

Environment



Everybody is talking about the environment and conservation these days.

In groups, think of some reasons why we need to look after the world in which we live.

Let us examine one of these issues more closely.

FORESTS

Forests cover about 30% of the world's land area. As they grow they provide oxygen for the atmosphere which helps keep our climate in balance. Forests also contain a wide variety of species of plants and wildlife.

People have been cutting forests down since the dawn of agriculture thousands of years ago. Why do we do this?

- To provide agricultural land to grow crops
- To provide firewood for cooking and heating
- To provide wood for building, construction and paper making



It is estimated that 20% of the world's original forests have been lost. In Europe around 60% of the forests were lost in the Middle Ages, as they were cut down to provide agricultural land. In the USA, around 30% of the forests were lost in the 19th Century.

Today, more than half of the world's forests are in just 4 countries: Russia, Brazil, USA and Canada. The biggest forest cover in the world is in Russia.

Forests are still being destroyed. Some people say 2% of all forests are destroyed every year; others say it is only 0.5%. Nobody is quite sure. What people do agree on is that we should try to preserve the forests that are left.

The rainforests are particularly important because of the great variety of life they contain. This means that there are lots more species of plants and animals per square km compared to ordinary agricultural land. Some of these plants are important, as they are the ingredients for medicines. It is important that species of plants do not disappear, as they may be the future cures for diseases.

Plantations, or farmed forests, could help us to preserve these natural forests, because they take the pressure off them. It has been estimated that if just 5% of the world's forests were properly managed plantations, they could supply all of the world's demand for paper products.



Environment



ENVIRONMENT QUIZ

1) Why are forests important?

2) Which country has the most forest cover?

3) Why is it important to preserve forests?

4) Should we remove dead trees from the forest floor? Explain your answer.

We all tend to think that environmental issues are so big that there is little we can do to help. However, if we ALL tried to think about our everyday actions it does make a difference.

Get together in a group. List all the things you do to help conserve the environment.

Think of three other things that you could do at home and at school to help conserve the environment.

- 1.
- 2.
- 3.



Some people at work are also trying to help the environment too. Here are some of the ways in which the people at our company are trying to make a difference.

1. Sellotape® Original tape is made from cellulose film. Some people call it "sticky backed plastic" but in fact it isn't plastic at all! Cellulose film is made from wood pulp which comes from trees. Plastic is made from oil. So plastic tapes are oil based, but Sellotape® Original tape comes from trees.
2. The raw material (wood pulp) for the cellulose film comes from farms of sustainable forests of eucalyptus trees. These farms grow trees like some farmers grow wheat.
3. To save electricity the factory staff shut down some machines when they are not using them. (like the compressor machine at weekends)
4. Waste paper in the office is collected for recycling.
5. In our factory, we use waste heat from one production process to heat another production process.
6. Because Sellotape® Original tape is made from a natural product, it biodegrades just like paper.



Environment Experiment



The purpose of this experiment is to show that Sellotape® Original tape is made from cellulose (which is made from wood pulp like paper) which biodegrades safely.

What you will need:

1. Empty 2L plastic drink bottle, Piece of white expanded Polystyrene, Wire coat hanger, Bubble wrap, Cabbage, Lettuce, Leek, Straw, Water, 1 large strip of Sellotape® Original tape, 1 large strip of ordinary plastic sticky tape, 1 nail and a pair of scissors.

Method:

1. Using a pair of scissors, cut the top of the plastic drink bottle just below the shoulder of the bottle. Be careful with the scissors! You might ask your teacher to help you with this.
2. The next step is to make a polystyrene circle. Trace the diameter of the bottle on the polystyrene and cut it out. Use a nail to punch holes in the polystyrene circle. The polystyrene should fit snugly in the bottom of the bottle.
3. Using the nail, punch holes round the foot of the bottle, just below the polystyrene circle, but not too low as the water will leak out of the holes.
4. Using an old wire coat hanger or a piece of wire, shape it into a frame, just large enough to fit inside the bottle. Fix a piece of Sellotape® Original tape and another piece of ordinary plastic sticky tape around the frame.
5. Make up your compost mixture by adding together equal amounts of chopped vegetable matter and straw. Ensure that the straw is wet (it should feel damp, but you should be unable to squeeze water out of it). The compost will need to be moist to ensure that it decomposes.
6. Place the wire frame with the tapes on it in the middle of the bottle. While holding it, drop the compost mixture on either side of the frame. Gently tap the bottle on the desk to ensure that the compost is settled in the bottle. Do not press down.
7. Replace the top piece of the bottle and tape around the cut edge to keep it in place.
8. Wrap the bottle in bubble wrap or any other insulating material. This will help to retain the heat in the bottle.
9. Store in a warm dry place and review every week for 6 weeks.
10. Draw the results. What does this tell you?



