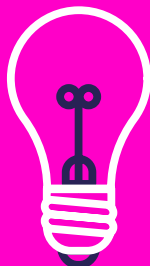
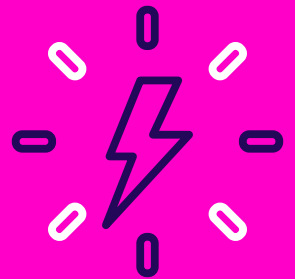
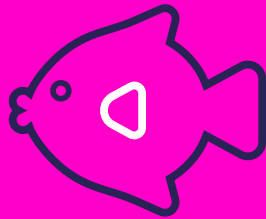


Schools Connect

Life below water

Tackling plastic pollution through
creativity and critical thinking



Lesson 1

PUPILS WILL:

- reflect on what they already know about life below water in oceans, seas and marine environments and the corresponding plastic problem
- have the opportunity to think more deeply and openly by expressing what they wonder about the issues
- think about how the issues fit into their own lives and what they currently do on a daily basis which may be contributing to the problem or even attempting to address it
- be inspired by the video and images to start thinking about the extent of the problems we face with plastics in the ocean
- learn some facts about the dangers posed to marine life by plastic pollution.

STEP 1:

1 Introduce the Sustainable Development Goals (www.globalgoals.org) and specifically Goal 14: Life Below Water – Conserve and sustainably use the oceans, seas and marine resources. Look at the details of the goal with older children, if time allows.

2 Create a 'Know, Wonder, Learn' chart using the template in the resources below. Prompt pupils to write what they already know about life below water and what they would like to find out. Tell pupils that they will complete the 'Learn' section in the last lesson of the unit. This can be done by individuals or as a whole class and the questions can be used as part of a display. If done by individuals, give time for them to feed back and share some of what they have written.

NOTES ON CORE SKILLS

The first session is a great opportunity to explain to pupils that this learning unit will be about core skills such as critical thinking and creative collaboration. Encourage pupils to think more deeply and to form their own questions about the topic using question starters, such as 'what if...' and 'why is...' and 'how can...'. They will also have the opportunity to place themselves at the centre of the issue and reflect on what's important to them. Examining their open responses to the images will encourage discussion using emotive vocabulary and may lead them to identify some of the key issues themselves.



Image: Shutterstock

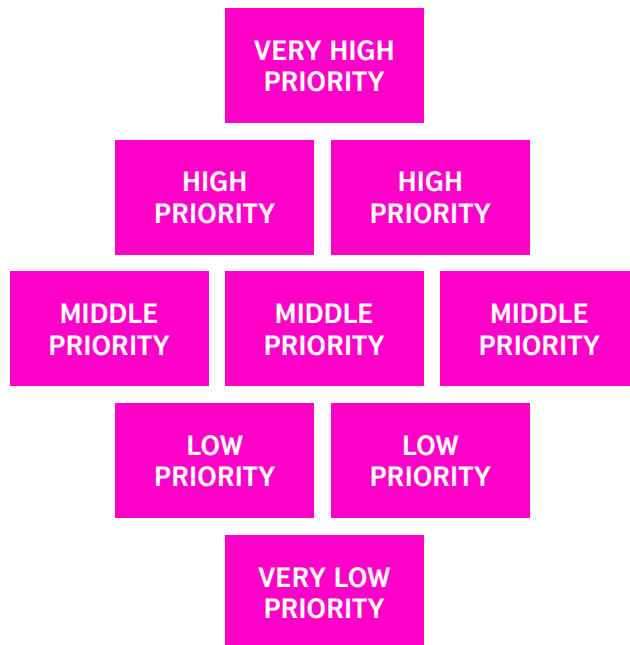
STEP 3:

1 Watch 'A plastic ocean'

<https://tinyurl.com/y2agc8f6>

(The video shows a surfer and free diver discovering the extent of plastic pollution in the oceans that they love. 8 million tonnes of plastic are dumped into the ocean every year. It highlights the need for change.)

2 Briefly discuss pupils' initial responses and thoughts. Which part of the video stood out to them most? Why?



POTENTIAL COLLABORATION WITH PARTNER SCHOOL

Both the 'Know, Wonder, Learn' chart and the ranking activity offer good opportunities to collaborate with a partner school. Pupils can share initial ideas on the plastic problem and to look at what pupils in different parts of the world know about life below water, consider what their perspective is and what matters to them most in their lives. Pupils and teachers can:

- compile and share a summary of the KWL and ranking activities and compare and contrast answers, sharing a selection with the pupils
- create and share a word cloud (see example in resources) or poster with the key words that were used when discussing the animals they see on the slides.



<https://plasticoceans.uk/the-facts/invasive-species/>

Life Below Water – Kwl Chart

What do we already know about...

What do we wonder about...

What we have learned about...

--	--	--

Ranking Cards

Endangered animals and loss of animal species

Buying/ getting the latest release of a popular computer game

Spending time with friends

The results of your favourite sports competition

Pollution of the air, land and sea

Your future career/job

The amount of plastic in the world's oceans and waterways

Who is in government in your country and how they are governing

What you will be eating for your next meal

Fact sheet: what are the dangers?

Entanglement

There is a significant danger to marine and sea life of becoming entangled in plastics and debris.

Discarded fishing gear and six-pack yokes (from beverage multi-packs) are the most common causes of entanglement.

Turtles can become caught in nets and twine.

Plastic waste on the beach can hinder a turtle's nesting as they find it difficult to dig through the sand.

Turtles entangled in floating plastic are subjected to increased drag when swimming, causing starvation or drowning.

Over 16 per cent (56 species) of seabirds have been recorded as snared in plastic, either after mistaking it for food, or accidentally swimming into it.

Entanglement can lead to injury, infection or drowning of the seabird.

Ingestion

Plastic pieces are often mistaken for food. For example, plastic breaks down into 'nurdles', which are small plastic pieces. Many marine creatures, particularly fish, turtles and birds, mistake the pieces for food.

Sometimes an animal has no choice but to consume plastics because of the huge concentrations that are in the water. For example, baleen whales take in large amounts of water each time they open their mouths to feed (up to 75,000 litres in blue whales!), resulting in the high potential of plastic being consumed.

As the plastic is broken down in their stomachs, toxic chemicals are released, which can lead to poisoning.

Sometimes, debris with sharp edges causes damage to animals' throats and insides, leading to infection or large pieces may become lodged in their digestive tracts.

Plastic pieces can cause blockage in the intestines of animals, or make them feel falsely full, which can result in starvation. Even if the animal does somehow manage to survive, its quality of life is inevitably diminished. It will struggle to catch food, or escape predators.

Lesson 2

PUPILS WILL:

- think about how the issue of plastic pollution fits into their own lives and what they currently do on a daily basis which may be contributing to the problem or attempting to address it
- learn about the key items of plastic from the land (which is 80 per cent of all ocean plastic) that are ending up in the oceans and seas
- act as enquirers, asking questions and evaluating the usefulness of sources of information
- learn and think about how plastics reach rivers and oceans after they have been used and discarded by people. They will map out the different possible journeys a piece of plastic could take before ending up in or around the water.

STEP 1:

1 Give pupils three minutes to list everything they've used today that is made of plastic or comes in plastic packaging (give prompts, if needed, such as cereal bags, juice bottles, pen cases, computer cases, school chairs, etc.) With younger pupils the teacher can bring in examples of packaging and items and hold a discussion with pupils about which ones they use.

2 Ask pupils to use a colour to highlight which items on their list are single-use plastics, i.e. that are thrown away after being used only once (give examples if needed, e.g. milk bottle: yes; plastic cereal bowl; no)

3 Discuss the lists as a whole group, focusing on: how many items are made of plastic in their daily lives; which items surprised them; what proportion are single-use plastics; whether they think single-use or multi-use items are better or worse for the environment, etc. Older pupils can do some statistical work with the data generated in maths lessons.

NOTES ON CORE SKILLS

In this lesson pupils will have opportunities to practise and develop their core critical thinking skills through enquiry. They will be asked to choose information and evaluate it by being inquisitive and using good questioning. They will also need to come to a conclusion about its usefulness and be ready to justify that conclusion. Throughout the activities pupils will be critically evaluating their own role in causing plastic pollution both explicitly and implicitly. Creating their own mini-infographic is an opportunity for pupils to collaborate creatively and there are several opportunities for group discussion and decision making.

