regards

Claire Caddell

Deputy Head Teacher

Polar Animals

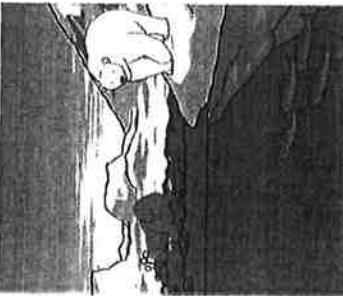
Polar Bears

Polar bears are huge mammals that can weigh up to 700kg when they are fully grown and are the largest carnivores (meat eaters) to live on land. Polar bears are born between November and January and then spend up to five months in their den before they see the outside world. The cubs then stay with their mother for up to two years after that, before going on to live and hunt alone.

Although polar bears have their cubs on land, they actually spend most of their lives around water and ice, hunting for food. They are strong swimmers and can swim for hours to get from one piece of ice to another. As the winter gets particularly cold, the sea freezes and they are able to hunt many miles out to sea by walking across the thick sea ice. Polar bears mainly prey on seals as seal fat provides them with lots of energy to help them keep warm.

Wow!

They use their amazing sense of smell to find seals hidden under the snow. They can even smell an injured animal from up to one kilometre away. When polar bears get desperate for food, they will sometimes catch a whale or walrus.



Polar bears live in the Arctic, at the very top of our planet, where the temperature can reach as low as -50°C. Water and steam will freeze almost instantly in the Arctic in winter. Thankfully, polar bears are adapted for this environment in different ways. Firstly, they have a thick layer of fat which keeps heat trapped

inside their bodies. On top of that, their coat not only keeps them warm, but also helps them to blend in with the snow. Despite how it might look, a polar bear's fur isn't really white. It's actually transparent (see-through) but reflects light, making it look white.



Penguins

Penguins are birds that spend much of their lives in the water and unlike most other birds, they cannot fly. Penguins do have wings but they are more like flippers to help them swim. As they live in water, their bodies have adapted so that they can swim brilliantly to catch food. Their bodies are smooth and dart-shaped so they glide easily through the water. They have dark feathers with light patches which help them to blend in so they are difficult to spot. This is very useful way to trick predators and avoid being eaten!

Penguins don't have to swim in deep water as the fish they catch are found near to the surface. Their feathers make their bodies waterproof.

Penguins are found on every continent in the southern hemisphere (the bottom half of the world). Most people think that penguins only live in the ice and snow but there are some species that live in warmer climates. The hottest penguin habitat is the Galapagos Islands, where temperatures can reach as high as 32°C. Emperor and Adélie penguins live in Antarctica in temperatures as low as -60°C. Emperor penguins are the only animals to stay on the open ice during an Antarctic winter, huddling together to survive the worst weather conditions on earth.



Questions

1. What is a carnivore?

2. What temperatures can it reach in the Arctic in winter?

3. From how far away can a polar bear smell an injured animal?

4. How are polar bears able to hunt many miles out at sea?

5. How have penguins adapted to their life in water? Give two ideas.

6. What is the southern hemisphere?

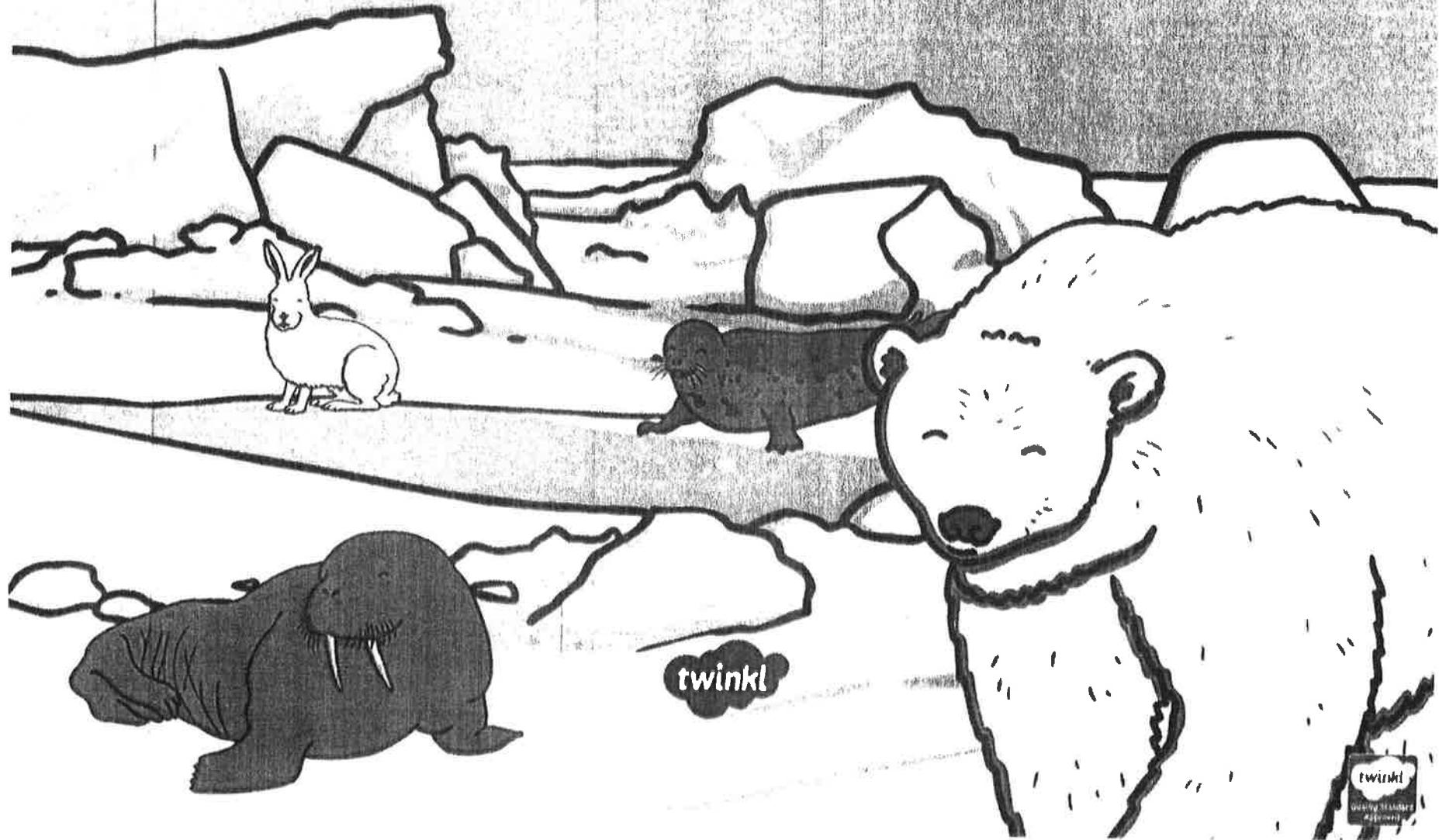
7. When do polar bears choose to stay on land?

8. Why don't penguins need to dive deep under water?

9. Which penguins spend the winter in the Antarctic?

10. Can you name any other birds that don't fly?

Arctic Animals



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Polar Bear

Polar bears are the largest carnivores (meat eaters) that live on land.

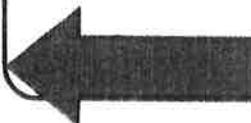
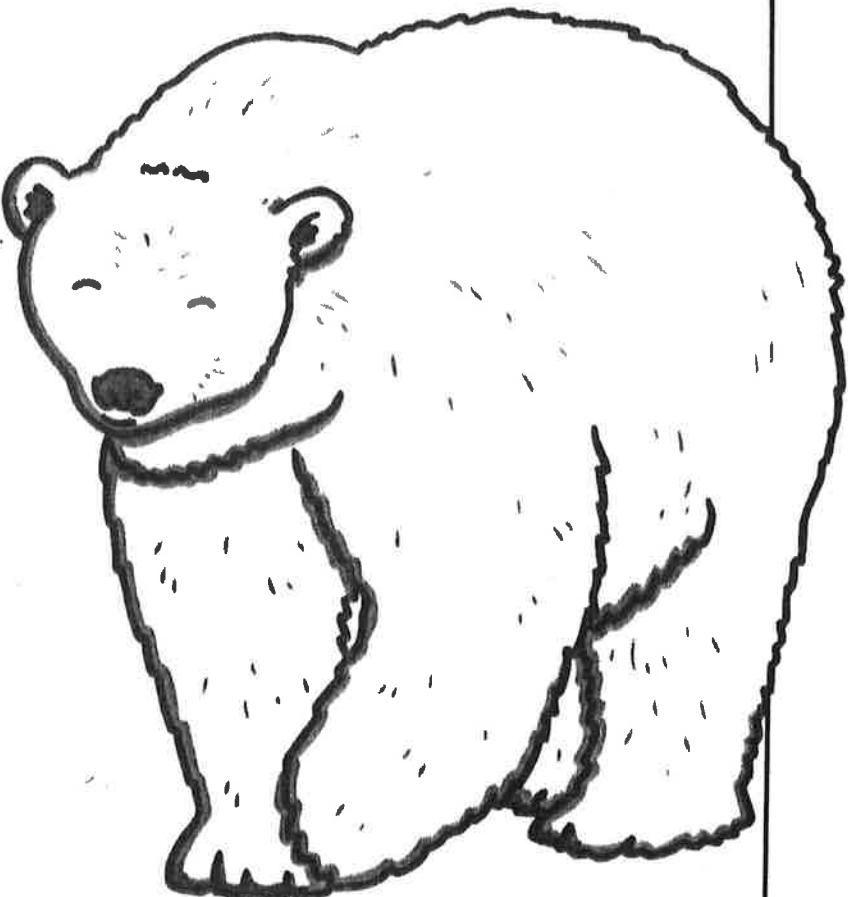
Polar bears use the Arctic sea ice to hunt seals.

Seals make up most of a polar bear's diet.

They have black skin and although their fur appears white, it is actually see through!

They have a layer of blubber beneath their skin to keep them warm.

Young polar bears, called cubs, are born between November and January while their mothers are hibernating in a den.



Arctic Hare

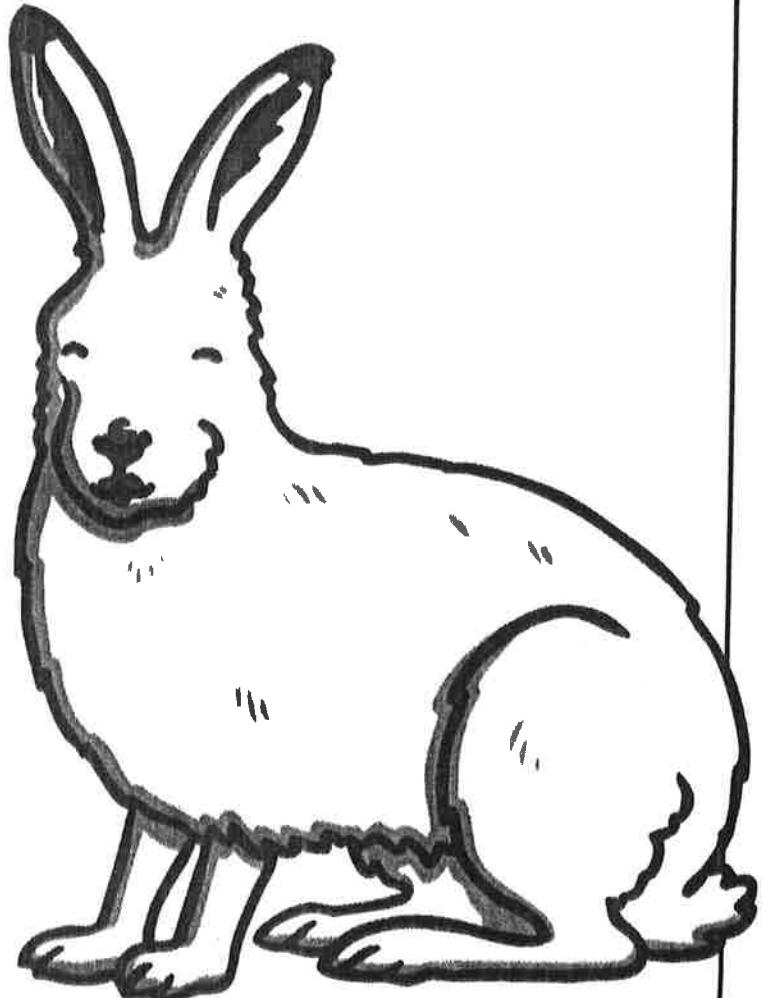
Arctic hares are much bigger than your average pet rabbit and have shorter ears.

They have a very thick fur coat to protect them in the cold. Their fur is blue/grey in the summer so they can blend in with the rocks. In winter their fur turns white to blend with the snow.

They dig burrows beneath the snow

They are hunted by Arctic foxes.

Young arctic hares are called leverets and can see clearly as soon as they are born.



Arctic Fox

Arctic foxes have the warmest fur on the planet.

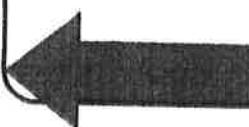
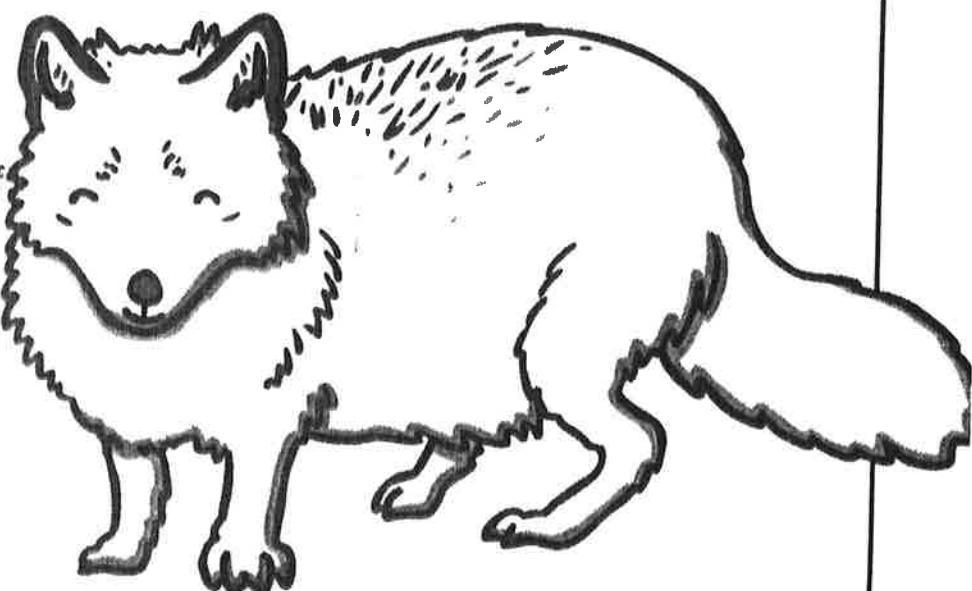
Their fur is brown/grey in the summer so it can blend in with the rocks. In winter their fur turns white to blend with the snow.

They have a round body, short legs and short ears and a big bushy tail which is used as a blanket.

They live in underground burrows.

They have excellent hearing and sense of smell for hunting.

Female arctic foxes give birth to between 6 and 16 pups.



Snowy Owl

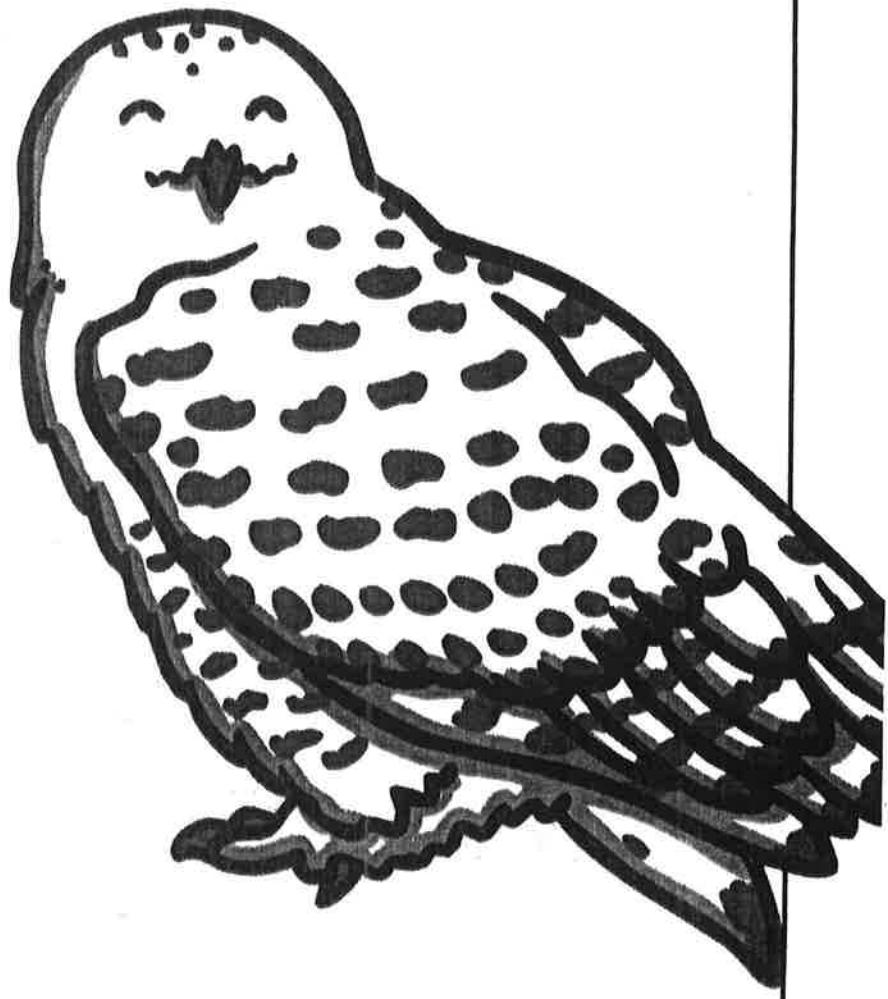
Snowy owls hunt at day and night.

