

# Plastic is ...#NotWhaleFood



**Educational Material for Primary Schools**

# Foreword

## Dear Teacher

With their stomachs full of kilos of plastic, whales and dolphins are starving and the Pacific ocean is covered with a carpet of rubbish that's now the size of Europe.

Every day, 6.8 million single-use coffee cups are thrown away in the UK. On average, every family in the UK uses 480 single-use plastic bottles but only recycles 270 of them.

Although the oceans are deep and wide, if we carry on in treating them as dustbins, we'll all soon be living on a planet made entirely of rubbish. Through our Not Whale Food ([notwhalefood.com](http://notwhalefood.com)) campaign, WDC, Whale and Dolphin Conservation, the leading global charity for the protection of whales and dolphins, is introducing children to the topic of plastic pollution. We want to make them aware of the consequences that thoughtless behaviour today will have in the future for both them and generations to come. We hope they will learn to use plastic responsibly and create less plastic rubbish.

In this booklet you will find useful background information on ocean plastic and some simple activities for use with young children in Primary schools.

We'd love to hear your feedback and to hear about how you get on with the activities.

Please do get in touch with us and send photos to [events@whales.org](mailto:events@whales.org).

If you have any questions, or would like any further information, please get in touch.

Good luck!





# Content

|  |           |
|--|-----------|
| <b>Background information</b>          | <b>4</b>  |
| <b>Activities</b>                      | <b>7</b>  |
| Snorkel Mask Activity                  | 7         |
| Waste isn't always the same            | 9         |
| Plastic Mountain                       | 13        |
| Plastic-free Breakfast/Snack           | 13        |
| Route Map Activity                     | 14        |
| <b>Craft Projects</b>                  | <b>16</b> |
| Plastic Whale                          | 16        |
| Plastic Bottle Flowerpot               | 19        |
| Game Idea: "Plastic on our Plate"      | 20        |
| Plastic Waste: Reduce, reuse, recycle! | 23        |
| Urban Beach Clean                      | 25        |

## Plastic is ...#NotWhaleFood



# Background Information

## Plastic waste in the oceans

**Today we are living in a plastic world. We drink water from plastic bottles, have to peel the plastic off fruit, vegetables and other foods, and constantly encounter plastic in one form or another.**

A world without any plastic at all is unimaginable: it's versatile, cheap and very durable. And we mustn't forget that plastic is used in some extremely positive and beneficial ways - for example, medical instruments, glasses, plane and car parts and even artificial limbs (for both humans and animals) are all made of, or contain, plastic.

However, often unnecessary layers of plastic packaging on food and other products mean that every year astronomical amounts of plastic are produced and thrown away after a very short time. Plastic is made from unsustainable raw materials, mostly crude oil, via an energy-hungry process that often involves poisonous chemicals and plastic doesn't break down organically. Plastic was invented just over 100 years ago and every single piece of plastic created is still around today in one form or another. Plastic is forever: once in the environment, plastic breaks down into smaller and smaller fragments through the action of the weather and the sun, but it never goes away completely.

Even if we dispose of our plastic properly in the correct recycling bins, only a fraction of our plastic waste is actually recycled - approximately 1/3 of plastic packaging produced annually is recycled.

Often carelessly and thoughtlessly thrown away after a few minutes, huge amounts of plastic eventually reach our oceans, where it is mistaken for food by whales, dolphins and other marine creatures. Alarming, plastic has also made its way into the food chain.

If you covered the hallway of your nursery or school with plastic, it would approximately reflect the amount of waste that lands in our oceans every 15 seconds.



# Background Information

## The Plastic Whale



**If we carry on as we have done to date, by 2050 there will be more plastic in the sea by weight than fish.**

It is estimated that up to 95% of the rubbish in the oceans comes not from beaches, but from our towns and cities, carried there by the wind, rain and in other ways.

Every year between 4.8 and 12.7 million tons of plastic are added to the inconceivable amounts already floating around in our oceans: in one year alone (2010) on average, 8.75 million tons of plastic entered the oceans – that's twice the combined weight of every single blue whale alive today!



**Every year around 200,000 tons of plastic rubbish end up in the North Sea.**

Plastic rubbish in the ocean poses a real danger to marine life. Whales, dolphins and other animals get entangled in it or mistake the rubbish for food.

A plastic bag floating about in the water looks remarkably similar to a jellyfish, one of dolphins' favourite foods, but dolphins can't digest plastic bags or turn them into energy. Bags and other rubbish simply stay in their stomachs and, as they don't provide any nutrients, dolphins and whales eventually starve to death or die from painful internal injuries. Innumerable pieces of plastic have also been found in the stomachs of sea birds, turtles and seals, who've also mistaken it for food and eventually died.

Numerous cases have been recorded: scientists found that a sperm whale who stranded off the coast of Spain had 17kg of plastic in his stomach and a whale who died in March 2019 had a staggering 40kg of plastic in his stomach.

Becoming entangled in plastic rubbish is also threatening the lives of thousands of whales, dolphins, seals and seabirds every year – discarded fishing lines and nets, plastic wrapping and other plastic can all trap animals who are then unable to free themselves. Like us, whales and dolphins are mammals and have to come to the surface to breathe so, trapped underwater in a net or line, they will panic and struggle, then eventually close their blowholes and drown.

Plastic also poses a threat to human health. Once in the ocean, small organisms such as plankton eat tiny plastic particles, plankton is then eaten by small fish, which are in turn eaten by larger fish so and plastic makes its way up the food chain and finally lands on our dinner plates.



# Background Information

## The Plastic Nightmare



**The average family in the UK uses 480 single-use plastic bottles every year, but only 270 are put out for recycling.**

Every week new incidences of whale and dolphin deaths as a result of ingesting plastic or other rubbish, or becoming entangled in discarded nets and fishing lines make headline news.

