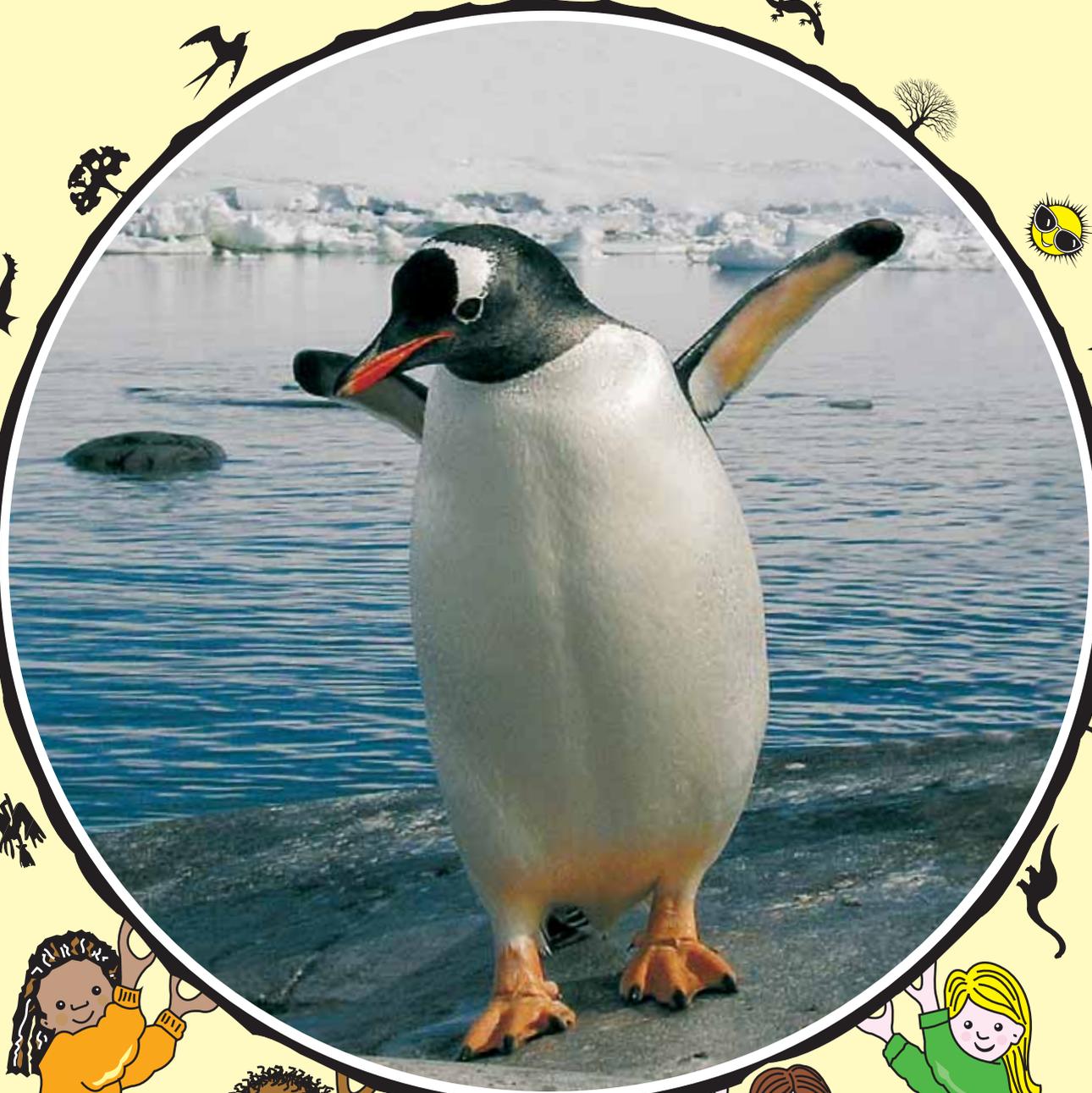


EnviroKids™



WILDLIFE AND ENVIRONMENT SOCIETY OF SA
People caring for the Earth

May 2008
Volume 29, No. 2



CLIMATE CHANGE

Kids caring for the Earth



AWARDS

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Specialist Press Association Award 1992 & 1999
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CLIMATE CHANGE

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Photo iStockphoto

Front cover:

Gentoo Penguins live on islands near Antarctica. Gentoos are unusual in that they seem to be benefiting from climate change. As the ice melts they are colonising new areas of rocky shore.



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See page 31 for details.

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WHAT'S

happening to our world?

Around the world people are noticing that things are changing!



Summers are hotter and heatwaves more frequent.



Huge glaciers and ice sheets are melting. This one has retreated 200 metres since 1992.



Storms are more violent, with strong winds and heavy rain.

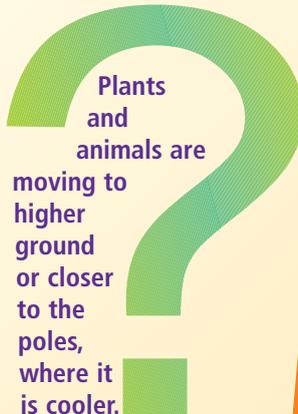


Thirsty nyala.

Southern Africa is drying out and drought is more common.



Oceans are creeping up the seashore.



