

World Oceans Day 2017

On 8 June, countries around the world celebrate **World Oceans Day**. This year's theme is 'Our Oceans, Our Future', with a particular focus on encouraging solutions to plastic pollution and preventing marine litter for a healthier ocean and a better future.

The [Global Learning Programme \(GLP\)](#) in England has developed **literacy, geography and science** lesson ideas and activities for Key Stages 2, 3 and 4 to support pupils' learning around the concepts of **sustainability, poverty and development**, and **interdependence**. The resource also supports the teaching of SMSC, citizenship, art, and design and technology (D&T), and will enable teachers to stimulate pupils' **critical thinking** skills on global issues linked to sustainable development.

Life below water is under threat, and we need to act now. World Oceans Day is also an opportunity for teachers to make their pupils aware of the Sustainable Development Goals (SDGs), and more specifically **Goal 14: Life below water**, which pledges to prevent and significantly reduce marine pollution of all kinds by 2025.

Why is life below water so important?
What are the challenges it faces in the 21st century?



Source: <http://www.worldoceanday.org/>

Learning objectives

This resource will particularly support teachers in developing:

- pupils' knowledge and understanding of the oceans, and the impact of human activities on them
- pupils' knowledge and understanding of global themes, including sustainability, interdependence and development
- pupils' enquiry, critical thinking and discussion skills
- opportunities for pupils to consider their own and others' values.

Activity 1: interconnectedness

The following brief films are all about the theme of interconnectedness. Depending on time available, these films could be used as a stimulus for a community of enquiry, using a methodology such as Philosophy for Children (P4C) or as a quick warm-up activity. If you decide to use them as a starter, before you show one film, ask pupils: 'What do you think of when you hear the word "interconnectedness" – what does it mean to you?' Pupils can discuss this in pairs and then feed back to the class. Search and watch one of the following one-minute films from YouTube:

- WWF: Threads – We are all connected
- The World is Where We Live (WWF)
- The Wombat (All is One)

Invite responses from your class: Did the film pupils watched resonate with their previous comments? How much do they agree/disagree with the gist of the film? Will our world always be like this? What things threaten this interconnectedness?

Activity 2: 'Flip Flotsam'

Check pupils' existing knowledge of our oceans (i.e. name the six oceans/guess what percentage of the world is covered by oceans, etc. – see activity 5 below and [RGS infographic](#)).

Ask pupils: 'How many pieces of plastic are thought to be floating in the oceans?' and elicit guesstimates. Give pupils the answer of 5,250 billion and ask them to think of further questions about this statistic that can either be answered now or parked for research later. What kind of plastic or other waste have pupils seen on British beaches and how might it have got there?

The poem '[Flip Flotsam](#)' by Edinburgh-based poet Elspeth Murray looks at a beach in Kenya where rubber flip flops get washed up on the shore. (For EAL learners you might wish to first show a picture of a flip flop or add your own to the poem to make sure it is understood. In some languages they are referred to as 'Hawaiianas' or 'Pata-pata').

What devices does the author use to make her poem so powerful (alliteration and possibly onomatopoeia of 'flip' 'flop' and 'snap')? Any others (questions to invite the reader in/others)?

In the last two verses, the poet asks two questions posing alternative scenarios. Ask pupils:

- Does she think things like rubber flip flops and other rubbish can be disposed of in the sea OR that they will damage the seas and beaches?
- What kind of damage do you think they could cause to marine life?

Activity 3: A flip flop's journey

Go to YouTube and search 'What happens to your flip flops when you lose them in the sea?' Show pupils the 26-minute film, which is based on the east coast of Kenya.

Lamu Island and Kiwayu Island are part of the Lamu Archipelago – a string of unspoilt islands along the Kenyan coast, encompassing the Kiunga Marine National Reserves, rich in coral reefs, mangroves and endangered sea turtles. The film shows the location on a map, but you may decide to locate the national reserve or Kiwayu using Google Earth[®] first.

In the first few minutes of the film, pupils will hear the Elspeth Murray poem but with a different last verse.

Pause at this point (after 'something worth much more') and ask them: 'Can you think of ways that these flip flops might be collected and re-used or recycled?'

Give pupils a few minutes to work in groups and come up with a few ideas for how to recycle the flip flops. Each group chooses their best idea and presents to the class, with peers voting on the best idea.

Watch the rest of the film and, with pupils working in small groups, discuss the following question: 'What did you find: funny/shocking/most surprising/most interesting?'