For example:

1. In January 2019, an emaciated baby Sei whale stranded in the USA and had to be euthanised. A necropsy showed that a plastic bag was stuck in the infant's throat, making it impossible for the baby to swallow.
2. In March 2019, a Cuvier's beaked whale in the Phillipines died of 'gastric shock' with 40kg of plastic in his stomach. That same month a dead pregnant Sperm whale in Sardinia was found to 22kg of plastic in her stomach.
3. In June 2018, off the coast of Thailand, a Pilot whale was spotted vomiting plastic bags and the emaciated animal died despite efforts to save it. The contents of the poor whale's stomach is a sad mirror image of the state of the oceans: it contained 80 plastic bags.
4. In February 2017 a Cuvier's beaked whale stranded off the coast of Norway. Only 6 metres long, this small whale nevertheless had 30 plastic bags in his stomach.
5. Sperm whales who stranded off the German coast in 2016 had large quantities of plastic in their stomachs, including nets for crab-fishing, part of a plastic bucket and a plastic engine cover from a car.
6. In 2015 a young female orca stranded in South Africa. Amongst other things, her stomach contained yoghurt pots, biscuit and noodle wrappers and other plastic items. She had starved to death.
7. In September 1997 a stranded porpoise in Nova Scotia had food in its throat but its stomach and intestines were empty. On closer examination it was found that a piece of plastic had blocked the entrance to the stomach so that the porpoise had simply starved.



# Activity Ideas

## Snorkel Mask Activity

### Good and bad habitats: what is, and what is #NotWhaleFood?

To help children understand why it is important to cut down on the amount of plastic we use in our everyday lives and that it is vital to dispose of it correctly, this simple activity introduces them to the concept of clean, healthy oceans and that, like us, whales and dolphins don't want to swim amongst plastic rubbish and our discarded waste and that it is dangerous for them to eat.

First, set the scene:

Two children are snorkelling in the sea, spotting little fish, colourful shells and maybe even starfish in the rockpools through their snorkel masks. Suddenly, one of them spots something bright and colourful, shimmering and shining amongst the shells, moving back and forth through the water.

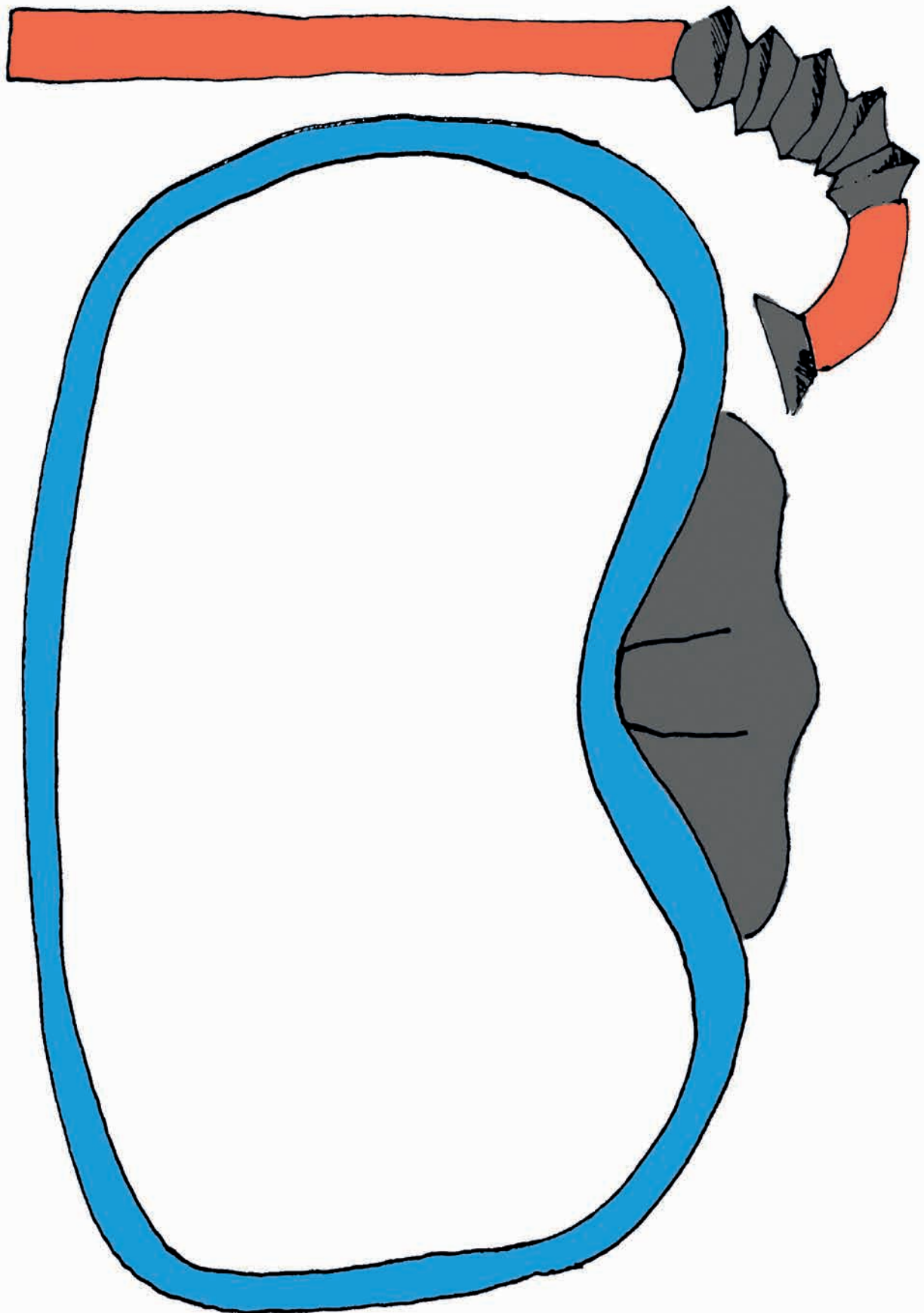
Thinking it is a very special fish, he/she approaches with a fishing net, takes a deep breath and dives down. The fish doesn't move as he/she gets closer - how strange! On closer inspection, our young snorkeller sadly realises that it isn't a fish at all, but a plastic bottle that someone has thrown away.

