

Over the past few lessons, we have been learning all about the magnificent creatures...



whales

Unfortunately, one of the things
we found out about was the
dangers to whales



- **Overhunting**
- **Becoming 'beached'**
- **Plastic pollution**
- **Bycatch**
- **Ship Strikes**
- **Climate Change**

For the remainder of this week,
we are going to look at
Plastic Pollution
in the ocean



An overview of the next 3 lessons

LC 1:

To understand what plastic pollution is and how it can harm ocean life.

To learn about some of the main causes of plastic pollution.

LC 2:

To understand ways in which we can reduce the use of plastic and minimise plastic pollution.

To write a personal pledge about plastic pollution.

LC 3:

To encourage others to take a pledge to help beat plastic pollution.

To produce a persuasive communication (of your choice).

Learning Challenge 1:

To understand what plastic pollution is and how it can harm ocean life.

To learn about some of the main causes of plastic pollution.



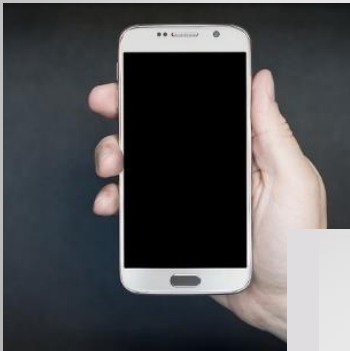
Do you remember when we learnt about
materials in science?



We discussed all the different properties that made plastic
super useful and we talked about all the different ways
we use plastic. Let's have a quick reminder...

Plastic Here and There!

Plastic is a very popular material. Think about all the objects at home and school which are made from plastic.



Plastic Is Useful!



It keeps things airtight, which is ideal for keeping food fresh.



It is waterproof so nothing leaks out or drips in.



It can be made into a range of items from chairs to cars, dice to drainpipes.



It can even be used in craft and art work!

There are more than 300 million tonnes of plastic produced each year. That amount is close to the weight of the human population on Earth! By the end of the century, it is estimated that 30 billion tonnes will be produced. The impact on the Earth will be huge.

Where Is Plastic Found?

Plastic is **versatile** and cheap to make, so it is used to make lots of things. It is quite easy to tell when some items are plastic, such as drinks bottles and shopping bags.

However, plastic can be found in some surprising places:

- Some shampoos, face washes and toothpaste have plastic in them.
- Clothes made from material like nylon, polyester and lycra come from plastic.
- The outside of golf and tennis balls are made from plastic.



Since its invention over 100 years ago, plastic has been sold to us as something that **makes life easy**; because you can use it and then **just throw it away**.

The problem with plastic

However, we also learnt since its invention and introduction into everyday life, that plastic is quite a **concern for the environment** and one that is only going to get worse if we don't do something about it.

It's that ease and frequency of use that's led us to where we are .

Every year between 4.8 and 12.7 million tonnes end up in our oceans, either floating in garbage patches, sinking to the seabed or washing up on beaches around the world. Plastic pollution is a global environmental crisis, because it never goes away.

A single use plastic bottle that makes its way into the ocean can take more than 450 years to break down into ever smaller pieces

Over time, plastic breaks down into smaller fragments due to exposure to the sun, wind and waves. It never really disappears though; the pieces just get smaller and smaller, becoming microplastics.

Why Does Plastic Damage the Environment?

The main problem with plastic is that it takes an extremely long time to **decompose**. A plastic bottle can last for up to 500 years. That means that a bottle dropped in the ocean or put in a **landfill site** today could still be there in the year 2518!

Plastic has **toxins** in it that are harmful to wildlife.



Plastic is incredibly durable and it is not biodegradable. It does not decompose like vegetables, fruit or meat.

Getting rid of unwanted plastic is a challenge. If it is burned, harmful gases are released into the atmosphere. This causes air pollution.

It is usually buried in huge landfill sites. Even though we don't see it, it is still there and it can last for many decades.



Plastic and the Environment

The biggest problem with unwanted plastic is the pollution and damage it causes the environment.

Plastic breaks into tiny pieces, which then get blown around by the wind and the rain.

It ends up in our streams, rivers and the ocean.



Watch this video to see the journey of a bottle from a street to the ocean.