Their favourite food is lemmings (a small rodent) but they also hunt other animals such as the Arctic hare.

They have feathery legs and toes to keep them warm.

They perch on rocks as there are no trees.

Once young owls (owlets) hatch, the male owl provides food for the female and young owls which do not leave their nest for around 25 days. The owlets are able to fly after around 50 days.



Reindeer

Reindeer are also known as caribou.

They feed on moss, grass and plants.

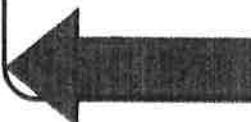
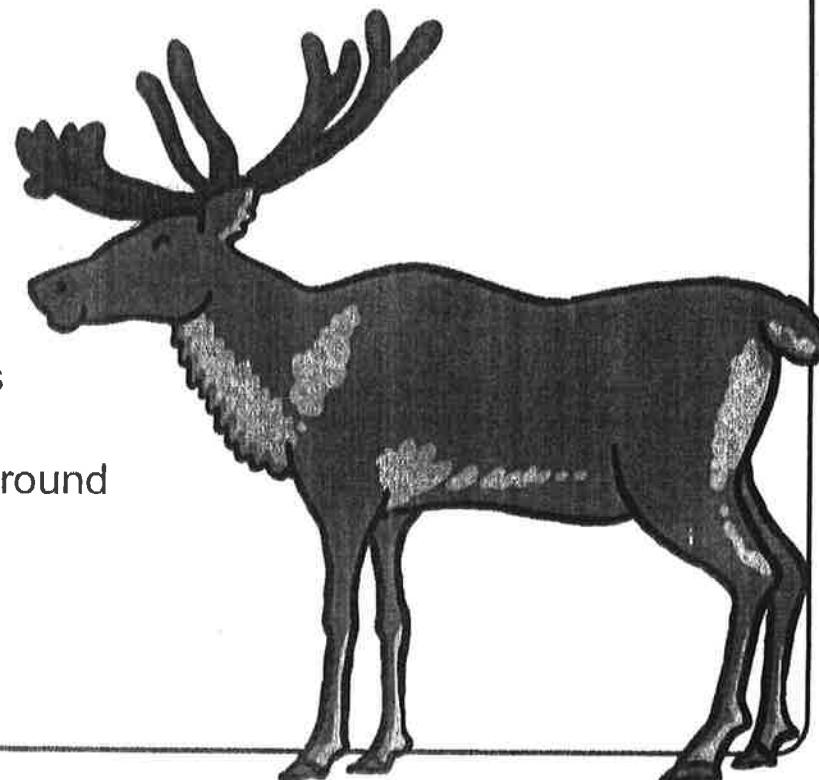
Males and females have very large antlers.

In winter, reindeer travel south to avoid the cold weather.

Their hooves are sharp which help them walk on ice and rocks.

At birth, a baby reindeer, called a calf, weighs 5 to 20 lbs. (2.5 to 9 kg).

Calves start growing their first set of antlers around their second birthday.



Seal

Seals in the Arctic live on the sea ice and dive into the water through gaps to hunt for fish and crustaceans.

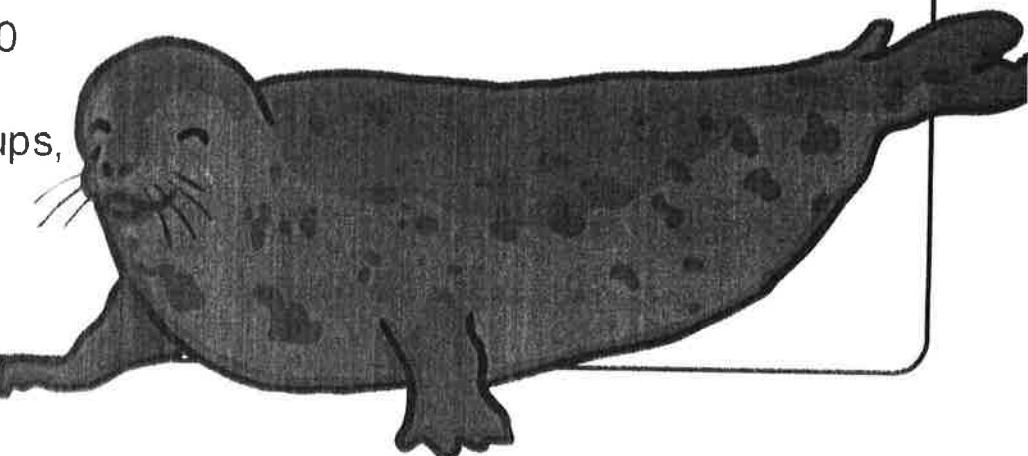
They pull themselves along the sea ice with their front flippers which have strong claws.

They have a thick layer of fat called blubber beneath their skin to keep them warm.

Baby seals are born with thick fur to keep them warm. This thins as the seals get fatter.

They are hunted by polar bears.

Mothers carry their young for around 10 months then dig nests in the sand to have their young. Baby seals, called pups, waterproof fur which can take around a month.



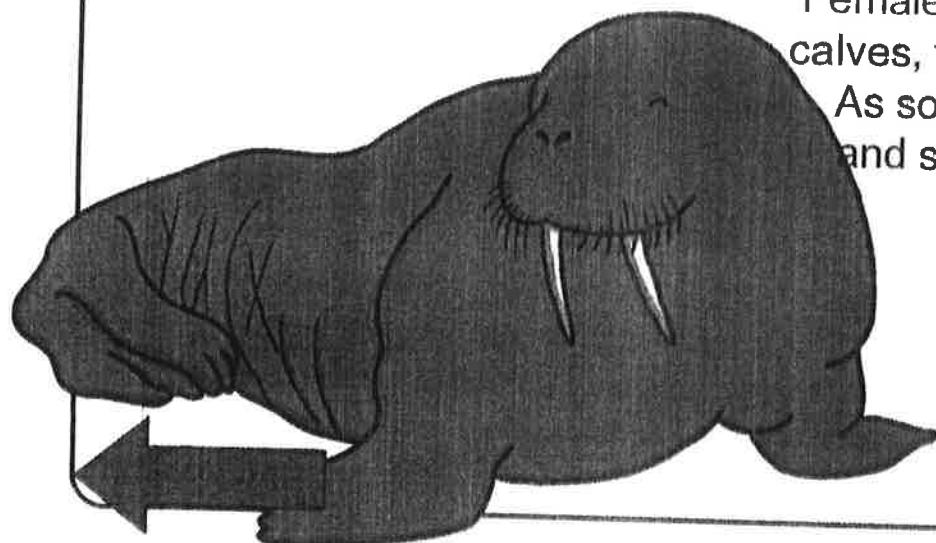
Walrus

Walruses have two large tusks which are used for cutting through ice, defence and getting out of the water.

They also have whiskers which help them find shellfish to eat.

They have a thick layer of fat called blubber beneath their skin to keep them warm.

Walruses are social animals and can be found in big groups on the ice.



Female walruses carry their young, called calves, for 15 to 16 months before giving birth. As soon as a calf is born, they can swim and stay close to their mothers for 3 years.

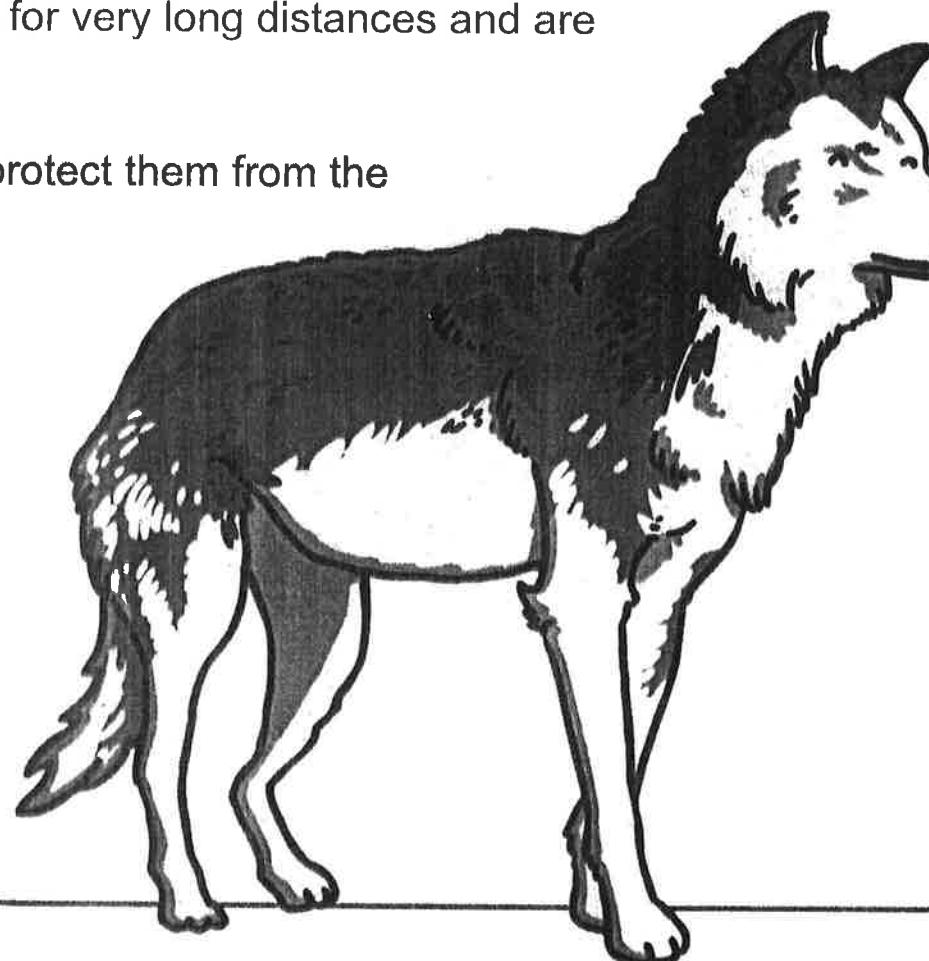
Husky

Huskies are dogs that pull sleds in the Arctic regions.

They are really good at pulling sleds for very long distances and are also used in sled dog races.

Huskies have thick double coats to protect them from the harsh weather.

Husky pups are usually born in a litter of between 4 and 8 pups.

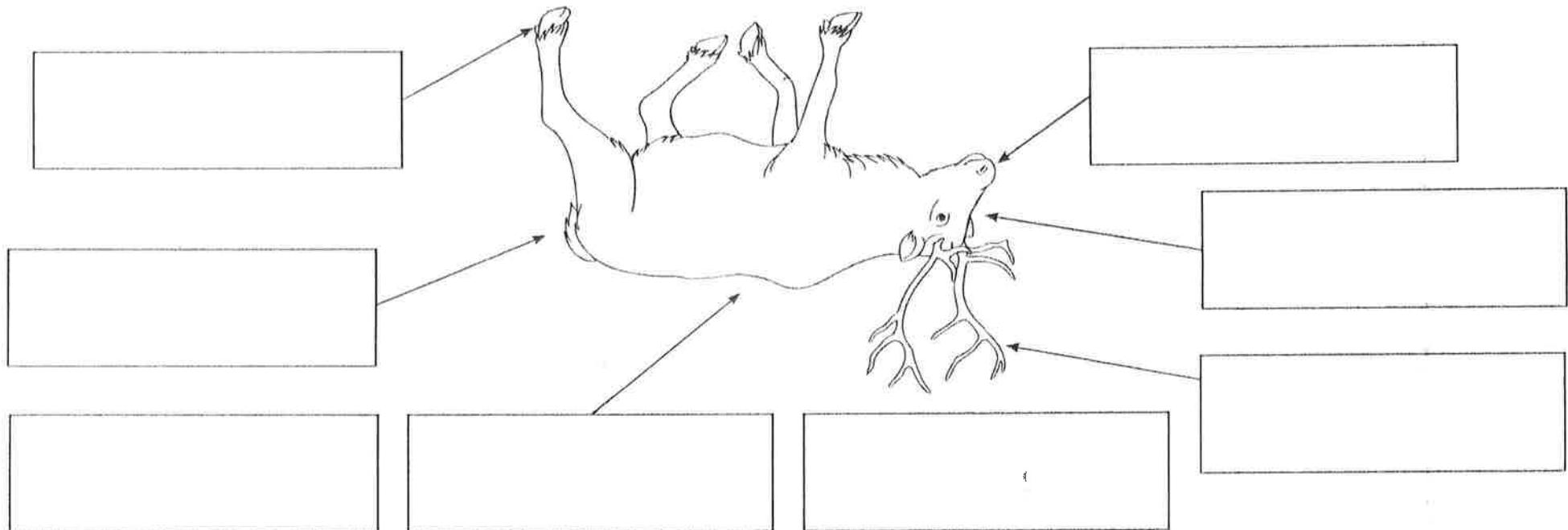


| | | | | |
|--|---|--|---|---|
| A compact body and short tail reduces heat loss. | Live in huge herds which provides protection against predators. | Sharp hooves grip into the ice and snow. | Antlers for clearing snow to find food and for defense. | Provides a home for the reindeer to live in. |
| Thick fur coat for warmth and protection from the weather. | A special chomper in their nose warms each breath as they breathe in. | Migrate long distances in search of food in winter and summer. | Ultraviolet vision to see predators against the snow. | A compact body and short tail reduces heat loss. |
| Large ears for warming blood before it reaches the brain. | Large eyes for seeing in the dark. | Large nostrils for breathing in cold air. | Large hooves for walking on soft ground. | Large antlers for clearing snow to find food and for defense. |
| Large hooves for walking on soft ground. | Large eyes for seeing in the dark. | Large nostrils for breathing in cold air. | Large ears for warming blood before it reaches the brain. | Large ears for warming blood before it reaches the brain. |

Secondary



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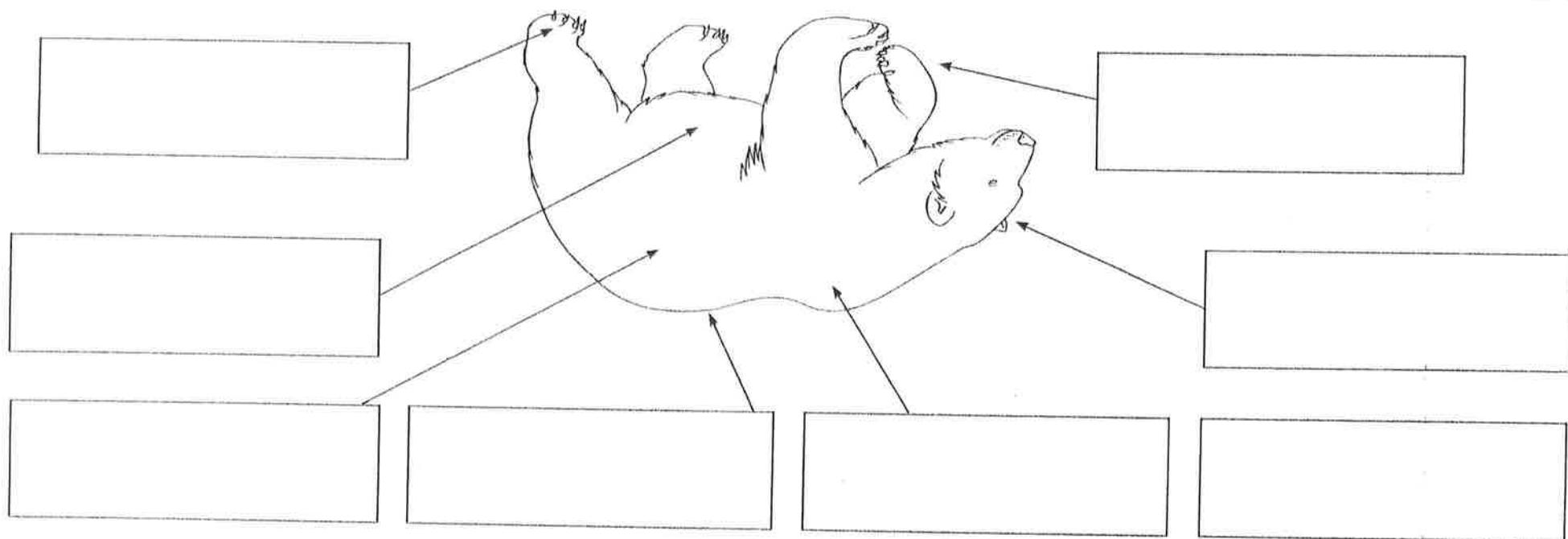
Cut out the labels and stick them in the right place on the reindeer.

Reindeer are a species of deer. They can be found in Northern Asia, Europe, Siberia, Alaska, Canada and Greenland.

How Have Reindeer Adapted to the Polar Environment?

How Have Polar Bears Adapted to the Polar Environment?