Disappointed, he/she resurfaces with the catch. As the pair continue snorkelling, their nets become full of rubbish: a plastic carrier bag, a tin can, sandwich wrappers and crisp packets.

Give each child a snorkel mask template and ask them to imagine and draw how it looked under the water through the snorkel masks. Encourage them to include things that should be there, such as fish and starfish, as well as items that shouldn't, such as plastic and other rubbish and to think about what they themselves want to find in the sea when snorkelling.



# Snorkel Mask Template





# Activity Ideas

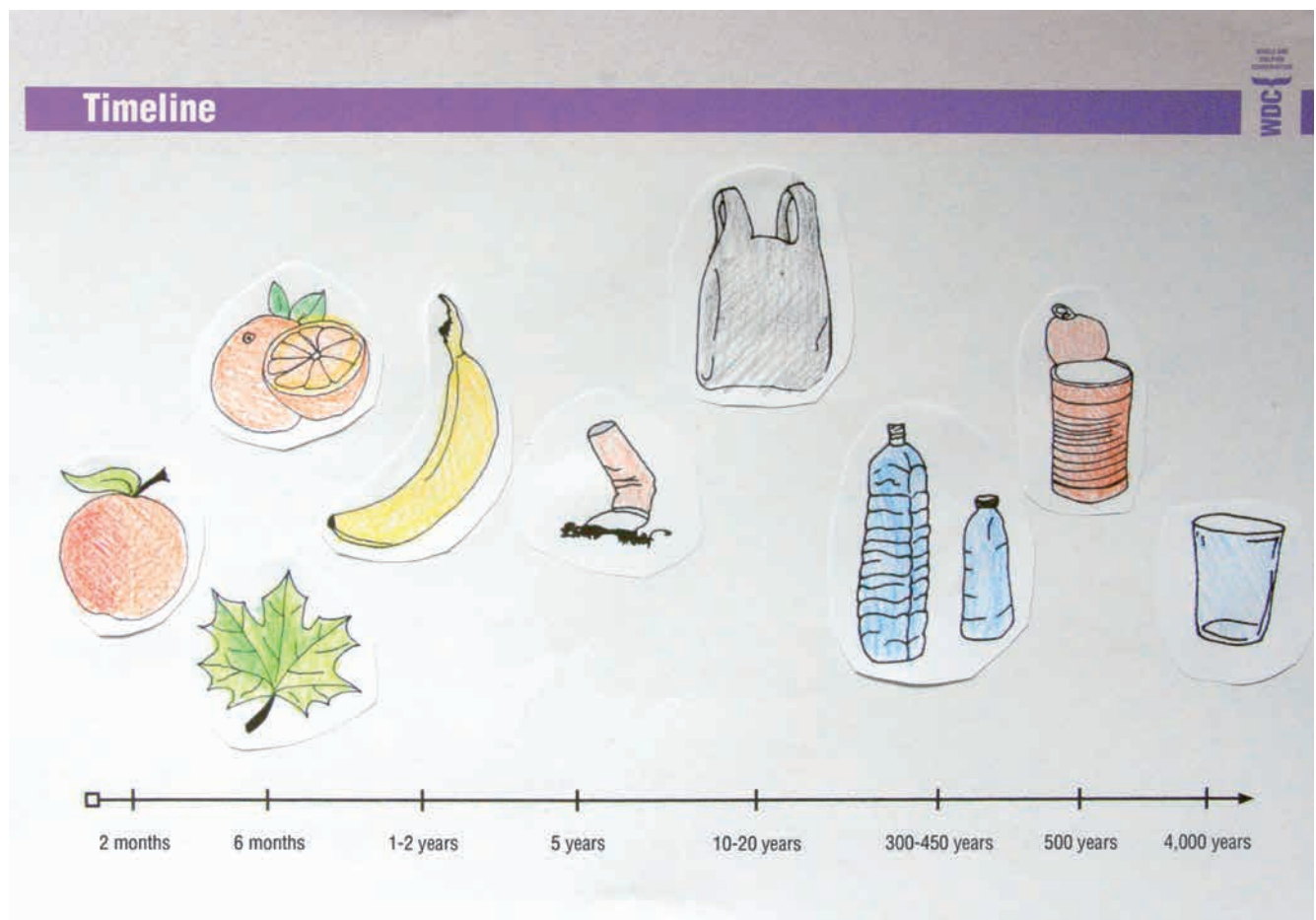
## Waste isn't always the same

### What happens to the plastic waste in the ocean?

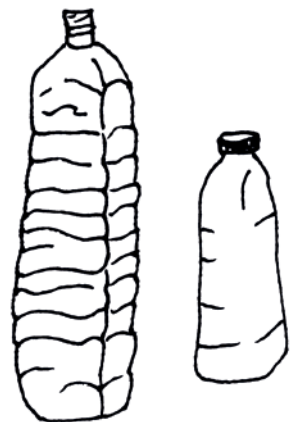
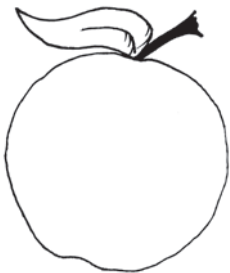
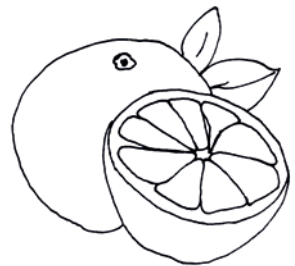
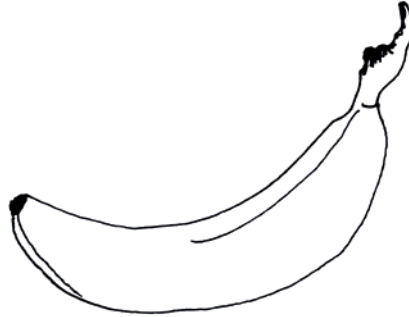
Whenever apple leftovers land in the sea, they get decomposed through the action of many, many little organisms – so-called microorganisms. After around two months there are no apple pieces left that you can see with your naked eye. Other waste materials such as banana skins, paper or wooden objects need a bit more time and effort to vanish. So what about plastic? With the help of wind and water, plastic breaks down into smaller and even smaller pieces, but these plastic particles stay in the ocean forever and eventually get eaten by mussels, snails, fish and other animals.

*Which waste material disappears the fastest and which ones takes longer?*

*Colour the waste materials, cut them out and attach them to the timeline in the correct order.*



# Waste materials



# Timeline





# How Plastic Ends Up In The Sea

Up to  
**95%**

of the plastic garbage  
in our oceans comes  
from land-based  
sources.

**4.2**

tons of plastic  
each day  
(Danube)

**38%**

of the waste found  
on the shoreline consists  
of cigarette butts

## Private Homes



### Bathroom

Microplastic in the form of the tiny pellets used in exfoliants, shower gels and toothpaste & as a filler in make-ups, lipsticks and creams.



### laundry

During each wash cycle,  
**2,000 bits of fibre**  
are washed away per article of  
synthetic clothing.



waste water  
treatment

## Industry

e.g. waste products in plastics processing



## Waste

Plastic garbage that  
has been thrown  
away or lost



