The Life Journey of Beverage Containers

An Education Booklet for Grades 4 - 6

Grades 4 - 6 **The Life Journeys of Beverage Containers**

Contents

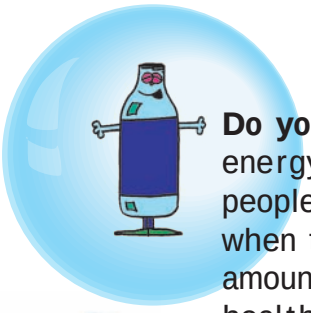
Additional resource: The B.C. website www.encorp.ca has an online video, "The life cycle of beverage containers", showing the recycling process. Look under the heading "Recycling Resources Information." Though the video refers to B.C., the process is similar to that in the NWT.

N.W.T. RECYCLES

Did you know that 25 million ready-to-serve drink containers are sold in the N.W.T. each year? That's a lot of containers that could end up in landfills or as litter. To help reduce this waste, the Government of the NWT started a new program in November 2005 called the Beverage Container Program. Millions more containers can now be recycled.

Do you know which beverage containers can be recycled? You can recycle aluminum cans, plastic bottles, juice boxes, juice cans, glass bottles, drink pouches and more. You pay a deposit when you buy ready-to-serve drinks in these containers. A ready-to-serve drink is one you don't have to add water or something else to before you can drink it. When you take the empty container to a depot for recycling, you get a refund.

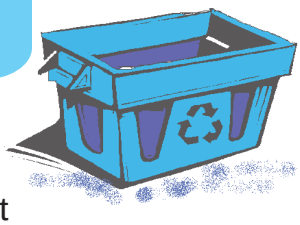
There are some ready-to-serve beverage containers that can't be taken to a depot for a refund. These are containers for milk products and milk substitutes like soy milk, rice milk and baby formula. You don't pay a deposit when you buy these beverages so you can't get a refund for them. Some communities do collect plastic milk jugs in other recycling programs. Does your community?



Do you know why it is important to recycle? It takes a lot of energy and materials to make new things, to get these things to people who want to buy them, then to dispose of these things when they are no longer useful. Recycling helps to reduce the amount of energy and materials used. This can mean a cleaner, healthier environment for people and wildlife.

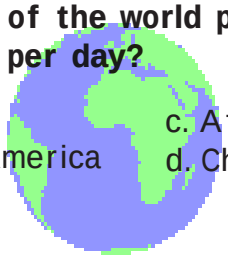
There's Cash in your Trash

What do you already know about recycling products and consumer habits?



Since the year 1950 people worldwide have consumed as many products and services as all previous generations combined! At the same time, our environment's health and biodiversity have declined rapidly, in large part because of our consumer habits.

1) Which part of the world produces the most garbage per person, per day?



a. Europe
b. North America
c. Africa
d. China

What does Biodiversity mean?

The variety of life on Earth

2) In Canada, where does most of our garbage go?

a. compost
b. incinerator
c. recycling
d. landfill

3) What is the most recycled beverage container in Canada?

a. aluminum can
b. plastic bottle
c. milk jug
d. juice box

4) Recycling is only one way of reducing waste. By itself, recycling can't solve the problem of too much garbage. Another way to reduce waste is to:

a) Refuse to buy unnecessary items.
b) Refuse to buy products with too much packaging.
c) Find new uses or new owners for used items.
d) All of the above.

5) In 2004 more than 12 million aluminum cans of pop and juice were sold in the N.W.T. This is enough cans, placed end to end, to go along the road from:

a) Inuvik to Fort McPherson.
b) Fort Simpson to Edmonton.
c) Norman Wells to Fort Good Hope.
d) Hay River to Fort Smith.

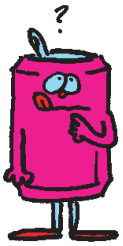
6) What material makes up about 75% of a glass bottle?

a. rocks
b. sand
c. wood
d. oil

7) Glass is not biodegradable. This means it can't be broken down by bacteria or other living things. It does not rot away or decay. If glass is left out in nature, it is slowly worn away by rain, wind and snow. For glass to break down this way it takes:

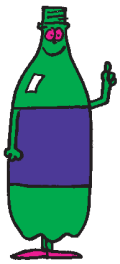
a. 50 years
b. 100 years
c. 10 000 years
d. 1 000 000 years

8) Recycling one aluminum can saves enough energy to:



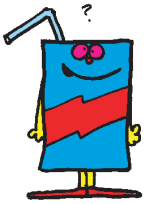
a. turn on a 60 watt light bulb for five minutes
b. run a television for three hours
c. listen to your favourite song on a discman two and half times
d. listen to the radio for 45 seconds

9) The polyester stuffing for pillows and sleeping bags and thread to make carpets can be made from:



a. recycled plastic pop bottles
b. recycled paper products
c. recycled glass
d. recycled tin

10) When juice boxes are recycled they can be used to make:

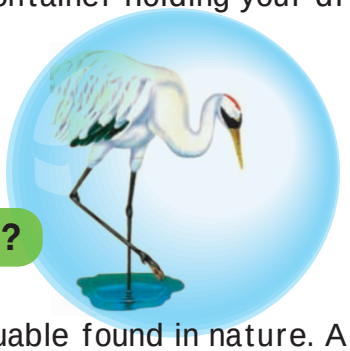


a) Bird feeders
b) Coat hangers
c) Paper
d) All of the above

The Evolution of the Waste Can

Where do things come from?

Everything you use comes from natural resources: your chair, your shoes, the school computer, your lunch, the container holding your drink. Everything.



What is a Natural Resource?

A natural resource is something valuable found in nature. A natural resource can be a material like soil, water, copper or wood. It can be a form of energy like solar energy. It can be a piece of land needed for a building or a landfill site. It can even be a scenic view.

Can you think of some other examples of natural resources?

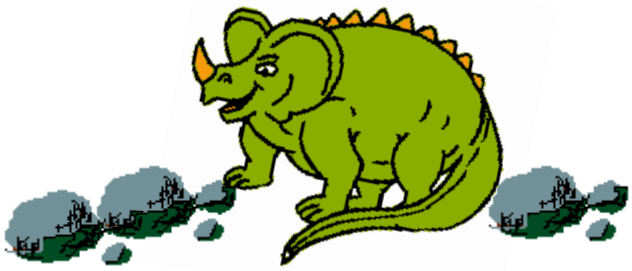
_____ _____

_____ _____

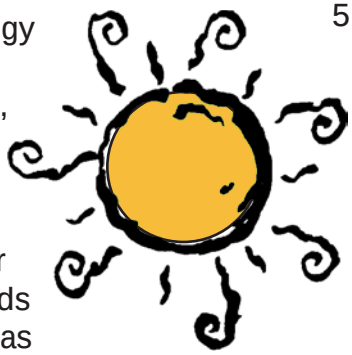
Renewable or Non-renewable?

Natural Resources can be classified into two categories: RENEWABLE and NON-RENEWABLE .

Non-renewable resources are resources which we can not replace or regrow. Some examples are minerals such as tin, aluminum and silver. Other examples are fossil fuels such as oil, natural gas and coal. These resources take many millions of years to form, so we can not replace them once we use up the earth's supply.