Polar bears are the world's biggest land-based carnivores! They mainly eat seals but can hunt small whales. They are found across the Arctic Ocean, in parts of Canada, Alaska, Russia, Greenland and Norway (Svalbard). Cut out the labels and stick them in the right place on the polar bear.



| | | | |
|--|---|--|--|
| Very high fat diet e.g. seal blubber, which provides energy. | Hollow, transparent fur reflects visible light to camouflage them against the ice and snow. | Strong claws for hunting and to grip the ice and snow. | They are strong swimmers, allowing them to hunt over large distances. |
| Short legs, tail and ears so less heat is lost from these areas. | Thick layer of body fat for warmth. | Large paws to prevent the polar bear from sinking into the snow. | Their skin beneath their fur is black, helping them absorb heat and keep warm. |
| Short legs, tail and ears so less heat is lost from these areas. | Thick layer of body fat for warmth. | Large paws to prevent the polar bear from sinking into the snow. | Their skin beneath their fur is black, helping them absorb heat and keep warm. |

Strong jaws which open very wide so they can bite and seriously injure their prey.

Large front flippers to swim fast through the water.

Strong, sharp teeth to grip and tear their prey such as penguins or fur seals.

Can bite and seriously injure their prey.

A thick layer of blubber keeps them warm in the freezing water.

Can survive in sea temperatures of up to -5°C.

Streamline body shape for efficient swimming.

Strong jaws which open very wide so they can bite and seriously injure their prey.

Large front flippers to swim fast through the water.

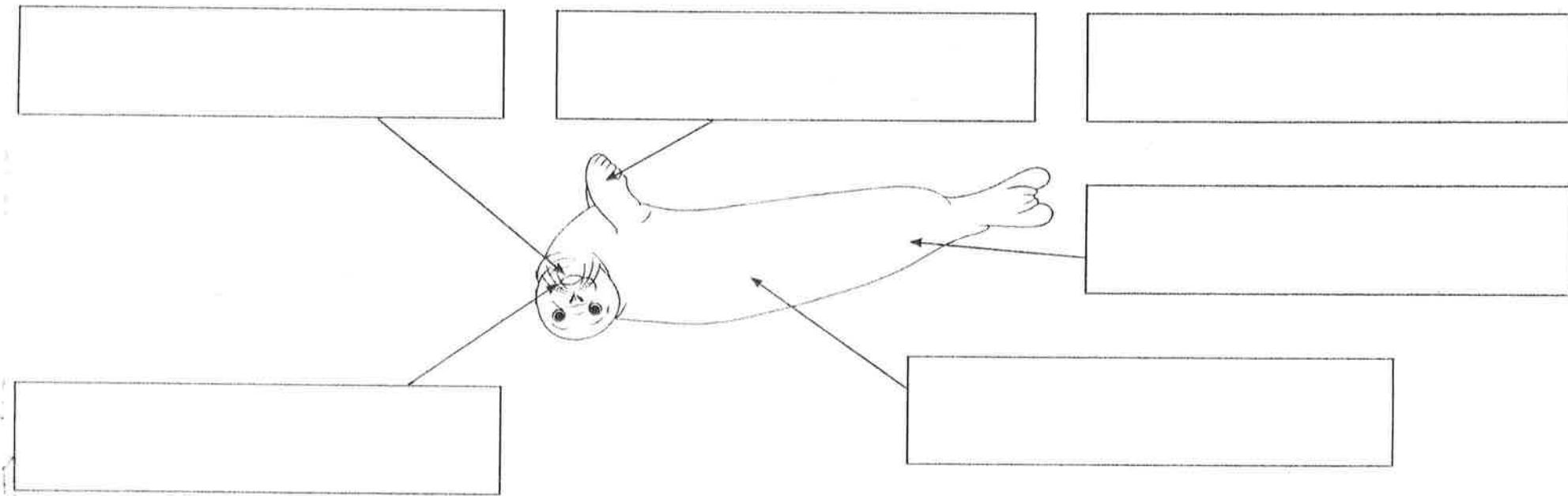
Strong, sharp teeth to grip and tear their prey such as penguins or fur seals.

Can bite and seriously injure their prey.

Secondary



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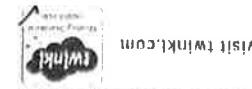


Cut out the labels and stick them in the right place on the leopard seal.

The leopard seal is the second largest species of seal in the Antarctic. It is one of Antarctica's top predators, second only to the orca (killer whale).

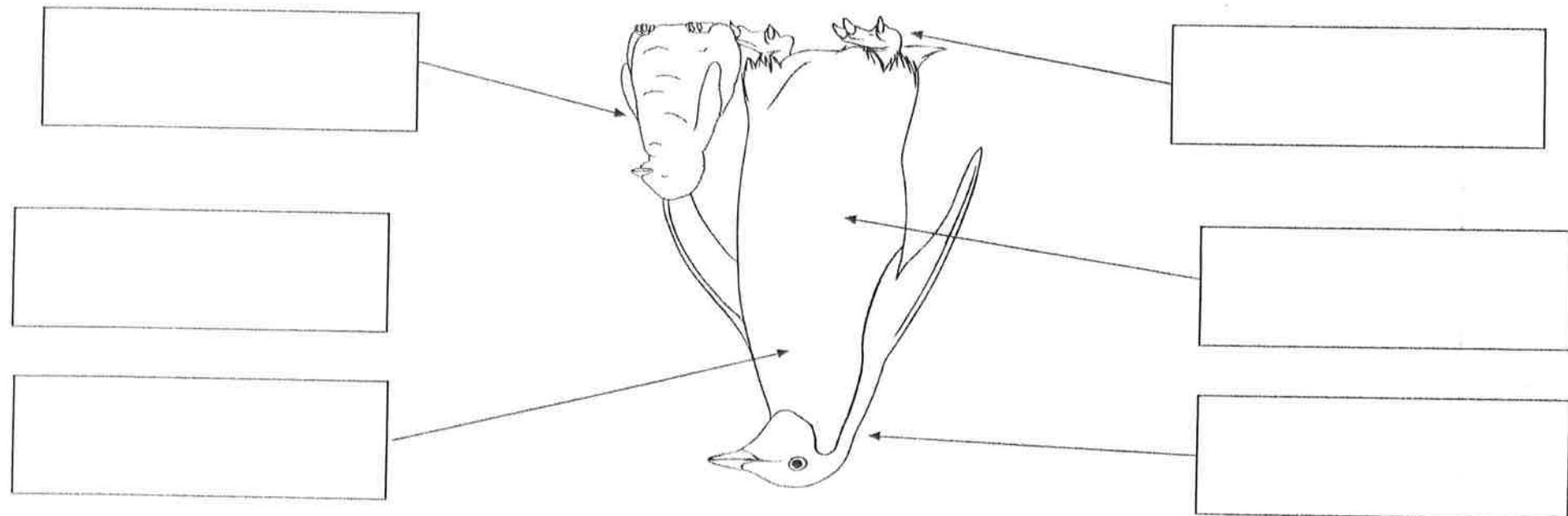
How Have Leopard Seals Adapted to the Polar Environment?

How Have Emperor Penguins Adapted to the Polar Environment?



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Secondary



Emperor penguins are the largest species of penguin. They are extremely well adapted to face the Antarctic winter where temperatures can reach -60°C. Cut out the labels and stick them in the right place on the Emperor penguin.

| | | | | |
|--|---|---|---|--|
| Short neck, tall and legs so less heat is lost from these areas. | Powerful claws to help to grip the snow, ice or rock. | Thick feathers which can trap air for warmth. | Huge Groups of penguins huddle together to keep warm and shield each other from the cold. | Young chicks sit on their parent's feet to keep off the ice. |
|--|---|---|---|--|

Information Sheets

The Greenhouse Effect

The Earth is surrounded by a layer of gases called the atmosphere. The Sun is much hotter than the Earth and it gives off rays (radiation) that travel through the atmosphere and reach the Earth. The rays of the Sun warm the Earth and heat from the Earth then travels back into the atmosphere. This is the same as on bonfire night when the warmth of the bonfire warms your face. Your face will give off heat to the cold air. There are some gases in the atmosphere which trap the heat escaping from the Earth and stop it from travelling back into space. These gases are called greenhouse gases.



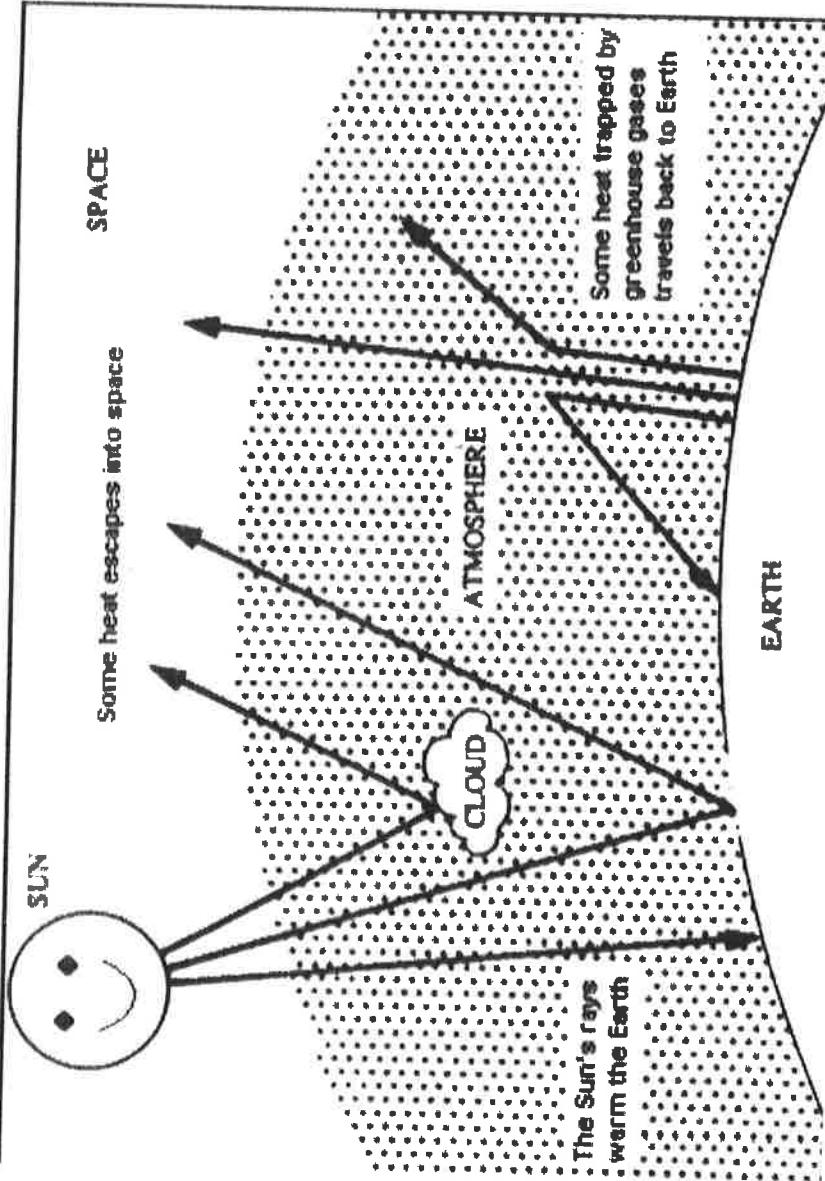
The glass in a greenhouse has a similar effect on the Sun's rays and so it is called the **Greenhouse Effect**.

The greenhouse effect is a natural process and it warms the Earth. Without the greenhouse effect the Earth

would be very cold, too cold for living things, such as plants and animals.

The diagram below shows how the Sun's rays are trapped by the greenhouse gases in the atmosphere.

The Greenhouse Effect



The Greenhouse Gases?

The atmosphere which surrounds the Earth contains the greenhouse gases, sometimes in very small amounts. The list of gases below shows the greenhouse gases which are produced naturally on Earth.

- carbon dioxide
- water vapour
- **methane**
- **ozone**

These gases are very important in keeping the Earth's temperature at the correct level so that we can live. To do this, the amount of greenhouse gases in the atmosphere must be kept at the right balance.

Natural sources

Carbon dioxide is produced naturally when people and animals breathe. Plants and trees take in and use carbon dioxide to live. Volcanoes also produce carbon dioxide.

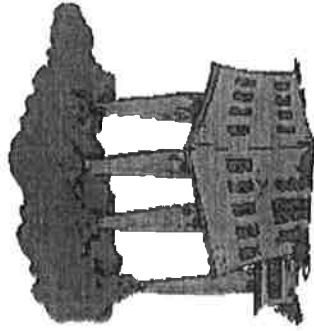


Methane comes from cattle as they digest their food. The gas also comes from fields where rice is grown: paddy fields.

Ozone occurs naturally in the atmosphere.

Man-made sources

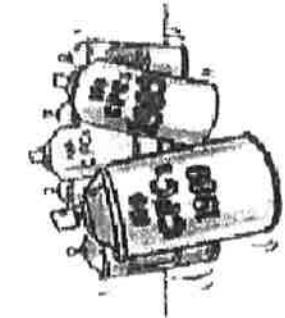
Some of the activities of man also produce greenhouse gases.



Carbon dioxide comes from the burning of fuel such as coal, oil and gas. These are called fossil fuels. We burn fossil fuels to make energy, which gives us heat and light in buildings. The cutting down and burning of trees also releases carbon dioxide.



Methane can be released from buried waste. For example, the rubbish that is collected from our homes by the dustmen is buried in large rubbish dumps. This buried waste will produce methane. Coal mining and stored gas also produces methane.



Another group of greenhouse gases includes the chlorofluorocarbons.

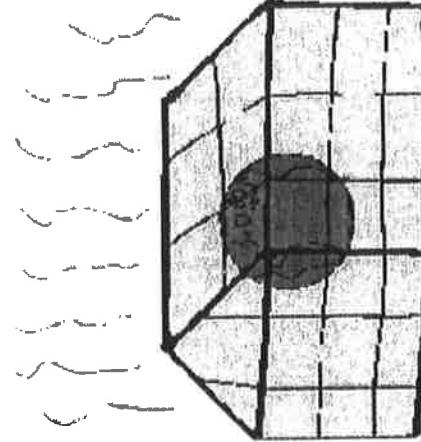
The name for these gases is rather long so they are called CFCs for short.

CFCs have been used in

aerosols, such as hairspray cans, fridges and in making foam plastics. They become dangerous when released into the atmosphere, depleting the ozone layer. For this reason, their use has been banned around the world.

Global Warming

Since the Industrial Revolution 200 years ago, these activities have increased, releasing more greenhouse gases into the atmosphere and upsetting the balance. More gases mean that more of the heat trying to escape from the Earth back into space is trapped. When more heat is trapped by the greenhouse gases the Earth becomes warmer, this is known as global warming.



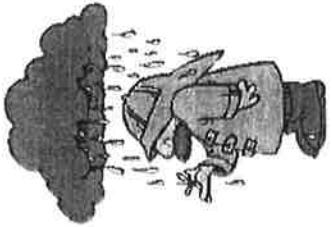
Many scientists now agree that our activities are making the natural greenhouse effect stronger. If we carry on polluting the atmosphere with greenhouse gases scientists believe that it will have a dangerous effect on the Earth.

The Effects

A warmer Earth might lead to a change in the weather, including hotter summers. This may seem like a good idea, but a rise of a few degrees in temperature could change the conditions on Earth which are at present just right for life.

At the moment it is difficult for scientists to say how great the changes on Earth will be and where the changes will happen.

The Weather

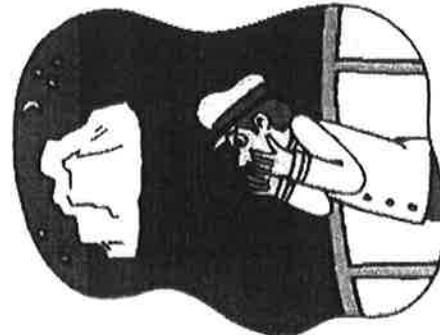


Scientists agree that in Britain our winter and summer temperatures will increase and the weather will be warmer. In winter it may also rain more but in summer it may become drier. In other parts of the world

the effect will be different: some countries will become much hotter whilst others become cooler. There may be more storms, floods and drought, but we do not know which areas of the world will be affected.



Sea Levels



Higher temperatures will make the water of the seas and oceans expand. Some of the ice from ice caps and mountain glaciers will melt, and this melted ice will also cause the seas to rise.

Higher sea levels will threaten the low-lying coastal areas of the world, such as the Netherlands and Bangladesh.

Throughout the world millions of people and areas of land will be at danger from flooding. Many people will have to leave their homes and large areas of farmland will be ruined because of floodwater. In Britain, East Anglia and the Thames estuary will be at risk from the rising sea.

Farming

The changes in the weather will affect the type of crops grown. Some crops, such as wheat and rice grow better when it is warmer, but other plants, such as maize and sugarcane do not. Changes in the amount of rainfall will also affect plant growth.

The effect of a change in the weather on plant growth may lead to food shortages in some countries of the world. Brazil, parts of Africa, southeast Asia and China will be affected most and many people could suffer from hunger.

Water

Throughout the world there is a great demand for water, and in many regions, such as the Sahel in Africa, there is not enough water for the people. Changes in the weather

will bring more rainfall in some countries, but others will have less rainfall. In Britain the southeast will be at risk from drought.

At Risk!