# Activity ideas

## Plastic Mountain

**How much plastic do we use every week in our nursery or our school?**

Getting an overview of the amount of plastic in our everyday lives (both the good and the bad) starts by simply taking a walk around the nursery/school.

This can be followed by a trip together to the supermarket or local shop to see what's wrapped in plastic and if plastic packaging is always necessary.

Children can become 'plastic detectives' by collecting waste plastic for a week and then examine their plastic mountain to see what types of plastic there are and how much of each type.

Children can then start to think about how they could do without some of this plastic in future. For example, by taking re-usable bags when they go shopping with their family, buying things in glass or cardboard packaging, loose fruit and vegetables and snacks without plastic wrapping.



## Plastic-free Breakfast/Snack

**Go on a shopping trip to buy the ingredients for a plastic-free breakfast or snack.**

Before heading off to the supermarket or local shop, talk about what everyone would like to eat for breakfast or as a snack at break-time. Perhaps also show the children what whales and dolphins like to eat (eg. squid, jellyfish, krill) and not plastic.

At the shop, only choose breakfast or snack foods that aren't wrapped in plastic. If you have a zerowaste shop nearby, you could compare this with other shops and use your own containers.

Is that easier or harder than the children (and you) expected?



# Activity ideas

## Route Map Activity

### How does plastic end up in the oceans in the first place?

You will need: Route map template, coloured crayons or pencils.



The waste in the oceans originates from our villages, towns and cities; from our beaches, coastlines and landfill. It sometimes gets thrown away carelessly and through sewage channels and drains, streams and rivers, it eventually reaches the sea.

Plastic can get picked up by the wind and blown into streams and rivers, or it is carried there by the rain. Waste is, of course, also thrown into the water from beaches or from ships and boats without any thought as to what will happen to it once it is in the oceans.

By doing the Route Map activity, children will understand that, although they may live a long way from the sea, what they do with their plastic and rubbish will still have an impact on the oceans and on whales and dolphins.