Renewable resources come from an endless supply like the sun's energy or can regrow like a forest. Renewable resources can replace themselves or regenerate. Some examples we use everyday are water, wind, plants and animals.



Some renewable resources can become non-renewable if we are not responsible in how we use them. One example is if we cut trees faster than new ones can grow or don't leave enough trees to drop their seeds to grow new ones. Another example is destroying habitat so wildlife has nowhere to live and reproduce.

Did you know that nature is always cycling and recycling? For example, when a plant dies it is broken down by decomposers like insects and bacteria. The materials that are released in the soil become nutrients, or food, for new plants. The "waste" of the dead plant is recycled into a "resource" for new plants. Can you think of another cycle in nature?

_____

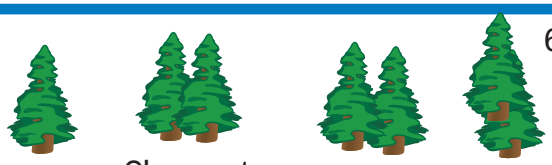
People are part of nature too but we use resources and produce wastes in different ways. We use technology like big machines to get resources. We use materials in new ways to process chemicals and make new products. All of this uses energy and creates wastes. Many of our wastes cannot be broken down easily by nature's decomposers. Our wastes pile up in landfills or pullute the water and air.

In some places outside the N.W.T. waste is burned in incinerators. An incinerator is like a giant furnace for burning garbage and turning it into ashes. Burning waste like this can release dangerous chemicals into the air. Breathing this air can be very dangerous for our health.

Many of these wastes that pile up in landfills or are burned in incinerators can become valuable resources again if they are recycled.

Did you know?
Beverage containers are made from non- renewable and renewable resources. Read more in this booklet to learn what types of resources are used to make beverage containers and how they can be recycled and reused.

Where do all these things come from?

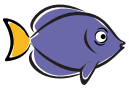


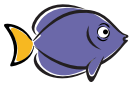
Make a list of ten things around you in your home or classroom. Choose ten things that you use the most frequently everyday.

Item	Original Natural Resource	Renewable or Non-Renewable
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

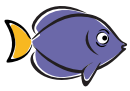
In the left hand column list the items you have chosen.

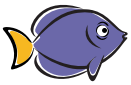
In the middle column write the natural resource the items come from. (Try to be as specific as possible. If something is made from more than one resource try to list the different natural materials used to make that object.)





In the third column, mark whether the resources you have listed are renewable or non-renewable.





What do you notice about the list you have just made? Are there some resources you are using more often than others? What type of resources are you using the most, renewable or non-renewable?

_____

_____

_____

_____

_____

Now that you know what natural resources are and where they come from, what conclusions can you draw about how we use renewable and non-renewable resources in our daily lives? Do you think we need to change how we use natural resources?

_____

_____

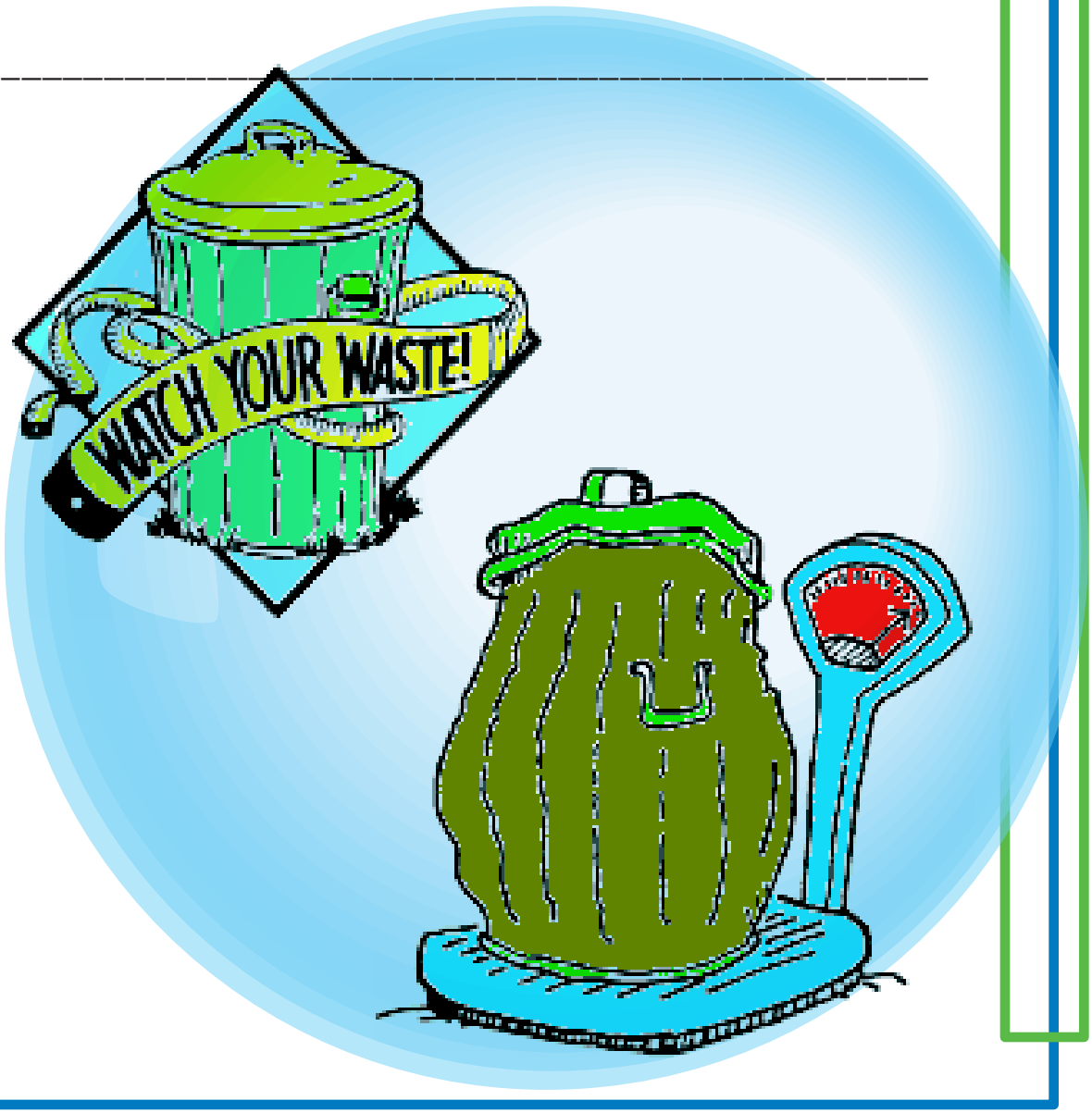
_____

_____

_____

_____

_____



The Aluminum Can's Journey

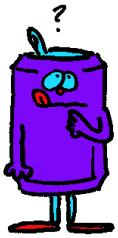
Like everything else around us, the aluminum can comes from a natural resource. Aluminum begins its journey deep in the ground in a mineral ore called bauxite. Bauxite is a non-renewable resource. It is mined in West Africa, the West Indies and Australia. The mining process can cause a lot of environmental damage. It takes five tonnes of bauxite ore to make one tonne of aluminum.