Plants and Animals

It has taken millions of years for life to adapt to the conditions on Earth. A climate that changes too quickly will alter these conditions and affect the homes of plants and animals throughout the world. For example, the polar bears and seals will have to find new feeding grounds as the ice melts.



Many animals and plants may not be able to cope with these changes and could die. This could lead to local, or world-wide extinction of certain species.

People

Climate change will affect everyone but some populations will be at greater risk. For example, countries whose

coastal regions have a large population, such as Egypt and China, may see whole populations move inland to avoid flood. The effect on people will depend on how well we can adapt to the changes and how much we can do to reduce global climate change.

What can we do to slow down global warming?

Governments throughout the world have already taken action to start reducing global warming. In their plan they hope to reduce the amount of man-made emissions of greenhouse gases. Everyone can help in some way to slow down global warming.



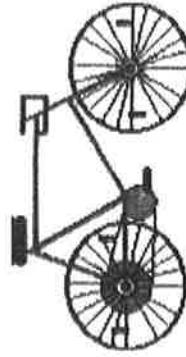
About half of the enhanced greenhouse effect is caused by our use of energy, especially from fossil fuels. Other sources of energy could be used which do not emit carbon dioxide, for example wind power, solar (power from the Sun's rays) and wave power. In the home and at school we must learn to use energy efficiently and not waste it. We can make buildings more efficient, for example by putting in loft insulation and double-glazing.



Much of the rubbish we throw away can be recycled, such as glass bottles and jars, steel and aluminium cans, plastic bottles and waste paper. Recycling used materials uses less energy than making new ones. Composting fruit and vegetable waste reduces the amount of rubbish buried at rubbish dumps.



We should try and reduce our use of the car by travelling on public transport, cycling and walking.



If more forests were planted they could take in more of the carbon dioxide from the atmosphere.

Industries that produce and use CFCs have already agreed to stop by 1996.

Glossary

Atmosphere: a layer of gases which surrounds the Earth.

Fossil fuels: fuels formed over a long time from material containing carbon. The main fossil fuels are coal, oil and natural gas.

Greenhouse effect: the Sun's radiation is trapped in the atmosphere and leads to a warming of the Earth.

Greenhouse gas: a gas in the atmosphere which can trap the heat escaping from Earth.

Global warming: a continued warming of the atmosphere as a result of mankind's activities.

Industrial Revolution: the rapid growth of industry which started in the late 18th century, made possible by the harnessing of energy from fuels such as coal.

Radiation: energy that passes from a warmer object to a cooler one.

How Much Can You Remember?

Below are ten questions to test you on how much you remember about the greenhouse effect and global warming. If you do not know an answer read through your information sheets to help.

1. Is the Earth warmed by the Sun's heat?

Yes

No

2. Is carbon dioxide a greenhouse gas?

Yes

No

3. Does mankind cause global warming?

Yes

No

4. Are carbon dioxide, methane, water vapour, and ozone natural greenhouse gases?

Yes

No

5. Are chlorofluorocarbons (CFCs) a group of man-made greenhouse gases?

Yes

No

6. Is the Earth cooled by the greenhouse effect?

Yes

No

7. Is the temperature in Britain going to be cooler with global warming?

Yes

No

8. Has the amount of greenhouse gases in the atmosphere fallen since the Industrial Revolution?

Yes **No**

9. Is saving energy a good way to help reduce global warming?

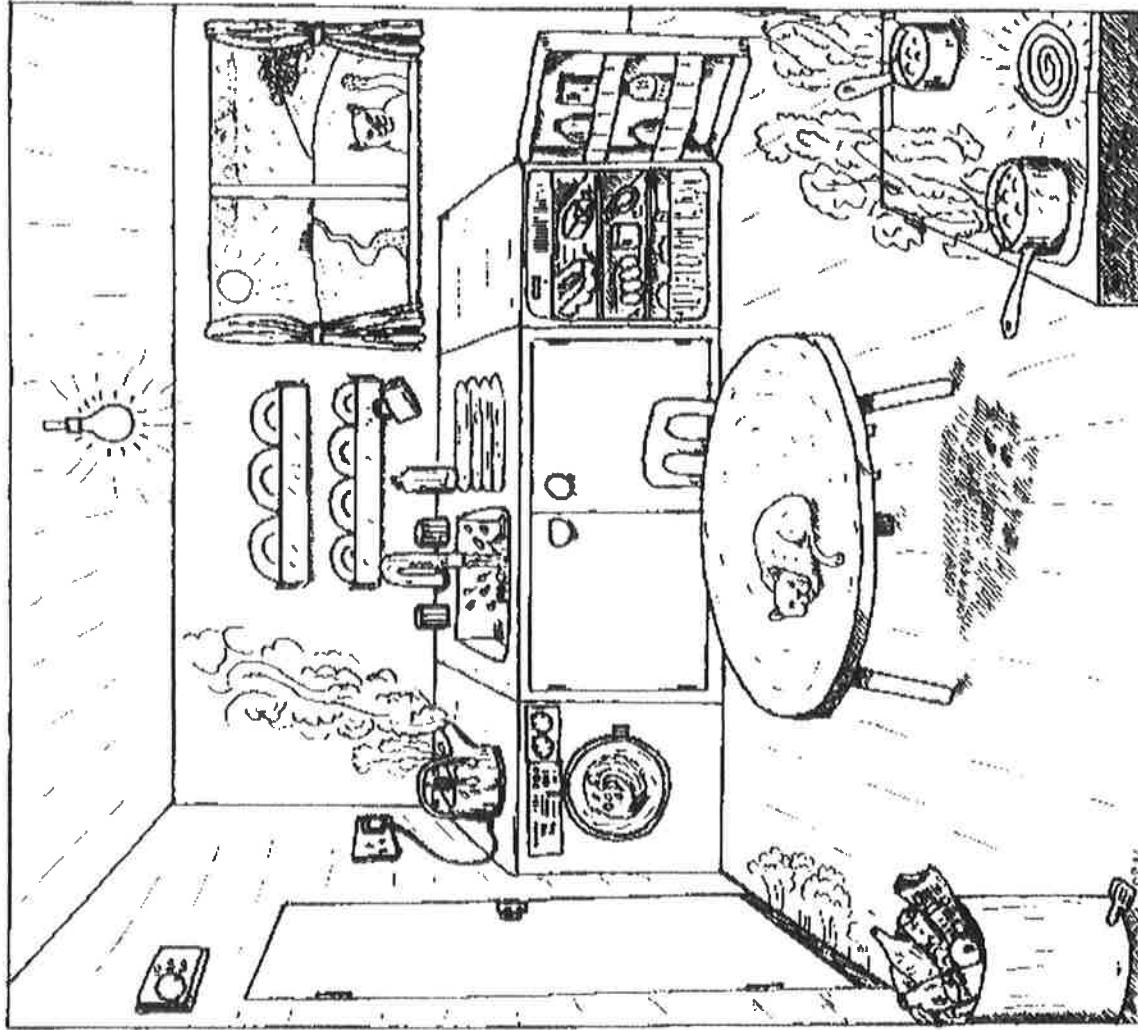
Yes **No**

10. Is the sea level going to rise as a result of global warming?

Yes **No**

An Energy Inefficient Kitchen

The picture below shows how a kitchen can be inefficient.
Can you make a list of how it is wasting energy and suggest
ways in which the kitchen could be made more efficient?



Have fun colouring in the kitchen above!

Weather

j q m c e s n o w w z a
f n c v n x h s c d m r
o t o e p i o h g c l a
v e l a y d t l h b k i n
e m d c l o u d v k i n
r i w b b w g h b l o b
c w v i c i s d r t w o
a o a e b n b l i c e w
s k d g z d e v a q r u
t c o l d n h m v w e t
g s e n d g b x t a p o
s t s h o w e r s b i a

overcast
cloud
wet
hot
showers

wind
rainbow
cold
ice
snow



Word Match

The fourteen words printed below can be matched up to make seven new phrases. Match a word from the left hand column with a word from the right hand column, (choose a word from the left-hand column first) and see if you can do it!

CARBON LEVEL

GREENHOUSE EFFICIENCY

GLOBAL VAPOUR

OZONE EFFECT

WATER DIOXIDE

ENERGY HOLE

SEA WARMING

The Earth's Environment

a b n d s f u h i j k e
m h a p u v e r a v w n
y a t a s e x f b h i v i
k b i u t g p r o a u i
w i o s a e a d r n n r
c t n t i t n p i i a o
l a a r n a s b g m t n
i t l a a t i n i a i m
m t p l b i o z n l v e
a f a i l o n l a s e n
t r r a e n w x l z a t
e d k f g h i j k l m n

climate Aboriginal national parks
vegetation sustainable Australia
native habitat urban
animals environment expansion

The words printed at the bottom of the page are hidden in the word search box. How many can you find?

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

Words to Look For:

GREENHOUSE GAS GLOBAL
WARMING OZONE CARBON DIOXIDE
CFCs METHANE ENERGY

Can you solve this riddle to make two words connected with the greenhouse effect?

The first one has been done for you!

My 1st is in recycling and also in gas

My 2nd is in invisible and also in laugh

My 3rd is in coal but not in chalk

My 4th is in carbon but not in carton

My 5th is in air and also in man-made

My 6th is in layer but not in yesterday

My 7th is in weather and also in wind

My 8th is in car and also in walking

My 9th is in water but not in wasteful

My 10th is in tram but not in train

My 11th is in air but not in Earth

My 12th is in radiation and also in Sun

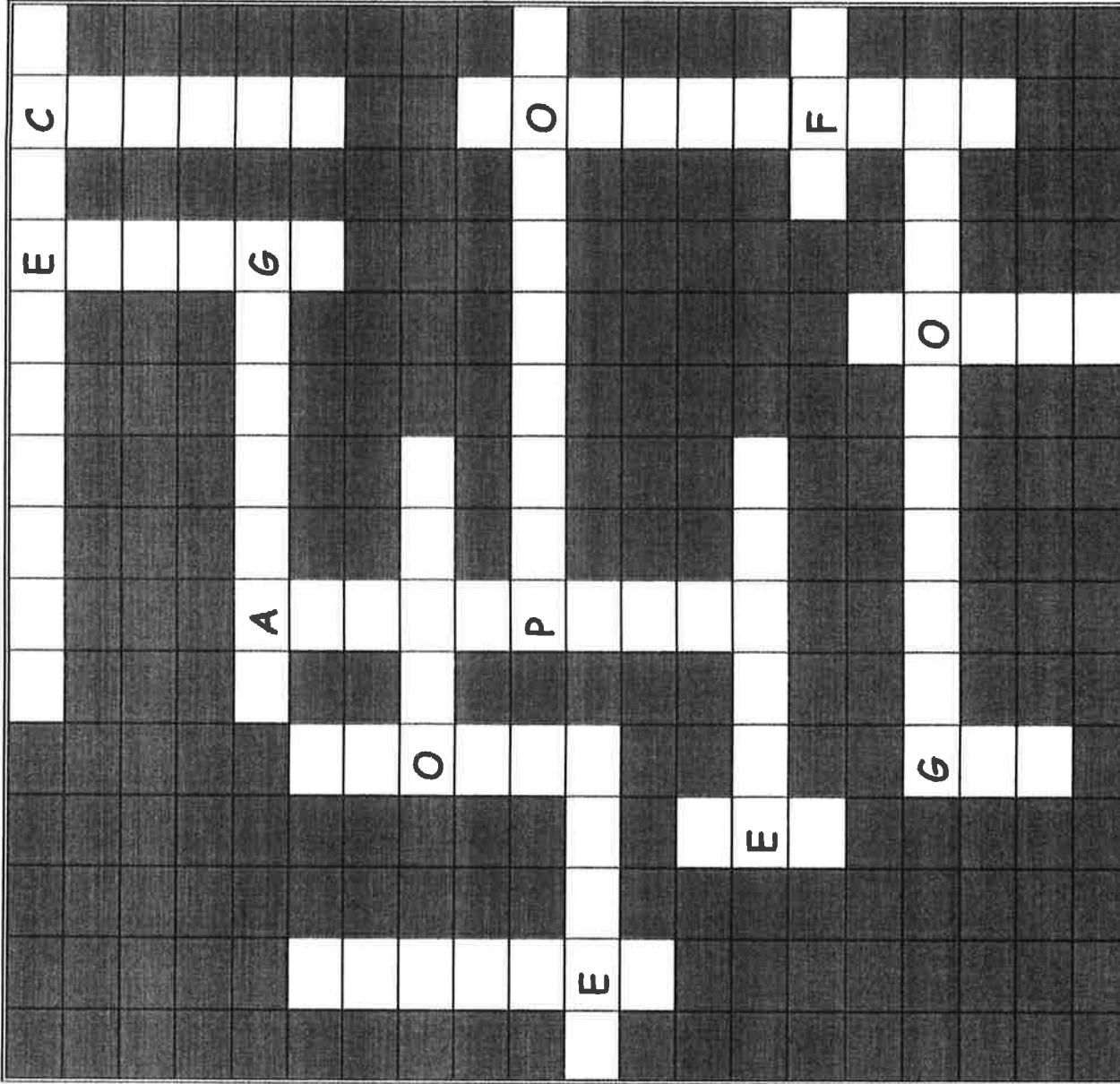
My 13th is in energy and also in gas

Enter the letter from each riddle in the boxes below

| | | | | | | | | |
|----------|--|--|--|--|--|--|--|--|
| g | | | | | | | | |
|----------|--|--|--|--|--|--|--|--|

Word Puzzle

See if you can fit the words on the next page into the correct spaces in the puzzle below.



**SEA
LEVEL**

**CARBON
GLOBAL**

SOLAR

FOSSIL FUEL

OZONE

WEATHER

**CFC
ENERGY
GREENHOUSE
ATMOSPHERE
WARMING
EFFECT
GAS
POLLUTION**

Eco School

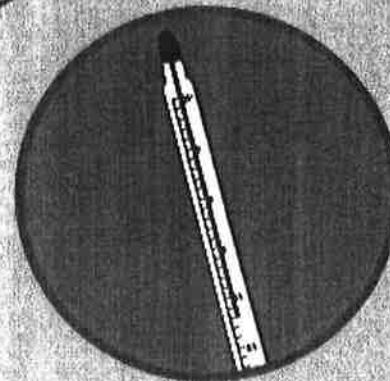
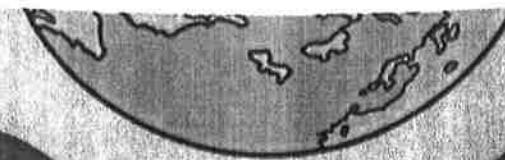
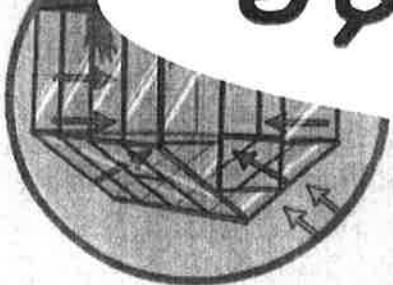
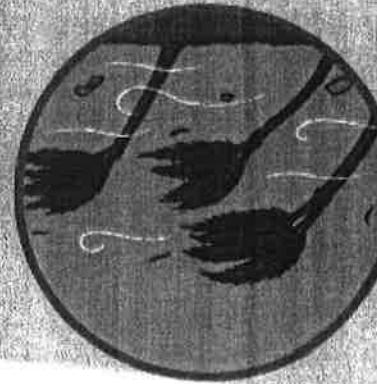
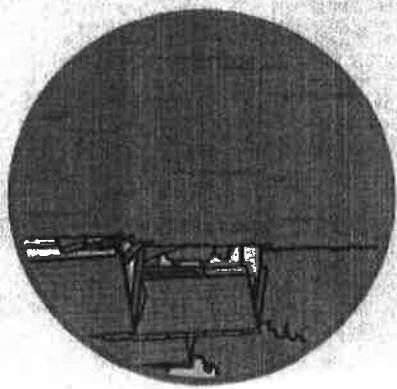
e n v i r o n m e n t f
h r t i d y m w a t e r
x r q v i i q a p z g j
w x s t r a v e l f n w a
e l e c t r i c i t y a
b i o d i v e r s i t y y
l w b e t h e n e r g y
i a w s p e c i e s f h
t s a t r a n s p o r t l
t t h e a t i n g p l
e e f j s c y t i r r o
r z b j s o d j s k r n

biodiversity
species
energy
heating

electricity
litter
tidy
waste

water
environment
transport
travel

Climate Change



Even if you can't make time to do this experiment read the presentation and answer the questions.

- I can draw a conclusion from the results of a comparative test.
- I can set up a simple comparative test.
- I can compare two different measurements.
- I can measure and record the time taken for ice to melt.

Success Criteria

- I can perform a test and draw a conclusion.
- I can measure the melting of ice in a comparative test.

Aim

The Environment

When we talk about 'the environment', what do we mean?

Do you know anything interesting about the environment?

We are going to be learning about the environment.