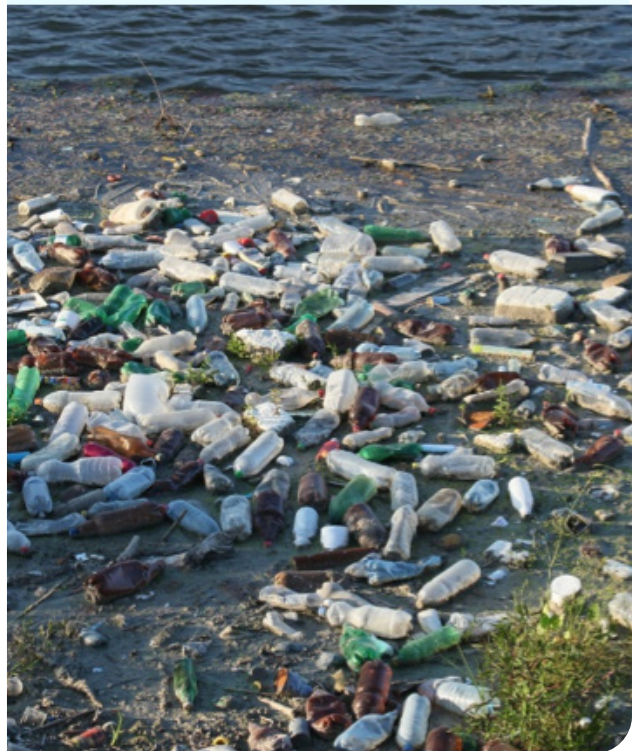


Image: Pixabay/Byrev

STEP 2:

1 Ask pupils to work in small groups to write down and draw small icons/emojis for the top five single-use plastic items that they think cause pollution in our oceans. Do this on a large sheet of paper and then leave them on desks and give groups 2-3 minutes to circulate and see other groups' ideas. Ask them to think of anything that surprises them or anything they disagree with.

2 Show the two infographics from [reducereuserecycle](#) and [TUI](#) (see slides and resources).

3 Ask pupils to be enquirers investigating the value of each source. The following questions can be used to generate whole class, group or paired discussion or a written activity for older pupils. Feedback can be shared according to the time restraints or the needs observed by the teacher.

Questions:

What do pupils notice about the top five in the two different lists?

How are the lists the same/different?

What are the sources of these infographics?

Which infographic do they think is right and why?

Which infographic is more useful?

How does this infographic match/differ from their own?

Can pupils think of any questions of their own?



Image: flickr/Mario Klingemann

STEP 3:

1 Look at the image 'How Long Until It's Gone?' (on the slides) showing the estimated decomposition rates of common marine debris items. In groups, pupils choose one item and discuss its journey from the original source and use, to being found in a body of water.

2 Share examples of journeys to the water using the picture chains in the resources below.

3 Pupils then draw a picture chain for their chosen item. With younger pupils, teachers can carry out some simple role play with packaging items brought in as examples (e.g. pretending a carrier bag is caught in the wind).

4 Watch the Greenpeace UK video about how plastics end up in the ocean:
<https://tinyurl.com/ycezvx48>

STEP 4:

1 If time and resources allow, plan a fieldwork visit to a nearby body of water (coast, river, lake) and carry out a survey on what they find there in terms of plastic. If doing so, ensure you take appropriate health and safety precautions.

POTENTIAL COLLABORATION WITH PARTNER SCHOOL

This is a very interesting session for partner collaboration as the results of the activities will be very different. Depending on where pupils live and their socio-economic status they will have very different experiences of single-use plastic and their proximity to the ocean may affect their opinions and judgement.

- share a list of the single-use plastics used by the pupils and compare with the partner school to identify similarities and differences.
- brainstorm questions for the partner school about their use of single-use plastics.
- look at maps to see how close their partner school is to the ocean/a major river/a minor river.
- consider distance from nearest water source and provide opportunities (perhaps by video link) to ask each other the question: who is more/most to blame for the problem?



Image: pixabay/byrev



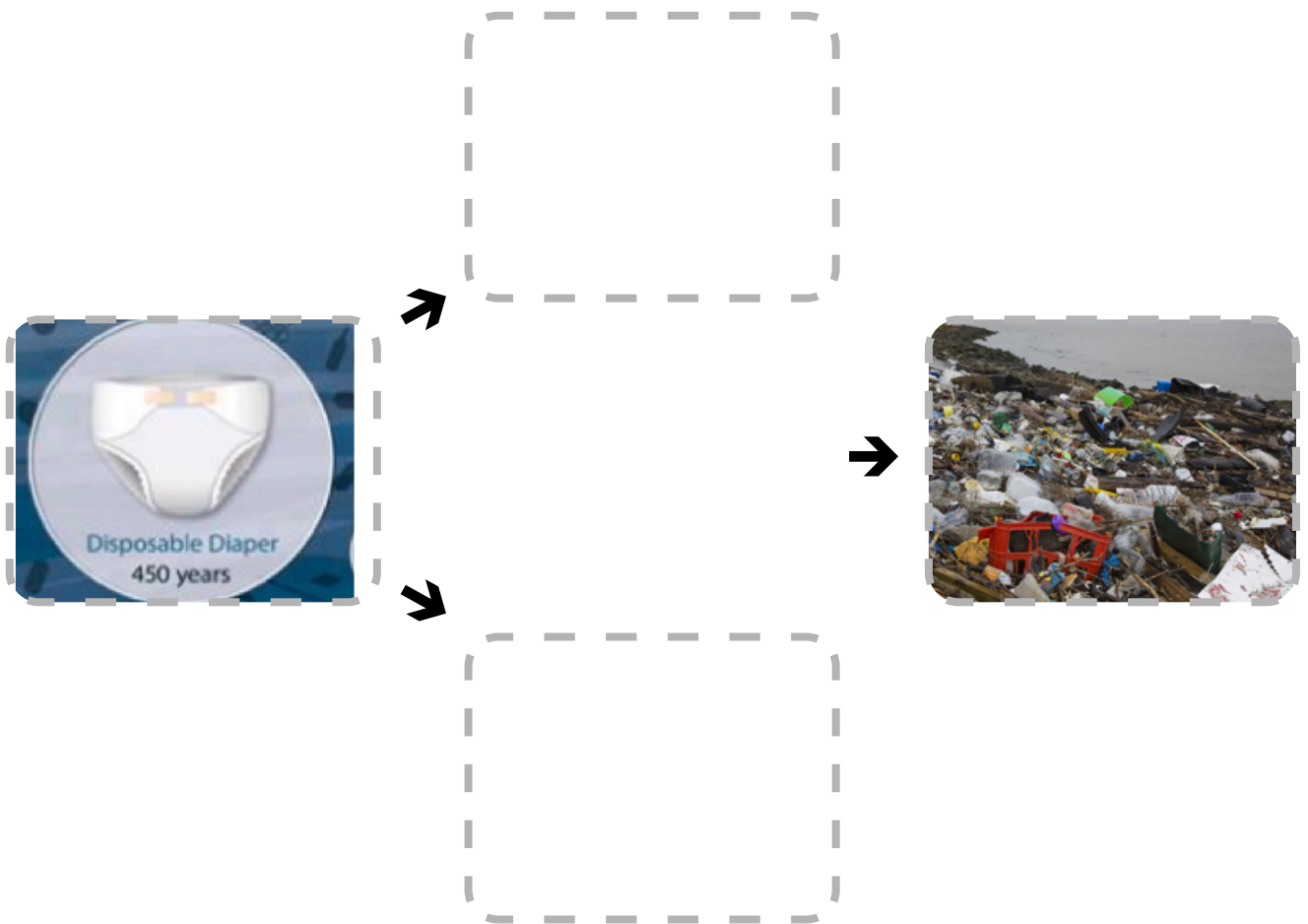
<https://tinyurl.com/yxdnypy6>

The top 5 plastic debris contenders in our oceans



<https://www.tui.co.uk/better-world-detectives/> Lesson 2, Resource Pack

Picture chains



The diaper may have been put in a public bin after a child was changed when out and about. →

The bin may have overflowed or been opened by an animal, such as a fox leaving the diaper on the street. →

The diaper may have made its way to a river, being moved by weather, human activity or animal activity. →

Once in the river the diaper may have flowed downstream to the mouth of the river and been washed up on to the coast or beach. →

Plastic lining river shore image:
<https://www.independent.co.uk/environment/plastic-pollution-uk-lakes-rivers-microplastics-friends-of-the-earth-a8810831.html>

Lesson 3

PUPILS WILL:

- learn about ocean currents and how gyres are formed by the earth's rotation and predominant winds
- link their learning about ocean currents to the question of how plastics, that have already entered the oceans, move around to form great garbage patches
- think about possible shipping routes and use mapping skills to identify places on these routes, then draw the routes on maps and mark key places involved in the transport of toys
- collaborate creatively to produce a map which depicts ocean gyres, drawing on their existing knowledge of the problems with plastic pollution.