Aluminum is made from bauxite ore in two main steps. The first step is to grind the ore, mix it with chemicals and heat it to a high temperature. This makes a white powder called alumina. Step two is to melt this powder and pass electricity through it to make liquid aluminum metal. This step takes a tremendous amount of electrical energy. The liquid aluminum is poured into forms to make large blocks called ingots.

The ingots of aluminum are sent to a factory where they are heated to make them softer then rolled into large flat sheets. These sheets are rolled onto a spool and sent to the can factory. At this factory, the sheets of aluminum are cut to make cans. The cans are then filled with a beverage and sent to the store, where you, the consumer, can buy them off the shelf.

Did you know?

It takes about 14 kilowatts of electrical energy to produce one kilogram of aluminum from bauxite ore. That's enough aluminum to make 75 pop cans and enough energy to power your computer, stereo, television, lights and microwave all at once for two whole days!!



How are aluminum cans recycled?

When you take your pop can to the depot, it is put into a giant bag with other cans to begin the recycling loop. Old cans can be made into new ones without ever having to go back to the original process of mining bauxite and separating out the aluminum!

The cans collected at the depot are taken to processing centres in Hay River, Inuvik and Yellowknife. The cans are crushed together to make dense cubes called bricks. Each brick contains about 600 cans and stacks easily for shipping. The bricks are sold to a recycler.

The recycler puts the bales through a shredder which chops the cans into small pieces and separates the metal from the paint and labels on the cans. The chopped up bits of metal are put into a furnace and heated to 660° C.

This melted aluminum is poured into large molds to cool into ingots. Sound familiar? We are back to the step where the ingots are sent to a factory to be rolled into aluminum sheets. Next comes the can factory then the beverage factory where the new can is filled.

Your recycled pop can may complete the recycling loop in just a few months. The aluminum from a can of pop you drink in March could be filled with juice and back on a truck or barge headed north in June.

Did you know?

Each ingot weighs more than 27,000 kilograms. That is enough aluminum to make 1.8 million cans!

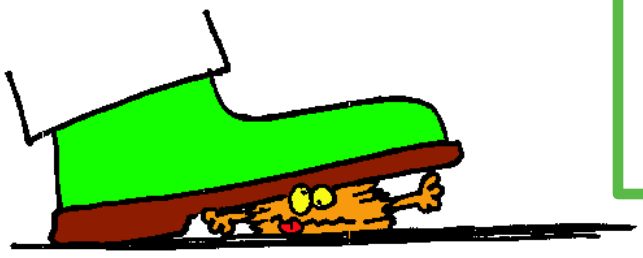
95%

Did you know?

Making cans from recycled aluminum uses **95% less** energy than making cans from bauxite ore. This means 20 cans can be made from recycled aluminum for the same amount of energy it takes to make one can from bauxite.

Throwing away one aluminum pop can can waste as much energy as pouring out almost a cupful of gasoline.

Why wouldn't you recycle!?



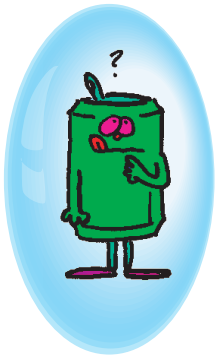
This aluminum can's journey is mixed up! Number the following statements in the correct order from the beginning of the aluminum's journey as a mineral ore deep underground, right through the recycling process to help the aluminum complete the recycling loop.

_____ Aluminum begins its journey deep in the ground as a mineral called bauxite ore.

_____ The chopped up aluminum is melted and formed into ingots again to be used to make new cans.

_____ Chemicals, heat and tremendous amounts of electrical energy are used to remove the aluminum from the bauxite ore.

_____ The ingots are flattened into sheets and aluminum cans are cut and filled with a beverage to be sent to the store.



_____ Cans made from recycled aluminum are filled with a product and sent to the store again.

_____ Consumers return the cans to the bottle depot for a cash refund.

_____ The bales are sent to a factory where they are chopped up into small pieces and the paint and labels are separated from the aluminum.

_____ The separated aluminum is poured into ingots and sent to a factory.

_____ The cans are bought and used by consumers.

_____ Returned cans are pressed together to form bales.

The recycling loop is completed!

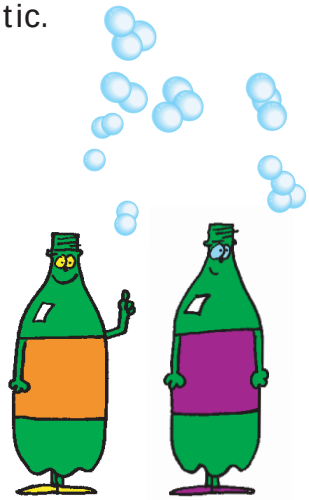
The Plastic Bottle's Journey

Do you know where plastic comes from?

Like aluminum, plastic is made from a natural resource. All plastic is made from petroleum or natural gas mined from the ground. Petroleum and natural gas are forms of fossil fuels. Fossil fuels are formed from the remains of once living things like plants, animals and dinosaurs buried deep beneath the earth's surface.

Once the petroleum and natural gas are mined they are taken to factories and chemically processed into hot liquids to make different types of plastic.There are seven different types of plastic. Each type has a number. The numbers are stamped into plastic products to help recyclers sort the plastic.

"#1 Plastic" is also known as PET plastic. PET stands for polyethylene terephthalate. PET plastic can be easily shaped by blowing the hot plastic into different molds. When the plastic cools and hardens you have different kinds of bottles that can hold soft drinks and other liquid products. PET plastic is used for soft drinks because it holds carbonation well, keeping your soft drinks fizzy and full of bubbles.



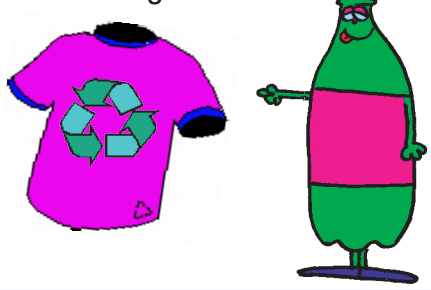
How are plastic bottles recycled?

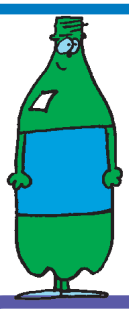
Each bale of plastic weighs about 340 kilograms. These bales are sold to a recycler who takes them to a factory for processing. The bottles are put through giant washing machines to clean them and get rid of all the ink and plastic labels. Then the bottles are put through a giant shredder that chops the plastic into tiny flakes. These flakes can be processed in two ways.

The plastic bottles you return to the depot are taken to the regional processing plants where they are squished together into giant bales.

The flakes are melted down into flat sheets and put through a special machine that cuts the plastic into tiny thread-like strands. These threads of plastic are soft and can be used to make fabric like fleece clothing, and soft insulation called fibrefill used for coats, sleeping bags and stuffed toys. The threads can also be woven into carpet.

The flakes can also be melted down and poured into molds to make new plastic products like plastic pails and bottles for motor oil and laundry soap. Unlike aluminum cans, plastic bottles cannot be remade into new bottles for beverages.