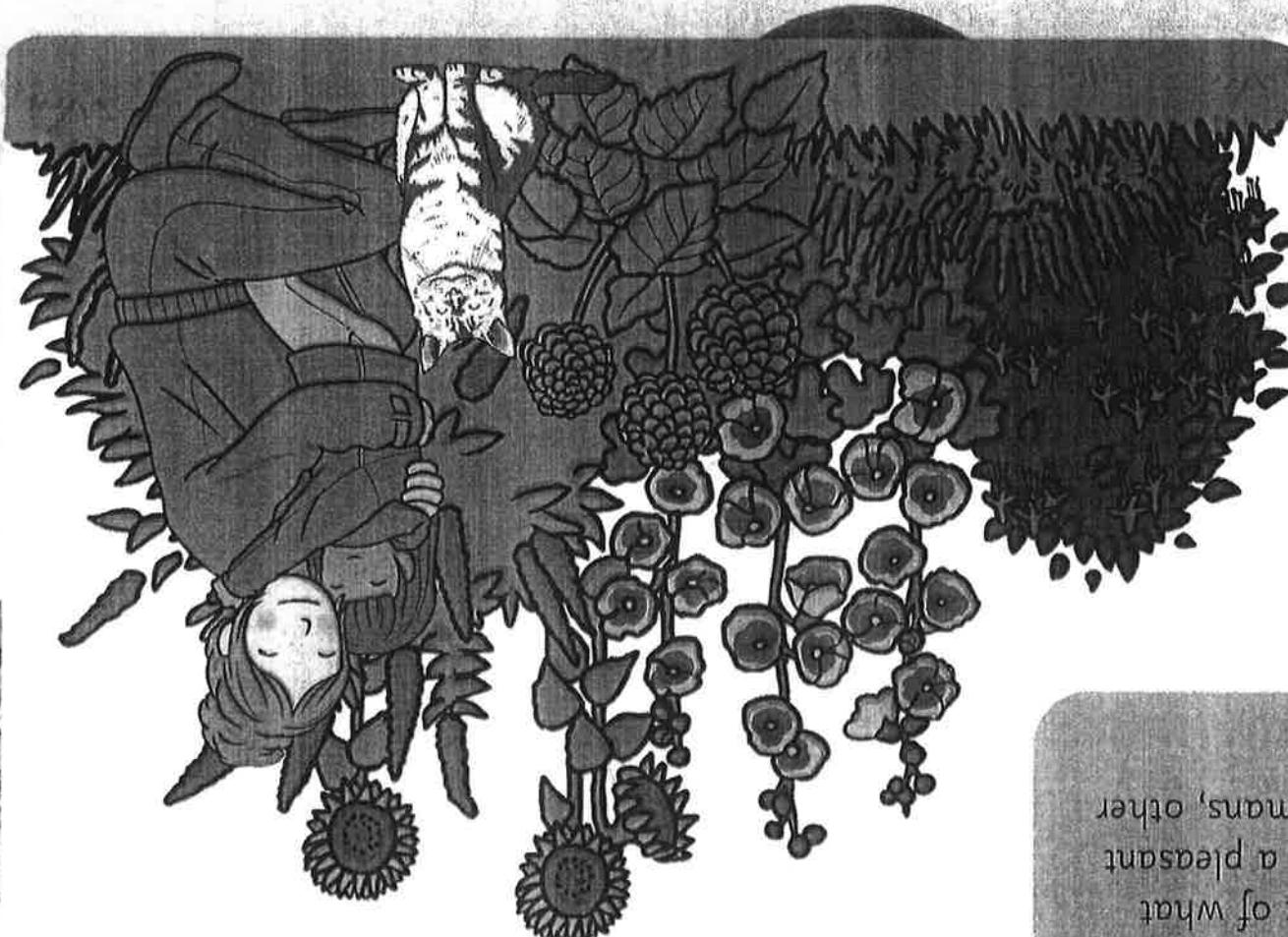


The Environment

Humans, like all living things, need certain things to live and be healthy. We need somewhere safe to live, clean air to breathe, clean water to drink, and good food to eat. This is our environment. Humans, and all living things, get everything we need from our home, Planet Earth!

It is important that we keep the environment healthy by taking care of the soil, the water, the air and all the plants and animals that live here. That way the Earth can keep giving us all the things that we need to be happy and healthy.

Taking care of the Earth is also called caring for the environment, or 'being green'.



The Environment

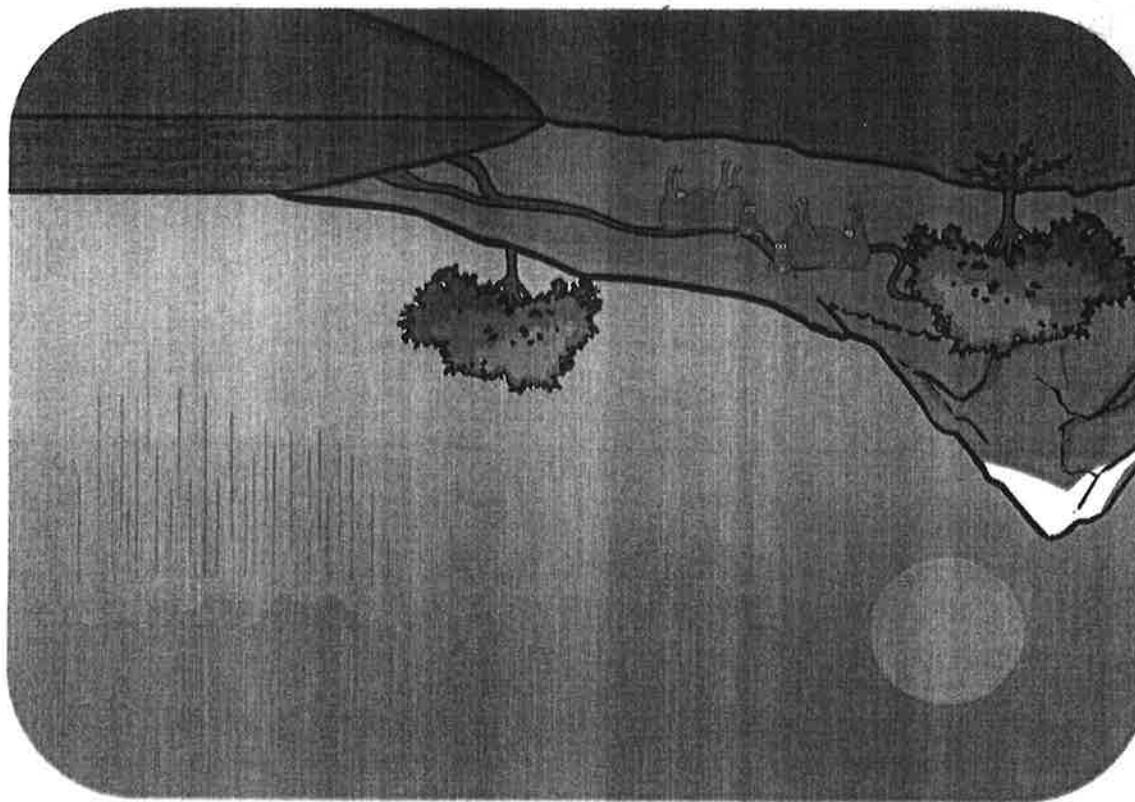
The weather, or climate, is a very important part of what makes Planet Earth a pleasant environment for humans, other animals and plants.

But the weather is starting to change because humans are doing things that are causing damage to the environment.



The Environment

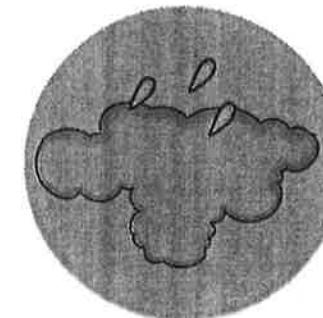
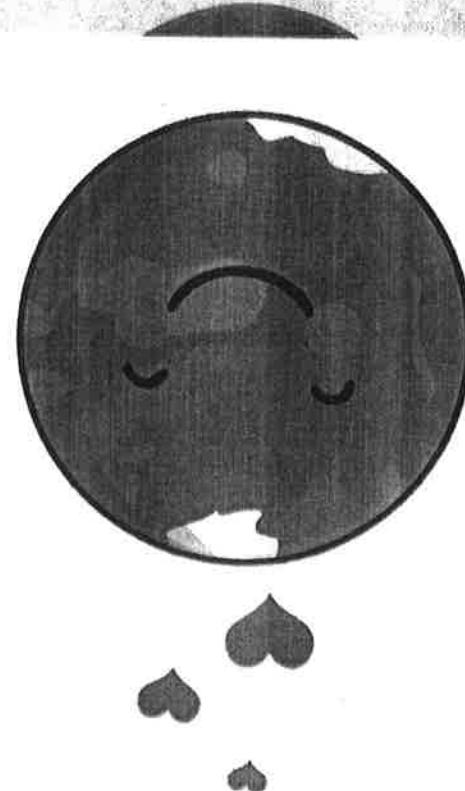
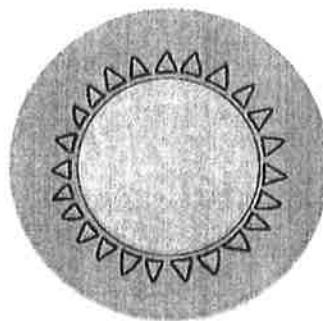
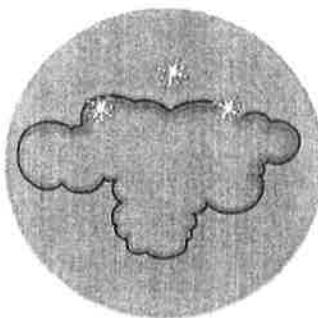
The sun keeps us warm. It gives us energy so that plants can grow. These plants give animals their energy when they eat them. The rain brings water for animals to drink and plants to absorb through their roots.



The Environment

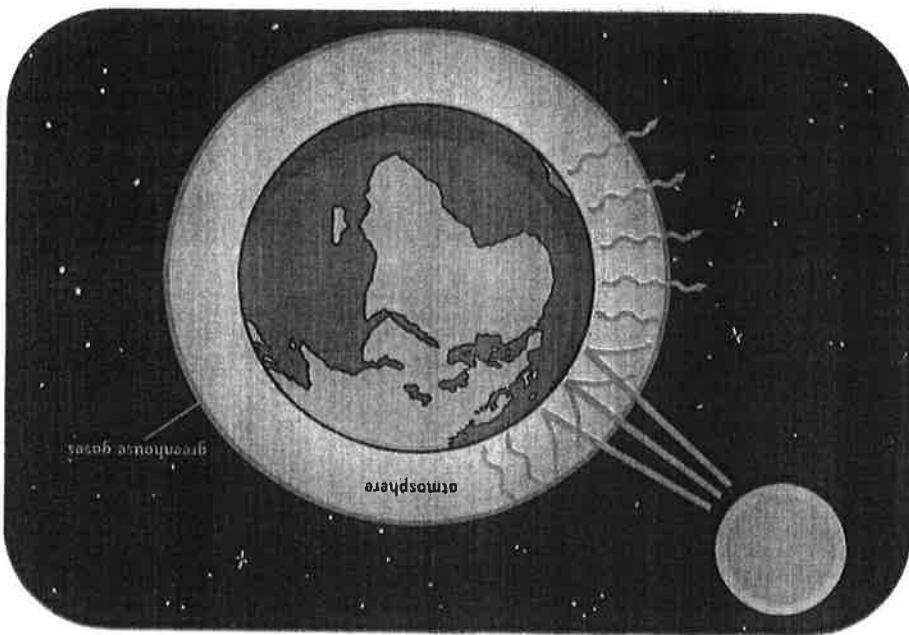
The Environment

The weather needs to be just right to keep the living things on Planet Earth happy and healthy.



Planet Earth is surrounded by a layer of air. We call it the sky. Scientists call it the atmosphere.

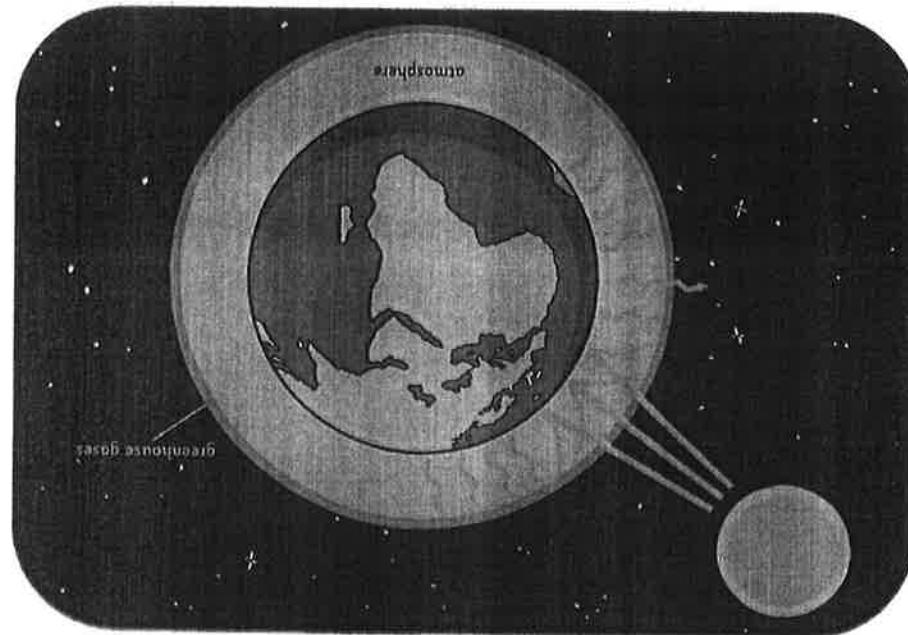
Greenhouse Gas



Outside our atmosphere is a layer of gas that surrounds the Earth. The gases let the sunlight through to warm us up. The gases keep some of the heat in our atmosphere, making the earth nice and warm. They let some of the heat back out into space.

The gases let the sunlight through to warm us up.

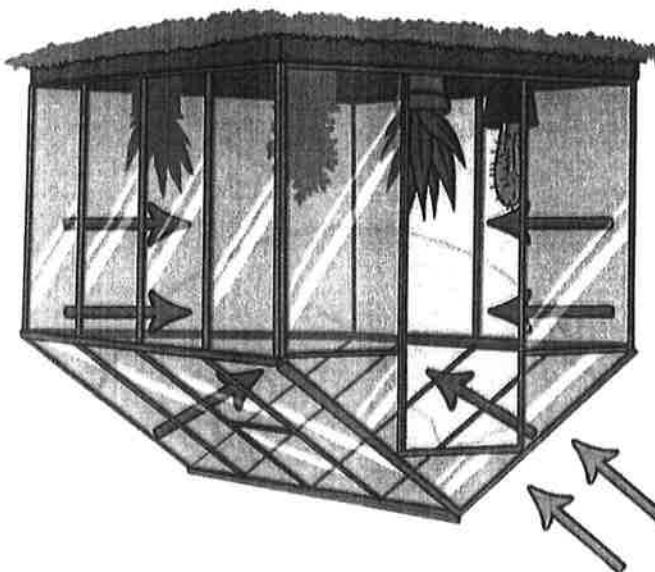
Change Earth is getting hotter!



Recently, the layer of gases has been getting thicker, like the Earth is wearing a thicker blanket, less of the heat can escape out into space and more heat is staying in the atmosphere warming us up.

Greenhouse Gas

Because of this, Planet Earth is warming up



We call the gases around the Earth **greenhouse gases**, because they behave like the glass in a greenhouse. They let the sunlight in but stop the heat from escaping, trapping it inside.

Have you ever been in a greenhouse?

Greenhouse Gas

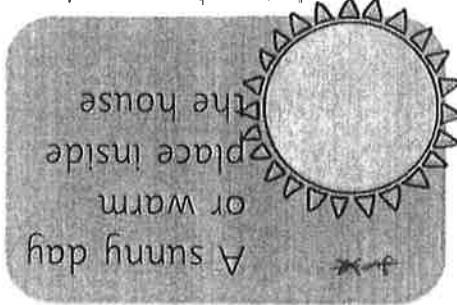
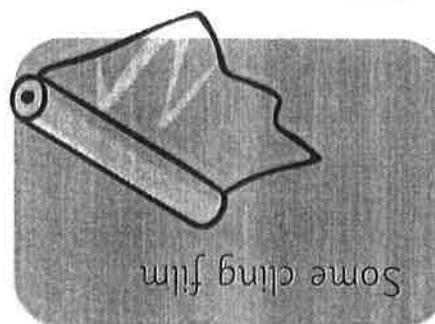
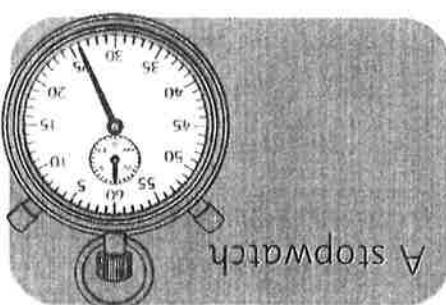


Comparative Test

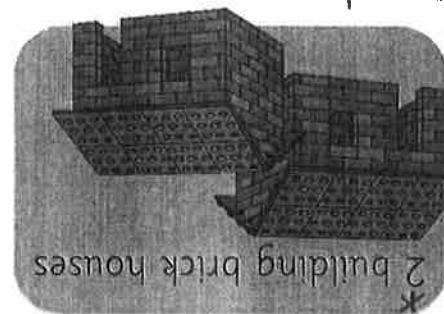
* If you do not have lego you can use cardboard plastic like plastic animals or make a house from polystyrene, like the

We are going to do a test that shows the effects of greenhouse gases.

