



Jane
Goodall
Institute

Learning Resource



our oceans,
our pollution

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DP WORLD

Our oceans, our pollution



SCAN ME

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The oceans and seas of the world are truly amazing and beautiful places full of life ... and our pollution! Every year, about 8 million tons of plastic waste escapes into the oceans having a huge impact on the wildlife and their habitats. Use this resource to discover the types of waste floating around the ocean and how you can help, no matter where you live!



Trash in the oceans in Maldives. "Thilafushi Kuni Gondu - God's dirty little secret" by Hani Amir is licensed under CC BY-NC-ND 2.0.

In this activity you and your students will:

- ▶ Learn about what types of waste end up in our oceans and how it gets there.
- ▶ Create a map of where that waste is piling up.
- ▶ Learn about actions people are taking to clean up the oceans.
- ▶ Get involved by taking action, for example by running a local beach

or waterway clean, or taking part in a citizen science project.

Objectives

To learn about how our waste is filling up our oceans and how we can address it

What do I need to make it work?

For this activity, you'll need:

- ▶ Internet access
- ▶ A printer
- ▶ Optional: A selection of cleaned waste items such as used PET bottles, old newspapers, cans, etc.

What things will my students create?

- ▶ A base map of world oceans with a layer showing where waste is accumulating

Types of waste

Let's take a bit of time to figure out what kinds of waste end up in the ocean. This will help later when we work out how to reduce it!

Sorting the waste

Ask your group to list as many items as they can think of that they might normally throw out or recycle at home and write each one on a piece of paper. You could also find images or bring in clean items of waste to use if you wish.

Now sort those items into the following categories – you might want to adjust these categories slightly to reflect the sorting systems used in your local area.

- ▶ In the bin
- ▶ Composted
- ▶ Recycled
- ▶ Reused

Now think about some questions:

- ▶ What happens to the items in each pile? Where do they end up?
- ▶ What about when we are not at home, what do people do with their waste then?
- ▶ Can you sort the "In the bin" pile in order of how long each item takes to decompose? Here's some information on how long some items take: bit.ly/3z0cnnU
- ▶ Which kinds of waste are worse for our oceans and why?

How does waste end up in the ocean?

Have a think in your group about how the waste we create might end up in the sea.

- ▶ WWF have a short article with some pointers: bit.ly/3PLPpae
- ▶ This plastic tracker is also quite helpful: bit.ly/3PGZghn





Microplastics



Microplastics are plastic pieces that measure less than five millimetres.

Some microplastics have been made small intentionally, for example industrial abrasives used in sandblasting and microbeads in facial scrubs. Others have formed by breaking away from larger plastics such as single use plastic carrier bags which have fragmented over time.