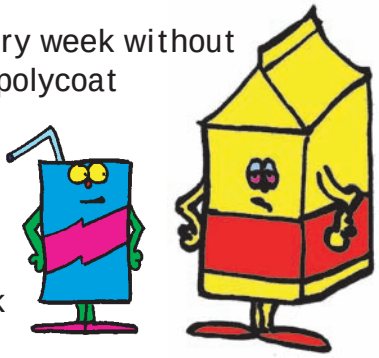


Draw your own comic script telling a story of a plastic bottle.

A Polycoat Container's Journey

What is a polycoat container?

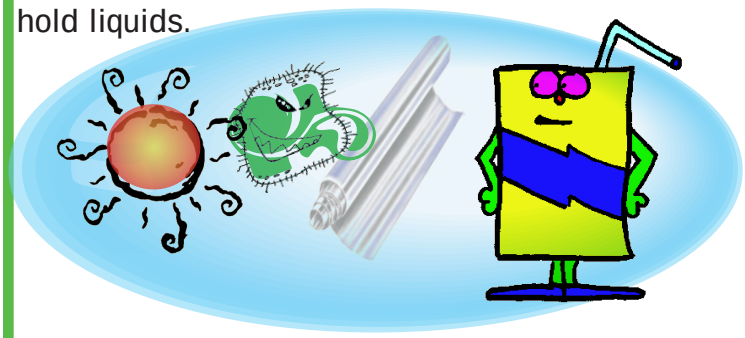
You probably use polycoat containers every week without even realizing it. There are two kinds of polycoat containers: brick and gable-top.



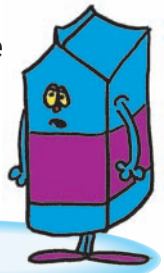
A juice box is an example of a brick container.

Gable-top containers have peaked tops like some juice cartons.

A stiff paperboard is used to make both types of container. Brick containers have a layer of aluminum foil stuck to the paperboard to help keep light and oxygen out of the container. This stops mold and bacteria from growing inside the beverage. A layer of polyethylene plastic is added after the foil to make the container waterproof and able to hold liquids.

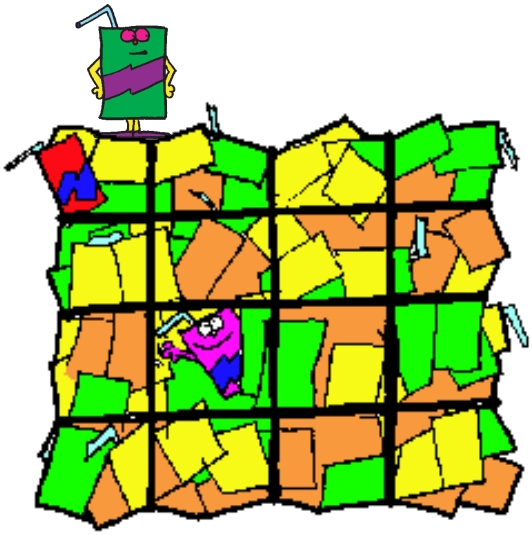


Gable-top containers are made from paperboard between two layers of polyethylene plastic. There is no layer of aluminum.



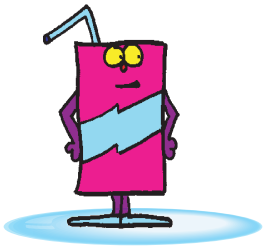
How are polycoat containers recycled?

When you return your juice boxes and cartons to the depot they are sorted and sent to the processing centres in Hay River, Inuvik and Yellowknife where they are wrapped into bales. There are no recycling factories for these containers in the north so the bales have to be sent to factories in the south.



Did you know?
The word "polycoat" is used for these containers because it describes how the containers are made. The polyethylene plastic coats the paper to make the container.

At the recycling factories they use a machine called a hydropulper. A hydropulper is like an enormous blender. Salt water is added to the bin of containers. The hydropulper then blends everything together into a big mush. The paperboard becomes soggy and separates from the polyethylene plastic and the aluminum foil. The paper floats on top of the water and the aluminum sinks. The mushy paper is skimmed off the top and the plastic and aluminum are separated.



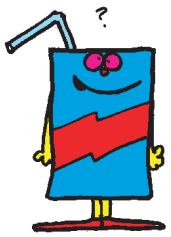
The paper makes up about 70% of the polycoat container. The paper is used to make new paper products like paper napkins, writing paper and cardboard. By recycling the paper from polycoat containers and using it in other products, we don't have to cut down so many trees.

The plastic and aluminum foil may be used to make things like coat hangers, plastic flower pots and bird feeders.

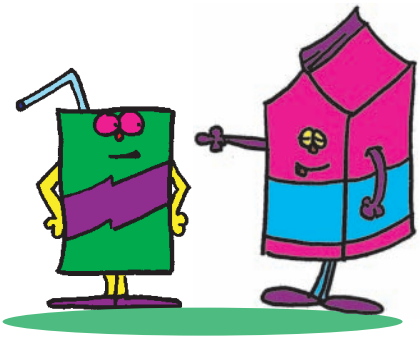
Did you know?

Even though recyclers have found a way to recycle polycoat containers, it is a difficult and expensive process. By using fewer polycoat containers we can reduce the cost of recycling.

What else could you use instead of a polycoat container?



TRUE OR FALSE



Read the following statements about polycoat containers and mark beside each one if they are true or false. If you are uncertain go back and read the section about polycoat containers, how they are made and how they are recycled.

1) A juice box is one type of polycoat container. _____

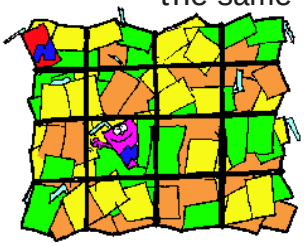
2) A polycoat container is an aluminum box with a paperboard coating. _____

3) No plastic is used to make polycoat containers. _____

4) The aluminum foil keeps light and oxygen out of the container. _____

5) A plastic called polyethylene is used to make the paperboard waterproof. _____

6) Polycoat containers are wrapped into bales to be sent to the recycler in the same way as aluminum cans and plastic PET bottles. _____



7) A hydropulper is a machine that crushes polycoat containers into tiny flakes. _____

8) Salt water is added to the bin of polycoat containers before they are put into the hydropulper. _____

9) Polycoat containers have this name because a lady named Poly invented them. _____

10) Using fewer polycoat containers and recycling the ones we do buy helps protect and conserve our environment. _____

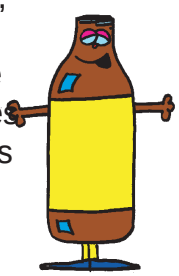
A Glass Bottle's Journey

Where does glass come from?

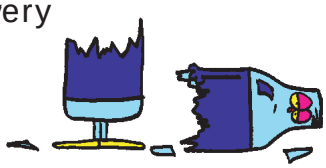
Did you know that glass is made from minerals? Nearly 75% of the material used to make glass is sand! The sand is mixed together with a special kind of crushed rock called lime.

The mixture of sand and lime is heated in a big furnace to 1500° C. That's hot! Everything is melted together into a liquid mixture. This liquid is poured into a machine that forms it into the shape of bottles. When the bottles cool down they are ready to be labelled, filled and sent to the store.

