

The most effective way to manage waste is to not produce it in the first place.

We are all part of the environment.

We are the air that we breathe, the water that we drink and the food that we eat.

Protecting the health of our Earth protects our health too.

Protecting the environment starts with each of us.

We each have the power to make decisions to protect our Earth, our home.

Each choice that we make in living our lives can affect our Earth.

Just about everything we do produces waste of one form or another.

What we do with these wastes affects the world we live in, which is our next generation's world too. We have to act in ways that protect ourselves and our world. Thoughtless and uncontrolled wastes use up energy and materials of our planet.

Our role is to live in a way that protects and cares for the Earth. The most important environmental decision you make is your decision of whether to purchase, and of what to purchase.

Here are some questions to ask yourself before you buy anything:

1. Do I really need this? We may really want something, but do we truly need it?
2. If I buy it, will it last a long time?
3. Will I use it a lot or will it sit around much of the time?
4. Could I borrow someone else's instead of buying one?
5. What can be done with this when I am finished with it? Can it be re-used or recycled?
6. Is it possible to buy something that is less hazardous?
7. If I were to buy this, can I share it with someone else so it is fully used?
8. Does the company that makes this look after our Earth?
9. Can I buy this second-hand?
10. Is it made of recycled material?

Once you have waste, it is important to make sure it is managed in a way that supports our Earth.

Do you have a backyard composter for your kitchen and yard waste?

Do you take hazardous wastes from your home to a household hazardous waste depot?

Do you place recyclables in your blue box, your grey box and your green bin?

All of these actions are things that we each do to protect our Earth by using less natural resources, reducing the impacts we have and helping our Earth.

Meet Wanda

Wanda is a curious young girl who wants her earth, her world, to be the best it can be for a long time.

Wanda wonders what happens to the 'stuff' that her community cannot **REDUCE, REUSE OR RECYCLE.**

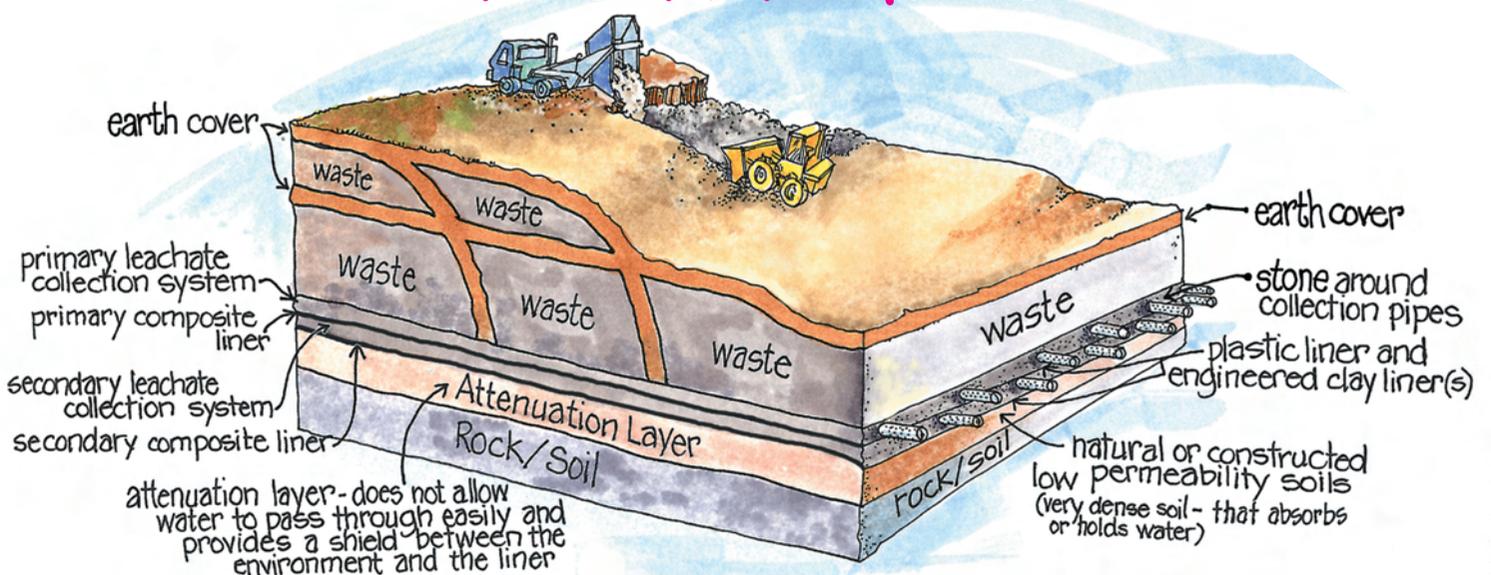
Her neighbourhood, friends, and community all participate in the 3 R's.