Then discuss as a class:

- How does the film relate to the theme of interconnectedness?
- How are the people and ocean on Kiwayu Island connected to each other?
- Is this the same as being interdependent? Why/why not?

There are many options for follow-up literacy activities here: pupils could write a sequencing paragraph to describe the processes involved in producing the flip flops, they could write their own poem based on other scenes from the film, a 'day in the life' diary entry of one of the fishermen or women/girls collecting on the beaches, a child living on the island, etc. They could even write an account from the perspective of a flip flop or a marine creature living at sea.

For other possible curriculum links to Flip Flotsam, download the mind map drawn by a group of Peterborough teachers (made in 2007 and slightly adapted to include SMSC) (available on the GLP '[Activities and resources](#)' page).

Activity 4: Plastic waste on UK beaches

Choose a specific subject focus or do a cross-curricular piece of work.

It is often said that in the UK nobody lives further than 70 miles from the sea. Whatever the truth is (and your pupils may want to fact-check this), most/many of us have been to the coast at some point. Ask pupils to tell each other in pairs which beach(es) they have been to in the UK. What do they like or dislike about this beach? What would be their ideal beach and why? And their nightmare beach?

Using classroom resources from the Marine Conservation Society and other conservation websites, for homework or as a classroom task, ask pupils to find out some statistics on litter and plastic waste on UK beaches.

<http://www.mcsuk.org> general website and good for KS3 research

http://www.mcsuk.org/coolseas/coolseas_investigators.php Cool Seas Investigators for KS3

<http://www.mcsuk.org/coolseas/explorerCentre.html> Cool Seas Explorers for KS1 and 2

http://www.mcsuk.org/downloads/coolseas/keep/Marine_Litter_keep_it_documents/WGTOS_marine_litter_in_the_UK.pdf

Depending on whether you prefer an art, D&T or citizenship focus, using their learning, pupils can decide how they wish to present their findings. Perhaps pupils could do this in groups by creating their own infographics to represent what they have learnt. Pupils can peer-assess each other's work giving the three stars (for strong or positive aspects) and a wish (one aspect that could be improved) method.

For ideas and inspiration, see the data website Information is Beautiful

<http://www.informationisbeautiful.net> or the Marine Conservation Society's *Our Seas our Future: Strategy 2015–2020* https://www.mcsuk.org/downloads/mcs/MCS_Strategy_2015-20%20Web.pdf, from which the infographic below is taken:



© Marine Conservation Society

Another option might be for pupils to create an alternative future diagram after thinking about probable and possible future of UK beaches. For this see David Hicks *Citizenship for the Future: A practical classroom guide*, Godalming: WWF-UK (2001).

What steps are needed to ensure that Britain's seas and beaches are clean? What part can pupils play in this?

For an art-focused activity, pupils can research British or global working with beach waste and then create their own piece of art.

Pupils could explore artists like:

- Fran Crowe, based in Suffolk <http://www.flyintheface.com>
- Chris Jordan's photography project Midway: Message from the gyre shows the damage by plastics caused to birdlife on the Midway Atoll in the Pacific <http://www.chrisjordan.com/gallery/midway/#CF000313%2018x24>
- Brighton artists Lou McCurdy and Chloe Hanks <http://dirty-beach.co.uk>. Lou McCurdy is artist-in-residence at Stanford Junior School in Brighton http://www.theargus.co.uk/news/1207267.children_make_art_from_beach_debris
- Artists João Parrinha, Luis de Dios and Xandi Kreuzeder – who collectively work as Skeleton Sea www.skeletonsea.com

The Ellen MacArthur Foundation has launched an [Innovation Prize](#) to help keep plastics out of the ocean.

For STEM KS2 and 3 activities, see Practical Action STEM Challenges

<https://practicalaction.org/schools> such as the Plastics Challenge

<https://practicalaction.org/plastics-challenge> or <https://www.stem.org.uk/elibrary/collection/98108>

for a range of activities.

For D&T, KS3 pupils could research the invention by Dutch teenager, Boyan Slat, who thought up an idea to rid the oceans of plastic waste and developed his idea further as part of a school science project. <http://www.bbc.co.uk/news/magazine-29631332>

At KS3 see also DeZeen for some fantastic ideas for using plastic ocean waste. Could students come up with their own design to reduce the problem? <https://www.dezeen.com/tag/ocean-plastic>

Lastly, for PSHE/citizenship, show the one-minute film by WWF: Together Possible (available on YouTube).