STEP 1:

- 1** Read the story Toy Trek to the class (see resources below).
- 2** Use the map in the resources section, or another suitable map of the world to mark where the ducks left from, where the container fell into the sea and where the ducks have travelled to and been washed ashore. With younger children this can be done as a whole class. Older children can do this in groups using an atlas.
- 3** Brainstorm ideas as to why the ducks have travelled so far from where they were spilled. Touch upon the idea of ocean currents.

NOTES ON CORE SKILLS

The activities in this section require pupils to think as researchers, enquirers and problem solvers which are all facets of critical thinking. Pupils will bring together new information and understanding about ocean currents and gyres to hypothesise about the journeys their toys and other items take when travelling the world to get to us.

The final activity - choosing a way to depict ocean gyres on a map - relies on creative collaboration as pupils will pool ideas resulting from their learning and then collaborate to decide which idea to choose or how to combine them.



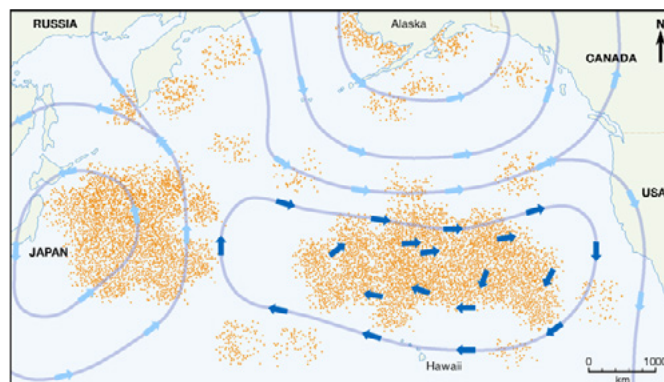
www.plasticoceans.org

STEP 2: (OPTIONAL)

- 1** Ask children to bring in favourite toys from home in preparation for the lesson. Share the toys and discuss what they are made of. What proportion are made of plastic?
- 2** Look to see if anything on the toys identifies where they were made. If there is not enough information available, do some whole class or individual research to find out where in the world the majority of toys are manufactured.
- 3** Using another blank map of the world, ask pupils to mark where their toys were made and draw the potential shipping routes the pupils think that ships might take to get to us.

STEP 3:

- 1** Explain that although the numbers at the end of the article seem alarming, 80 per cent of waste actually comes from the land. There is an opportunity here for older to children to do some statistical maths work and analysis. Go on to explain that plastic has been found in all of the oceans around the world, not just areas where people live and that once plastic has found its way into the sea, it is caught up in one of the Earth's five major currents, or gyres, and travels vast distances to the centre of these great whirlpools. Gyres are formed by the Earth's rotation and resulting predominant winds. The five gyres are found in the North and South Atlantic, North and South Pacific and Indian Ocean.
- 2** Share the image (on the PowerPoint) showing how gyres are formed
- 3** Show Pillar 3 from Plastic Oceans' school



presentation on plastic pollution:
<https://education.plasticoceans.uk/presentations/School-Assembly/index.html#/>

STEP 4:

1 Tell pupils that an American oceanographer, Charles Moore, discovered what he called 'the Great Pacific Garbage Patch' – a vast expanse of debris that stretches about 925km across the northern Pacific between the Californian coast and Japan. Professor Moore estimates that approximately 100 million tonnes of waste are circulating in the region. Marcus Eriksson, a marine researcher working at Professor Moore's institute, said that originally people thought it was an island of plastic garbage that you could almost walk on. However, it is not quite like that. It is almost like a 'plastic soup'.

2 Using either of the world maps used above, or another blank one if you prefer, have pupils work in pairs or small groups and draw the five ocean gyres using their own choice of style. Give suggestions such as small drawings of ocean animals or plastic bottles, rings of fishing lines, giant fishing nets, etc. Nb. Younger pupils could put their plastic toys into a water tray and make whirlpools to move them around like ocean currents and gyres.

POTENTIAL COLLABORATION WITH PARTNER SCHOOL

Using toys is a great starting point for collaboration here as it is common ground. Pupils can:

- share images of the favourite toys that were brought into school and discuss what they're made of and how many they have. Pupils in different places can add a travel route onto their own map, perhaps in a different colour, to show how toys may travel to a partner school. They can also use maps and atlases to see whether any of the ducks (from the story Toy Trek) are likely to have washed up near their partner school.
- share images of their ocean gyres designs, maybe holding a mini-competition between pupils in different schools to decide which are the most creative and impactful designs.



The Toy Trek Story

This may be the greatest ocean voyage in history. It has taken more than 18 years and covered thousands of kilometres. Yet the mariners on this incredible journey are not hardy sailors - they are 29,000 plastic toys. Let me explain.

In 1992 an American toy company based in Massachusetts ordered thousands of plastic bath toys from China. No-one could have anticipated that what began as a routine trip across the north Pacific from Hong Kong to Seattle would become the start point for a real-life remake of 'The Incredible Journey'!

On the night of 10 January, the container ship carrying the toys ran into trouble during a storm at 45°N near the International Date Line. As the ship tossed and turned, several of the containers escaped their moorings and plunged into the sea. While most remained intact, one container split open releasing its haul of 29,000 plastic bath toys into the Pacific.

The plucky ducks, turtles, beavers and frogs spent their first few months of freedom swirling around 'The Great Pacific Garbage Patch'. This area of the Pacific has earned its nickname because of the amount of flotsam cluttering up the ocean.

Within months, however, the plastic armada had split up. Some toys were carried east towards the Indian Ocean, but the majority went north and, in November 1992, they began to wash up on the Alaskan shoreline. For the next three years these ducks, turtles, beavers and frogs circled the waters of the northern Pacific and some landed on the coastline of Washington State. Since then, hundreds have washed up in America.

As soon as he found out they had abandoned ship, a retired oceanographer, Curtis Ebbesmeyer, began tracking the plastic toys' journey. He now believes significant numbers have rounded the North Pole and made their way south through the Arctic Circle into the Atlantic Ocean.

The manufacturers, The First Years Inc, decided to place a bounty on the toys. Anyone who sends one in will receive a €100 reward for their salvage efforts. The toys are easily recognisable: the ducks and beavers have faded to white, but all the floatees have 'The First Years' stamped upon them. Each week Ebbesmeyer receives fresh email reports via his website, from the east coast of the USA, Scotland, Iceland and Norway, but sightings often prove to be of the wrong species.

Although it's an interesting way to track ocean currents, the tale is very worrying. These tiny toys have the potential to be killers as they find their way into and distort the marine food chain. The ducks quack out a clear message: that even punishing waves and freezing cold cannot destroy the debris that we humans lose or throw overboard. Originally designed to withstand 52 cycles in a washing machine, the toys have been bobbing around the oceans for more than 18 years now, covering more than 24,000 kilometres on their travels.

So, just how much trash is there in the oceans? Well, these plastic toys aren't the only 'treasures' of the deep. Each year, of the 100 million containers transported by ship across the world's oceans, 10,000 fall off spilling their cargo. Over the years this haul has included: 5 million LEGO pieces, 500,000 cans of beer, 80,000 pairs of Nike trainers and 18,400 frying pans!



Photo: Robert Grandfield

Lesson 4

PUPILS WILL:

- take part in a discussion based on a 'big question' and consider a true/false statement about eating fish. Teachers will use the 'think, pair, share' strategy to draw out ideas from every member of the class. Pupils will also think about what makes a good question
- find out about nurdles and microplastics and how these pass through food chains and webs, starting with phytoplankton
- create a large-scale marine food web and discuss how this leads to microplastics ending up in the fish we eat.

STEP 1:

1 Present the pupils with a 'big question' for this lesson: should we eat fish? They may draw on the learning from lessons 1–3. Use the 'think, pair, share' strategy, which requires pupils to have sufficient individual thinking time before sharing their ideas with a partner and then contributing their ideas to a whole-group discussion.

Talk to the pupils about being a good enquirer and allow them to think about or discuss (if time allows):

- who asks the most questions in your class?
- are all questions good?
- are all questions enquiry?
- is it better to think quickly or deeply?
- do you sometimes already know the answer to questions that you ask?

2 Ask pupils to discuss the statement: 'when we eat fish, we are eating plastic.'

Do they think this is true or false? Gather answers and then support them in thinking about the following questions. If it is true, then: How true? True for whom? True when? True why? True where?