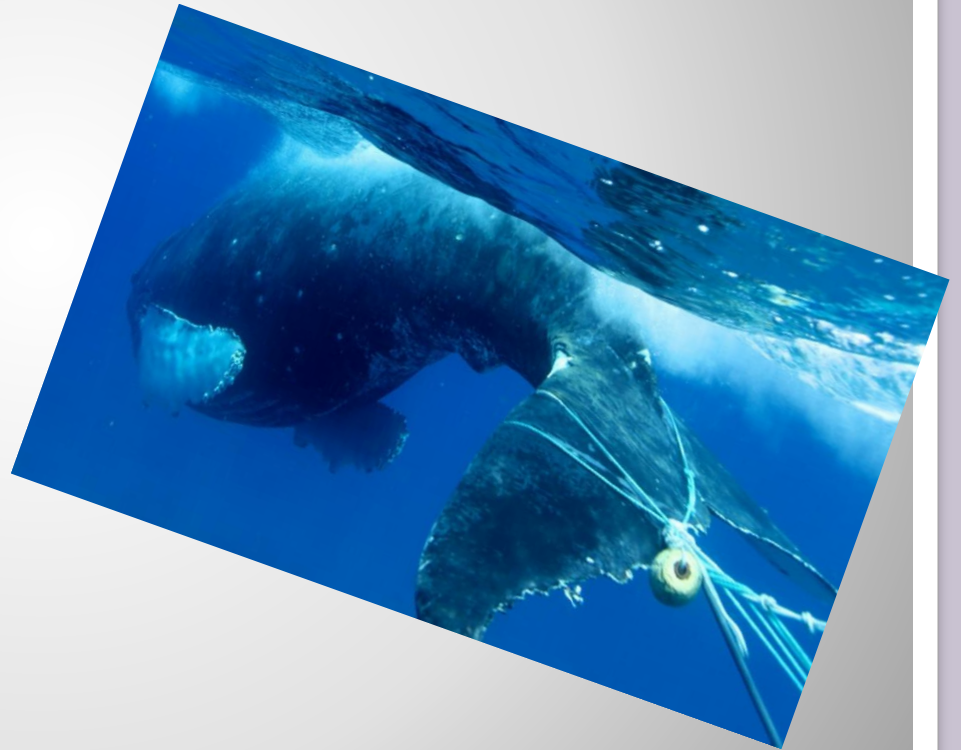


How Does Ocean Plastic Affect Whales?



Entanglement

Whales can become physically entangled in plastic in the ocean, usually in the form of fishing nets and rope, but also discarded plastic like bags.



Ingestion

Plastic may be ingested by whales mistakenly while feeding on prey, or may enter their digestive system from inside of prey that has previously fed on plastic.

Microplastics, plastic pieces of 5mm or less, are of particular concern for baleen whales, as these giant creatures can end up ingesting the tiny plastic along with krill or other prey while filter feeding



One dead pilot whale was found to contain 80 plastic bags in his stomach.

Why Does Plastic Damage Oceans?

Sea creatures can get stuck in plastic bags or the rings that hold drinks cans together. This can cause suffocation, starvation (because they can't get to food), or means that they cannot escape predators.

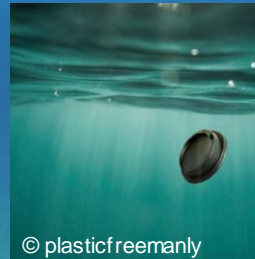
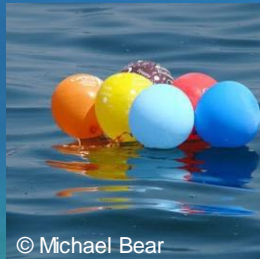
Sea turtles sometimes confuse plastic bags with jellyfish and eat them. This damages their insides and they can die. Around 70% of dead sea turtles are found to have eaten plastic.

Did You Know...?

- It is thought that by the year 2050, there will be more plastic than fish in the seas.
- 99% of seabirds have eaten plastic.



What doesn't belong in the ocean?



Watch this short animation which shows some of the problems plastic can cause animals.



How Does Plastic Pollution Enter Our Oceans?

Through the Drain

- Tiny pieces of plastic called microbeads, which are found in personal care products, are often washed down drains and end up in the world's oceans.
- Sanitary products, such as face wipes and cotton buds, are flushed **straight** down the toilet.



Ordinary Rubbish

- Litter dropped in the street is washed into rivers and then flows to the ocean.
- Trucks transporting rubbish to landfill often leak waste products.
- Holidaymakers often leave plastic debris on the beach.
- **Various** products are thrown from ships at sea.







The Pacific Garbage Patch







Task:

Write a short paragraph or a few bullet points to explain ***how*** and ***why*** plastic causes pollution in the oceans and some of the dangers the plastic can pose to the ocean life.

Extension:

Draw some sea creatures and write some thought bubbles about how they might be feeling surrounded by all that plastic!