This is what ours looked like once the time was up
How does yours look?



Science



Have you ever wondered how some products are made; where the raw materials could come from and how they are put together? Sticky tape is something we use everyday. Have you ever wondered how it is made? This section will review the process of making rolls of Sellotape® Original Tape.

Step 1

Eucalyptus trees are grown on big farms in South Africa. When the trees are big enough the farmer harvests them. These trees are cropped, but they are not fully chopped down. This allows the trunk to throw out new growth year after year and the tree survives. The trees are stripped of their branches and transported to the pulping mills.

Step 2

These trees are debarked, washed and ground up into small chips. This is then mixed to form wood pulp, which looks a bit like porridge.

Step 3

The wood pulp is compressed into sheets and is dried out. It is then put on a container and sent by ship to the UK.

Step 4

The wood pulp is then sent to a company, which converts it into Cellophane™ film.

Step 5

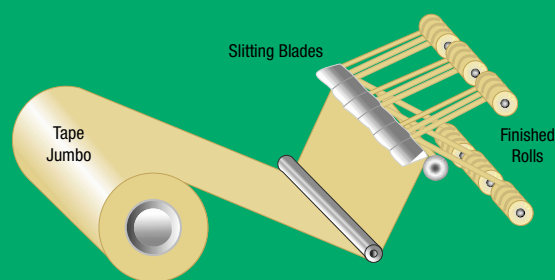
The finished film is sent to the Sellotape® factory in Dunstable.

Step 6

The film arrives in the form of big rolls, which are firstly coated with adhesive (glue). They are like massive rolls of tape- in fact we call them jumbo rolls!

Step 7

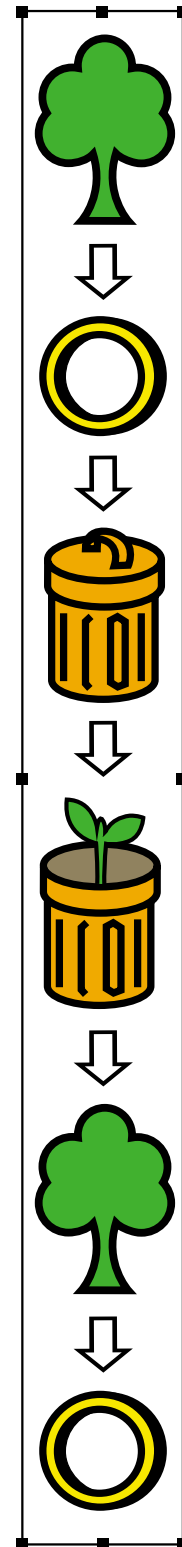
This is now unwound onto a machine that contains a number of razor blades. The number and distance between these blades determines the width of the tape. It is then re-wound onto smaller cores.



This is how the machine works

Step 8

The small rolls of tape are now put into packs and then placed into larger cases.

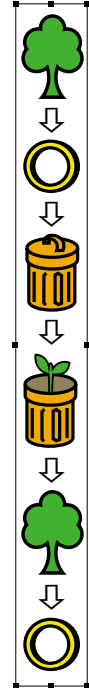


Step 8

Science



Think of some other products that biodegrade like Sellotape® Original tape



How tape is made (Continued).

Step 9

They are then sent to the shops when the customers order them.

Step 10

People buy tape to wrap presents, to seal envelopes, to mend things, pick up fluff and so on.

Step 11

After use, tape is thrown away with normal rubbish.

Step 12

If you bury Sellotape® Original tape in the ground it turns into compost because it is biodegradable.

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

Can you find these words in the word-search?

Put a line through each one on the grid as you find them.

Cellulose

Wood Pulp

Biodegradable

South Africa

Eucalyptus

Adhesive

Factory



History

Have you ever wondered what our lives would be like without those little things we take for granted like knives, forks and spoons? What about mobile phones and the Internet? What would you do without microwave ovens and televisions? How about buttons, zips and sticky tape?



All of these were invented and developed by somebody at some point in time. Here are some "bee fact bites" about a few of these things:

- * In 1893, an inventor from Chicago called Whitcomb Judson, invented a replacement for the lengthy shoelaces used to fasten men and womens boots. This invention was further developed and by 1913 the design was successful and is virtually the same as zips used today.
- * Dr. Percy Spencer invented the microwave oven by mistake! He was carrying out some research in radar technology in 1946, when he noticed that the chocolate bar in his pocket had melted when he was near to the vacuum tube where he was experimenting. This intrigued Dr. Spencer, so he tried another experiment. This time he placed some popcorn kernels near the tube, and lo and behold, they popped all over his laboratory! In 1947, the first commercial microwave oven hit the market.
- * The first known use of adhesive (sticky) tape is recorded in a book published in 1676, which tells of lute makers (guitar like instrument used in 14th-17th Centuries) using "little pieces of paper, so big as a pence or two pences, wet with glew"(glue) to hold thin strips of wood in place while they made the instruments. However, the first roll of Sellotape® Original tape was made in 1937, in a factory in the UK. It has since then become a famous brand.