Plants and animals are moving to higher ground or closer to the poles, where it is cooler.

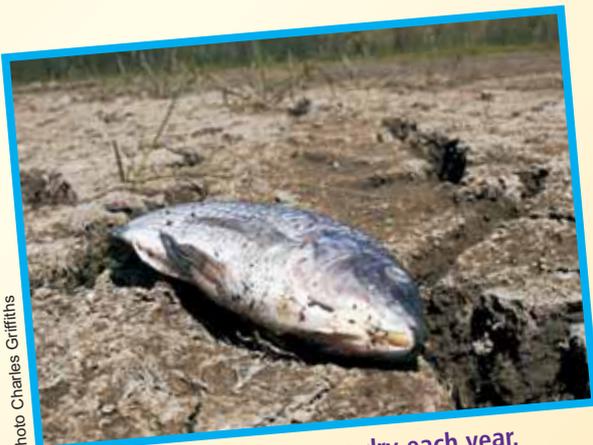


King Penguins.

The icy homes of polar bears and penguins are melting.



Mosquitoes are on the move, and frogs are disappearing.



One in ten rivers run dry each year.

PEOPLE ARE WONDERING WHY!

Find out inside, and then see how you can help to slow the change 🏠

CHANGING CLIMATES

Have you ever visited the Karoo? It is a vast, dry area where the plants and animals have adapted to surviving without much water. But, if you travelled back in time, you would find it a very different place. The Karoo was once an enormous swamp with lush, green ferns and large floodplains. It was home to an amazing number of animals, including early mammal-like reptiles. However, today they have disappeared for ever.



Photo Richard Ely

The Karoo today.

WHAT HAPPENED? THE CLIMATE CHANGED!

HOW DO WE KNOW?

320 million years ago, large parts of South Africa were covered in thick ice. As the climate warmed, melting ice carried sediments into what was then a huge inland sea – where the Karoo is today. The Karoo became a giant swamp filled with sediment. Some of the animals around at that time became trapped and were buried in its thick mud.

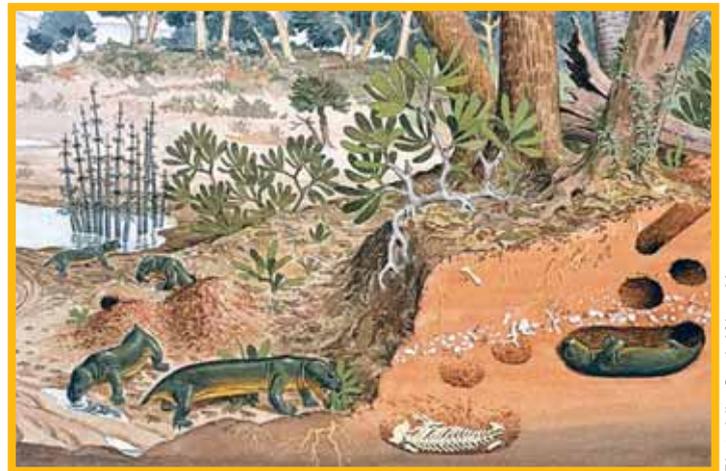


Photo Iziko South African Museum

A family of Diictodons 250 million years ago. These mammal-like reptiles were the most common herbivores* in the Karoo.

In more recent times, scientists have found the fossilised bones of these ancient Karoo animals. These finds have allowed us to build models of what the world looked like long ago. Fossil footprints in the rocks show the muddy conditions, and frog and fish bones show that some areas were very wet.



Photo Iziko South African Museum

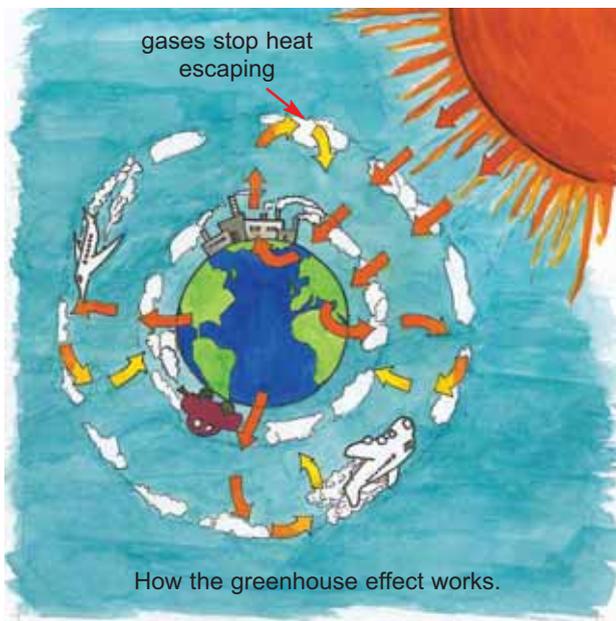
A museum reconstruction of Diictodons.

However, once again the climate changed, and the area became drier. In places, buried deep beneath the sediments, peat from the decayed plants of the ancient wetlands gradually turned to coal. Eventually the Karoo dried out and became the desert-like place that is today.

WHAT ABOUT OUR WORLD, TODAY?

There are clear signs that the world is warming and that this is happening much faster than normal. Over the last 150 years, average world temperatures have increased by about 0.6 °C – half of this in the last 40 years. This may not seem like much, but even small changes can alter ocean currents, and these affect wind and rainfall patterns over the land. While some places are getting hotter, others have actually become colder!





