

ADOPT A BUSHLAND



NAME

DATE

STUDENT ACTIVITY – YEARS SIX TO SEVEN

LITTER BACKGROUND



Rubbish is anything that is discarded or thrown away. It could be apple cores, plastic bottles, paper, lawn clippings, empty cereal boxes, lolly wrappers, cans, glass jars, old furniture, or tetra packs. All of these things could be rubbish.

Rubbish can be biodegradable or non-biodegradable. Biodegradable substances can be broken down by micro-organisms like bacteria and fungi. Food rots because bacteria and fungi are eating it and breaking down the food into nutrients (carbon dioxide, water and biomass). The nutrients return to the ecosystem through the soil or air. Non-biodegradable substances cannot rot as bacteria and fungi cannot eat them. Even if they can break up into very small pieces they still stay the same.

Just because substances can biodegrade it doesn't mean you can just throw it on the ground. Many people think it is okay to throw apple cores or left over picnic food into the bush. These scraps are eaten by native animals like possums, bandicoots, birds, goannas and kangaroos. If they are not eaten by animals they breakdown into nutrients and return to the ecosystem. There are negative consequences of this action, such as:

1. Discarded food like apple cores attract animals to the side of the road where they could be hit by a car.
2. Human food is not native animal food. Native animals can get sick from eating human food because it's not part of their natural diet or it may have germs on it.
3. Australian plants are used to not having fertiliser or nutrient rich soil. By adding nutrients to soil through rotting food, weeds are encouraged to grow. Weeds compete with native plants for space, nutrients and sunlight. Many times the weeds win and the native plants cannot grow.
4. Rotting food or dog faeces near lakes or rivers leach extra nutrients into the water. The extra nutrients cause algal blooms which choke up the waterway, blocking the sunlight and using up all the oxygen. This can cause fish, water animals and plants to die.

Some non-biodegradable substances are more harmful to the environment than others. Some of these substances can be reused or recycled like glass or aluminium cans. Plastic does not biodegrade. It will break up into extremely small pieces but it will still be plastic.

Animals can become trapped in glass bottles, old tins and aluminium cans. Animals don't have hands to pull themselves out of the container, trapped they slowly die of starvation. Torn cans with jagged edges and broken glass can cut animals. The cuts can become infected which can lead to the animal being injured or dying.

Animals often mistake cigarette butts for food. The filters in cigarette butts are made from a type of plastic called cellulose acetate. The filters are there to absorb chemicals such as cadmium, lead, zinc and arsenic. These chemicals do not breakdown and they can pollute the environment and be toxic to animals. The chemicals leach out into the environment entering the soil and waterways. When animals eat cigarette butts the butts can stay inside the animal's stomach because their bodies cannot digest it. The chemicals in the butts move into the animal's blood stream and is deposited around the body (they cannot be removed from the animal's body tissues). As well as being poisoned, their stomachs feel full and they cannot eat anymore, slowly starving to death. In Australia it is estimated that around 7 million cigarette butts are thrown away every year!

Plastic attract toxins called Persistent Organic Pollutants (POP's). Examples of POP's are BPA's (Bisphenol A) found in polycarbonate plastics. Plastic water bottles are often made of plastic with BPA. PCB's (Polychlorinated biphenyls) are another POP which is found in paint and electrical wiring. Pesticides (dichlorodiphenyl trichloroethane - DDT) and industrial chemicals also contain POP's. These toxins stick to the outside of the plastic so when they are eaten, the animal also eats the toxins. POP's stay in the body forever because they are not biodegradable. When animals eat other animals that have eaten plastic they also eat the toxins.

How long does the litter last in the bushland?

Many people think apple cores or banana skins breakdown very quickly. Look at the table below to see the actual length of time it takes for some items to breakdown. Plastic items are made out of petrochemicals which never really breakdown and stay in the soil forever

Table 1: The time it takes for items to naturally breakdown

Litter item	Time to breakdown
Banana skin	3-4 weeks
Paper bag	1 month
Cardboard	2 months
Apple core	1-2 months
Orange peel	up to 2 years
Cigarette butts	up to 12 years
Plastic bags *	up to 20 years
Plastic bottle *	450 years
Glass	1-2 million years
Aluminium cans	more than 1 million years

* Petrochemical products never truly breakdown and remain in the environment forever.

References

Keep Queensland Beautiful, no date, *Fact Sheets*,
<http://www.keepqueenslandbeautiful.org.au/fact-sheets>