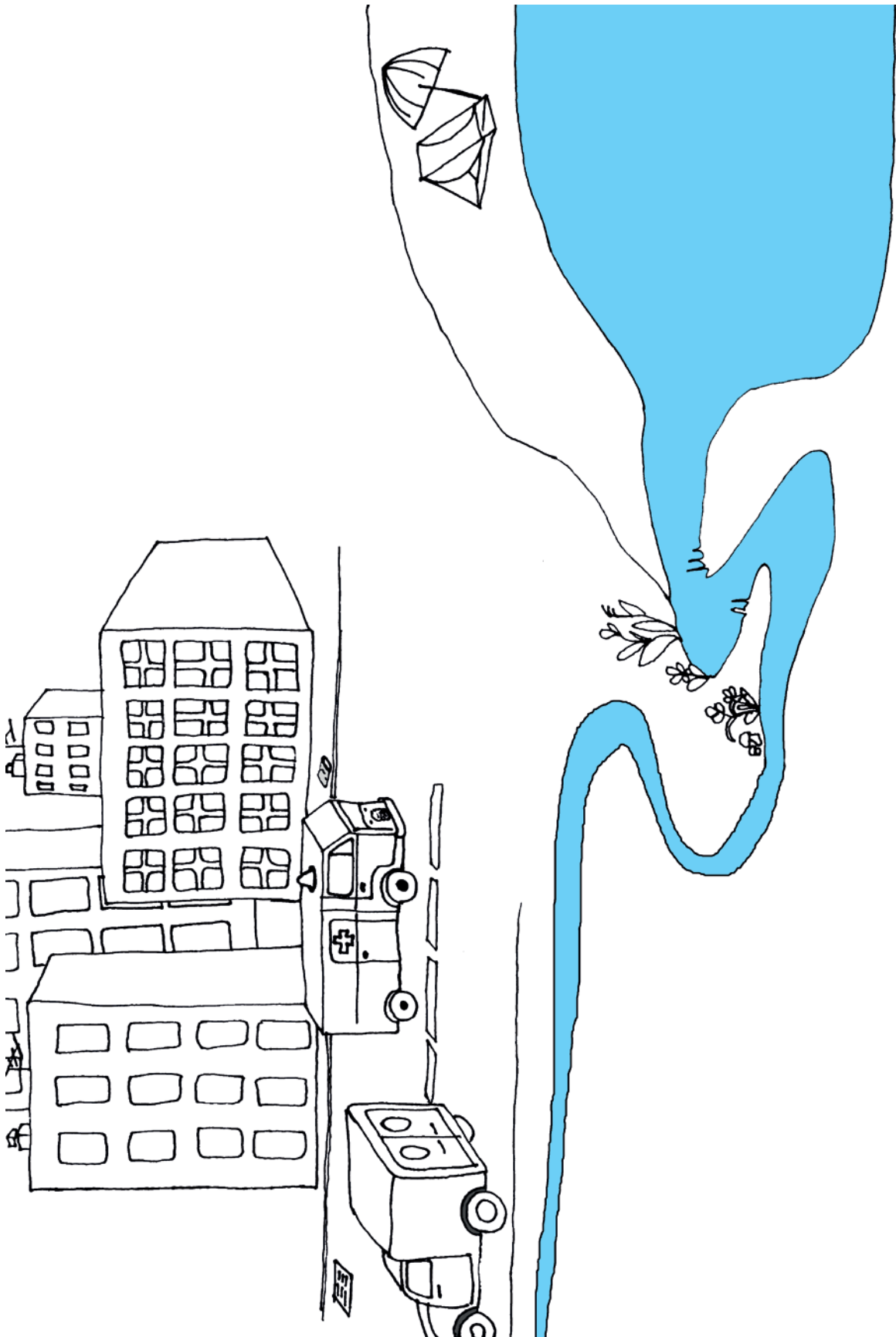
Give each child a copy of the route map (page 15) and ask them to first of all find the flattened plastic cup. Then the children can think about and draw the different routes the plastic cup might take to reach the sea.

Some answers could be:

- Blown into the stream, the river and then out into the sea
- Blown into the drain and then out to sea
- Picked up by the wind and blown directly into the sea
- Kicked along the pavement by a person and onto the beach



# Route Map



# Activity ideas

## Craft Project

### Plastic Whale

Plastic is difficult to recycle and much ends up in landfill or being incinerated. But plastic is light, versatile and colourful and makes a great craft material. After explaining to children that some plastic can be reused, children can make new items out of unwanted plastics. You can then create a display for parents and use the children's artwork to reinforce the message that so much of our plastic is unnecessary and that plastic in the oceans is #NotWhaleFood.

For your plastic whale you will need: an empty plastic bottle (no lid\*); craft paper; crayons/pens; scissors; glue and bits to decorate.

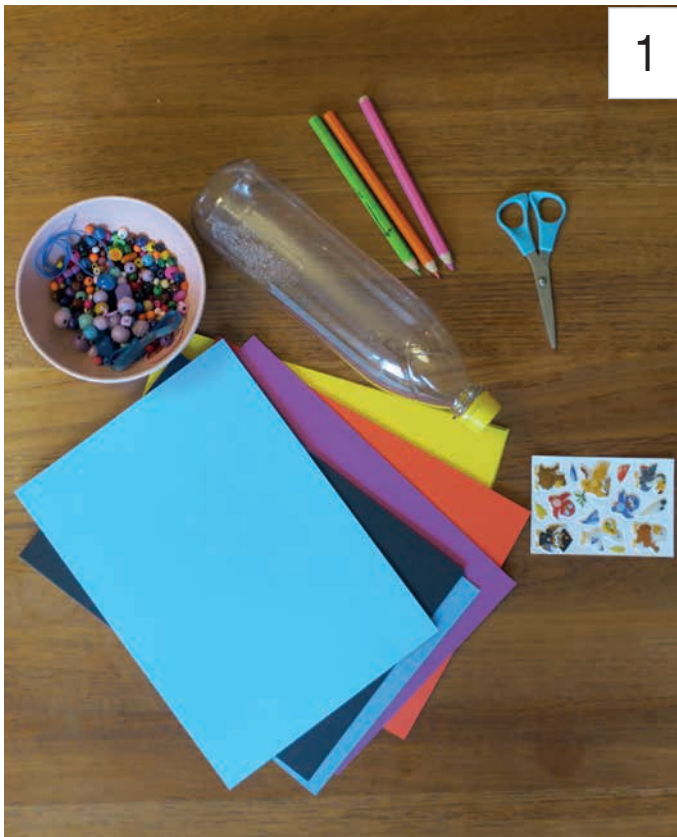
\* Save the lids to create colourful pictures or collages at a later date.

1. Using the template cut out flippers, fins and fluke (tail) from stiff paper or card and put the tail fluke into the neck of the bottle.
2. Using a sharp knife, cut two slits in the sides of the bottles about a third of the way from the head, then insert flippers into the slits. Cut a slit for the fin on top of the whale's back. (Remember to put this fin behind the flippers, not like the one in our photo!). NB. You may want to cut the slits in the slits in the bottles in advance.
3. Decorate your whale or fill it with bits of plastic to illustrate how whales are unintentionally swallowing bits of plastic.

The finished whales can be hung from the ceiling to create a "whale mobile".