Find out more on the UK Natural History Museum website: bit.ly/3EokrA

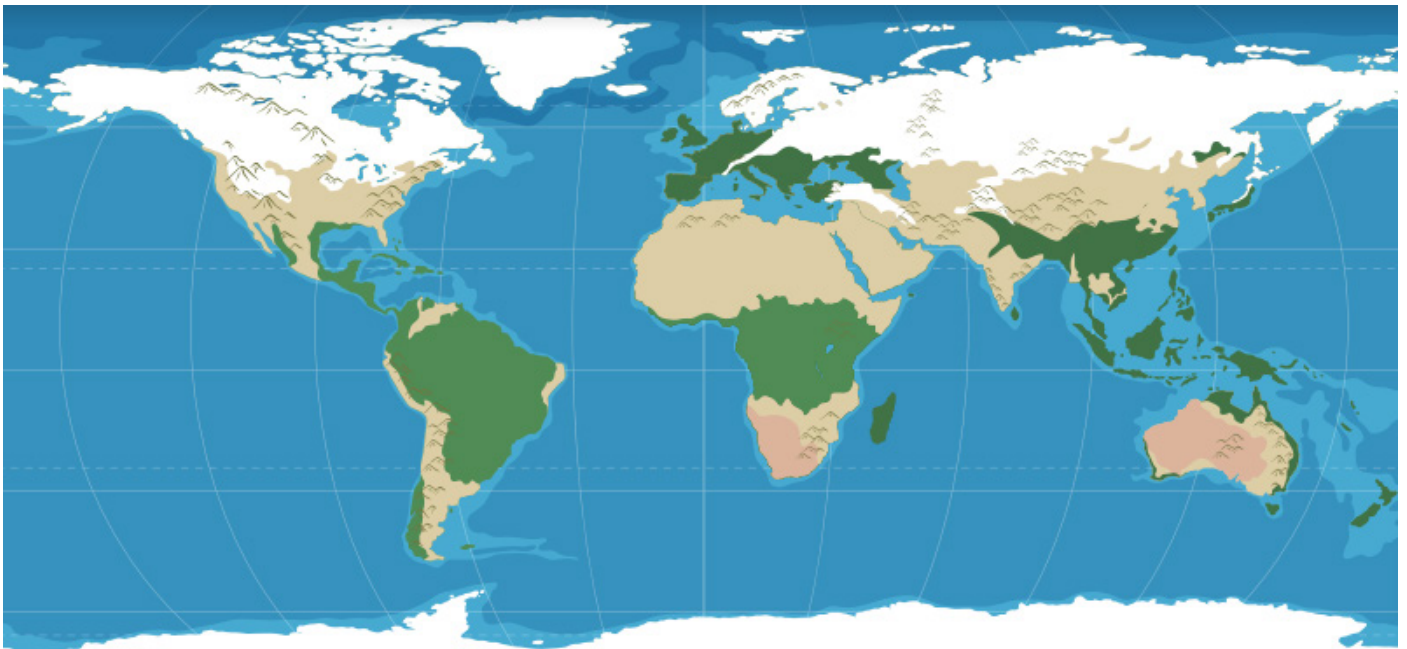
Image: The results of picking up plastic fragments (microplastics) along 22 metres (75ft) of Oregon Coast at Cape Perpetua during a Eugene Natural History Society Beach Clean Up. "Microplastics IIb - Beach Clean up - 25g plastics / 22m That's 638KG along the Oregon Coast" by Wolfram Burner is licensed under CC BY-NC 2.0.

Make an ocean waste map

Now we've thought about what kinds of waste is out there, let's see if we can find where in the world it is building up!

Prepare a basemap

First, you'll need to print out a map of the world. We can then use this as a base map to add different layers to, in this and other activities.



We've prepared a low-ink colour map for you to download and print: bit.ly/rs-globe-map

Locate the waste

Once waste flows down our rivers or is dropped on a beach, where does it end up? Encourage your group to research where larger patches (known as 'garbage patches') and other problem areas can be found around the globe.

Here are some helpful resources:

- ▶ What and where are 'garbage patches': bit.ly/3Gh2pQF
- ▶ Ocean plastic map: bit.ly/3lJdPDb – shows where large patches are developing and also other sightings of waste on beaches and in coastal areas.
- ▶ NASA are also tracking the flow of waste around the oceans: go.nasa.gov/3z0ooKc

Ocean currents

If you want to learn more about the ocean currents that determine where waste accumulates in our oceans, then be sure to try our 'Warm seas, cold seas, ocean currents' resource.

Map the waste

Using the information that your group has found, mark the garbage patches and other likely places for waste accumulation you've identified on your map. You can either draw directly on the map, or if you are planning on carrying out a number of ocean activities then you might prefer to overlay a clear sheet of acetate on your basemap and draw directly on that instead.

Is anyone clearing it up?

Let's take a brief look at some of the clean up operations already going on

Waste2Wear:

bit.ly/3wLxjNU – Cleaning up the oceans, giving people jobs and recycling waste into clothing.

Trashion

It's amazing what you can make out of discarded materials. The process of turning unwanted materials into clothing is called 'trashion' and anyone can give it a try. Check out what some of our Roots & Shoots schools in the UK have been doing on the website here: bit.ly/3wQfNYL – there is even an activity sheet to get you started running your own trashion show!



The Ocean Cleanup:

<https://theoceancleanup.com/oceans/> – Their method is to slowly drag a large U-shaped boom with a waste collection net in the middle between two ships. Once they have filled the 'retention zone' they empty it out and sort it for recycling.

Plastic eating bacteria:

<https://bit.ly/3guw1xR> – Scientists in Manchester, UK have made a biotechnological breakthrough which may help humans to call on engineered bacteria cells to reduce our plastic waste.

