

Lesson 4: Teacher Resource Sheet

Waste decomposition times

The time it takes for various types of waste to decompose is an important environmental issue. If we can reduce consumption of the products that generate waste that takes a long time to decompose, we reduce our environmental footprint.

Let's see how long it takes for specific waste products to decompose in landfills:

- **plastic waste**—every year we use approximately 1.6 million barrels of oil just to produce plastic water bottles. Plastic items can take up to 1000 years to decompose in landfills, but plastic bags take 10– 1000 years to decompose, while plastic bottles can take 450 years
- **disposable nappies**—take approximately 250–500 years to decompose in landfills
- **aluminum cans**—take 80–200 years in landfills to decompose completely
- **glass**—while glass is very easy to recycle, glass dumped in landfills takes millions of years to decompose. According to some sources, it doesn't decompose at all
- **paper waste**—normally, it takes 2–6 weeks for paper dumped in landfills to decompose completely
- **food waste**—the time taken for food waste to decompose depends on the type of food. An orange peel takes between 6 months and 2 years, while an apple core or a banana peel takes around a month to decompose.

Figure 1



Figure 2: Breakdown rate of selected waste materials

Material	Origin	Everyday items	Breakdown rate*
Organics (food and fibres)	Grown from the earth	Food: orange, apple or banana peel	2 months to 2 years
	Natural fibres, e.g. cotton and wool. Cotton grows on plants and is farmed. Wool from sheep.	Fibre: cotton shirt, woollen socks	6 months to 5 years
	For synthetic fibres (e.g. polyester and nylon) see plastics.		Synthetic fibres same as plastic rate
Paper	Made from trees and other fibres such as sugar cane	Paper, cardboard boxes, newspapers, egg cartons	2–6 weeks if wet (or much longer if dry). Can be recycled
Wood	Grown in natural forests and commercial plantations	Wooden ruler, desk	1–5 years
Metal	Ore mined from the ground, e.g. bauxite to make aluminium, iron ore to make steel	Aluminium can Tin can	80–200 years 50 years
Plastics (all kinds), synthetic fabrics	Non-renewable oil	PET bottle Plastic bag	Hundreds of years Up to 1000 years
Glass	Sand, soda and limestone	Glass bottle	Forever
Mixed materials	Combination of man-made materials such as plastic, glass and metal	Computer, poppers, umbrella	Forever/variable

* Breakdown rate depends on the conditions—air, light, moisture and presence of microbes

Figure 3: Breakdown rate of specific waste items

Item	Breakdown rate
Cigarette butts	10–12 years
Foamed plastic cups	50 years
Leather shoes	25–40 years
Milk cartons	5 years
Cardboard	2 months if wet
Styrofoam	Not biodegradable
Nylon fabric	30–40 years
Tin can	50 years
Waxed milk carton	3 months
Aluminium can	80–200 years
Batteries	100 years
Timber	10–15 years
Wool clothing	6 months – 5 years
Aluminium foil	Not biodegradable