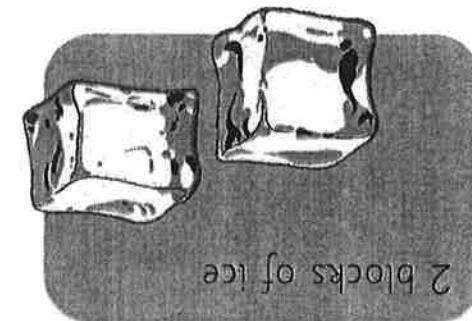
What you need:



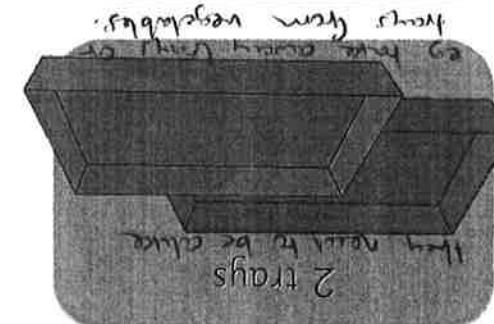
A sunny day
or warm
place inside
the house



2 building brick houses

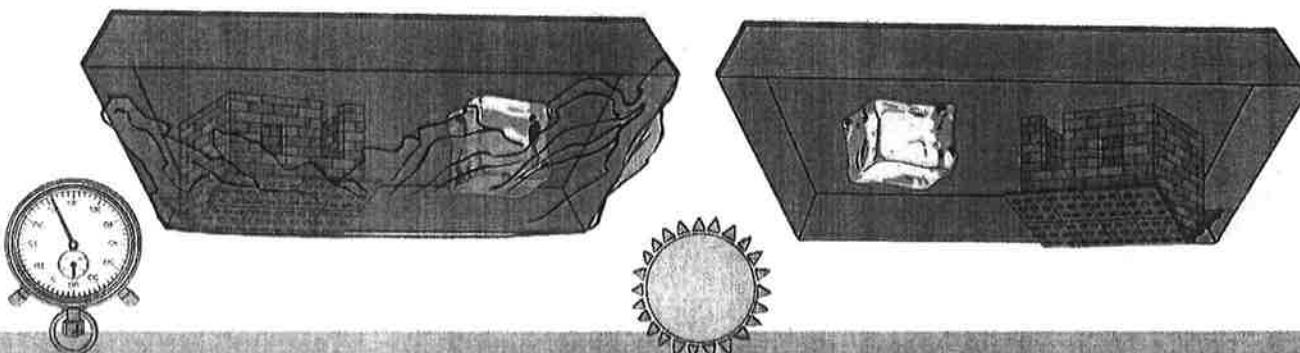


2 blocks of ice



2 trays
1 tray to be covered
e.g. how many vegetables
etc how many fruits

* + This experiment is best done on a sunny window sill by it
should work in any warm place



mini environments.

Watch the trays carefully and time how long it takes for the ice to melt in each

We are going to leave the trays in a sunny place and start the stopwatches.

Cover one of the mini environments with a layer of cling film. This cling film will act like the extra layer of greenhouse gases that are building up around the Earth's atmosphere.

Create two mini environments by placing a brick building in a tray with a block of ice:

What you do:

Comparative Test



Climate Change Comparative Test

Fill in this sheet

I can measure the melting of ice in a comparative test.



Method

Prediction

| Results | Environment 1 | Environment 2 |
|----------------------|---------------|---------------|
| Time for ice to melt | | |

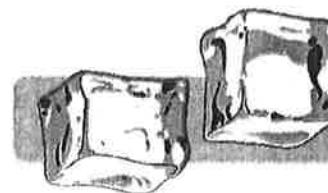
Conclusion

Comparative Test



Prediction:

What do you think will happen?



Climate Change Comparative Test

Model

ooo

The ice in the covered environment will melt faster.

The ice in the uncovered environment will melt faster.

twinkl Plan

The ice in both of the environments will melt faster.

Comparative Test

What happened to the ice in our multi environments?

Look carefully at your measurements.

Which ice melted fastest?

Why did this happen?

Write a sentence to explain what you have found out.

| Material | Temperature | Observation |
|------------|-------------|------------------|
| Plasticine | Hot | Ice did not melt |
| Aluminium | Cold | Ice did not melt |
| Cardboard | Normal | Ice did not melt |
| Wood | Normal | Ice did not melt |
| Milk | Normal | Ice did not melt |
| OOO | Normal | Ice did not melt |

Climate Change Comparative Test

Comparative Test

STOP HERE UNTIL the test is Finished then read the end
of the Presentation

Climate Change Comparative Test

| | |
|--------|-----|
| Method | ooo |
|--------|-----|

.....
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Prediction

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| Results | Environment 1 | Environment 2 |
|----------------------|---------------|---------------|
| Time for ice to melt | | |

Conclusion

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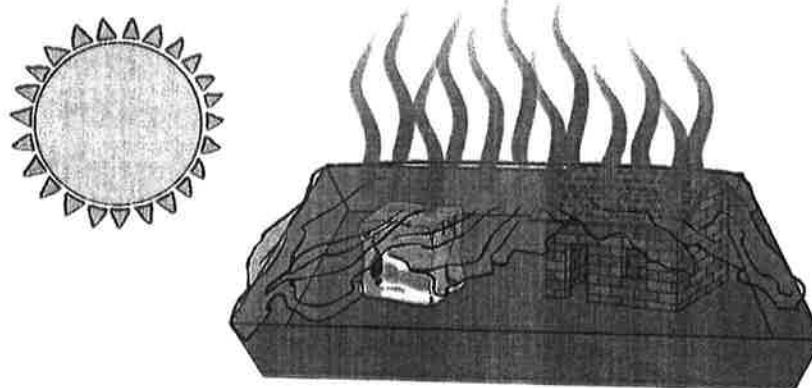


Climate Change



The Effects of Climate Change

The mini environment that was covered by the cling film became warmer than the other.



This is because, when it was warmed by the sun, the layer of cling film trapped the heat inside the environment and didn't allow it to escape.

This meant that the temperature inside this environment increased, and made the ice melt faster.

Climate Change

The Effects of Climate Change: Global Warming

Because the layer of greenhouse gas that surrounds the Earth is getting thicker, the temperature in our environment is rising too. Sometimes this is called **global warming**.

In many places, the weather is becoming hotter and dryer and there is less rain. There isn't always enough water to go around and some people do not have enough to drink.



In some places, plants will not grow properly because there is not enough rain. This means that there isn't enough food to eat and that some people are going hungry. We call periods when there isn't enough rain a **drought**. Droughts are becoming more common in many places in the world.

Photo courtesy of CraneStation and dfid (@flickr.com)-granted under creative commons licence-attribution

Climate Change

The Effects of Climate Change: Floods and Storms

In some places, the changing weather has led to **floods, hurricanes and powerful storms.**



Floods and storms are very dangerous and ruin the homes of people and animals.

Photo courtesy of U.S Geological Survey, infrogmation and NSSL NOAA (@flickr.com)-granted under creative commons licence-attribution

Climate Change Questions

Global warming

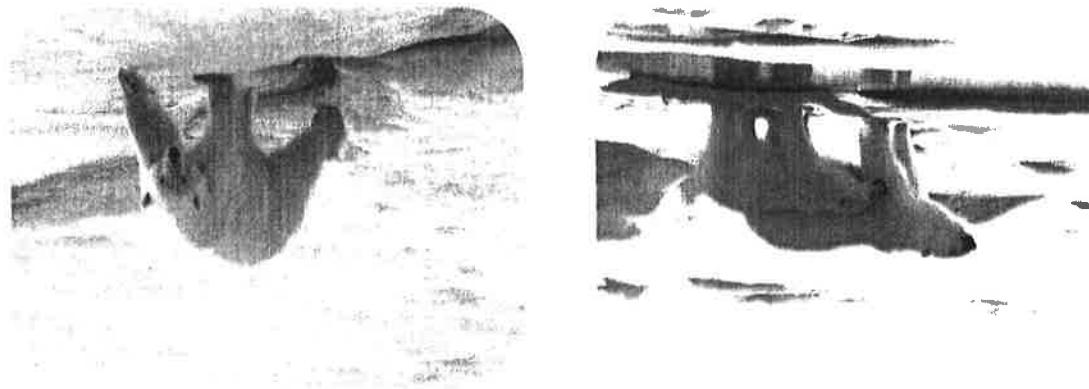
What is Global warming?

Why could having less water in some places and
too much in others be a problem?

Are you concerned about Global warming and
why?

Photo courtesy of Christopher.Michel (flickr.com)-granted under creative commons license-attribution

Some experts think that polar bears could become extinct as the ice continues to melt.

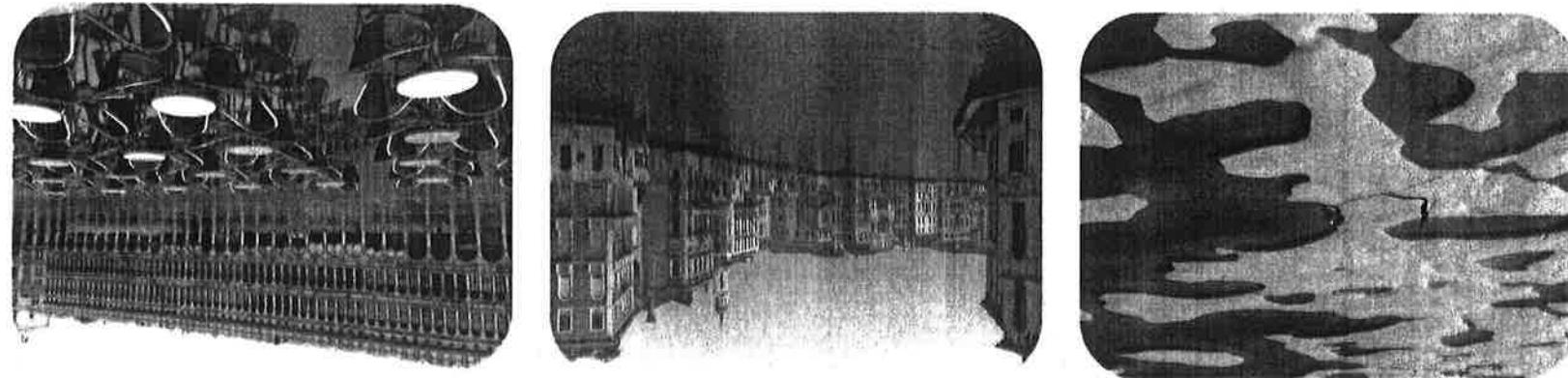


The Effects of Climate Change: Melting Sea Ice
In the Arctic and Antarctic Circles, the warmer temperatures have melted lots of sea ice that used to stay frozen all year round. This is very bad for the animals that live there. Polar bears live in the Arctic. The shrinking sea ice means that it is much harder for them to hunt the seals that they eat.

The Effects of Climate Change: Melting Sea Ice

Climate Change

Photo courtesy of NASA Goddard Photo and Video, Arjan Zweegers and Mark Hintsa (flickr.com)-granted under creative commons license-attribution



As the sea ice melts, it turns into sea water. This means there is more water in the sea and the sea level is rising. As this happens, some cities that have been built on the coast may be flooded and the people who live there will have to find new places to live.

The Effects of Climate Change: Rising Sea Levels

Climate Change

Climate Change Questions

Global warming

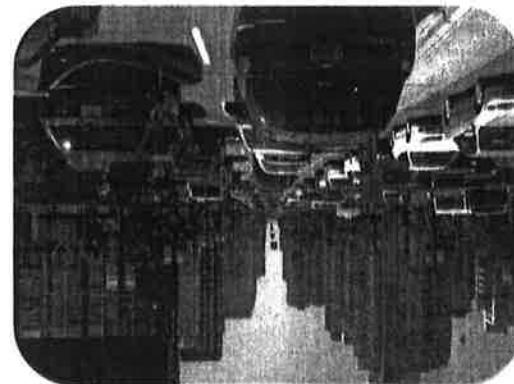
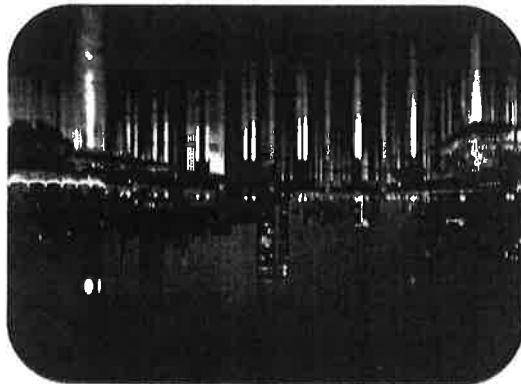
What is Global warming?

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why?

Photo courtesy of Eric Huibrechts, Mark Woodbury and Matt Barber (flickr.com)-granted under creative commons license-attribution

Factories burn lots of fossil fuels when they make new things for us to buy.



We burn fossil fuels to make our gas and electricity and to power our cars, trains and aeroplanes.

Burning fossil fuels like oil and coal adds greenhouse gases to the atmosphere. Things that humans are doing to the planet are making more greenhouse gases.

The Causes of Climate Change: Fossil Fuels

Climate Change

Fossil Fuels

What sort of gasses do fossil fuels like coal and petrol make?

Can you think of 3 ways you can reduce your fossil fuel use. Fossil fuels are used to make electricity and power vehicles.

1 _____

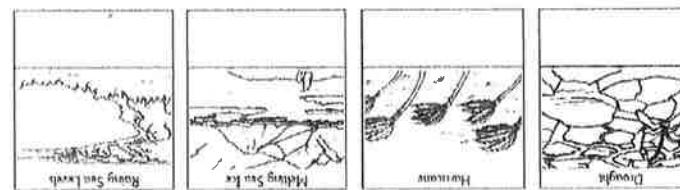
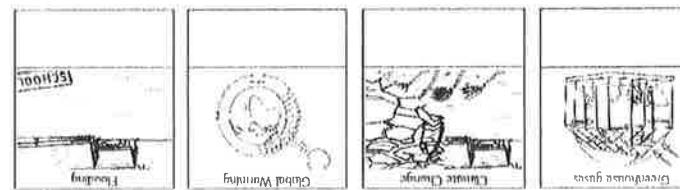
2 _____

3 _____

Factories like clothes factories use many fossil fuels. How can you reduce this waste?

Climate Change Vocabulary Activity

Climate Change Vocabulary Activity



Match them to the correct boxes

Climate Change Vocabulary Activity

| | | | | | | | |
|------------------------------------|--|---------------------------------|---|-------------------------------|----------------------------------|-------------------------------------|----------------------------------|
| Global warming | Ice melting | Sea level rise | Glaciers melting | Wildfires | Strong winds | Storm surge | Extreme weather |
| Global warming causes ice to melt. | Ice melting causes sea levels to rise. | Sea level rise causes flooding. | Glaciers melting causes sea level rise. | Wildfires cause strong winds. | Strong winds cause storm surges. | Storm surges cause extreme weather. | Extreme weather causes flooding. |
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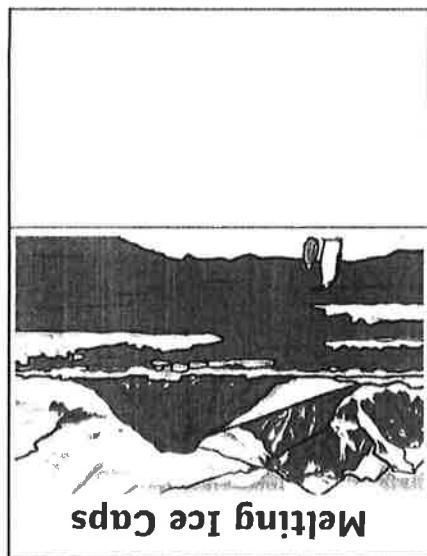
Match them to the correct boxes

| | | | | | | | |
|------------------------------------|--|---------------------------------|---|-------------------------------|----------------------------------|-------------------------------------|----------------------------------|
| Global warming | Ice melting | Sea level rise | Glaciers melting | Wildfires | Strong winds | Storm surge | Extreme weather |
| Global warming causes ice to melt. | Ice melting causes sea levels to rise. | Sea level rise causes flooding. | Glaciers melting causes sea level rise. | Wildfires cause strong winds. | Strong winds cause storm surges. | Storm surges cause extreme weather. | Extreme weather causes flooding. |
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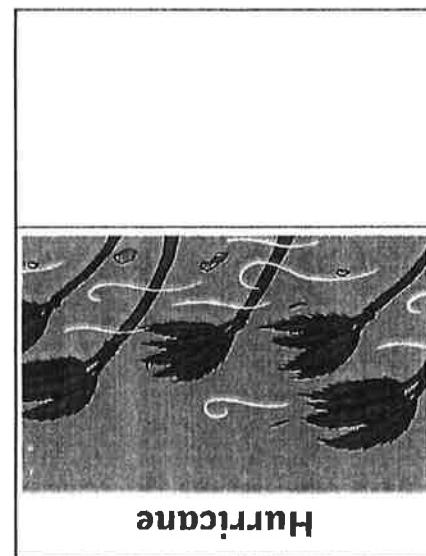