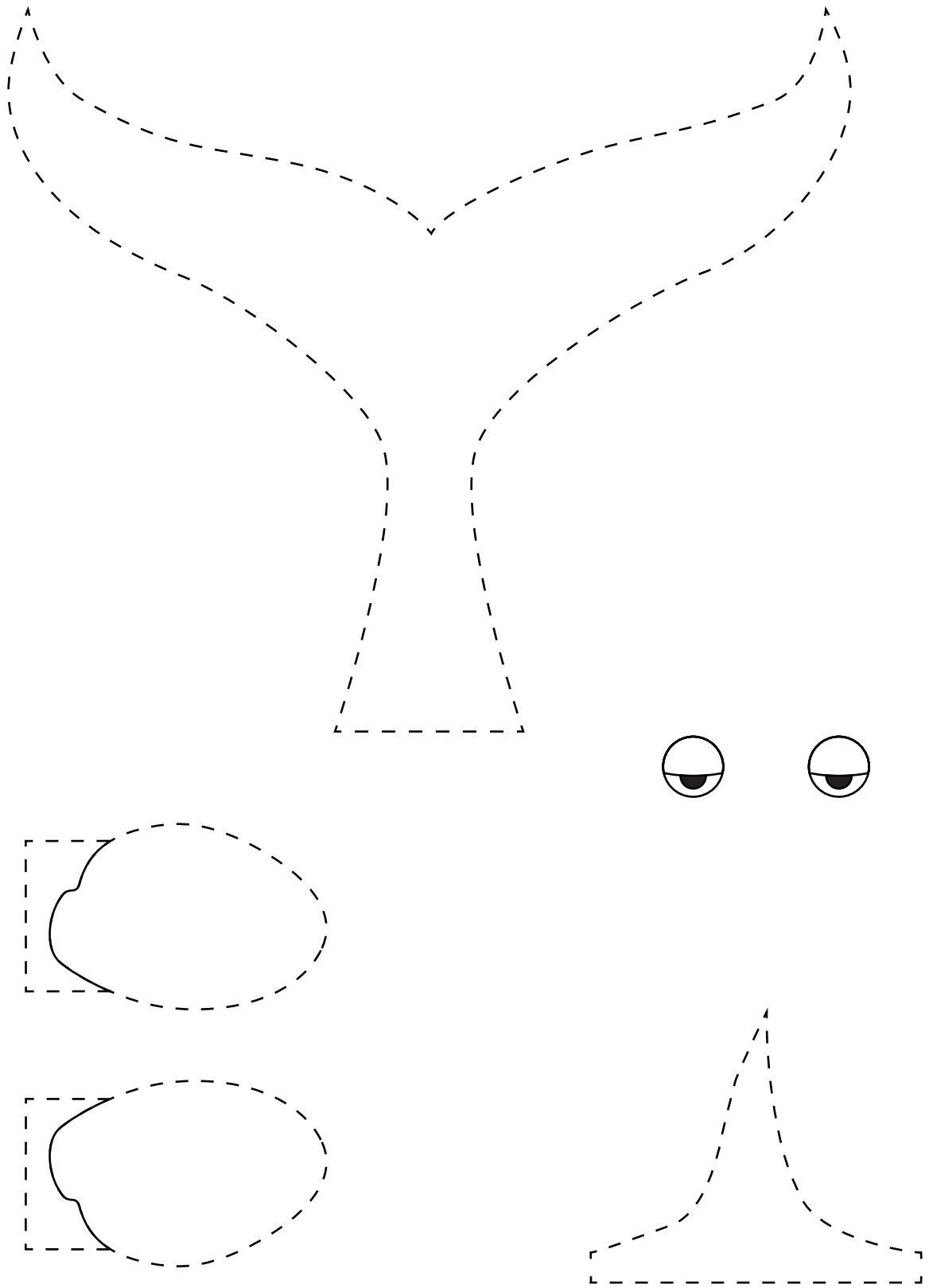


# Instructions for plastic whale





# Plastic Whale Template



# Craft Activity

## Plastic Bottle Flowerpot

You will need:

- A large single-use plastic bottle (no lid\*)
  - Sandpaper
  - Acrylic colours (white, black, blue) and paintbrushes (one thick, one thin)
  - Craft scissors (and maybe nail scissors)
  - A thick felt-tip pen
  - Seeds or plants (you might like to ask parents to donate any unwanted seeds or cuttings)
- NB: you may wish to cut the bottles out in advance

Using the felt-tip pen, draw where the whale should be cut out. Make sure there's a small dorsal fin and a large tail fluke. Then cut your whale out and use sandpaper to smooth the rough edges.

Paint the entire whale white and leave to dry. When the whale is dry, paint your whale – eg. use black and white if you want an orca (actually a dolphin!) or grey or blue if you want a Blue whale or a Humpback. Don't forget to paint the whale's eyes, mouth and either baleen or teeth. This can be done when the paint is dry using a thin paintbrush or a felt-tip.

Finally, fill the whale with earth and pop in a plant or sow flower or even cress seeds.

NB: Don't forget to dispose of the unused bits of the bottle properly!

\* The lids can be used to make pictures or a collage at a later date.



# Instructions





# Game Idea: “Plastic on our Plate”

This game addresses the accumulation of plastics in our food chain and its route onto our plates.

Note: This game is most suitable for outdoors or being played in a large gym space.

You will need: Cards (one per child), marbles

## Preparation

Pupils cut out the cards and name the animals shown. Make sure that you stick to the following numerical proportion as closely as possible:

2 big fish, 6 small fish, 12 pieces of plankton = 20 children

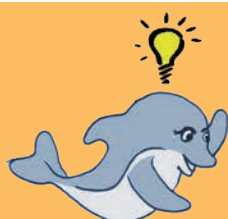
## How to play (part one)

First establish how the animals in the game move (plankton floats, small fish swim fast, big fish swim slow etc.) and also point out who eats who: a big fish eats the smaller ones, which in turn search for and eat the plankton. Every player then receives a card with a picture, and immediately turns into the animal shown by moving in the ways specified above.