Different mixtures of sand and lime are used to create glass that is clear, green or blue. Other colours of glass are made by adding special mixtures of chemicals. Glassmakers often keep these recipes for colour secret!



Because of the way glass is made it is not biodegradable. This means that bacteria or other living things can't break it down. It will not rot or decay. A glass bottle could take up space in a landfill for many thousands of years. This is one reason why recycling glass for other uses is very important.



How are glass containers recycled in N.W.T.?

Here in the Northwest Territories glass recycling is very difficult. There are no factories for recycling glass. Unlike other beverage containers, glass is very heavy and expensive to transport outside of the territory.

Some of the glass in the territory is crushed into small pieces to make it like gravel. This "glass gravel" can be used to cover layers of garbage at landfill sites . In the future it may be used for road construction.

How are glass containers recycled in the south?

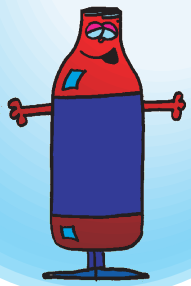
In the south there are different recycling processes for each type of glass. The clear glass bottles are sent to a factory where they are crushed into tiny pieces. Then the broken glass is melted and put into a big machine that turns the glass into tiny balls.

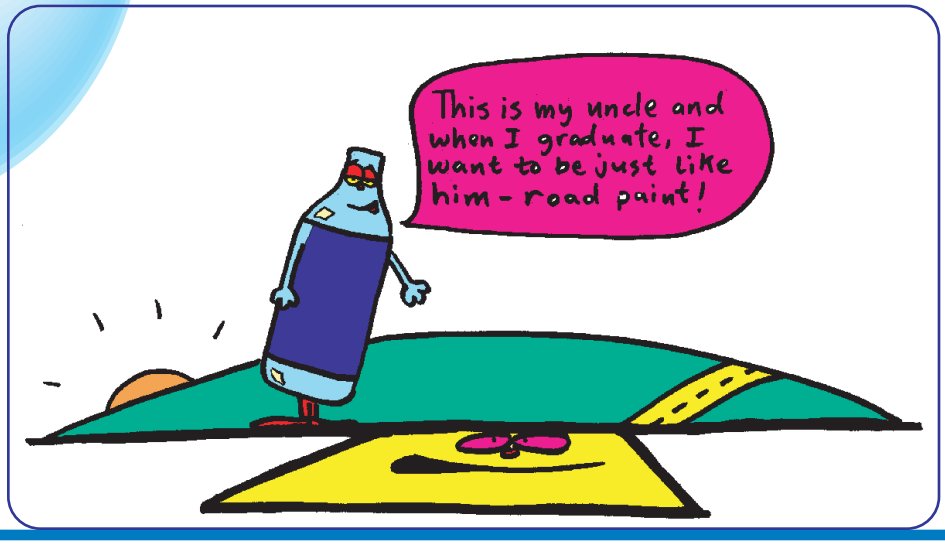
These balls of glass are used to make road paint. The reflective white and yellow stripes you see on paved roads are painted with this special paint. The tiny balls of glass catch and reflect the light from car headlights so you can see the road at night.

Some glass balls are used in what is called sandblasting. The glass balls are combined with sand and a strong blast of air, and used to clean or grind down things like metal and stone.

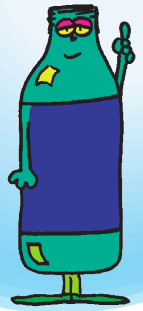
Coloured glass is treated in a different way. It is sent to a different factory where it is crushed into tiny pieces like sand. These are used to make fibreglass insulation for houses.

Finding new methods for reusing glass in the N.W.T. is an important challenge. Can you think of any?





THE RECYCLING CHALLENGE



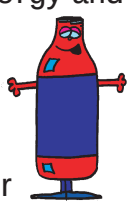
Recycling glass in the north is very difficult because it is expensive to transport the glass south to recycling plants. Buying fewer glass containers will help reduce the amount of glass filling up our landfills. Finding new ways of reusing glass containers will also help.

HERE'S THE CHALLENGE!

Become a recycling wizard, or a scientist who reuses things. Find a new use for glass containers. Use the next page to describe a new way glass containers could be reused or recycled in the NWT. Draw a picture if it will help you to explain your idea!

Things to think about:

Would your new use for glass bottles use less energy and cost less money than shipping the bottles south?



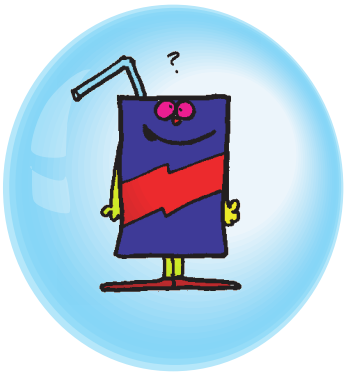
Would your new idea help the environment?

How many glass bottles could be reused with your idea?

A New Solution!

What becomes What?

Draw a line from the beverage containers to the products that can be made by recycling them.



PLASTIC PAIL

FLEECE

CARPETS

ALUMINUM CANS

PLASTIC BIRD HOUSE

REFLECTIVE ROAD PAINT

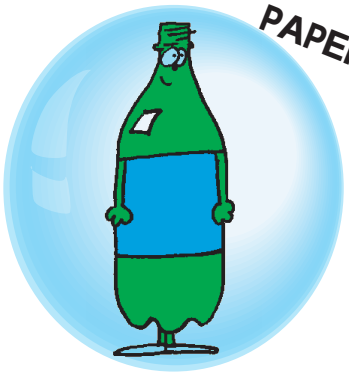
MOTOR OIL BOTTLE

FIBREGLASS INSULATION

T-SHIRTS

SAND BLASTING SAND

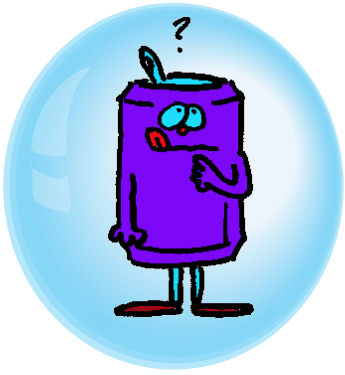
FIBREFILL FOR SLEEPING BAGS AND WINTER JACKETS



PAPER NAPKINS

WRITING PAPER

CARDBOARD



PLASTIC FLOWER POTS

VOCABULARY

Non-renewable: A source of material or energy that is depleted by use.

Paperboard: A thick paper used to make polycoat beverage containers.

PET: This stands for polyethylene terephthalate, a type of plastic used to make plastic beverage bottles.

Petroleum: A sticky thick oil that comes from underground. Heating houses, running cars and making plastic are some of its uses.

Polycoat: The name used for all beverage containers made from paperboard that has been coated with thin layers of plastic and aluminum. Juice boxes and cartons are examples.

Product: A thing that is either grown or manufactured for use or sale.

Recycle: To process materials again to make something new.

Regenerate: To grow again or replace.

Renewable: A source of material or energy that does not run out when it is used wisely.

Resource: A stock or supply that can be used for something.

Sand Blasting: A method of cleaning or grinding down surfaces using sand, tiny glass balls and hard blasts of air. This is one use for recycled glass.

VOCABULARY

Aluminum: A silvery light metal that can be bent and flattened easily.