NOTES ON CORE SKILLS

This lesson encourages critical thinking through enquiry. It requires pupils to engage with any prior knowledge or opinions that they have on eating fish. It starts with a 'big question' (should we eat fish?) and then focuses on how plastics in the oceans may impact on this. Pupils are challenged to consider themselves as enquirers and reflect on their usual questioning style. Finding out about how plastics move through the food chain and looking in detail at marine food webs provide opportunities for pupils to be inquisitive and frame 'good questions' that reflect deeper thinking.



Image: flicker/watershannon05

STEP 2:

Read the information sheet in the resources below as a group, discussing new vocabulary and ideas as you go and making sure that pupils understand. Use personal sketches and any useful web images that you have found to support understanding where necessary.

Ask pupils to think of three 'good questions' about the information they have read. Support pupils with thinking about what makes a 'good question', by discussing open-ended questions, questions that challenge and reflect different viewpoints and questions that involve facts and opinions. Encourage pupils to use questions that start with 'how', 'why' and 'what if'.

Younger pupils can draw and cut out large fish and write some simple questions on them with the teacher's help.

STEP 3:

- 1** Make a food web using the activity from the Hubbub Foundation UK which can be downloaded at: <https://tinyurl.com/yyfh85rs>
- 2** Give pupils some time in their groups to think about and share some 'good questions' about the activity, using the stimuli from step 2. Allow an open discussion of their questions if time permits.

You will need a set of Sea Life cards, which can be found in the resources below, and plenty of string. Pupils work in nine small groups, each with a Sea Life card. Clarify any unfamiliar terms.

Form a large circle, with yourself in the centre, holding the ball of string. You are the sun, the ultimate source of the world's energy. What living things feed off sunlight (seaweed, plankton)? Use the string to make that connection. What living things feed off plankton or seaweed (fish, shellfish)? Connect the string. What feeds off them (octopus, whale, seal, human, seagull)? Make the connection... and then again for anything that feeds off them.

Next, ask what happens to the waste from plants and animals? (It feeds shellfish, sea plants and some fish). Everything depends on everything else within our food web. Each group disentangles itself from the web and works with a full set of Sea Life cards to recreate the food web on a big sheet of paper, this time connecting cards up with arrows.

Addition: ask pupils to mark on their food web the transfer of micro-plastics by drawing them inside each of the marine animals.

STEP 4:

Return briefly to the true or false statement from step 1. Ask the pupils to share their opinions now on the statement, 'when we eat fish, we are eating plastic'. Have their ideas changed?

Also return to the 'big question', 'should we eat fish?' and tell them that their thoughts on this will be used in the next lesson (Lesson 5).

POTENTIAL COLLABORATION WITH PARTNER SCHOOL

The greatest potential here comes in the form of enquiring collaboratively and considering the ideas and points of view of schools and pupils in different locations. Teachers can:

- Share the activity of discussing the 'big idea' and true or false statement via the web, if possible. Alternatively, notes can be made on the key ideas from the discussions, then exchanged and considered. The issue of eating fish will garner different views from those who rely on it as a source of protein to those who eat it as part of a varied diet and pupils can think about the reasons behind the views of pupils from their partner school.
- Take videos or photos of the food webs made using the Hubbub resource, share them and then contrast and compare the questions the activity generated.



Image: Shutterstock/Ritch Carey

Information sheet: what are the dangers?

60% of the world's population rely on fish as their main source of protein

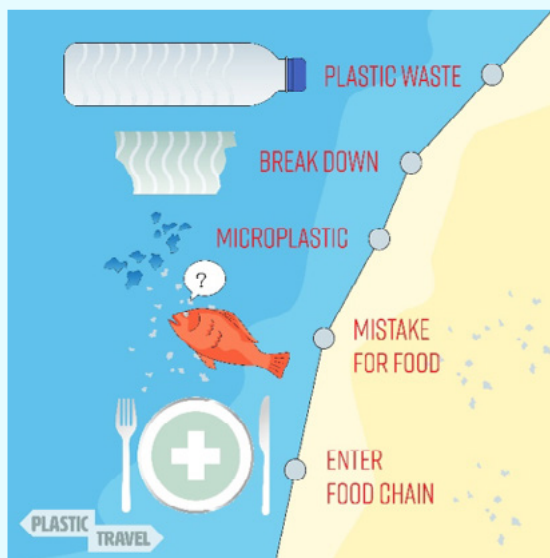


Image: Shutterstock/1154448046

There are two types of plankton: zooplankton (animals) and phytoplankton (plants).

Zooplankton feed on phytoplankton → small fish feed on zooplankton → squid feed on small fish → large fish and humans feed on small fish

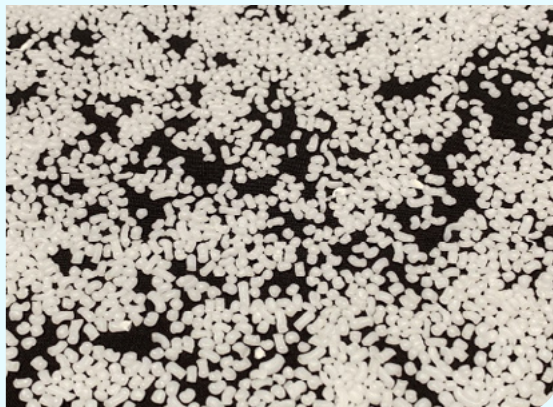


Image: flickr/Mark Dixon

Nurdles are raw, pre-production pellets formed when you turn oil into plastic. People, animals and birds can confuse them for eggs or food such as zooplankton. They are also known as mermaid tears.

Micro plastic beads are used in many health care and cleaning products. We flush these plastics straight into the ocean from our homes. Scientists have found that plankton at the base of the food chain have eaten 'micro plastics' such as nurdles. These then make their way up through the food chain.

Lesson 5

PUPILS WILL:

- find out about overfishing – how and why it is happening and what can be done to prevent it
- find out about how climate change is causing ocean acidification and therefore coral reef bleaching, with a focus on the Great Barrier Reef
- think about whether something is a fact or an opinion, discuss it and then be prepared to justify their choice by explaining it and backing it up with evidence.

STEP 1:

1 Explain to the pupils that there are other major concerns resulting from human activity which have devastating effects on life below water. Here we will focus on overfishing and acidification as a result of climate change.

NOTES ON CORE SKILLS

The core skills element of this lesson comes in the fact or opinion activity which is designed not only to check the learning and understanding of the topic, but also to allow pupils the opportunity to consider the viewpoints of others, make reasoned judgements, share opinions and justify their ideas.

Pupils will need to be able to take part in a group discussion productively, by respecting the viewpoints and opinions of others and using these to support their own judgements.



Image: Fishing boat in Tromso Norway_Bo Eide

STEP 2:

1 Introduce the idea of overfishing – illegal fishing and overfishing mean that fish do not have time to build up their numbers and whole populations are being wiped out. This causes problems for the whole community of creatures and plants in that ecosystem, and the humans who depend on them for food and to make a living.

2 Watch 'How to Save our Coastal Seas' at: <https://tinyurl.com/yxkrehmy>

(Sir David Attenborough highlights that none of us alive today have seen the sea the way it should be, teeming with sea life. Decades ago we used to catch more fish and bigger fish than we do today, but we've become smarter at catching fish and fishing fleets have multiplied. Key fish populations have been exhausted or pushed to the brink. For every ten large fish that should be swimming in our oceans, there's only one today. If we continue, 90 per cent of all fish stocks will be overfished by 2050. However, the problem is solvable by creating marine reserves.)

3 Read and watch the short video clip below to find out how the Marine Stewardship Council (MSC) works to ensure we eat fish that has been sustainably caught: <https://tinyurl.com/y65ozkn5>

(This short video explains the importance of ensuring marine sustainability and how the Marine Stewardship Council (MSC) works with the fishing industry to ensure that fish stocks are protected for the future. Healthy oceans are essential for thriving marine ecosystems, livelihoods and economies around the world. Today our oceans are under more pressure than ever from human and environmental impacts.)

Below are some key themes that MSC focuses on. Click on the hyperlinks to read more about them and the work that MSC is doing to combat the issues.

- Changing seas: scientists, governments, conservation groups and fishery managers are among those concerned about changes in some fish stocks.
- The seafood economy is an essential contributor to global trade, supporting businesses and livelihoods worldwide.
- Fishing communities need productive oceans for employment and economic security.
- Fish as food: fish is a healthy, renewable food source, and for some it's essential for survival. As the world's population increases, so does pressure on fishery resources.
- The environmental impact of fishing needs responsible management to protect sensitive marine ecosystems for the future.
- Climate change brings new uncertainties and global implications that compound the challenges of fishing and marine conservation.)

STEP 3:

1 Introduce the concept of climate change affecting life below water – climate change causes the planet to heat up, warmer water absorbs more CO₂ from the air, which makes the ocean more acidic than before. This means that living conditions in the seas and oceans are changing and this has an impact on fish, corals and other sea creatures.