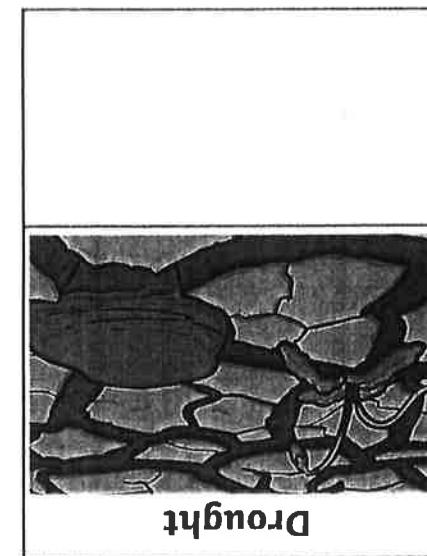
Rising Sea Levels



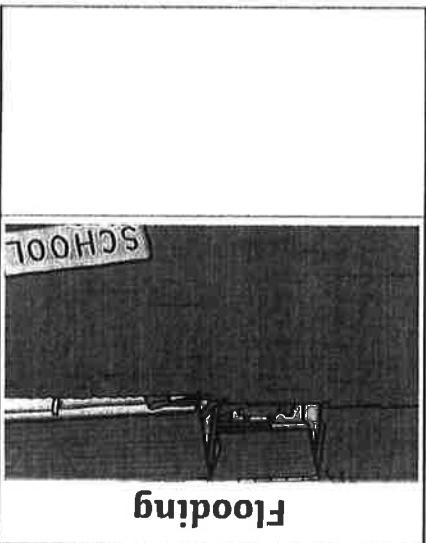
Melting Ice Caps



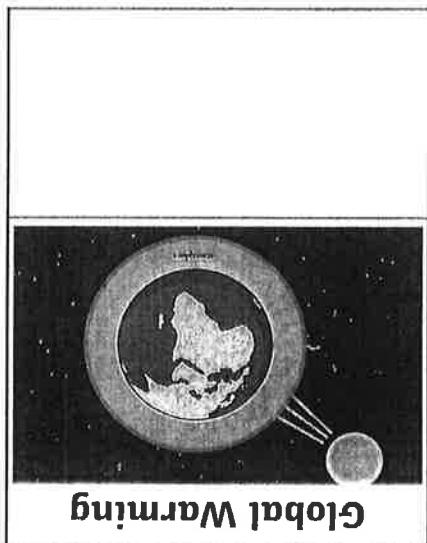
Hurricane



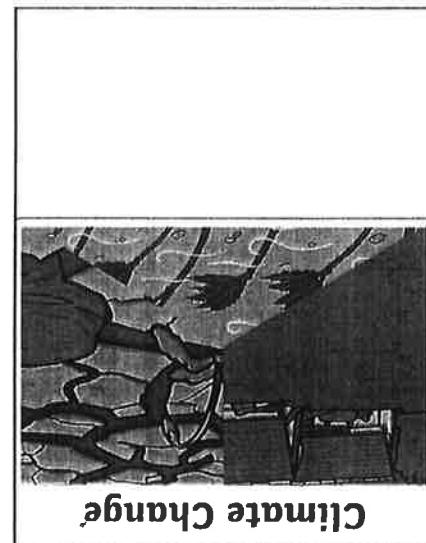
Drought



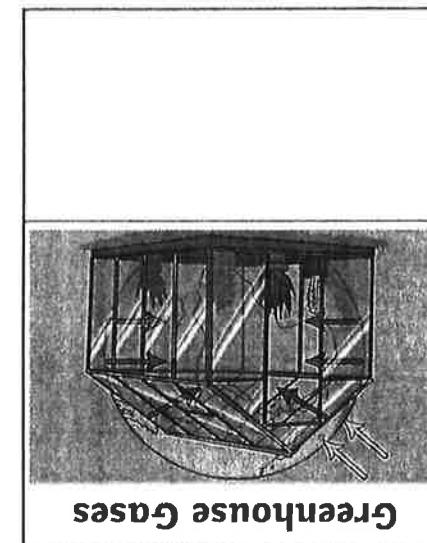
Flooding



Global Warming



Climate Change



Greenhouse Gases

Climate Change Vocabulary Activity

Climate Change Vocabulary Activity

Cut out the definitions and match them to the correct boxes.

The melting ice means that the sea is getting higher and may flood land near the coast.

Changes to the weather include flooding, drought, flooding, and storms.

Too much rain can cause an area to fill up with water.

Carbon and other gases trap the heat from the sun in the atmosphere.

The ice at the North and South Poles is melting because the Earth is getting warmer.

Temperatures across the world are getting higher.

Not enough rain leads to water shortages and makes it hard to grow food.

Very powerful storms with strong winds.

What Can We Do?

Luckily, there are lots of things that all of us can do to protect our environment from climate change.

In the coming weeks we are going to be finding out lots of ways that we can help the environment and stop climate change from having such a bad effect on Planet Earth.

If we all help, we can make a big difference!

Do you have any ideas?

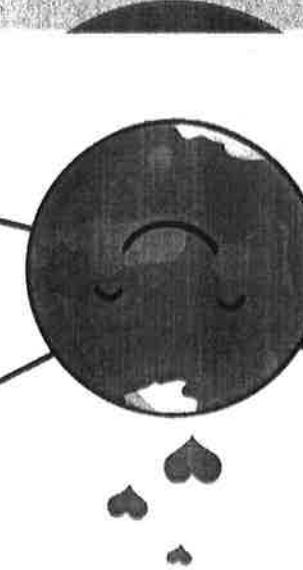


Protect forests and
plant more trees

Conserve water

Recycle more

Use less energy

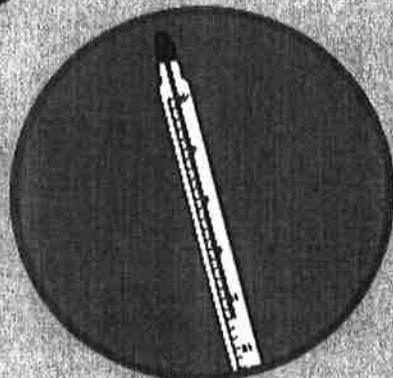
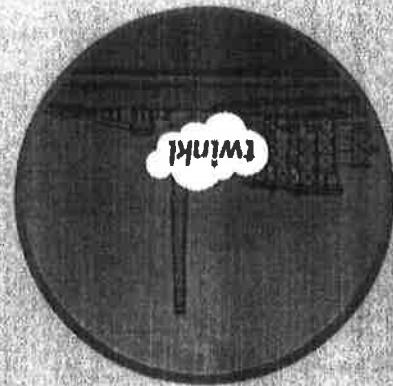
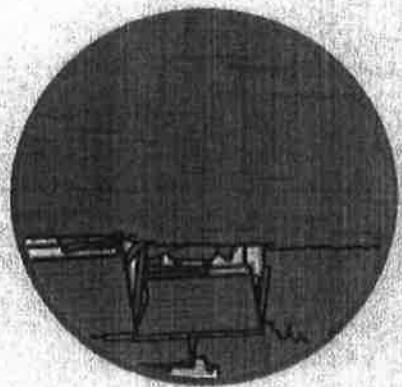
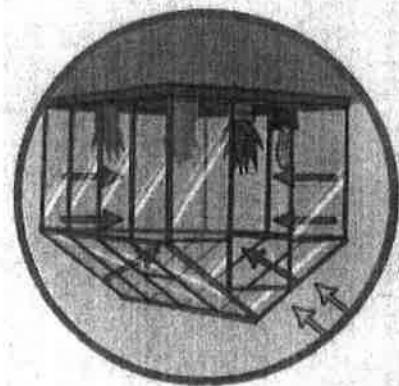


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|------------------------|---|---|------------------|------------------|
| | | | | |
| The world could: | The world could: | The world could: | The world could: | The world could: |
| The | Government could: | The | The | The |
| I could: | I could: | I could: | I could: | I could: |
| Cows making methane | Palm oil deforestation and factories Oil used for plastics | Fossil fuels for energy Pollution from cars | | |

as well as what could be done at a national and international level.

Look at each problem and note down some ideas that you could do in your own house

My Ideas to Tackle Global Warming



Good or Bad for the Environment?

Can you sort what is good and what is bad for the environment?



Cut out the activities and decide if they are good or bad for the environment.

Good for the environment

These activities will help keep our environment a pleasant place for all living things.

Bad for the environment

Try not to do these things. They cause damage to the environment.

Helping the Environment

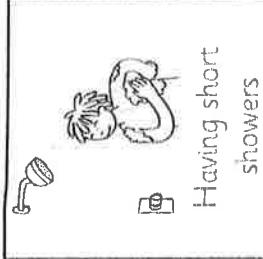
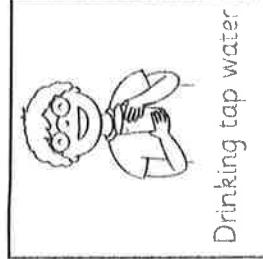
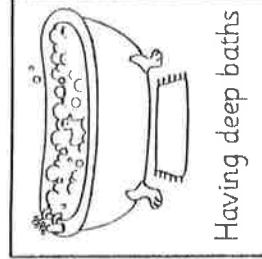
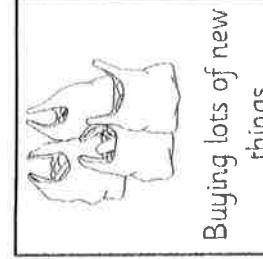
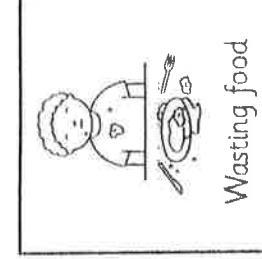
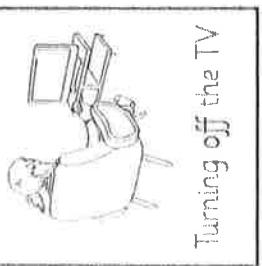
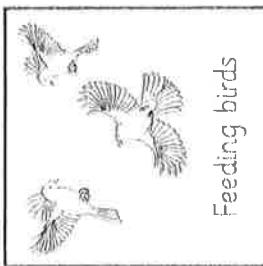
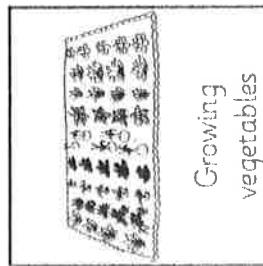
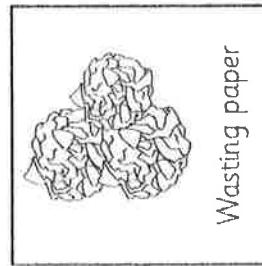
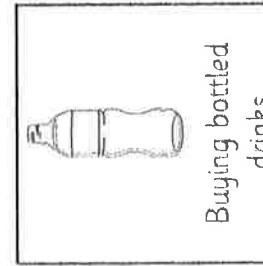
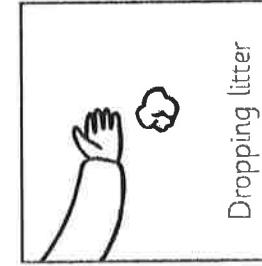
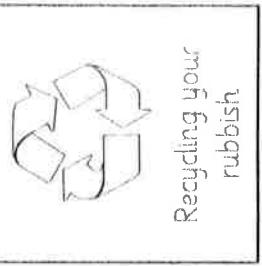
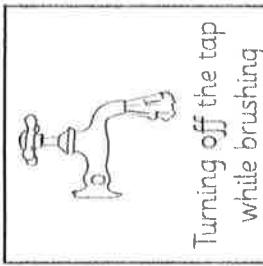
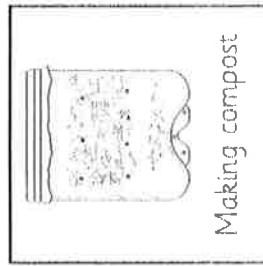
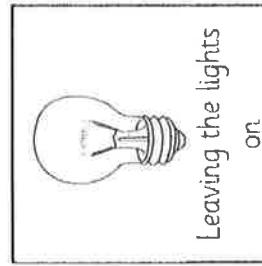
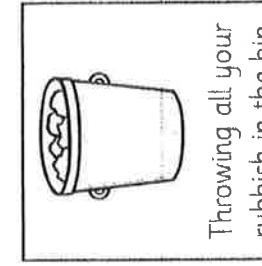
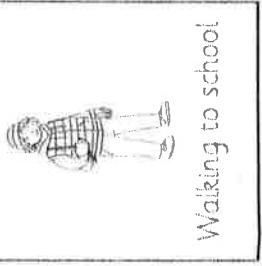
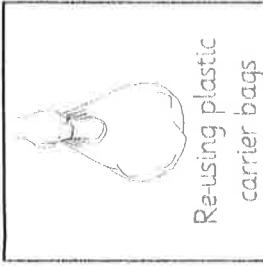
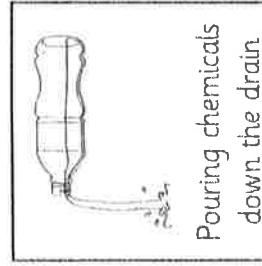
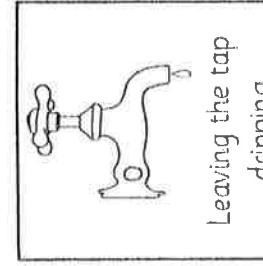
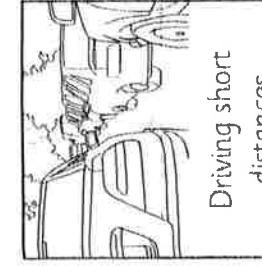
What can you do to help the environment and reduce global warming?

Think of 6 things that you can do to help the environment at home or at school. Draw them and write a sentence to describe them.

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Good or Bad for the Environment?

| | | | | | |
|---|--|---|---|---|--|
|  <p>Using both sides of paper</p> |  <p>Having short showers</p> |  <p>Drinking tap water</p> |  <p>Having deep baths</p> |  <p>Buying lots of new things</p> |  <p>Wasting food</p> |
|  <p>Turning off the TV</p> |  <p>Feeding birds</p> |  <p>Growing vegetables</p> |  <p>Wasting paper</p> |  <p>Buying bottled drinks</p> |  <p>Dropping litter</p> |
|  <p>Recycling your rubbish</p> |  <p>Turning off the tap while brushing</p> |  <p>Making compost</p> |  <p>Leaving the lights on.</p> |  <p>Cutting down trees</p> |  <p>Throwing all your rubbish in the bin</p> |
|  <p>Walking to school</p> |  <p>Re-using plastic carrier bags</p> |  <p>Giving old clothes to charity</p> |  <p>Pouring chemicals down the drain</p> |  <p>Leaving the tap dripping</p> |  <p>Driving short distances</p> |

Earth Day Addition Riddle

Solve each addition problem. Find the sum that matches the letter.

Use the code to solve the riddle below:

| | | | | | | | | | |
|---|----|---|----|---|---|---|---|---|----|
| B | 3 | A | 10 | T | 5 | F | 7 | E | 12 |
| I | 11 | L | 4 | U | 9 | C | 1 | R | 14 |
| W | 13 | N | 2 | G | 8 | S | 6 | | |

Why did the leaf go to the doctor?

$$\begin{array}{r} 2+1 \\ \hline 3+4 \\ \hline 0+1 \end{array}$$

$$\begin{array}{r} 6+4 \\ \hline 3+6 \\ \hline 2+4 \end{array}$$

$$\begin{array}{r} 7+5 \\ \hline 8+3 \\ \hline 1+4 \end{array}$$

$$\begin{array}{r} 3+4 \\ \hline 10+2 \\ \hline 9+3 \end{array}$$

$$\begin{array}{r} 2+2 \\ \hline 10+1 \\ \hline 1+1 \end{array}$$

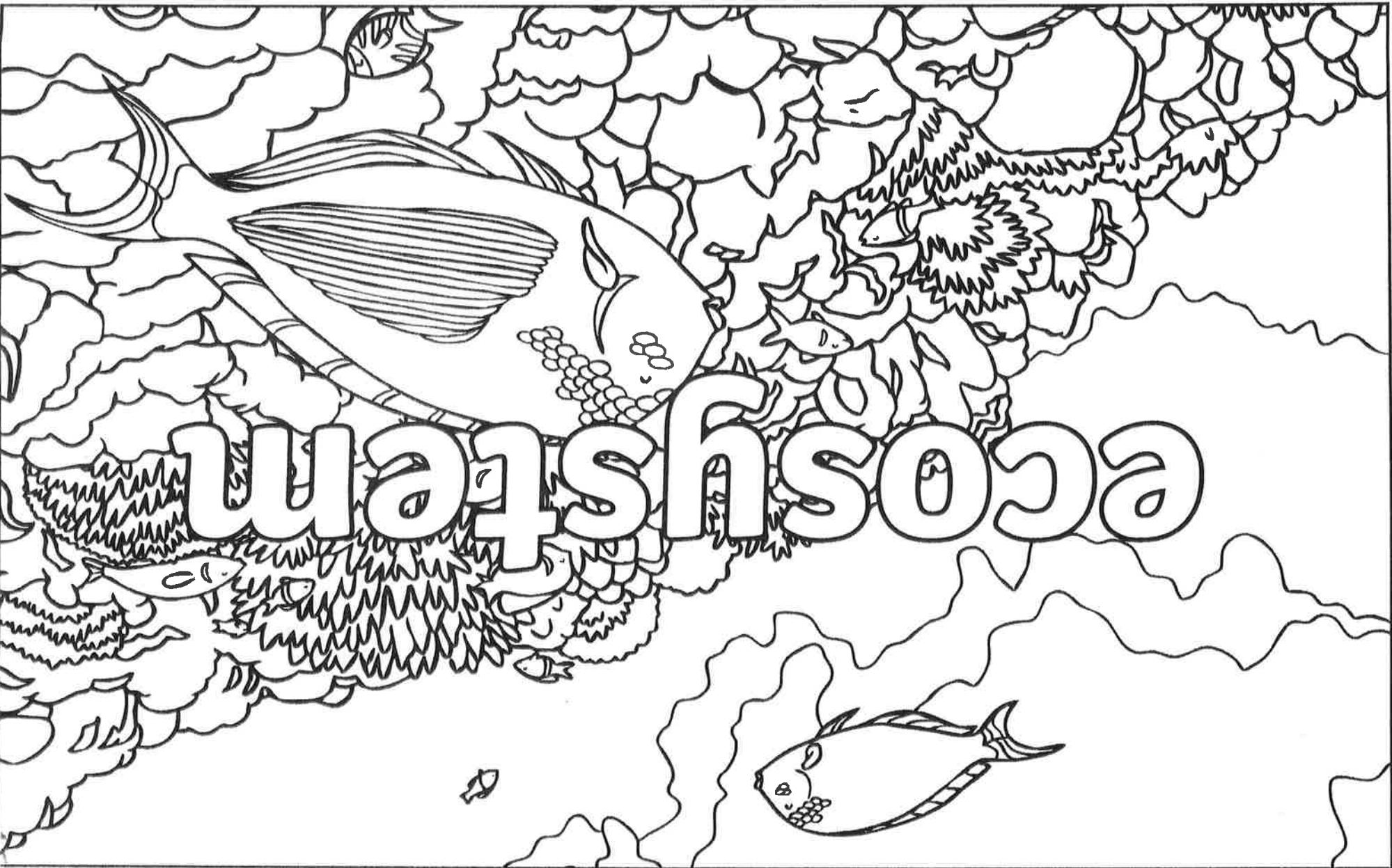
$$\begin{array}{r} 4+4 \\ \hline 10+1 \\ \hline 1+1 \end{array}$$