Bale: A bundle of material tightly wrapped together.

Bauxite Ore: A clay like mineral containing alumina, the main source for aluminum.

Biodegradable: Can be decomposed or broken down by bacteria or other living things.

Biodiversity: The variety of life on Earth.

Consumer: A person who uses a product. A person who purchases products and services.

Depot: The place where you return your empty beverage containers for a refund.

Fibrefill: A material used for insulating clothes, sleeping bags and making stuffed toys. It can be made from recycled plastic PET bottles.

Fibreglass: A type of insulation used in buildings. It can be made from recycled glass containers.

Fleece: A soft warm fabric used in lining coats, sleeping bags and athletic wear. It can be made from recycled plastic PET bottles.

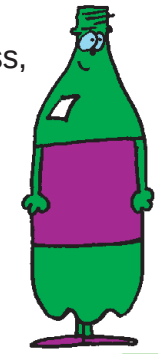
Fossil Fuel: A fuel formed from the remains of living plants or animals. Coal, petroleum and natural gas are three examples of fossil fuels.

Incinerator: A furnace for burning waste to ashes.

Ingot: A block of cast metal. Melted aluminum is cast into ingots for transporting to factories where it is made into products. An ingot of aluminum can weigh more than 27,000 kilograms.

Landfill: A place where waste (garbage) is buried in the ground. It is also sometimes called a dump.

Word Match



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Fleece:

Fossil Fuel:

Landfill:

PET:

Non-renewable:

Polycoat:

Renewable:

Recycle:

Bauxite Ore:

Consumer:

Biodiversity:

The variety of life on Earth.

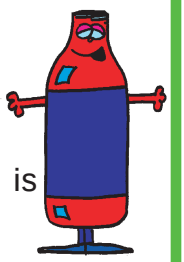
A person who buys and uses a product.

A source of material or energy that can be used up and can never be replaced.

The name used for all beverage containers made from paperboard that has been coated with thin layers of plastic. Some also have a layer of aluminum.

A natural fuel made from the remains of plants and animals. Coal, oil and natural gas are three examples of fuel that comes from things that were once living.

A place where waste (garbage) is buried in or above the ground.



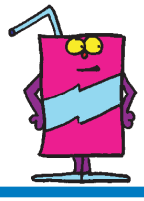
To process materials again to make something new.

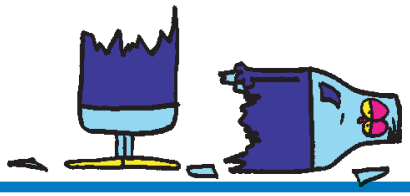
This stands for polyethylene terephthalate. It is the type of plastic used to make plastic pop bottles.

A soft warm fabric used in lining winter coats and sleeping bags. It can be made from recycled plastic PET bottles.

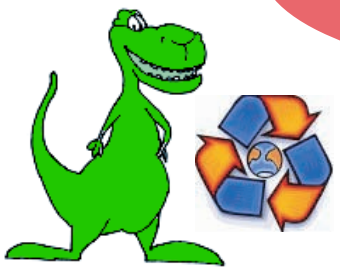
A source of material or energy that does not run out when you use it wisely.

A clay-like mineral used to make aluminum. It is mined in West Africa, the West Indies and Australia.





Word Search



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

Find these words in the word search above!

Landfill . Fibreglass . Fleece . Consumer

Polycoat . Depot . Product . Ingot

Petroleum . Incinerator . Biodiversity

Bauxite Ore . Bales . Recycle

Fossil Fuels . Regenerate . PET

Non - renewable . Renewable

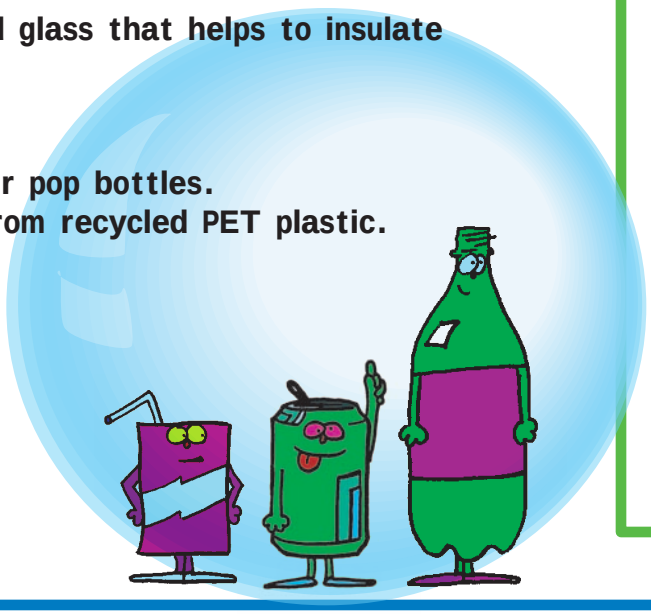
CROSSWORD

Down

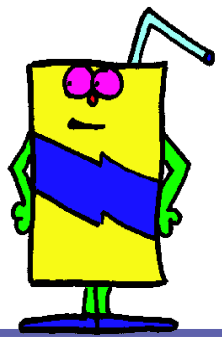
1) Someone who uses products and service.
2) Garbage is burned here and turned into ash.
3) This container sometimes has aluminum foil on the inside to keep out light and oxygen.
4) The extra money you pay when you purchase your beverage container at the store.
5) A resource that cannot be replaced is called a _____ resource.
6) To process something old into something new.
7) A bundle of material wrapped tightly together such as polycoat containers.
8) The place where you return your empty beverage containers for a refund.
9) To process something old into something new.
10) A place where trash is buried in the ground and sometimes covered in layers of crushed glass or gravel.
11) A stock or supply that can be used for something.