2 Watch 'Behind the scenes - Great Barrier Reef' at: <https://tinyurl.com/y6nt588m>

3 Read the Great Barrier Reef case study in the resources below. Younger pupils can look at a series of images of the reef which show changes through the process of bleaching.

STEP 4:

Place pupils into groups and give them a copy of the Ten Facts and Opinions discussion sheet from the resources below. Give them time to read through the sheet. Ask them to discuss each one as a group and then annotate it to show whether they think it is a fact or an opinion. If they decide it's a fact then they must be able to explain why and provide evidence to back it up. If they decide it's an opinion then they should aim to justify or give possible reasons for that opinion.

As you will find out together, for some of them the lines are blurred and it is not straightforward. It may be a recommendation, a prediction or an opinion based on fact. Be open with the pupils and discuss the idea that the line between fact and opinion is not always clear.

POTENTIAL COLLABORATION WITH PARTNER SCHOOL

Linking to lesson 4, this is a good opportunity to investigate how attitudes towards fishing and the consumption of fish differ according to locality. Pupils can:

- Ask questions for their counterparts about the source and amount of fish they eat and make reasoned judgements about how they may be affected by the problem of overfishing.

Teachers can:

- Share the fact/opinion activity or the results of it and structure debate on this between partner schools, encouraging pupils to justify their ideas. Teachers could focus in on a small number of the statements that may produce a wider range of opinions and answers.



Image: Fishing boat in Tromsø Norway_Bo Eide

Great Barrier Reef case study

THE GREAT BARRIER REEF

Coral reefs have been called the rainforests of the ocean because they are so rich in biodiversity. They are home to a quarter of all marine life. The largest coral reef system on our planet is the Great Barrier Reef in Australia. It stretches for more than 2,000 km and can even be seen from space. This system of reefs and islands provides refuge to an amazing variety of marine plants and animals. It is home to more than 3,000 types of shell and over 1,600 fish species, as well as over 600 different corals.

The Great Barrier Reef has built up over millions of years, but today its future is at risk, and this is due to human activity. Pollution and overfishing have affected the delicate balance of the environment. As we burn fossil fuels, water temperatures are rising and the seas are becoming more acidic. This causes corals to bleach and die. In 2016 more than half the corals in some parts of the northern Great Barrier Reef turned white through coral bleaching. Globally, over the last thirty years the world has lost half of its coral.

The Great Barrier Reef is one of the world's most popular tourist attractions. It brings in well over US\$5.7 billion per year. But its value goes beyond that. A world without coral reefs would be a much poorer place for us all. We can take steps to stop climate change and protect the natural wonders of our coral reefs.



Image: Dmitry Brant

TEN FACTS AND OPINIONS

Discuss and decide whether these statements are fact or opinion, or maybe even a bit of both...

1

We've been catching too many fish

6

Coral reef bleaching is beautiful

2

Coral reefs bleach when they expel their algae

7

We should protect 30 per cent of our seas from being fished 2050

3

The solution to overfishing is simple

8

Scientific research provides all of the answers to overfishing 2050

4

The Great Barrier Reef is the greatest of all coral reefs around the world

9

Coral reefs are like rainforests in the ocean

5

90 per cent of fishing stocks will be overfished by 2050

10

It is economically better if we catch less fish

Lesson 6

PUPILS WILL:

- find out about and understand that approaches to solving this vast problem come from many different viewpoints. They will also understand that the responsibility for a solution lies with individuals as well as with groups, governments and organisations
- read, research and find out about four different approaches to solving the problem of plastic pollution in the oceans, including: large-scale action, local action, education and prevention
- be given an opportunity to share their ideas and thoughts on what they have found out
- prepare for and take part in a debate which gives them an opportunity to consider bias, make judgements and develop reasoned arguments.

STEP 1:

Explain to the pupils that we have now learned a lot about the problem of plastic pollution in the ocean as well as other things that are affecting life below water. Over the next four lessons, we are going to look at the proposed solutions; the people and groups that are already working to clean up the oceans and how we can take individual action.

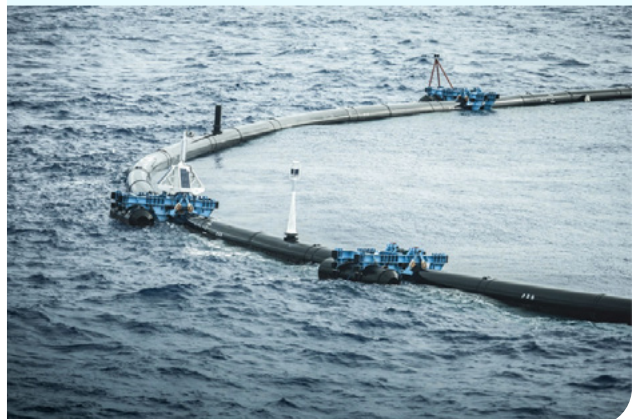
Addressing the problem of plastic pollution in the oceans requires two things:

- 1 Stopping more plastic from entering the ocean
- 2 Removing the pollution that is already there, which also requires us to think about:

Large pieces of plastic as well as microplastics and nurdles; surface pollution as well as that which has sunk to the deepest parts of the ocean and what to do with the plastic that is removed from the oceans.

NOTES ON CORE SKILLS

This lesson has a core focus on critical thinking skills. The aim of the lesson is to find out about what is being done to tackle the problem of plastic in the oceans and to evaluate the effectiveness of different approaches. Pupils will have an opportunity to gather information about four different approaches and this will form the basis of their judgements and opinions. They will be asked to consider points of view different from their own and to consider how other points of view provide motivation for action. The final activity – debating – encourages pupils to consider bias; to develop reasoning and to take part in a debate using reasoned arguments.



JOIN US ON OUR MISSION FOR CLEANER OCEANS

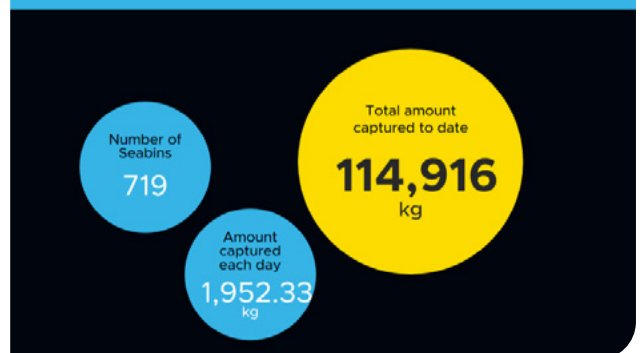


Image: theoceancleanup.com

<https://tinyurl.com/y58puprd>

STEP 2:

1 Ask the pupils who they think is responsible for addressing the problem of plastic pollution in the world's oceans (draw out: governments, international organisation such as the UN, individuals, companies, any others you can think of...)

Younger pupils can do an activity with pieces of plastic of different sizes in a large water tray and discuss different ways of removing them without using their hands.

2 As a class, find out about four different ways that people are approaching the clean-up of the oceans using the four different examples below: Ocean Cleanup (large-scale action), sea bins project (local action), the Plastiki (education), banning microbeads (prevention). All of these can be extended with further research if time allows.

A. Ocean Cleanup

Follow the link:

<https://www.theoceancleanup.com/technology/> and watch the 'How it works' video.

(1.8 trillion pieces of plastic float at the surface of the Great Pacific Garbage Patch. Ocean Cleanup is deploying the first technological solution here. The principle is to create a coastline which concentrates the plastic so it can be taken out. A surface floater provides buoyancy and skirt below the water traps smaller particles but allows marine life to swim beneath it. The system uses wind, waves and ocean currents to catch plastic. Periodically a support vessel comes by to take away the plastic.)



Image: Plastic microbeads bottle 1-MCPA photos_flickr

B. Sea bins project

Read the case study, from newspaper Plymouth Chronicle in the resources below, about how a sea bin is being used in Plymouth, UK. Also look at the statistics for impact to date.

C. The Plastiki

The Plastiki is a boat engineered almost entirely from waste. Its super-structure is made from recyclable plastic (including 12,500 reclaimed plastic bottles). In 2010, the Plastiki and crew sailed across the Pacific Ocean from San Francisco, USA, to Sydney, Australia, in order to raise awareness of plastic marine pollution. This epic voyage was intended to be a spectacular global 'message in a bottle'.

Give pupils time to explore the website www.theplastiki.com

D. International regulations on microbeads

Look at the webpage 'beat the microbead': <https://tinyurl.com/y2mcnx46> and open the 2018 tab. Look at the action that different countries are taking towards stopping the use of microbeads.