WHY IS CLIMATE CHANGE HAPPENING?

Earth's natural heating system has gone wrong. Carbon dioxide and other gases such as methane and water vapour in Earth's atmosphere are called greenhouse gases. They act like a giant greenhouse and trap the sun's heat, keeping Earth warm enough to support life. But, things changed when people discovered fossil fuels. During the Industrial Revolution, over 200 years ago, they started burning coal, oil and gas at increasing rates. This demand for energy continues today as world populations grow. Enormous amounts of carbon dioxide and other gases are released into the atmosphere in our hunger for more energy. These gases are trapping more of the sun's heat, warming our world, and producing climate change.

DOUBLE TROUBLE

While the Earth is getting warmer, we are removing large areas of tropical rainforest for wood and other products. Like all green plants, trees absorb large quantities of carbon dioxide for growth. As we cut down the forests, we are losing one of the best ways of removing carbon dioxide from the atmosphere!

DOES CLIMATE CHANGE MATTER?

Climate change has happened several times before, with ice ages and then warmer periods. But this one is happening much faster than normal, and animals, plants and people will have to be very adaptable to cope with the rapid changes. Every climate change has previously caused huge extinctions of plant and animal species. Today, many species are already threatened by loss of habitat and have nowhere to move to as climates change.

WHAT CAN WE DO?

World climates are already changing, but we can at least slow down the rate of change. Of the greenhouse gases produced by South Africa, most (90%) comes from burning coal to produce electricity. We can help by becoming energy-wise and saving electricity. This will also help with our present power shortage. All the time we have a blackout we are reducing our carbon dioxide output!

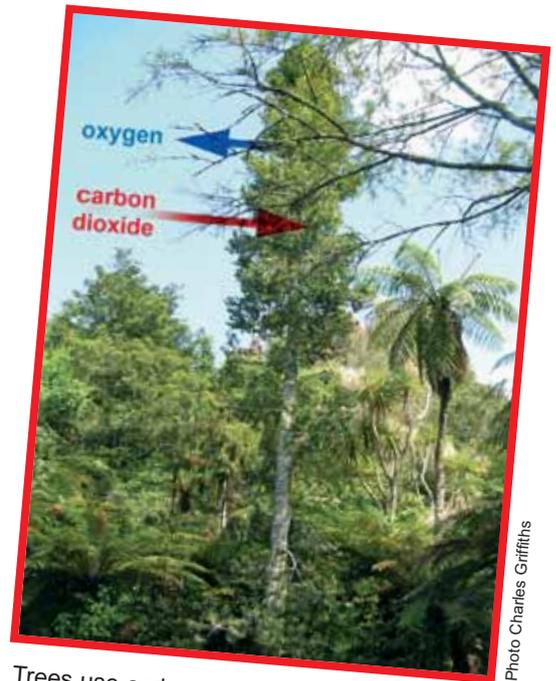


Photo Charles Griffiths

Trees use carbon dioxide to make their food, and in the process release oxygen.

HOW TO SAVE ENERGY

- 🔄 Switch off lights
- 🔄 Close the fridge door to keep the cold in
- 🔄 Use the microwave instead of the oven
- 🔄 Take short showers instead of baths
- 🔄 Switch off appliances on 'standby' at the wall plug
- 🔄 Avoid using heaters and air-conditioning – adjust your clothing instead
- 🔄 Tell your friends and family!



Photo Charles Griffiths

A game by candle light.

People and Climate Change

There is no doubt that temperatures are rising and climates are changing. So, what can we expect to happen? It may be scary to know about this, but knowledge allows us to prepare ourselves. The best thing is that we know what to do about the problem – we just have to change our knowledge into actions!



RISING TEMPERATURES AND BAD WEATHER

The last few years have been the hottest on record. Over the past 100 years, average world surface temperatures have risen by nearly one degree Celsius – most of it in the last 40 years. Temperatures are expected to continue rising by 1.4-5.8 degrees in the next 100 years. All this warmer air makes for a lot of extra energy in the atmosphere and creates unpredictable weather. We can expect more heat waves, droughts, heavy rain and very strong winds.

RISING SEA LEVELS

The warmer conditions are melting the world's glaciers and ice-sheets. This increased flow of water running off the land is filling the oceans. Also, as the water warms it expands and takes up more space. Sea levels have already risen about 20 centimetres in your grandparents' life-time, and could rise to almost one metre in the next 100 years. Many low-lying coastal areas will be flooded, and there will be increasing storm damage from the waves. Eventually people and animals will have to move to higher ground.



CHANGING RAINFALL PATTERNS

Some areas, especially on the East coast, will experience more rainstorms and floods. However, the West coast and interior parts of South Africa will become dry and desert-like. Some farmers will be able to adapt to these changes by farming crops and animals more suited to the new rainfall patterns. Others will have to move to new areas.



FRESHWATER SUPPLIES

Everyone needs freshwater to stay healthy and to survive. However, we are already using most of our supply. With less rain predicted in the future over much of the country, some of our river and groundwater stores may run dry. We will have to conserve our precious water carefully to have enough to go around. At the same time, higher air temperatures, lower rainfall, and stronger winds are expected to dry out the land. This will lead to more sand- and dust-storms and run-away fires.