Thinking back to the David Hicks Alternative Future activity, ask pupils to work in groups and decide together if and how they would like to take action to protect our oceans and seas.

In class or for homework pupils can look into campaigns run by many different organisations, and either decide whether they would like to join or support one of these OR create their own campaign or action. The groups can then pitch their ideas in a whole-school assembly on World Oceans Day, or a class 'Dragon's Den'-style competition could be held to peer-assess ideas with a prize for the winner.

Activity 5: Why do oceans matter?



The Pacific Ocean © Mariusz S. Jurgielewicz/Shutterstock

Did you know that 1 billion people rely on marine and coastal diversity for their livelihoods? In total 5% of the world's wealth (GDP) is from marine and coastal industries. How and why do oceans matter to the global population?

Ask the class what they know about oceans and seas. Assess key facts and locational awareness.

Using a world map, ask pupils to locate the five oceans and what they know about them anecdotally. For example, which is biggest/smallest/coldest, what is the difference between an ocean and a sea, etc.

Split pupils into five groups; with each group researching an ocean. Each group fills in a table with text, images and data (see below) to explore why this ocean is important.

	Why is this ocean important?		
	Social assets	Economic assets	Environmental assets
Atlantic			
Arctic			
Indian			
Pacific			
Southern			

In these same groups, pupils could create a box underneath their table entitled 'oceanic challenges', and research a human-environmental challenge facing their ocean. Ask them to describe how their ocean may be changing, and why (the selection of newspaper articles below linking to various issues can be used, as well as others of your own choosing).

Support for activity 5

- **WWF World Oceans Day:** <https://www.wwf.org.uk/updates/world-oceans-day-coral-triangle-day-support-our-seas-right-now>
- **NASA The Oceans:** <https://www.youtube.com/watch?v=6vgvTeuoDWY&t=238s>
- **NASA Climate Kids:** <https://climatekids.nasa.gov/ocean/>

Activity 6: Is plastic the biggest danger to our oceans?



Beach pollution ©Take Photo/Shutterstock

There are thought to be around 5,250 billion pieces of plastic floating in the ocean, and there is concern that, by 2050, the estimated volume of accumulated plastic could be greater than fish, and the global plastics sector could account for 15% of the global annual carbon budget. Is plastic the biggest danger to our ocean?

Ask pupils if they have heard of Henderson Island. Introduce this place by showing this video to class: <https://www.theguardian.com/environment/2017/may/15/38-million-pieces-of-plastic-waste-found-on-uninhabited-south-pacific-island> (The Guardian, May 2017).

Pupils should watch the video and note down their answers to the following:

- What types of plastic can pupils see that have polluted the beach?
- What percentage of plastic on the beach isn't visible to the naked eye?
- How does plastic get into our oceans? Go on to YouTube and search 'What really happens to the plastic you throw away – Emma Bryce' (4:06). Watch what happens to plastic when it is thrown away. The video follows the journey of three separate bottles (bottle 1, bottle 2, and bottle 3). Assign these roles to your pupils and ask them to take notes on what happens to each of them.
 - Bottle 1: How long does it take for this bottle to decompose?
 - Bottle 2: What is a gyre? What happens at the great pacific garbage patch?
 - Bottle 3: How does a plastic bottle become a classroom chair?

Ask pupils to consider how much plastic packaging they think they've used in the last week. Show them [this document](#) and ask them to reconsider their answer.

Introduce the idea of '*the missing 99%*' – what is this? Tell pupils that scientists have suggests that around 99% of plastic in the ocean is untraceable: <https://theconversation.com/where-is-the-missing-plastic-take-action-to-avoid-an-ocean-of-plastic-29360>

Have pupils underestimated how much plastic they use in their everyday life and how it might end up in the ocean in various, and sometimes hidden, ways? What can they do to raise awareness?

Pupils could research and design a poster from what they have learned, encouraging their school to recycle plastic bottles. The poster should display some of the facts and processes about how plastic gets into our oceans.

Take a look on YouTube at 'The Ocean Clean Up' for positive ways this issue is being challenged <https://www.youtube.com/user/TheOceanCleanup>

Support for activity 6

- <https://www.theplastictide.com/the-team-main/>
- **Plastic Oceans** <https://www.plasticoceans.org/>
- NOAA **Ocean Facts** <http://oceanservice.noaa.gov/facts/marinedebris.html>
- **Marine Tracker** website and app <http://www.marinedebris.engr.uga.edu/>

Activity 7: Is the Great Barrier Reef dying?