As communities and industries grow around her, Wanda knows the waste they make needs to be put away properly.

She knows it goes to a "landfill", but wonders what that means.

Let's find out what Wanda discovers when she asks...

What is a landfill site?



Can you think of ways to produce less waste?

By reducing the impacts we have, we are helping our Earth.

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Let's find out what Wanda discovers when she asks...

WHAT IS A LANDFILL SITE?

THIS IS A NEW LANDFILL.

It has a liner. Leachate is collected in leachate pipes on top of the liner.



THIS IS AN OLD LANDFILL.

It has no liner and leachate is pumped up from the ground water by well, for treatment. Leachate is rainwater that has flowed through waste and has become dirty.

WHAT IS IT FOR? WHAT DOES IT DO? WHY DO WE NEED THEM?

How the landfill is built, operated and looked after is important. Can you imagine what it would be like if there was nowhere safe for our wastes to go?

A landfill site has groundwater monitors that are drilled deep into the ground around the site. They are a little like water wells people use if their homes are in the country. Scientists can take samples of the water from the monitors and make sure that the water remains clean. Samples are also taken of streams, ponds or rivers that are close to the site to make sure they are clean.

When waste is placed in a landfill site, it will start to rot. When it rots it produces methane gas. Methane gas is a great energy source. Some landfill sites collect the gas. The gas that is collected can be used to make electricity.

Before waste can enter the landfill it must be approved!

Sometimes tests are done to see what kind of things are in the waste. It is important to make sure it is not hazardous. At the landfill the trucks are weighed to keep track of how much waste goes into the landfill.



Once the liner is built, trucks of waste enter the landfill and dump their loads on top of the liner. Compactors, special front end loaders with spiked metal wheels run over the wastes to pack it down. The compactor operator wants to squeeze in as much waste as can be. This lessens the need to use more space for landfills.



At the end of each day the waste that has been brought in is covered. Soil and sand like materials are used as daily cover. The cover stops waste from blowing away and making litter. It stops odours and hides the waste from curious animals and birds.

How do you make a landfill?

Well, you start at the bottom on soil or rock and place a liner down. It is like a plastic table cloth that stops spilled milk from passing through onto the table. The liner stops leachate from passing through into the earth. This landfill liner has two plastic liners and two clay liners to stop the leachate passing through into the earth. That makes it double – two liners in one. The liner is made of both layers of plastic and layers of clay – two different things. That makes it composite.



See the different layers?

Where are the plastic layers? Where are the clay layers?

Leachate is the liquid that is produced when it rains on the landfill and the rain washes through the waste to the bottom. The water becomes dirty as it passes through the waste.