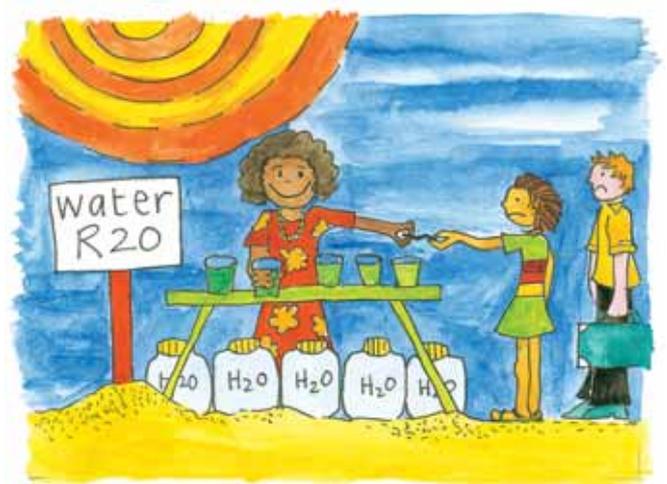
OUR LIVING CONDITIONS

Hotter weather and more extreme storms will affect our quality of life, and poor people will probably suffer the most. The poor do not have the money and resources to cope easily with changing conditions, and they will need a lot of help. Unfortunately, many people already live in places that have floods, droughts and heat waves, and these events may happen more often in the future!



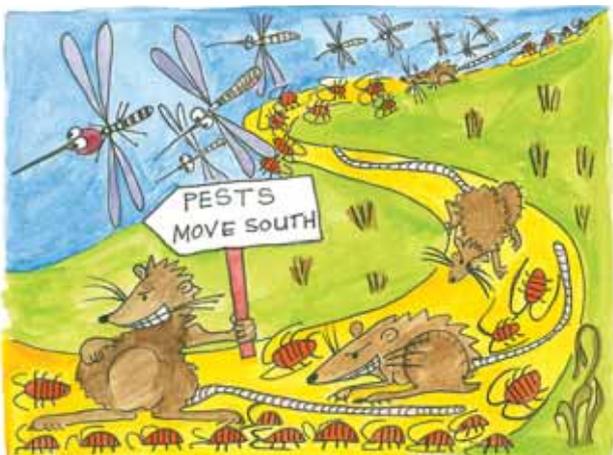
OUR FOOD SUPPLIES

Scientists predict that there is likely to be a shortage of food in Africa. While we in South Africa may be less affected, the rainfall in farmed areas will be less and there may not be enough water for irrigation. This, together with higher temperatures, will affect what can be grown. In wetter areas on the East coast, heavy rainfall and storms are expected to damage crops. While we can import food from other countries, our rural people, who depend on growing their own food, may suffer most.



OUR HEALTH

Rising temperatures are likely to expose us to more illness. Pest species, such as mosquitoes that transmit malaria, and freshwater snails that carry bilharzia, occur mainly in the warm northern parts of our country. With rising temperatures, the mosquitoes and snails can spread, and more people will be exposed to these diseases. We can also expect more rats and cockroaches – they love warmer places!



Learn and take action

Now that you know a bit more about how climate change is expected to affect people, turn the page to find out about the animals. Then go to pages 10 and 16 to see what you can do to reduce the effects of climate change. ➡

Nature on the move

How will climate change affect our plant and animal life?



Photo Roberta Griffiths

The habitat of the Cape Mountain zebra is mountain grassland.

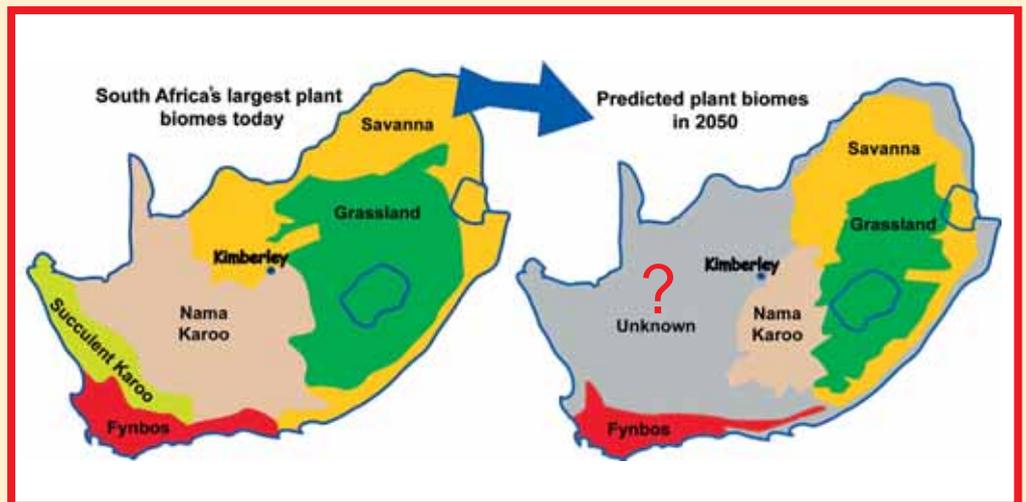
Nature is sensitive to change

Over a long period of time, animals and plants have become adapted to living in particular places (habitats), for example, grasslands or forests. Each animal or plant species has its own requirements for food, water, shelter and environmental conditions. If conditions change, they will have to adapt to the changes or move elsewhere.