The Great Barrier Reef © Debra James/Shutterstock

The Great Barrier Reef in Australia is the world's biggest structure made from living organisms. It generates an annual revenue of AU\$6 billion for tourism and AU\$1 billion for fishing. What is coral bleaching and how is it affecting this unique ecosystem?

Ask pupils what they know about the Great Barrier Reef and coral more generally. How would they describe it? What does it look like? Where have they learnt about this important ecosystem?

<http://www.independent.co.uk/news/world/australasia/great-barrier-reef-climate-change-australia-coral-bleaching-environment-a7360696.html>

Pupils should then watch this video above and note down their observations and answers to the following questions:

- What's happening to the temperature of the reef?
- What does the coral look like when the divers take a look at it? What colours are they?
- How important is the Great Barrier Reef to tourism and the economy?

Ask the pupils why the coral has lost its colour. This process is known as coral bleaching:

<http://www.bbc.co.uk/newsround/38145830>

<http://www.bbc.co.uk/news/av/science-environment-35917760/australias-great-barrier-reef-hit-by-worst-bleaching>

Pupils could research the reasons for the 2016 bleaching event that affected the Great Barrier Reef and explain why global sea temperatures are rising. This could be illustrated using data and graphics taken from National Oceanic and Atmospheric Administration (NOAA):

<https://www.climate.gov/news-features/event-tracker/great-barrier-reef-suffers-through-record-breaking-bleaching-event>

Support for activity 7

- **NOAA Oceans Service** site includes maps, images and background information about coral reefs http://oceanservice.noaa.gov/education/tutorial_corals/welcome.html and http://oceanservice.noaa.gov/education/kits/corals/supp_coral_roadmap.html#eco
- **BBC Newsround** clip about coral bleaching <http://www.bbc.co.uk/newsround/38145830>
- **Reef Check Australia:** comprehensive website for Key Stage 2-3 focused on saving the Great Barrier Reef <http://www.reefcheckaustralia.org/index.html>
- **Teach Ocean Science:** site based on a series of webquests investigating coral reefs http://www.teachoceanscience.net/teaching_resources/education_modules/coral_reefs_and_climate_change/access_classroom_resources/

Further links and background reading

General links

World Oceans Day ideas from WWF to mark World Oceans Day:

<https://www.wwf.org.uk/updates/world-oceans-day-coral-triangle-day-support-our-seas-right-now>

Life below water infographic produced by the RGS for the GLP

<http://www.rgs.org/NR/rdonlyres/B362EF8C-723E-4C11-8655-E2DA836A4FCD/0/GraphicLifeBelowWater.pdf>

NASA The Oceans: Animation from satellite imagery; commentary describes the importance of the oceans and explains currents <https://www.youtube.com/watch?v=6vgvTeuoDWY&t=238s>

NASA Perpetual Oceans: animation of global ocean currents with no commentary (You Tube) <https://www.youtube.com/watch?v=g3mt30cu8l4>

NASA Climate Kids: site for younger pupils explaining ocean currents, the link with climate and the impact of climate change <https://climatekids.nasa.gov/ocean/>

NOOA Ocean Service has a number of videos including ocean basics, ocean life and tides and currents <http://oceanservice.noaa.gov/video/>

Oceans: WWF website including features on UK seas and the Arctic, together with the challenges of ocean management, fishing, oil and gas, shipping and climate change (with an invitation to adopt a polar bear or turtle) <https://www.wwf.org.uk/where-we-work/habitats/oceans>

Ends of the Earth: resource pack from WWF to investigate life near the poles and the impact of climate change: <https://www.wwf.org.uk/get-involved/schools/resources/ends-of-the-earth>

Digital Explorer: education site with comprehensive resources to support science, geography and English. <http://digitalexplorer.com/> It includes:

- resource packs on Submarine Stem Activities (Key Stage 2 Science); Sustainable Fisheries (Key Stage 2, 3 and 4 science); Frozen Oceans (Key Stage 3 and 4 science and geography); Coral Oceans (Key Stage 2 and 3 science) and Plankton, Plastics and Poo (Key Stage 4 science). There is a GLP-E activity guide linked to [Marine Food Webs and Sustainable Fisheries](#).
- media zone with supporting video and images.