3 Print out the pictures, in the resources below, representing the four types of solutions and stick them to large pieces of paper. Put each piece of paper onto a table and split the class into four groups. Explain to the children that they are going to 'flat chat'. Reflecting on what they've seen and read they will write their comments on the large piece of paper. The idea is for this to be done in silence but this can be adapted for different groups. After a few minutes ask each group to move on to the next paper, read the current comments and add to them with further thoughts, questions or arguments. Keep rotating until all groups have contributed to all sheets and then give them time to look back at their original.

STEP 3:

1 Explain to the pupils that they are now going to hold a debate about which is the most useful/most important approach. This activity is flexible and can be adjusted according to time allowance. It can be held as a mini-debate or a more in-depth discussion, with pupils expected to back up arguments with facts and opinions and explain their reasoning.

2 Divide pupils into groups or allow them to choose which approach they would like to advocate for. Give pupils time to plan. Ask them key questions that will support and guide their ideas when thinking about categorising an approach as ‘the most useful’/‘most important’:

- Which approaches are more sustainable?
- Which approaches deal with the enormity of the problem?
- Is prevention better than cure?
- Which approaches tackle the whole problem and which only address parts of it?
- Are any of the approaches being done from a biased viewpoint or with another agenda (ie. profit)?
- What evidence is there?
- Why do they think that?
- Do they have enough information to form an opinion?

3 Hold a debate using a structure that is suitable for the time available and the age of the students. Think about classroom layout and positioning and how you will manage counter-arguments and ensuing discussion.

POTENTIAL COLLABORATION WITH PARTNER SCHOOL

A great opportunity for collaboration is presented here through the opportunity for debate. If a video call connection can be made between partner schools then the debate can be held between pupils in partner schools, with groups from each school collaborating and representing opposing opinions.

It will be highly valuable to hear the opinions of pupils from other parts of the world. If a video call is not possible then a recording or transcription of the class debates could be shared.

Pupils can also offer further examples of how the problem of plastic is being tackled in their country or locality from their own experiences for comparison. For example they may talk about plastic bag bans and bottle recycling schemes.



Sea bins case study

A sea bin has been installed at the marina in Plymouth, UK as part of the city's commitment to tackle plastic pollution.

Plymouth City Council is trialling the sea bin and monitoring the collections of plastic and other waste, to determine how beneficial it could be to the city.

A sea bin is a floating rubbish bin that can annually capture 90,000 plastic bags, 35,700 disposable cups or 16,500 plastic bottles.

Councillor Sue Dann, Cabinet Member for Environment and Street Scene for Plymouth City Council, said: "Marinas and ports are 'hot spots' for litter that enter the system via users on the water, surrounding waterfront areas and by drifting in from surrounding seas driven by tides, currents and wave actions. The installation of a sea bin has the potential to remove marine litter from a marina at a centralised point.



Read the full article at: <https://tinyurl.com/yxuz28ud> Or find out more at: www.seabinproject.com

Lesson 7

PUPILS WILL:

- choose from two different projects about tackling the plastic problem in the oceans – depending on the needs, focus and constraints of the class and setting
- reflect and draw upon all of the learning so far about plastics in the oceans
- work in groups to reflect, research, brainstorm, draft and design in order to produce a presentation about plastics in the oceans
- work in groups to produce a final copy of their design and be ready to present it.

STEP 1:

Teachers (and pupils) choose between two self-directed group projects which bring together all of the learning so far on the problem of plastics in the oceans and how to tackle this. The project options are either project 1 or project 2 below:

- **Project 1:** Design an infographic to highlight some key information, facts and data about a specific aspect of plastic in the oceans. Be prepared to present and talk about your infographic. Younger pupils can create a large group poster.
- **Project 2:** Design a method or machine which aims to tackle the plastic problem in the ocean. This could be by educating people about the problem; by preventing plastic from entering rivers and oceans or by removing the plastic waste that is already there. Be prepared to pitch your idea to a ‘panel of experts’.

NOTES ON CORE SKILLS

At this stage of the learning unit, the focus is on creativity and collaboration. It is important to try to create the right conditions for creativity in the classroom. Teachers should encourage pupils to come up with their own ideas, and to not criticise anyone else’s ideas. Making mistakes is normal. All inventors and problem solvers make mistakes along the way, trying out different ideas before finding the one that actually works.

The mini-projects are an opportunity for self-directed thinking that produces new and innovative ideas and solves problems. Developing problem-solving skills is key here. Pupils will also get the chance, as in the previous lesson, to select relevant information and consider its value.



Image: Pixabay/Byrev

STEP 2:

If project 1 is chosen, ask pupils to first look at the selection of infographics in the resources below. Tell them to think about the audience for these infographics and make notes on what aspects they think are the most useful, such as: the design including colours and images; the amount and style of text used; the amount of statistics used and the size and amount of content.

If project 2 is chosen, ask pupils to review the different approaches from lesson 5 and decide whether they would like to design something that aims to educate, prevent or cure. If time allows, let pupils do further independent research on other approaches to tackling the problem. Ask pupils to then decide whether they would like to design something on a local, national or international scale. For each step, allow them to brainstorm in groups, structuring group work where necessary to support and guide them in working collaboratively.

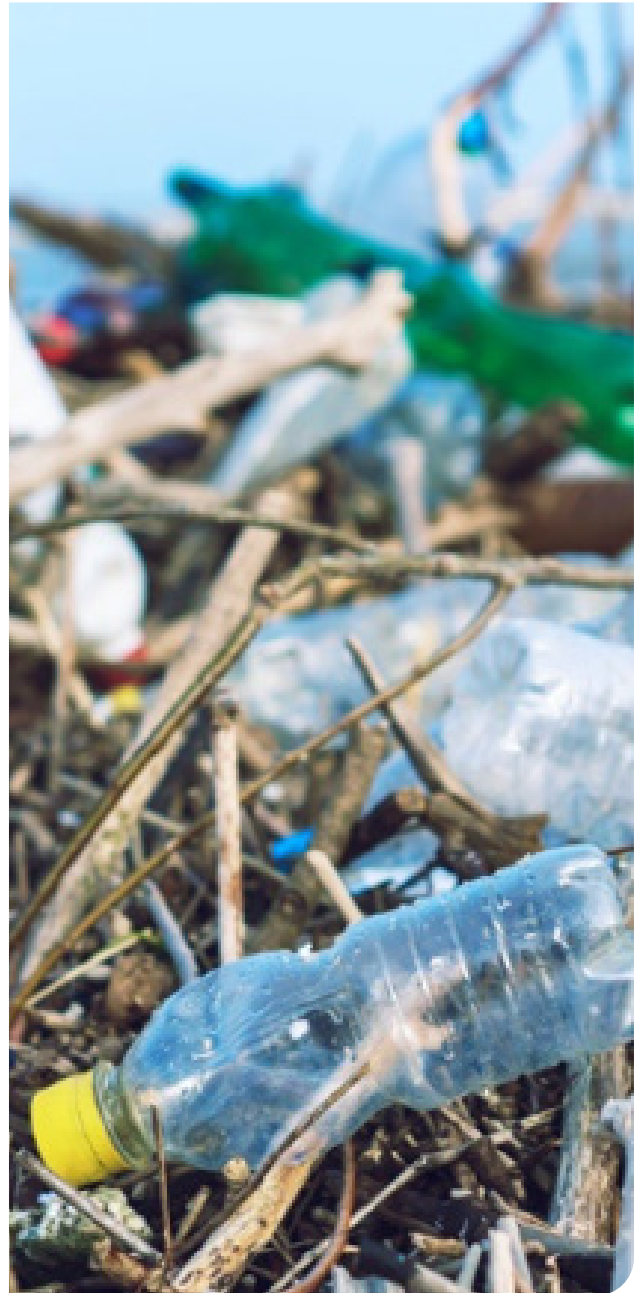


Image: Shutterstock larina marina

STEP 3:

If project 1 is chosen, tell pupils that they must reflect on the previous lessons and choose a focus for their infographic (for example, which plastics are causing the bulk of the problem; how plastics move through the food chain or how animals are affected by plastics, etc...). Give pupils a time schedule, according to the constraints of your lessons, in which to plan and then create an infographic in the remainder of this lesson and the following lesson.

If project 2 is chosen, explain that they are going to present their chosen approach as a pitch to a panel of experts. Encourage them to work on a design/sketch as well as a verbal pitch. Give them the freedom to be creative by making up trial statistics and budgets, etc. Give pupils a time schedule, according to the constraints of your lessons, in which to plan and then present their method/approach.