Unfortunately, a fast change in climate could endanger many species. Most climate changes in the past occurred very slowly, and plants and animals adapted or moved elsewhere. But, with today's 'rapid' climate change (see page 4), many may not be able to react quickly enough. They will become extinct unless we can slow down climate change.

Shrinking biomes

Less rainfall will occur in the west and centre of South Africa. Our main plant regions, or biomes, will start to shrink and be replaced by deserts. Biome animal populations will also get smaller, as there will not be enough food or space for them. Scientists expect the **Succulent Karoo** to almost disappear, while the other biomes will only survive in the southern and eastern parts.



Maps Roberta Griffiths, adapted from SANBI maps

Plant biomes are on the move. Some may even disappear!



Photo Charles Griffiths

A Cape Sugarbird sipping nectar from a pincushion protea.

Threatened fynbos

Fynbos is the smallest, but richest, of the world's 6 flower kingdoms. At least 5 600 of the 8 000 plant species are found only in the South-Western Cape. Higher temperatures may seriously threaten fynbos, especially as it will be more prone to fire. Burns that occur before the plants have produced seeds could cause extinction. Many drought-sensitive plants are also expected to become extinct. Finally, a large number of fynbos plants rely on birds, insects and rodents to pollinate their flowers and transport the seeds. Climate change could seriously affect these relationships!

Marching Trees

As they grow, trees absorb carbon dioxide and turn it into plant material. People world-wide are thus planting more trees to absorb carbon dioxide. Unfortunately, alien trees grow faster in high levels of carbon dioxide and are likely to compete with our natural vegetation.

Some trees are already moving to cooler places. The **Tree Wisteria** in the Lowveld is moving up the escarpment, while **savanna** trees and shrubs are expected to move into grasslands. **Mopane trees** could colonise the southern parts of the Kruger National Park, and the **Quiver tree** or **Kokerboom** appears to be shifting southwards.

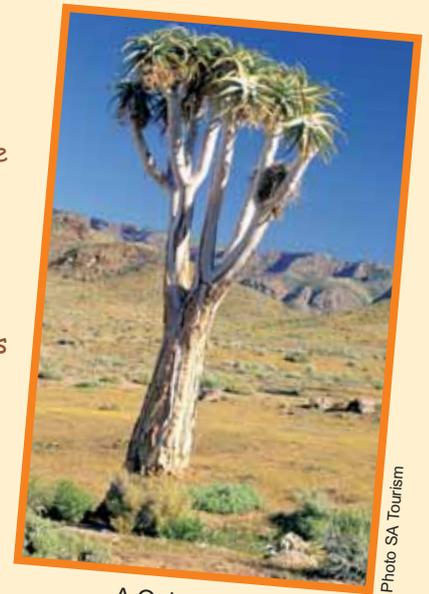


Photo SA Tourism

A Quiver tree.

ANIMALS ON THE MOVE

Animals are already on the move, either to cooler or warmer places. Here are a few examples.



Photo Charles Griffiths

A Table Mountain Ghost frog.

Frogs

Specialist animals are threatened by climate change, as they are less able to adapt to changing conditions. The **Table Mountain Ghost frog** is one such animal. It has tadpoles that take two years to grow into adults. They need constant, fast-flowing, clear, mountain streams in which to develop. Because water reservoirs have changed the flow, these frogs now occur in only 6 streams.



Photo Charles Griffiths

The Table Mountain Beauty.

Butterflies

Two thirds of European butterflies that don't migrate have been shifting their ranges to cooler areas. They have moved by 35-240 km in the last 100 years. On Table Mountain, the **Table Mountain Beauty** is the only insect that pollinates **Red disas** and other red flowers. If this butterfly dies out because of rising temperatures, so too will the disas!



Photo SA Tourism.

Bearded Vultures.

Vultures

Bearded and Cape Vultures are listed as threatened. Studies show that climate change may be causing their decline. In Lesotho, birds have abandoned their nests lower down the mountains and are retreating to higher ground, where it is cooler. Birds are still breeding on north-facing cliffs, but are spending lots of time shading their chicks from the sun. Colonies in Namibia and Zimbabwe have become extinct – the vultures stopped breeding 25 years ago as temperatures started to climb more rapidly.

GREEN spells for our future



Photo iStockphoto

What would Harry Potter do to reduce climate change?

Imagine if you were Harry Potter and able to make your own special spells that could help to save our environment! What spells would you create? Maybe a new version of *Expelliarmus* that could disarm all carbon-emitting machines? Or, how about redoing the *Mobiliarbus* spell and moving carbon emissions to another planet completely? To reduce climate change, our most important spells should be for renewable energy sources and greener houses.

Spells for greener energy

Hydrogen spells

America plans to build hydrogen cars as they emit no carbon dioxide. Hydrogen gas is difficult to transport and store but provides far more energy than oil, petrol, or natural gas. Hydrogen power has to be our first choice for the future! And to try and prove us right, American researchers have recently produced hydrogen gas by combining electron-generating bacteria with a small electrical charge! Let's magic a hydrogen spell to the bacteria!