Looting the Earth: series of lesson plans linked to a short video on the Reframing Rio website, focused on overfishing in the Pacific Ocean <http://tve.org/reframing-rio/schoolresources/looting.html>

Ocean waste, pollution and plastics

Plastic Oceans education and campaign website, centred on a documentary film that you can book for a screening at your school. The website includes useful infographics and a short film trailer; some lesson resources are planned <https://www.plasticoceans.org/>

British Council English vocabulary and comprehension/recall lesson based on the Plastic Oceans trailer https://learnenglishteens.britishcouncil.org/sites/teens/files/a_plastic_ocean_-_exercises.pdf

Plastics Pollution Coalition campaign website, based on striking images of pollution and links to a range of videos <https://plasticpollutioncoalition.zendesk.com/hc/en-us> It includes an [education](#) area with lesson plans; one such is a series of science/geography detailed lesson plans, resources and videos for age 8-12 from [Anchorage Museum](#).

Ellen MacArthur Foundation: charity promoting the circular economy; includes [New Plastics Economy animation](#) and [infographics](#) on plastic production, waste and recycling. <https://www.ellenmacarthurfoundation.org/>

Washed Ashore: charity website aiming to raise awareness of ocean waste through art; it includes ideas for art/sculpture projects built from ocean waste, together with photos, videos and some background information about plastic waste <http://washedashore.org/>

Plastic in the sea: series of lesson plans for US schools – includes some US-oriented data on ocean plastics https://www.nwf.org/pdf/Eco-schools/Plastic%20at%20Sea_V2.pdf

NOAA Marine Debris Program website, including information about coral reefs, waste and ocean processes; the resources area includes factfiles, puzzles and activities, information booklets and a [video](#); <https://marinedebris.noaa.gov/> and <https://marinedebris.noaa.gov/resources>

NOAA Oceans Service Ocean Facts education website for teachers and students includes a wide range of maps, charts and interactives, [photo library](#), quizzes and lesson ideas <http://oceanservice.noaa.gov/facts/marinedebris.html>

Marine Tracker: website that maps marine debris worldwide, with the opportunity for pupils to download the app and log data from their own beach survey <http://www.marinedebris.engr.uga.edu/>

Imperial College Grantham Institute website including video, podcast and briefing paper for older students <https://www.imperial.ac.uk/grantham/our-work/earth-systems-variability-and-change/plastic-pollution-in-the-ocean/>

Ocean Cleanup: a possible technological solution to ocean waste <https://www.youtube.com/user/TheOceanCleanup>

The Plastic Tide: UK focused campaign site using drone technology and algorithms to track plastics waste <https://www.theplastictide.com/>

Coral reefs

NOAA Oceans Service site includes maps, images and background information about coral reefs http://oceanservice.noaa.gov/education/tutorial_corals/welcome.html and http://oceanservice.noaa.gov/education/kits/corals/supp_coral_roadmap.html#eco

BBC Newsround clip about coral bleaching <http://www.bbc.co.uk/newsround/38145830>

RGS coral reef ecosystems: an account of an expedition to Bali <http://www.rgs.org/OurWork/Schools/Teaching+resources/Key+Stage+4+resources/Key+Stage+4+-+From+the+field+resources/Coral+Reef+Ecosystems/Coral+Reef+Ecosystems.htm>

Reef Check Australia: comprehensive website for Key Stage 2–3 focused on saving the Great Barrier Reef <http://www.reefcheckaustralia.org/index.html>

Teach Ocean Science: site based on a series of webquests investigating coral reefs http://www.teachoceanscience.net/teaching_resources/education_modules/coral_reefs_and_climate_change/access_classroom_resources/

WWF Tagalaya – the fish market You Tube video about reef fishing and conservation in Indonesia <https://www.youtube.com/watch?v=VxShEgaQntU>

Media:

Offshore drilling: Guardian news report discussing drilling for oil and gas off the US coast <https://www.theguardian.com/environment/2017/apr/28/trump-offshore-drilling-climate-change-environment>

Ice-locked ship to drift over North Pole: BBC article focused on investigating the decline of Arctic sea ice and climate change <http://www.bbc.co.uk/news/science-environment-39024227>

Plastic on Henderson Island: <https://www.theguardian.com/environment/2017/may/15/38-million-pieces-of-plastic-waste-found-on-uninhabited-south-pacific-island>

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