!

$$\begin{array}{r} 5+3 \\ \hline 10+4 \\ \hline 5+7 \end{array}$$

$$\begin{array}{r} 4+8 \\ \hline 0+2 \\ \hline \end{array}$$





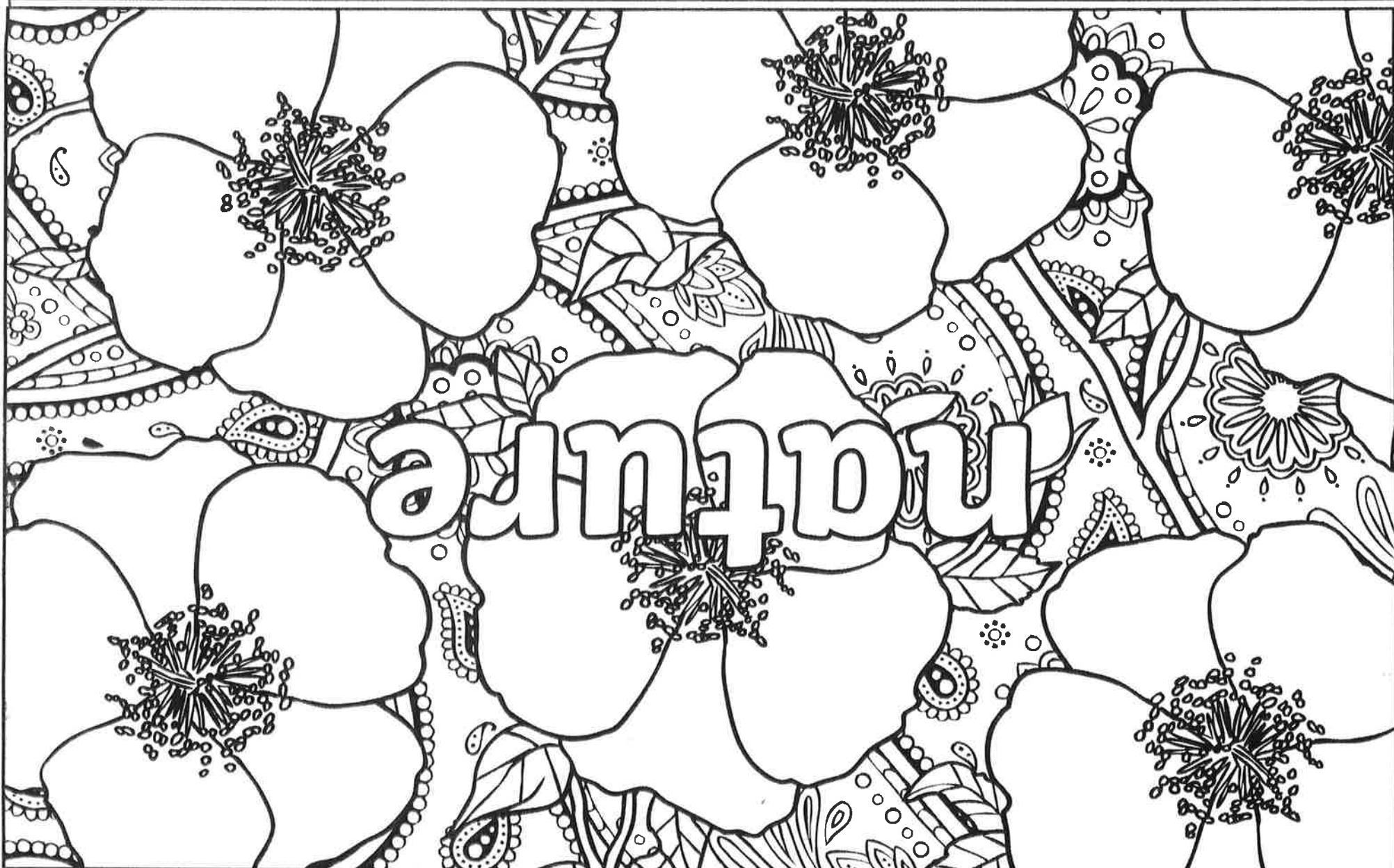
sea shells

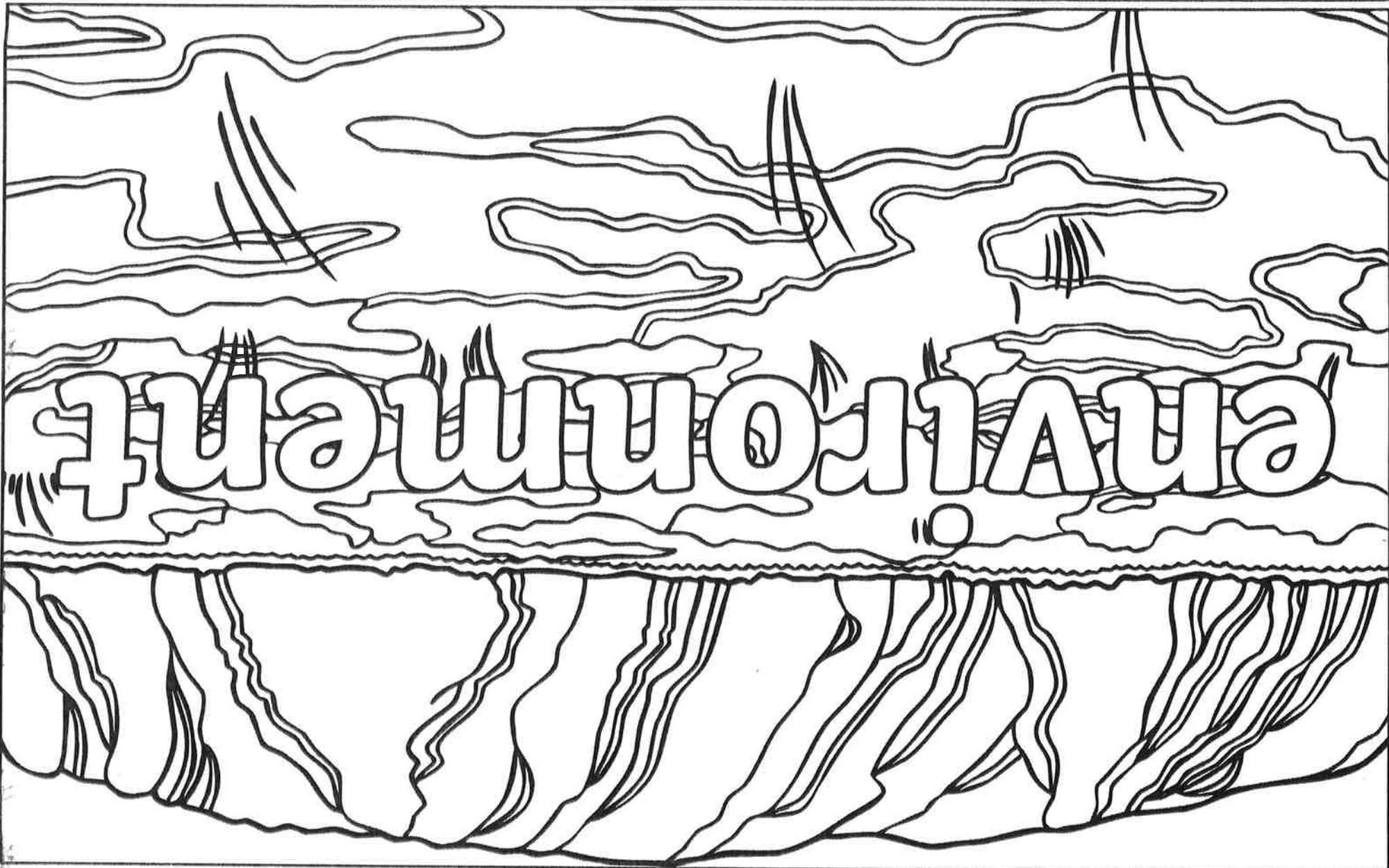
A black and white line drawing of an underwater scene. In the center, large, stylized letters spell out "sea shells". The letters are surrounded by a dense coral reef. Several fish are swimming around the reef; one large fish is positioned above the letters, and another smaller fish is at the bottom right. The background features wavy lines representing water and some clouds at the top.

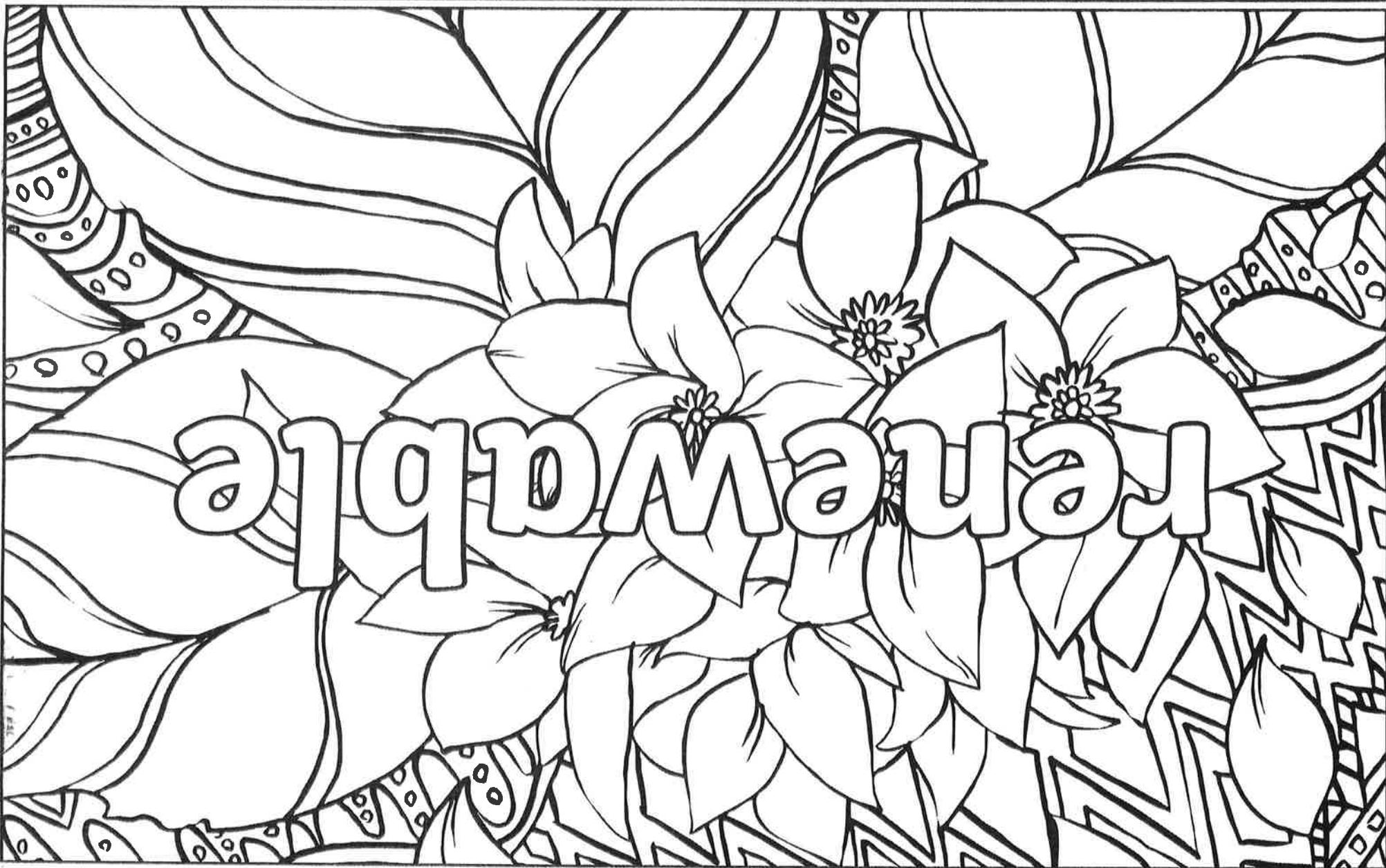
Antonyms

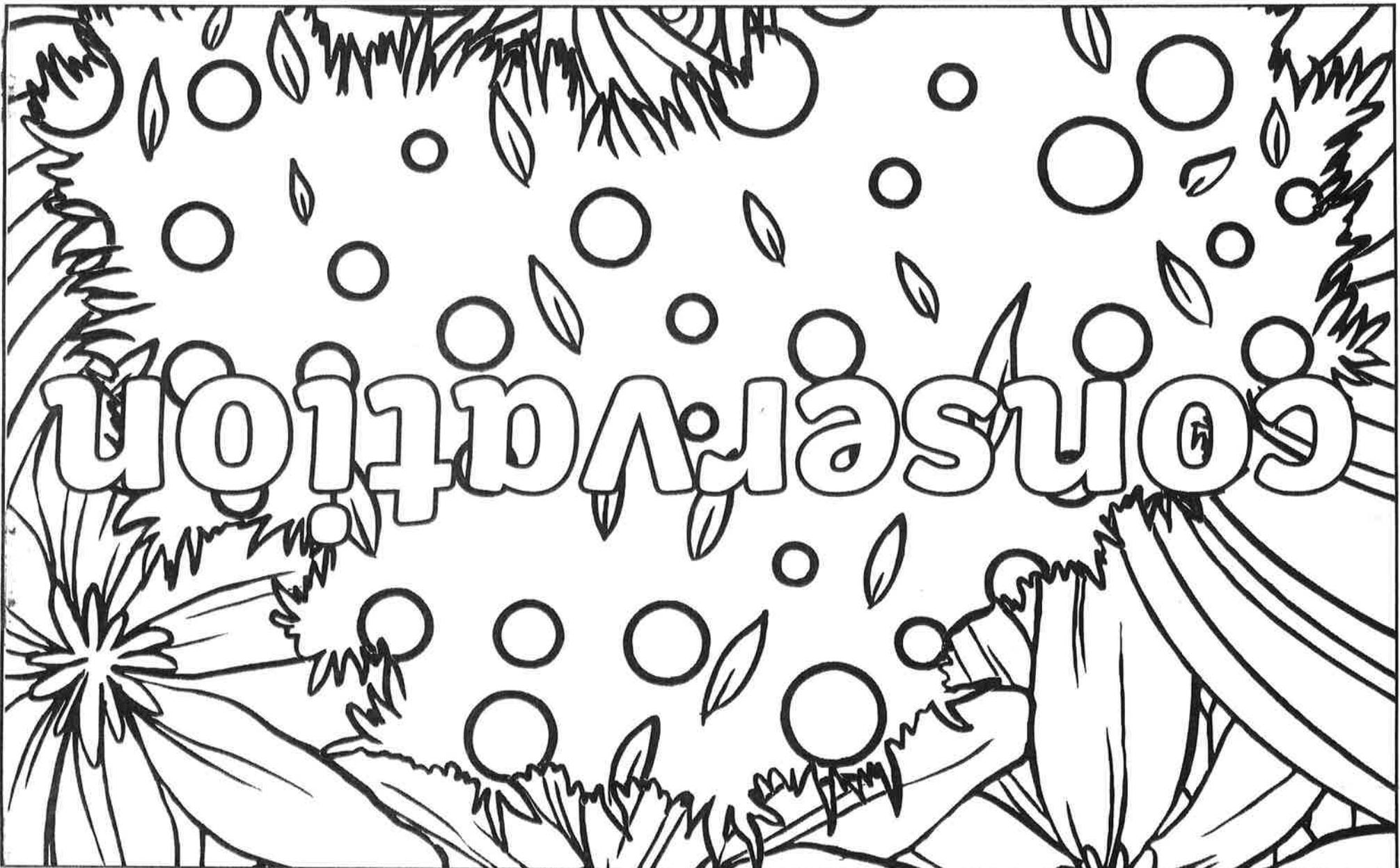


Summer









Halloween