Photo iStockphoto

Wind spells

For thousands of years people used windmills to capture wind energy for pumping water and grinding corn. Today, instead, we can generate electricity with giant wind turbines. Wind energy is a renewable energy source that will never run out! Plus, the faster the wind speed the more energy we can harness. Those of you living in the coastal areas of the Western or Eastern Cape, start looking for more wind farms! If it is a windy day in your area, blow a spell for wind farms.

Solar spells

Can the sun's energy be used to power all these things: watches, calculators, cookers, water heaters, lights, water pumps, cellphones and cars? Yes, it

can! Not only is solar power safe, but there are no harmful carbon dioxide emissions. And, did you know that Africa has sunshine all year round? Our 24-hour solar radiation average is about 220 watts* per square metre, while America has only 150, and Europe 100. Our solar resource is one of the highest in the world. What about a spell for a solar-powered playstation?



Photo Sustainable Living Projects

Hydro energy spells

We can capture the energy of moving water from waves, tides, waterfalls and rivers. In South Africa, we have a mix of small hydroelectricity stations on dams, and pumped water storage schemes. In a water storage scheme, water is released from a high mountain dam into a much lower dam when extra electricity is most needed. The falling water passes through a turbine and generates electricity. The water collected in the lower dam, is pumped back up again in off-peak hours. Unfortunately, when dams are built large areas of land are flooded. This affects plant and animal habitats, housing and farming areas. As eco-wizards, what spells could you make to lessen the effect on wildlife?



Photo Robena Griffiths

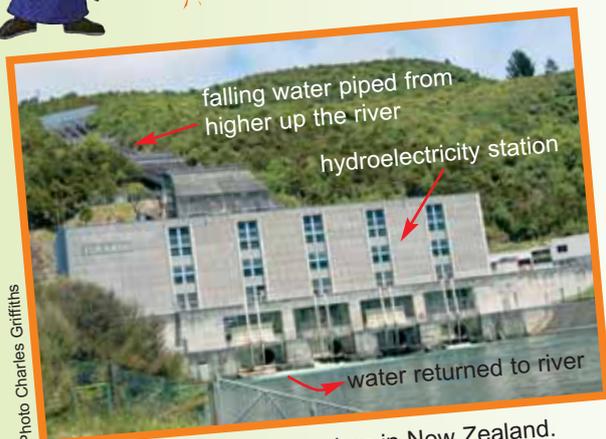


Photo Charles Griffiths

A hydro station on a river in New Zealand.

* Watt – a unit or measure of electrical power.



★ Spells for greener houses ✨

There are many ways of making houses more energy efficient and environmentally friendly. The picture below shows what an energy-efficient and enviro-friendly house would look like. It would take a lot of spells to magic them all over South Africa, but imagine how much energy could be saved. This would certainly reduce our carbon dioxide emissions!

1. **Passive cooling** means growing trees and shrubs on the sunny side to block out the summer sun. This saves using electricity-guzzling air conditioners.
2. **Wider roofs** on the sunny side to keep cool in summer.
3. **Semi-detached** houses save on building materials, energy and land.
4. **North-facing windows** let the sun warm the house in winter when the trees lose their leaves.
5. **Solar water heater** provides hot water.
6. **Solar panels** (photovoltaic) use sunlight to generate electricity that is stored in batteries for later use.
7. **Home wind-turbines** – we need a spell to design an affordable, small and efficient turbine that transfers wind- and water-power into electricity! At present it is too expensive.
8. **Energy-efficient light bulbs** – these are a must have!
9. **Insulation** in the ceiling to keep the warmth inside in winter.
10. **Adjustable vents** for air flow to keep the house cool in summer.
11. **Gas** and a **hot-box** for cooking.
12. **Gas** for heating in winter.
13. **Rainwater** harvesting.
14. **Bins** for recycling glass, cans, plastic and paper.
15. **Earthworm farm** to recycle kitchen waste.
16. **Compost heap** for recycling garden waste.
17. **Grey-water** can be cleaned and recycled for garden and toilet use.



There are 17 spells for greener houses. Do we have enough 'star-spells' ✨ on these pages for each one?

Making a difference

Here are two footprints. They are called ecological or eco-footprints, and they are a measure of the area of the Earth that each person needs to support their particular lifestyle. People who use lots of energy and materials have large footprints. If we all had large footprints, the world would be unable to provide for all our needs. In fact we would need two-and-a-half worlds! But, as we only have one world, we must all work at reducing our footprints. We can do this by saving energy and fuel, and by using fewer resources. In this way Earth will be able to support us into the future.

WE HAVE LARGE FOOTPRINTS WHEN WE:

- Use the oven for things that could be cooked in the microwave
- Use a heater in winter instead of putting on a jersey
- Buy loads of electrical appliances that we seldom use
- Leave our TVs, stereos and computers on stand-by
- Use heaters to warm draughty houses
- Do not have insulation in our ceilings
- Take lots of overseas holidays
 - Take deep, hot baths
- Drive big fuel-guzzling cars
 - Eat lots of imported foods
- Use air conditioners all day
 - Eat lots of fast food
- Eat lots of meat
 - Buy clothes that we seldom wear
- Leave the fridge or freezer door open
- Leave our litter for others to clean up
- Send all our waste to the rubbish dump
- Choose to buy toys that we seldom play with
- Leave all the lights on when no one's in the room