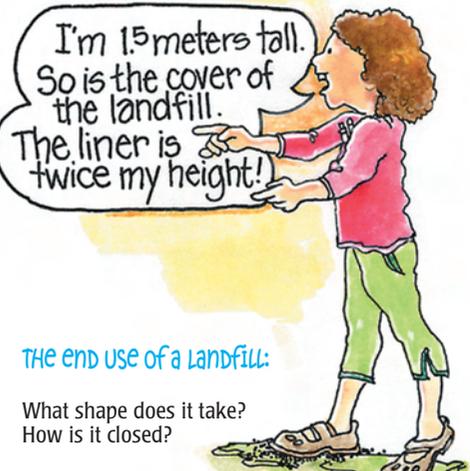
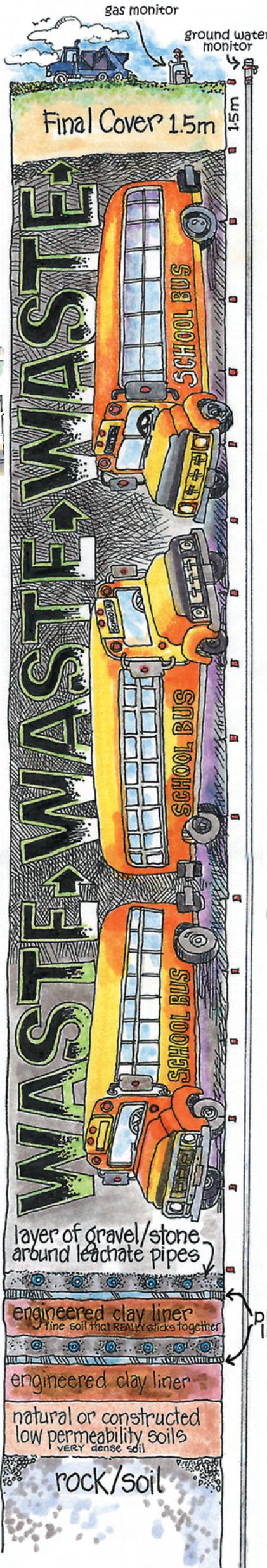
Can you see the pipes?

There are also two sets of pipes on top of the layers of plastic. The pipes are surrounded by stone. The stone protects the pipes. These pipes have holes in them so the leachate can enter them. The leachate moves through the pipes to a place that will treat it and make it clean water so it can be used again to grow plants.



WOW!
The landfill is so deep! Thirty-three meters – that's 22 of me! Or 3 buses end to end!

The liner is twice the height of Wanda!!
The liner includes really tightly packed clay too!!



THE END USE OF A LANDFILL:

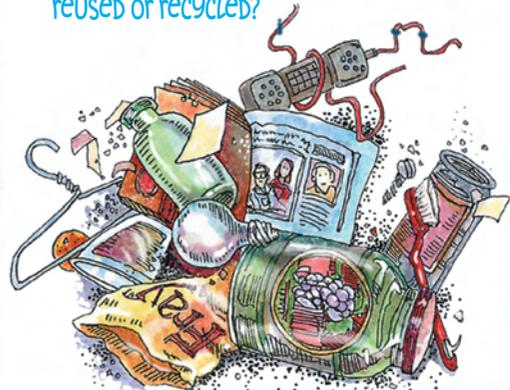
What shape does it take?
How is it closed?

That all depends on what it will be used for once it is full.

A closed landfill can be a ski and sled run, rolling up and down hills, or it could be parkland, a golfcourse or a conservation area. The end use will help determine the final shape.



Can you see some things here that SHOULD have been reduced, REUSED or RECYCLED?



THIS EXPERIMENT WILL SHOW YOU HOW A LANDFILL LINER PROTECTS OUR ENVIRONMENT:



1. Measure 10 cm down the plastic bottle. Using scissors, cut off the top. Remove the cap.
2. Turn the top section upside down into the bottom half of the bottle, so it looks like a funnel.
3. Place the stones in the funnel you made. Pour some water through the stones. See how fast it moves.
4. Now place some plastic wrap so it covers the stones and the funnel you made.
5. Now add water. The water now remains in the top of the pop bottle without passing through!



And a "Landfill Liner" is way thicker than plastic wrap!!

Can you think of ways to produce less waste? By reducing the impacts we have, we are helping our Earth.

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