The plankton pieces should spread throughout the room so that small fish can then try to catch and eat the plankton (for example by swimming next to them, touching their shoulders and afterwards moving on together). After a while the big fish join the game and try their best to catch and eat the small fish.

## How to play (part two)

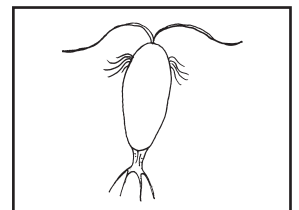
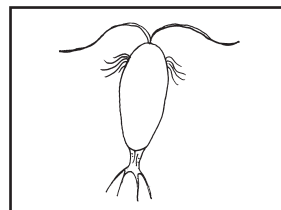
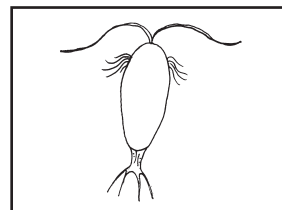
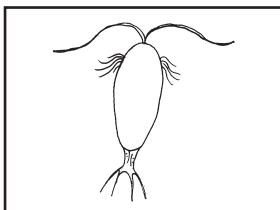
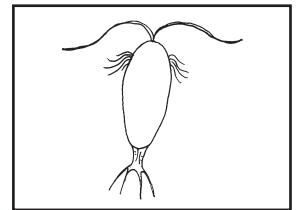
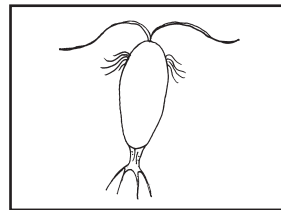
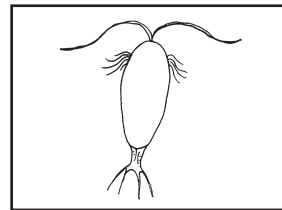
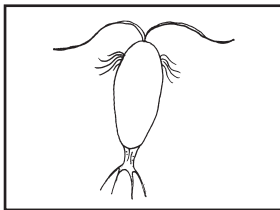
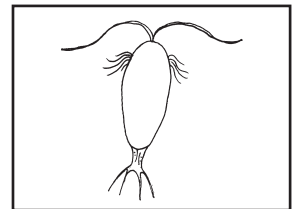
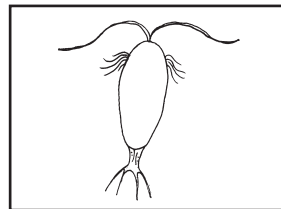
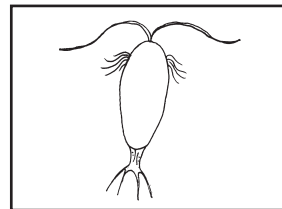
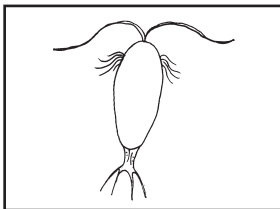
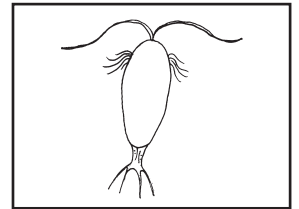
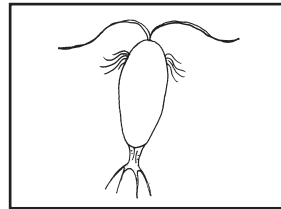
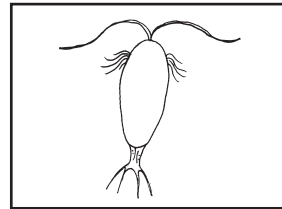
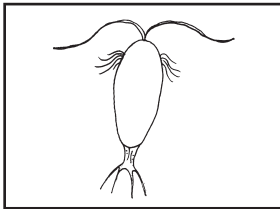
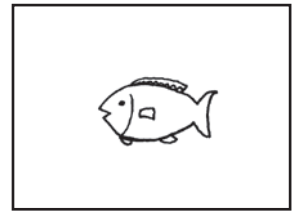
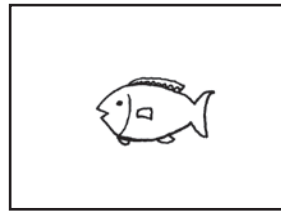
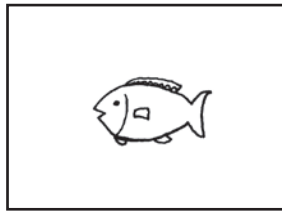
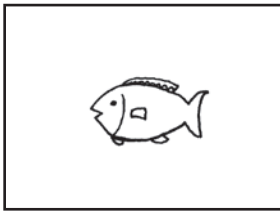
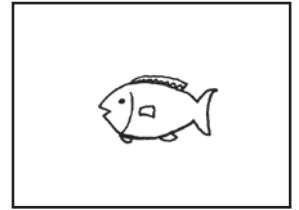
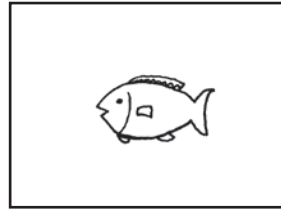
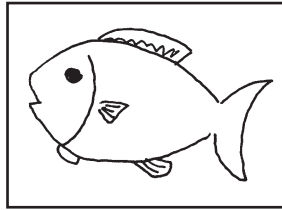
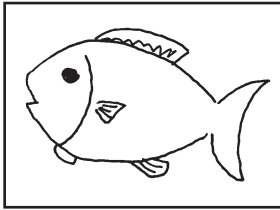
To illustrate how plastic pieces accumulate in our food chain and get onto our plates, children with plankton cards now receive a small bag with three marbles. The marbles represent micro-plastics, which are eaten by plankton. Children start to move again, with the small fish catching and eating both the plankton and micro-plastics. Then the big fish enter the game again, eating the micro-plastics, plankton and small fish, showing how micro-plastics make their way through the food chain. At the end of the game, the two big fish will have all of the marbles, representing plastics in their stomachs. And when we eat fish, we are thus eating the micro-plastics that have accumulated in the food chain.