Eat less
that
half

Replace
with energy

Buy tops, pants
will go with a
in your wardrobe
about

WE NEED
TO MOVE
FROM
THIS

Swap old toys
give

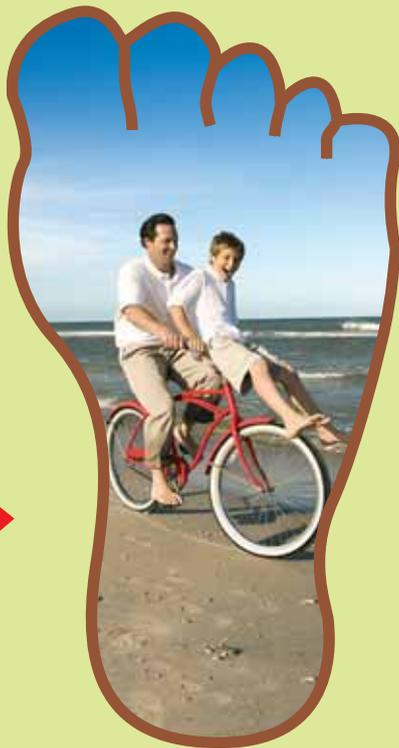
How many of these red actions you have ticked? Can you swap some of them for 'greener', more enviro-friendly actions?

4 Steps to making a difference

1. Put a **cross** in the boxes of the 'green' actions that happen in your family.
 2. Decide what other actions you and your family could take and place a **tick** in their boxes.
 3. Make a list of the actions that you could take and stick them up in your home.
 4. Get your family to agree on 3 actions to take to help make a difference.
- When these become part of your everyday lives choose another 3, and so on.
Tell others and challenge them to help too.

For more fun visit Bobbie Bigfoot at www.kidsfootprint.org and check out the Hero kids and their projects at www.actionfornature.org/eco-hero/EcoHeroAwardsWinners2007.html

'GREEN' ACTIONS FOR SMALLER FOOTPRINTS:



Locally produced food that has not been flown way around the world

Unplug cellphone and other chargers

Eat more vegetarian meals

Eat less fast food and burgers

Switch off computers, TVs and stereos at the wall

Switch off lights that are not needed

Use energy-saving light bulbs

Choose well-made toys that can be played with in several different ways

Buy products made from recycled materials

Recycle your waste – glass, cans, plastic, tetrapacks, garden and kitchen waste

Take short showers

Buy products made from recycled materials

Do not litter – recycle!

Close curtains and blinds to keep cool in summer and warm in winter

Buy products made from recycled materials

Do not litter – recycle!

Close curtains and blinds to keep cool in summer and warm in winter

Start a veggie garden

Get out and enjoy nature but leave only footprints

Fix draughty windows and doors to keep the house warm in winter and save on heating

Cycle, walk or use public transport if possible instead of going by car

Wear more jerseys and a beanie when it is cold

Take holidays in South Africa

Buy products made from recycled materials

Do not litter – recycle!

Close curtains and blinds to keep cool in summer and warm in winter

Start a veggie garden

Cycle, walk or use public transport if possible instead of going by car

Wear more jerseys and a beanie when it is cold

Take holidays in South Africa

If everyone makes 3 small changes – together we can make a big difference!



OCEANS AND CLIMATE CHANGE

How will climate change affect our oceans?

Water temperatures will change

It takes a lot of energy to heat or cool water, so once air temperatures rise it takes about 20 years for the sea to follow suit. As the distribution of many marine animals is governed by sea temperature and temperatures vary in different parts of the sea, many species will have to move to new areas. For example, as the sea warms, coral reefs may extend further southwards into KwaZulu-Natal. But, not all parts of the sea will get warmer! Climate change also produces stronger winds, and when they blow offshore, they push warm, surface water out to sea. Deeper, cold water then rises to replace the warm water – a process called 'upwelling'. A drop in sea temperature is already happening off our west and south coasts and our fish stocks are on the move. Pilchards (sardines), previously harvested on the west coast, are now caught almost entirely on the south coast.



Photo Oceana Group Ltd.

A catch of pilchards.



Photo Simon Bundy

Storm damaged houses.

Sea level will rise

Sea level rise is caused both by water expanding as it gets warmer – like mercury rising in a thermometer – and the melting of land-based ice sheets. Interestingly, melting icebergs and pack-ice already floating on the sea have no effect*. Sea levels have risen by about 20 cm over the past 100 years, and are expected to increase by at least another 50 cm this century. This may not sound much, but it can cause considerable flood damage as was shown by the 2007 coastal storms in KwaZulu-Natal. It is expected that low-lying areas will be flooded, and that people will have to move inland. However, for most marine animals, sea level rise will occur slowly enough for them to simply establish new populations higher up the shore.

The oceans will get more acidic

As carbon dioxide concentrations in the atmosphere increase, more of this gas will dissolve in the oceans, making them increasingly acid. This will be a problem for many animals. Corals, shellfish and many other small marine animals have coverings made from a chalky substance (calcium carbonate) which dissolves under acid conditions! The increasing acidity of the oceans could have a huge effect on all these animals. It is thus vital to prevent this from happening.



Photo Charles Griffiths

A striped bubble-shell.



Photo Geoff Spiby

Mushroom coral.