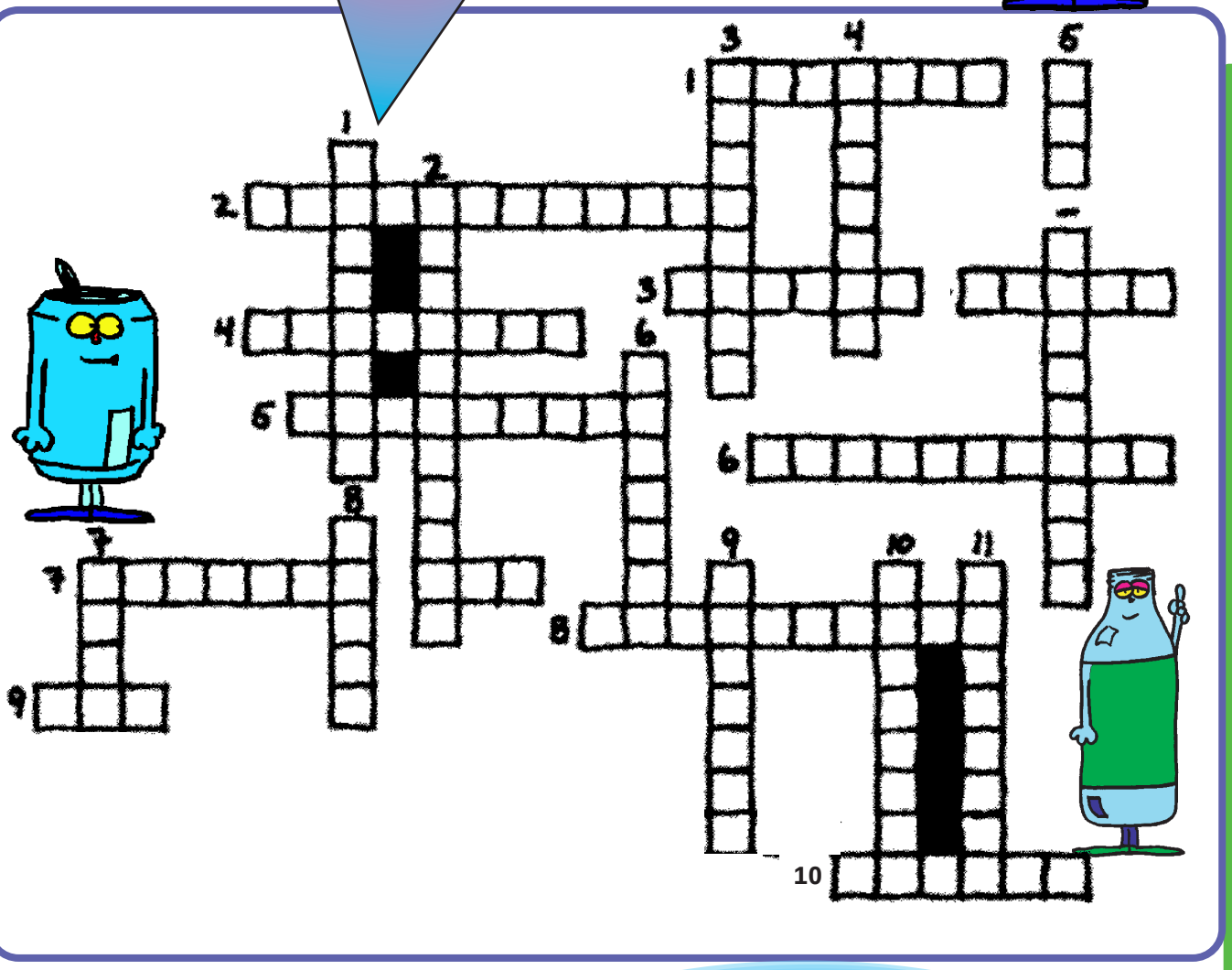
Across

1) Something that is either grown or manufactured for use or sale.
2) The variety of life on Earth.
3) Natural fuels formed from the remains of once living plants and animals.
4) A silvery light metal that can be bent and flattened easily.
5) A source of material or energy that is not depleted when it is used responsibly.
6) A material sometimes made from recycled glass that helps to insulate your home.
7) A mineral ore used to make aluminum.
8) To grow again or replace.
9) The type of plastic used to make two liter pop bottles.
10) A soft and warm material often made from recycled PET plastic.

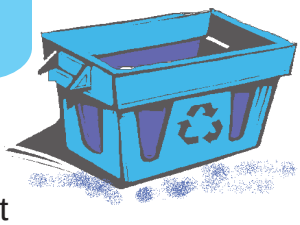


CROSSWORD



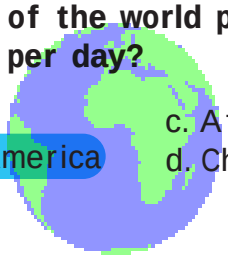


What do you already know about recycling products and consumer habits?



Since the year 1950 people worldwide have consumed as many products and services as all previous generations combined! At the same time, our environment's health and biodiversity have declined rapidly, in large part because of our consumer habits.

1) Which part of the world produces the most garbage per person, per day?



a. Europe
b. North America
c. Africa
d. China

What does Biodiversity mean?

The variety of life on Earth

2) In Canada, where does most of our garbage go?

a. compost
b. incinerator
c. recycling
d. landfill

3) What is the most recycled beverage container in Canada?

a. aluminum can
b. plastic bottle
c. milk jug
d. juice box

4) Recycling is only one way of reducing waste. By itself, recycling can't solve the problem of too much garbage. Another way to reduce waste is to:

a) Refuse to buy unnecessary items.
b) Refuse to buy products with too much packaging.
c) Find new uses or new owners for used items.
d) All of the above.

5) In 2004 more than 12 million aluminum cans of pop and juice were sold in the N.W.T. This is enough cans, placed end to end, to go along the road from:

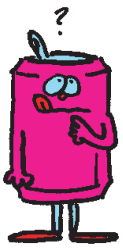
a) Inuvik to Fort McPherson.
b) Fort Simpson to Edmonton.
c) Norman Wells to Fort Good Hope.
d) Hay River to Fort Smith.

6) What material makes up about 75% of a glass bottle?

a. rocks
b. sand
c. wood
d. oil

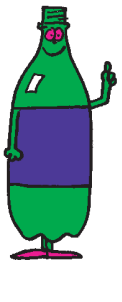
7) Glass is not biodegradable. This means it can't be broken down by bacteria or other living things. It does not rot away or decay. If glass is left out in nature, it is slowly worn away by rain, wind and snow. For glass to break down this way it takes:

a. 50 years
b. 100 years
c. 10 000 years
d. 1 000 000 years



8) Recycling one aluminum can saves enough energy to:

a. turn on a 60 watt light bulb for five minutes
b. run a television for three hours
c. listen to your favourite song on a discman two and half times
d. listen to the radio for 45 seconds



9) The polyester stuffing for pillows and sleeping bags and thread to make carpets can be made from:

a. recycled plastic pop bottles
b. recycled paper products
c. recycled glass
d. recycled tin

10) When juice boxes are recycled they can be used to make:

a) Bird feeders
b) Coat hangers
c) Paper
d) All of the above

The Evolution of the Waste Can

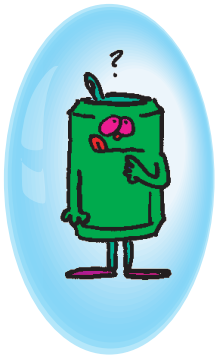
This aluminum can's journey is mixed up! Number the following statements in the correct order from the beginning of the aluminum's journey as a mineral ore deep underground, right through the recycling process to help the aluminum complete the recycling loop.

_1_ Aluminum begins its journey deep in the ground as a mineral called bauxite ore.

_9_ The chopped up aluminum is melted and formed into ingots again to be used to make new cans.

_2_ Chemicals, heat and tremendous amounts of electrical energy are used to remove the aluminum from the bauxite ore.

_4_ The ingots are flattened into sheets and aluminum cans are cut and filled with a beverage to be sent to the store.



_10_ Cans made from recycled aluminum are filled with a product and sent to the store again.

_6_ Consumers return the cans to the bottle depot for a cash refund.

_8_ The bales are sent to a factory where they are chopped up into small pieces and the paint and labels are separated from the aluminum.

_3_ The separated aluminum is poured into ingots and sent to a factory.

_5_ The cans are bought and used by consumers.

_7_ Returned cans are pressed together to form bales.

The recycling loop is completed!