1670-1680
King Charles



History



Some inventions are so old, nobody knows who invented them in the first place - for example, nobody knows who invented the wheel. However some inventors have become really famous. Fill in the missing parts of this table of famous inventors/inventions:

WHO?	WHAT?	WHEN?
	Telescope	1609
	Adding machine	1642
Daniel Fahrenheit		1714
George Stephenson		1829
	Morse Code	1840
	Telephone	1870's
	Lightbulb	1870's
	Blue Jeans	1873
John Dunlop		1888
William Kellogg		1906
John Logie Baird		1920-5
	Ballpoint Pen	1938
Enro Rubick		1974
Bill Gates		1980
	Cyclone Vacuum Cleaner	1983



Do you know any other famous inventors? Use the internet and/or library and/or encyclopedia to do this exercise:

Think of an everyday object and find out how it was invented and by whom.

Or

Find out how one of the inventors mentioned in the table above came up with their idea.



Geography



We all know it is important to take care of our world. In the previous section we learnt that Sellotape® Original tape is made from wood-pulp, which comes from special timber farms. Have you ever thought about where these farms are? This flag may give you a clue....



Now try this brain teaser - what do you know about South Africa? (don't peek at the next section!)

1. What is the capital of South Africa?
2. What currency is in use in South Africa?
3. Which languages are spoken in South Africa?
4. In your opinion, what is South Africa most famous for?
5. Name the former president who was famously in prison for 26 years.
6. Which oceans join at Cape Point?
7. Guess what the population of South Africa is!

This is a map of South Africa.



1. Mark on the map where you think these cities are: Cape town, Durban, Johannesburg
2. Add the neighbouring countries
3. Mark on the map the name of the oceans

Geography



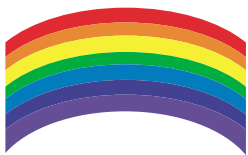
Snapshot: Lets take a quick look at the history of South Africa!

Like many countries in the world, South Africa was colonised by Europeans in the 17th century. The first settlers were Dutch, then the British seized the Cape of Good Hope area in 1806, and many of the Dutch settlers from Holland (called the Boers) trekked north to found their own republics.

In 1867, diamonds were discovered and then in 1886 gold was found. South Africa was a place of vast natural resources; a country of great wealth! This spurred on more and more Europeans to settle in South Africa, eager to share in this wealth. Unfortunately, this led to the African native inhabitants being subjugated. The Boers wanted to be independent and the British wanted to secure their country of South Africa. This led to conflicts and eventually to the Boer War (1899-1902), in which the Boers were eventually defeated. The resulting Union of South Africa put into practice a policy called apartheid - the separate development of the races.

Thankfully, the 1990s brought an end to apartheid and allowed black people to have equal opportunities with other South Africans.

South Africa truly is a multi-cultural society; it is referred to as the rainbow nation because of this.



SOUTH AFRICAN FACTS:

Border countries: Botswana, Lesotho, Mozambique, Namibia, Swaziland, Zimbabwe

Area:

Total: 1,219,912 sq km (Bigger than UK, France and Germany put together!!)

Population: 43 million

Ethnic groups: Black 75%, White 13%, Coloured 9%
Indian 3%

Languages: 11 official languages: Afrikaans, English, Ndebele, Pedi, Sotho, Swazi, Tsonga, Tswana, Venda, Xhosa, Zulu

Geography



The wood pulp which is used to make Sellotape® Original tape comes from big plantations of eucalyptus trees around Durban. These eucalyptus trees are planted especially for farming purposes. This is done to prevent natural forests (like rain forests) from being over-forested as that destroys the natural habitat and environment.

Why would farmers prefer to plant eucalyptus trees and not oak trees?

These timber farms are carefully managed to make sure that they don't upset the natural balance of the environment. 75% of the farm is used for the production of wood, and 25% is kept as a "natural area" to conserve water, soil and plant and animal diversity.

EXERCISE:

Use the Internet and/or library and/or encyclopedias to find out:

1. Which creature only eats leaves of the eucalyptus tree? Is this creature native to South Africa? If not, where does it come from?

2. Find out more about 3 South African mammals. Write a short paragraph about each creature.

3. Nelson Mandela played an important part in the history of South Africa. Find out more about him.