Can you find any other projects that are helping clean up our oceans? Why not try to plot them as another layer on your map of the world?



What can you do to help clean up the oceans?

There's a lot of waste out there and as we've discovered, some people are already doing their bit to try to tackle the problem – but we all need to take part to fix it properly!



"2014 Beach Clean" by [Port_of_Dover](https://www.portofdover.co.uk/) is licensed under [CC BY 2.0](https://creativecommons.org/licenses/by/2.0/).

Get your group to come up with some ideas of what you could do to compost, reduce, reuse and recycle more waste, either before it's gone anywhere from your home or by finding it out in the wild.

Here are some ideas to consider:

- ▶ You could try our "Rubbish charts" resource (bit.ly/rubbish-charts) and get litter picking and rubbish surveying – why not do a litter pick and survey at a local river or beach?
- ▶ Join a beach clean: bit.ly/3PBdAYN. Don't forget that waste also travels to the oceans and seas from far inland, so if you are nowhere near a beach then perhaps there is a small, local waterway or river that could benefit from your attention (CAUTION: ensure that proper safety protocols are followed at all times on a litter pick, both in terms of equipment used, provision of adequate supervision and selecting locations away from e.g. deep or fast-flowing water or areas that may be dangerous due to tidal conditions).
- ▶ Maybe there are more items we could recycle than we think – how about a campaign to raise awareness of what can be recycled in your local area? For example, did you know that Coop supermarkets in the UK now collect soft plastics: coop.uk/3wNGsV4? What other recycling can you find out about – Check out www.recyclenow.com

Want to help improve this activity?

This activity is a living document! Help us by editing this activity to make it as good as possible, just use this short link (just type it into your web browser's address bar): bit.ly/3FBcFCV – full instructions are provided. Any edits that can make this resource easier to use in the classroom are very welcome, so please follow the link and make your contribution!



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JGI & DP World

The Jane Goodall Institute has partnered with DP World to support the growth of the Roots & Shoots programme. DP World are a leading provider of worldwide smart end-to-end supply chain logistics with a presence in 55 countries, enabling the flow of trade across the globe. This exciting partnership supports the creation of resources on the wider marine ecosystem as well as supporting the expansion of Roots & Shoots groups around the world. **Find out more:** bit.ly/jgi-dpw

Show us your ships!

As always we would love to see the results of your creativity! Please log into the Roots & Shoots website and post a mission update. Let us know how you got on by providing us with a project write-up including pictures and videos.

Why not enter the Jane Goodall's Roots & Shoots Awards?

This resource was provided by Roots & Shoots UK, a not for profit charity run by the Jane Goodall Institute (UK). One of the aims of Roots & Shoots is to inspire young people to care for people, animals and the environment, and one of the ways that we like to do this is by running annual awards.

Every school that uploads a story about their activities to the Roots & Shoots website www.rootsnshoots.org.uk automatically wins a bronze award certificate to display at school, and the best stories win the chance for you and your children to meet Dr Jane Goodall herself along with a host of other prizes.

Keep up to date with Jane Goodall's Roots & Shoots UK

You can find us on Facebook at fb.com/RootsShoots.org.uk, on Twitter (@JaneGoodallUK, direct link: goo.gl/xTQnVm) and on Instagram (@janegoodalluk, direct link: bit.ly/jgi-insta). Or why not sign up for our weekly email newsletter full of inspiring stories from our Roots & Shoots members in the UK at rootsnshoots.org.uk/sign-me-up.

See www.rootsnshoots.org.uk/awards for details about the awards and information on how to upload your 'mission update' story and win!



Tell us how you got on

When your project is finished we'd love to see what you did! If you already have an account you can upload a story with images to the Jane Goodall's Roots & Shoots UAE website (find us at uae.rootsandshoots.community) to show off pictures and videos of your ships to a wider audience. If your school or youth group does not already have an account then just fill in the form on the website and we can set you up.

Keep up to date with Jane Goodall's Roots & Shoots UAE

As well as the website you can also find us on Facebook at facebook.com/RootsnShoots.ae or on Twitter as [@JaneGoodallUAE](https://twitter.com/JaneGoodallUAE)