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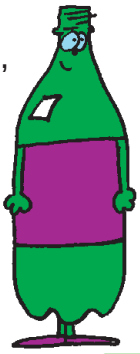

Fleece:

Fossil Fuels

Landfill:

PET

Non-renewable:

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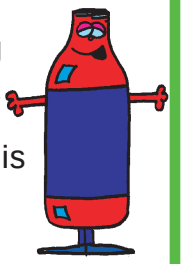

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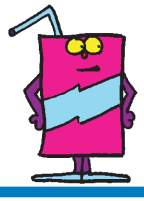

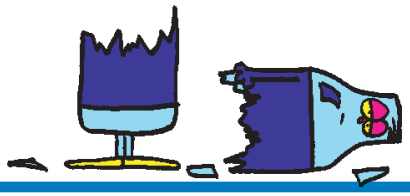

Word Search

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

Find these words in the word search above!

Aluminum Landfill Fibreglass Fleece

Polycoat Depot Product Ingot Petroleum

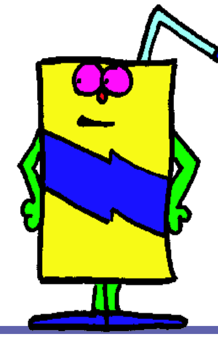
Incinerator Biodiversity Consumer

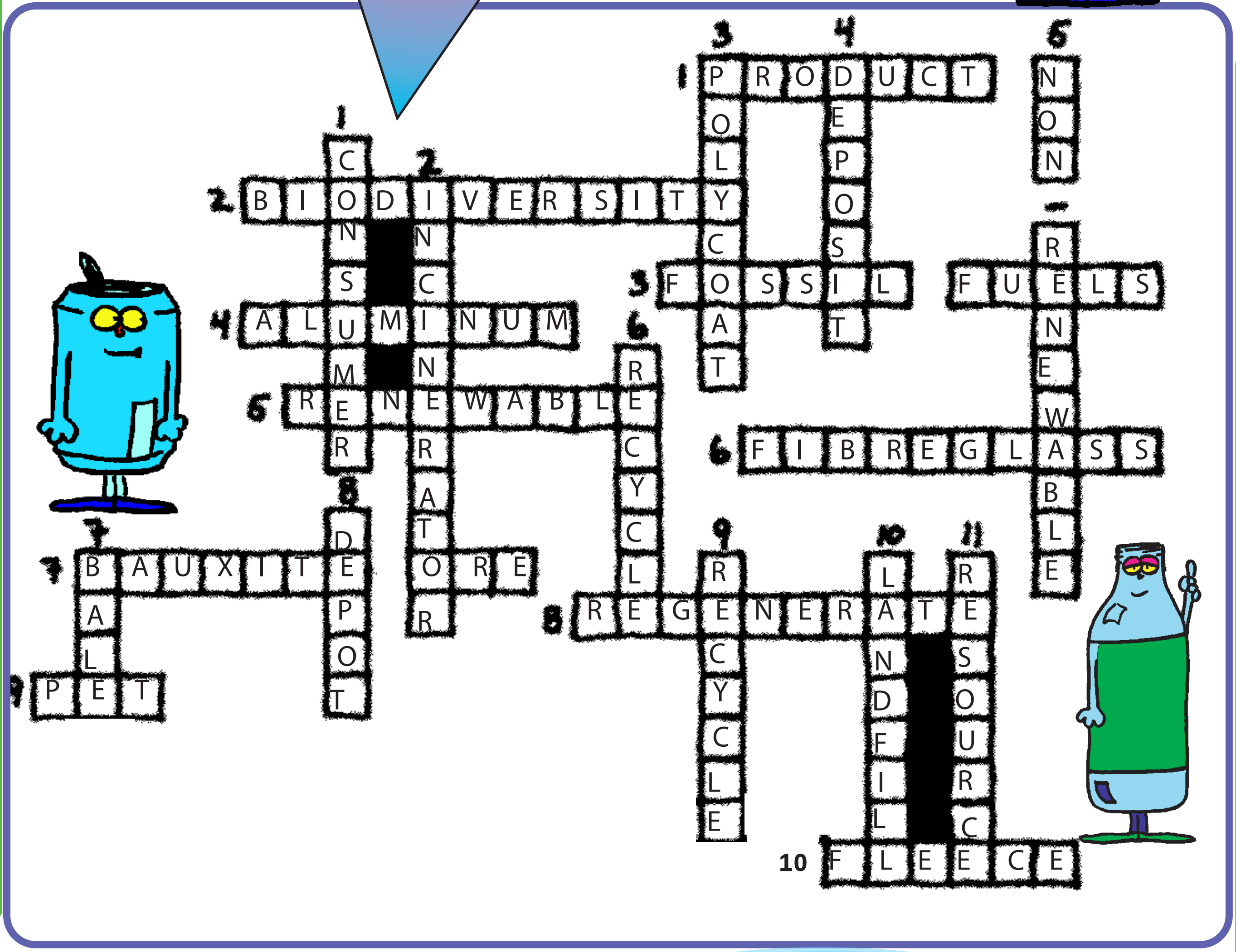
Bauxite Ore Bales Recycle Renewable

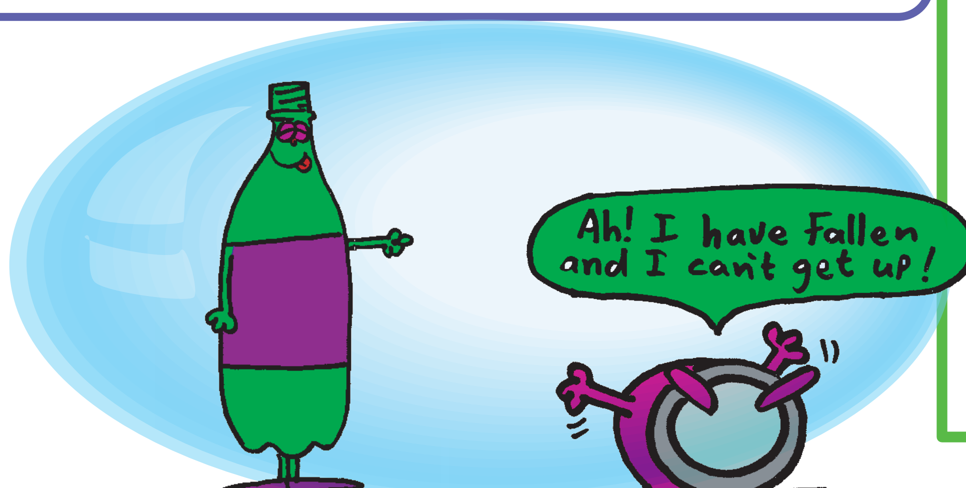
Fossil Fuels Regenerate PET

Non - renewable

CROSSWORD




1 PRODUCT
2 BIODIVERSITY
3 FOSSIL FUELS
4 ALUMINUM
6 RENEWABLE
6 FIBREGLASS
7 BAUXITE
ORE
8 REGENERATE
9 PET
10 FLEECE
1 CONSUMER
2 INCINERATOR
3 POLYCOAT
4 DEPOSIT
5 NON-RENEWABLE
6 RECYCLE
7 BALE
8 DEPOT
9 RECYCLE
10 LANDFILL
11 RESOURCE


Ah! I have fallen and I can't get up!