STEP 4:

If project 1 is chosen, pupils work in groups to draft and design an infographic about plastics in the oceans. When they are ready, they work on presenting a final draft of the infographic, either as a large hand drawn poster or as a digital version using a programme such as Microsoft Publisher.

If project 2 is chosen, pupils work in groups to brainstorm and draft their approach to tackling plastics in the oceans. When they are ready, they work on presenting a final draft which can be pitched to a 'panel of experts' (science/ geography teachers, school leaders, community members or representatives from local businesses, etc.)

POTENTIAL COLLABORATION WITH PARTNER SCHOOL

The mini projects provide an opportunity for collaboration between schools as they are based on self-directed, group problem solving. Wherever communication technology allows, aspects or stages of the projects can be done in partnership, for example the partnered schools can choose a project together or do different projects and compare at the end. At the drafting stage, partner schools can share designs and give ideas for development. At the presentation stage partner schools can provide the 'panel of experts' or the audience which receives the infographics. They can then be supported to give structured feedback.

Resources

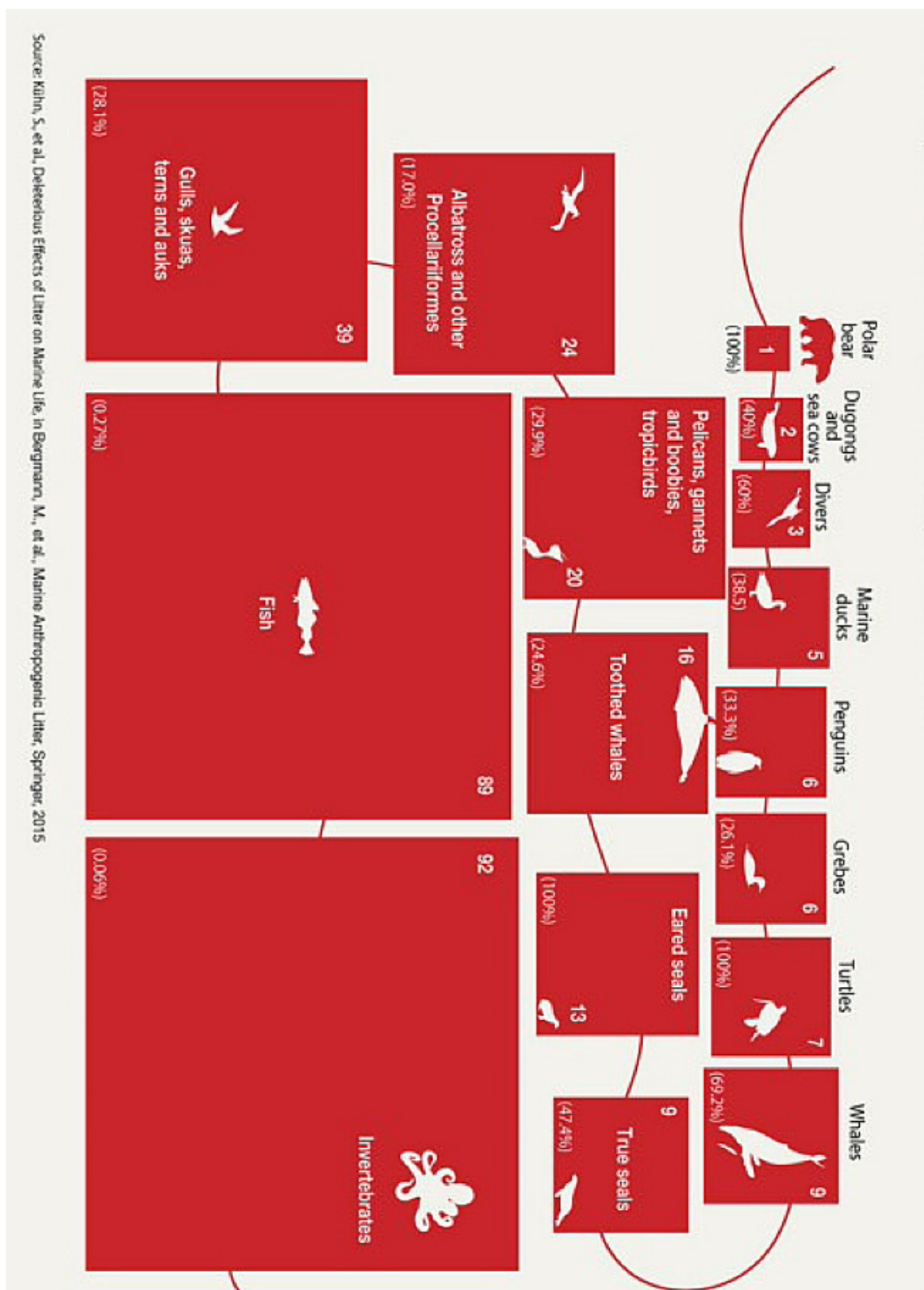
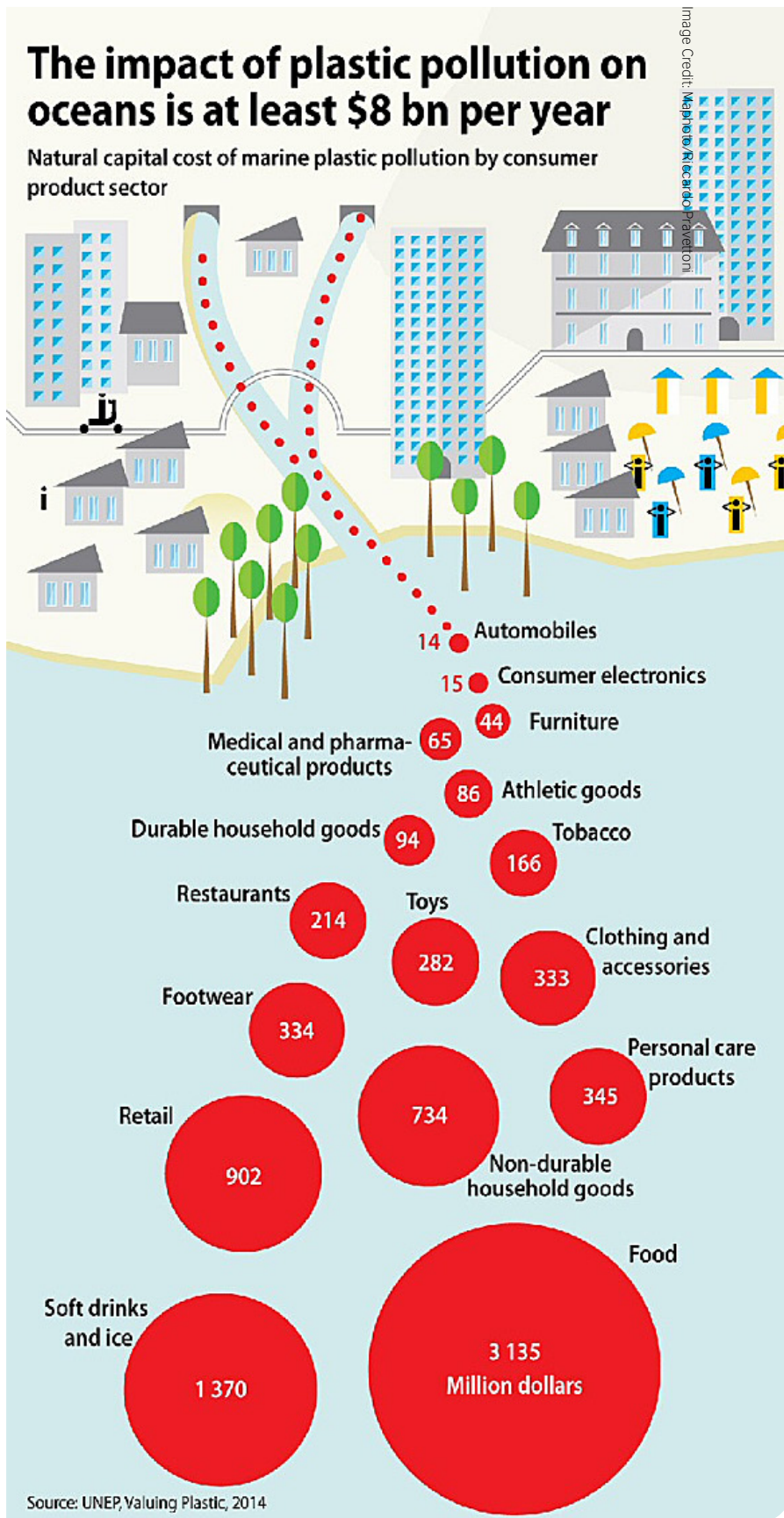