* Test this by filling a glass with warm water (not hot) and adding 4 to 6 ice cubes. Then slowly add more water until it bulges above the top of the glass but does not spill. What happens when the ice melts? Does the water spill over the edge of the glass? Answers on p. 31.



Photo Roberta Griffiths

'Green' inventions: Saving energy tomorrow

Climate change is inspiring researchers and inventors to come up with more enviro-friendly ways of doing things. What 'green' or environmentally friendly products can we look forward to using soon?



Photo Beluga shipping



The MS Beluga flying its kite.

KITESHIPS

The fuel burnt by shipping generates 4% of the world's carbon dioxide emissions – that's twice as much as aeroplanes! Sailing boats use wind power, so what about using enormous kites to help pull today's ships along? Well, the world's first commercial cargo ship partly powered by a giant kite set sail from Germany to Venezuela in January. The MS Beluga used 20% less fuel as it was towed by a 160 m² kite flying 100-300 m above the water, where the wind is stronger.

RAINDROPS POWERING YOUR LIGHTS?

Piezoelectric (say pie-ee-zo-electric) materials produce an electrical current in response to movement. These materials could be used to capture the energy of falling raindrops! Although the amount of energy generated per raindrop is very small, it could supplement solar power on rainy days. Piezoelectric material could also be used to make T-shirts that generate electricity when you move around.



Photo iStockphoto & Matt Griffiths

Could we light our way in the rain?

Photo Matt Griffiths



Could plants power a radio?

ENERGY FROM PLANTS

Plants use sunlight to convert carbon dioxide into sugars. As part of this process, they generate excited electrons, which is what electricity is made of. If scientists can figure out how they do this, we could use them as little machines to turn sunlight into electricity!



Photo iStockphoto & Matt Griffiths

Could we fix a popped balloon?

CARS THAT DON'T NEED FUEL

Cars use a lot of fuel and generate a lot of greenhouse gases. To solve this, a company called Venturi has designed a car that can be powered by solar and wind power! It has a wind turbine and solar panels on the roof, and generates its own electricity as it goes along. It has a top speed of 50 km per hour, so it's only really useful in cities.

Photo Venturi Automobiles

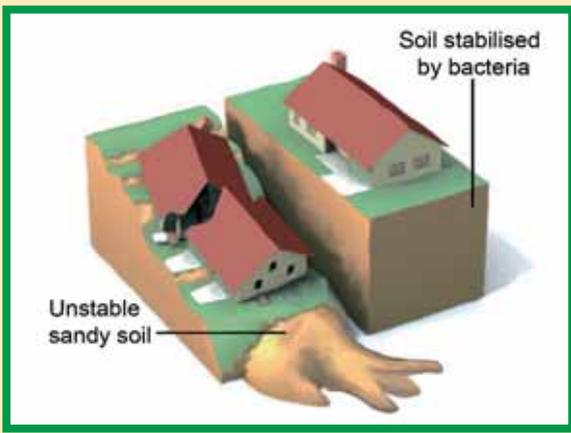


The Venturi eclectic.

SELF-HEALING RUBBER

In France, a new type of rubber that fixes itself after being snapped or punctured has been invented. You may never have to throw away rubber shoes, fan belts or washing-up gloves again! Close the torn edges of this special rubber and it sticks back together. The tear has just as much strength as before. Maybe supermarkets could have re-usable bags that can be ripped open and then re-sealed!

Art Matt Griffiths



BACTERIA THAT STOP SOIL EROSION

Scientists have found a little bacterium, *Bacillus pasteurii*, which has the amazing ability to turn soil into cement! When the bugs are mixed with urea and soil, they process the urea into a chemical that turns the soil into a hard, chalky substance. Scientists hope to use the bacteria to stabilise loose sandy soil so that it doesn't move during earthquakes, or get washed away in floods.



Photo Image Science

LEG POWER

Canadian scientists have invented a pair of braces that strap on to your legs. With a little extra effort, by 'power walking', your movement can generate enough electricity to charge your cellphone or laptop. The braces twist as you stride along, spinning a little generator. One person's walking legs can generate 5 watts of energy – enough to power 10 cellphones!

Photo Charles Griffiths



GECKO-FOOT PLASTERS

We could soon be using sticky plasters inspired by geckos' feet! They can walk on walls because they have tiny bristles under their feet that are attracted to almost any substance. Doctors have copied this by creating tiny plastic pillars (a million in each square millimetre) on the surface of the plasters. This makes them sticky, even when wet, which is brilliant for closing cuts. The pillars biodegrade over a few days, so that you can take the plaster off again.

Photo Product Creations Limited



THE ECO-KETTLE

This simple idea, already on the market, can save 30% of the electricity used by your kettle! Fill an Eco-Kettle with water and push a button to tell it how many cups of tea you want to make. It will then release the exact amount into a heating chamber. Only this water is boiled and then insulated to keep it warm. You don't waste energy boiling water you don't need!



SMART TRAFFIC LIGHTS

Smart traffic lights that keep track of where cars are and how fast they're moving could help the system to calculate the best time to change colour. Cars would then spend less time waiting at robots – which could mean 6.5% less in carbon dioxide emissions! Meanwhile, many cities are installing solar-powered traffic lights at major intersections to help prevent traffic chaos during power failures. This not only reduces carbon dioxide emissions by saving electricity, but helps to reduce pollution from vehicles!