### Did you know?

In some places around the world, when whales are washed up onto beaches they are so heavily contaminated with toxic substances that they need to be disposed of as hazardous waste. Toxins accumulate in every single layer of the food chain and finally in the whale's blubber.

# Game Idea: "Plastic on our Plate"



# Plastic Waste: Reduce, re-use, recycle!

## Actions for a plastic-free ocean!

Every single person can help to reduce the amount of plastic they use and make a huge difference for whales and dolphins! By taking a few very simple steps to reduce, re-use and recycle everyday plastic, we can all help to save whales and dolphins' lives and ensure that they are around for future generations to enjoy. Here are some simple ideas to help you get started:

### Faithful companions

Print or paint simple fabric bags and sell them to friends and family. You will not only be raising awareness of how important it is to use environmentally-friendly shopping bags but, if you donate the proceeds to WDC, Whale and Dolphin Conservation, you will be helping our work to create clean, healthy oceans where whales and dolphins can swim free from plastic waste.

### Plastic artwork

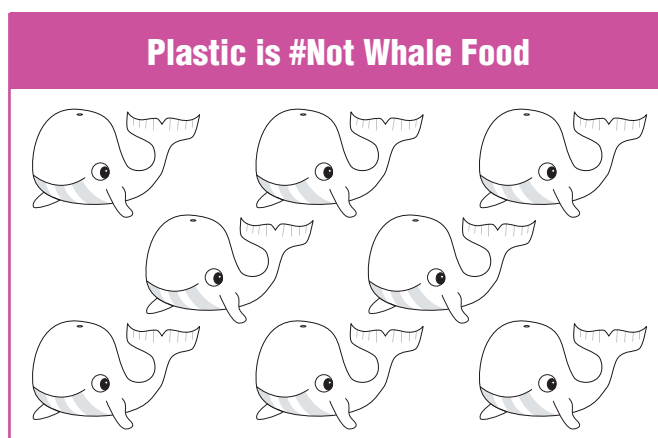
Collect clean plastic waste from home and take to school. How much does your class produce in a week? You might like to make a record of what plastics there are and how much of each and present your findings to the rest of the school and even parents, by having an exhibition or display of artwork. As well as the ideas in this booklet, there are lots of other things that plastic waste can be used for – sculptures, for example, or colourful collages made out of bottle lids. There are lots of ideas on the Internet or please contact [events@whales.org](mailto:events@whales.org).

### Plastic-free dinner

Go shopping with your parents and challenge them to buy ingredients for a completely plastic-free dinner! Compare results with your classmates.

### Plastic-free diet

No drinks in plastic bottles or plastic cups, no food in plastic wrapping for one week can't be that hard, can it? Try it yourself! For the next week opt not to drink anything that comes from a single-use plastic bottle, plastic cup or is wrapped in plastic. Use the WDC "reward" card (right) to track your success. Colour one whale for every day you live without food or drink in single-use plastic. Good luck!



# Activity ideas

## What can I do to avoid plastic waste?

List all your ideas for producing less plastic waste and then choose three that you will pledge to start doing immediately. Write these in Nina's speech bubbles and present them to your classmates. Make a display so that the whole school can follow your example. Make it a competition and give a small prize for the best idea, or the one that most children adopt.

For example:

- I will bring a drink to school in a refillable water bottle.
- I will set up a box to collect crisp packets and send them to be recycled.
- I will pick up three pieces of litter every day.
- I will set up a recycling station at school.





# Activity idea: Urban Beach Clean

## Urban Beach Clean

Up to 95% of the plastic in the oceans comes from our towns and cities, with much of it being carried there by streams, rivers, the wind and rain. Even if we live inland, what we do with our rubbish has an impact on the oceans, whales and dolphins, so it is vital that we all keep our urban environment clean so that we stop plastic getting to the oceans in the first place.

The children can go out into their local area around the nursery or to the local park for an Urban Beach Clean.

Even if there are regular street cleaners and rubbish collections, the children will see just how much rubbish and litter there actually still is lying around in our streets, parks and towns.

For more information on how to organise an Urban Beach Clean, please contact us on [events@whales.org](mailto:events@whales.org) or visit [notwhalefood.com](http://notwhalefood.com).



## Sources

<sup>1</sup> How can we create a world where plastic never becomes waste?  
[http://www3.weforum.org/docs/WEF\\_The\\_New\\_Plastics\\_Economy.pdf](http://www3.weforum.org/docs/WEF_The_New_Plastics_Economy.pdf)

<sup>2</sup> J. R. Jambeck, R. Geyer, C. Wilcox, T. R. Siegler, M. Perryman, A. Andrady, R. Narayan, K. L. Law: *Plastic waste inputs from land into the ocean*. In: *Science*. 347, 2015, S. 768–771, doi:10.1126/science.1260352.

## Publisher

Published by

Whale and Dolphin Conservation  
Brookfield House  
38 St Paul Street  
Chippenham, Wiltshire SN15 1LJ

[whales.org](http://whales.org)  
T: 01249 449500  
[Events@whales.org](mailto:Events@whales.org)

Author: Ruth Schlögl  
Layout: Roman Richter  
Graphics: Ruth Schlögl  
Translation: Sharon Stevenson  
Photographs: Title page: © Jasmin Becela | All: © WDC  
© WDC 2019

Reproduction and distribution of this material is permitted for educational purposes. Any other use is strictly forbidden.

All content has been carefully researched and tested. The authors accept no responsibility for errors.