Image Credit: Maphoto/Riccardo Pravettoni

<https://tinyurl.com/yxdnpy6>

<http://www.grida.no/resources/6910>



<https://tinyurl.com/yxdnpy6>

<http://www.grida.no/resources/6912>

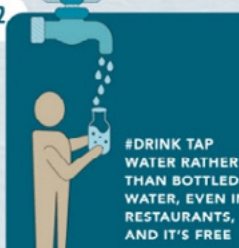
TOP 10 TIPS TO REDUCE OUR PLASTIC FOOTPRINT

1



#USE A RE-USABLE DRINKS BOTTLE. SAY NO TO SINGLE USE

2



#DRINK TAP WATER RATHER THAN BOTTLED WATER, EVEN IN RESTAURANTS, AND IT'S FREE

3



#BUY DRINKS IN CANS INSTEAD OF PLASTIC BOTTLES

4



#INVEST IN A DRINKS MAKER TO MAKE YOUR OWN FIZZY DRINKS AT HOME

5



#SAY NO TO STRAWS AND STIRRERS WHEN ORDERING DRINKS

6



#TAKE YOUR OWN COFFEE CUP TO THE CAFE

7



#USE GOOD OLD-FASHIONED SOAP BARS, IT WORKS JUST AS WELL AS LIQUID

8



#USE YOUR OWN BAG FOR LIFE IN SUPERMARKETS AND SHOPS

9



#BUY WASHING POWDER IN A CARDBOARD BOX INSTEAD OF LIQUID IN A PLASTIC BOTTLE

10




#IF YOU CAN'T FIND AN ALTERNATIVE TO SINGLE-USE PLASTIC, MAKE SURE TO RECYCLE IT


Recycling is a last resort because you still end up with plastic but, if you can't find an alternative to single-use plastic, then better to do that than to throw it 'away'.


Finally – Remember that plastic was designed to last forever, it has no place as a single-use material.



Share this list with everyone you know!

 @plasticoceansuk

 @plasticoceansuk

 @PlasticOceans

Did you know that every year over 8 million tonnes of plastic end up in our planet's beautiful blue oceans? Read on to discover the tragic effects of this life-threatening litter, and find out how YOU can help...

PLASTIC FANTASTIC?
Plastic is an amazing man-made material. It's cheap to produce and has many uses – from pens, ping pong balls and hard hats to prosthetic legs and car parts. But half of the plastic we produce is designed to be used just once and then chucked away – such as food packaging, balloons and straws. Much of which ends up in the ocean. And because plastic takes over 400 years to break down, it stays there, causing damage, for a dangerously long time.

Not all the rubbish in the sea is dumped there on purpose. Much of it is blown from overflowing rubbish bins or landfill sites into rivers, streams or sewers.

TRY THIS!
Next time you're in the supermarket, take a look around. How many things AREN'T packaged in plastic? And how many that ARE really need to be?

SEA LIFE STRUGGLES
Floating plastic is bad news for our fishies under the waves. Turtles gobble jellyfish. Animals get trapped and tangled in discarded fishing nets, and birds are strangled by the plastic six-pack rings from drink cans. Bottle tops and other smaller bits of plastic are also mistaken for food and eaten by birds, leaving no room in their swollen tummies for real food.

GROSS GARBAGE
Because of the natural movement of the ocean currents, much of the world's rubbish ends up being swept into gigantic swirling patches of plastic out at sea. The largest is the **Great Pacific Garbage Patch** in the North Pacific Ocean – it's estimated to be the size of Europe. Gross! But while you're probably imagining a gigantic solid mass of floating trash, most of the plastic in the patch is barely visible. It's been broken down by the waves and sunlight into tiny particles. But this tiny **microplastic** is just as dangerous to animals – and can even end up harming us!

INTO THE FOOD CHAIN
Plastic doesn't break down completely – it just gets smaller and ends up being swallowed by fish and other marine animals and birds. The tiny particles of plastic absorb toxic industrial chemicals which, when eaten by fish, are absorbed into their tissues and are eventually eaten by humans.

GOOD NEWS!
Within one year after the UK's 5p plastic bag charge was introduced in 2016, plastic bag use was reduced by 85%!

GOOD NEWS!
In 2017, the UK government announced it would ban toothbrushes (and cosmetic products that rinse-off). Let's hope they do!

USE LESS PLASTIC!
Fortunately, there are things you can do to help resolve the problem. Drink from **reusable water bottles**, use **multi-use shopping bags** and **recycle** all the plastic that you can to help keep waste to a minimum! Ask your parents to choose **loose fruit** and vegetables, rather than groceries swaddled with layers of pointless plastic waste (right?)

CLEAN UP THE BEACH!
Help keep our beaches clean by going along to an organised beach cleanup. You'll be given gloves and litter pickers, and will set to work clearing clutter from our beaches, so it doesn't end up in the sea. It's fun, and we promise you'll feel really proud when you see your nice clean beach! Check out www.orgbeachwatchevents.com to find an event near you!

NO MORE MICROBEADS!
Shockingly, loads of the products in your bathroom cabinet (especially contain particles of plastic called **microbeads**). These minuscule plastic balls are found in toothpaste, face washes and even face creams, and, because they're so tiny, they end up getting flushed down the drain straight into the ocean.

HOW TO AVOID
Consequently, they're not listed as ingredients on large food and cosmetic packaging, and you can help by buying ethically sourced, **microplastic-free** and **microplastic-free** products. – The Chemical Names for plastics, or the abbreviations PET, PTE.

Could YOUR toothbrush contain microbeads?

<https://tinyurl.com/y6pdtbgy>

Lesson 8

PUPILS WILL:

- reflect and draw upon all of the previous learning about plastics in the oceans
- work in groups to reflect, research, brainstorm, draft and design, in order to produce a presentation about plastics in the oceans
- work in groups to produce a final copy of their design and be ready to present it
- work in groups to present their project and be prepared to take feedback on board.

STEP 1 (continuing from Lesson 7, Step 4):

If project 1 is chosen, pupils continue to work in groups to plan and then create an infographic about plastics in the oceans. When they are ready, they work on presenting a final draft of the infographic either as a large hand drawn poster or as a digital version using a programme such as Microsoft Publisher.

If project 2 is chosen, pupils continue to work in groups to plan by brainstorming and drafting their approach to tackling plastics in the oceans. When they are ready, they work on presenting a final draft which can be pitched to a 'panel of experts' (science/geography teachers, school leaders, community members or representatives from local businesses, etc.)

STEP 2:

Whichever project is chosen teachers should ensure that there is sufficient time for all groups to present their ideas to the rest of the class and, in the case of project 2, to a 'panel of experts'. The mode of presentation can be decided by teachers to fit with the project and presentation styles chosen, however teachers should ensure that there is an opportunity for structured feedback.

NOTES ON CORE SKILLS

In this lesson the focus continues to be on creativity and collaboration. The mini-projects are an opportunity for self-directed thinking that produces new and innovative ideas and solves problems. Teachers should continue to encourage pupils to come up with their own ideas, understand they will make mistakes, invent and problem solve. Teachers should also support pupils to work collaboratively, ensuring they respect the contributions of others; encourage each other; contribute actively and make use of their individual strengths.

POTENTIAL COLLABORATION WITH PARTNER SCHOOL

As in lesson 7, the mini-projects provide an opportunity for collaboration between schools as they are based on self-directed, group problem solving. Wherever communication technology allows, aspects or stages of the projects can be done in partnership, for example the partnered schools can choose a project together or do different projects and compare at the end. At the drafting stage, partner schools can share designs and give ideas for development. At the presentation stage, partner schools can provide the 'panel of experts' or the audience which receives the infographics. They can then be supported to give structured feedback.

Lesson 9

PUPILS WILL:

- think about how the actions they take as individuals or as part of a group or community can make a difference on a global scale
- find out how one man in India made a difference through his individual actions and how this has influenced others to do the same
- reflect upon their own use of single-use plastics on a day-to-day basis
- learn about the key ways in which all individuals can take action within their own lives
- identify specific ways in which they can take immediate action and commit to making the small changes necessary.

STEP 1:

1 Pupils watch the video about the Versova beach clean-up in Mumbai, India:
<https://tinyurl.com/y6r5j7cp>

(In 2015 local resident Afroz Shah started the world's largest beach clean-up. He knew that local government was not taking responsibility, so he decided to put on his gloves and start clearing up the beach. More and more people joined him and now more than 200 volunteers and 2.7 million kgs of trash has been cleared.)

Ask pupils to make a note of the key things that are said that stand out to them.

2 Look together at the quotes from Afroz Shah and Kalpana Patel in the resources below. Ask a selection of pupils to share which are their favourite quotes, or which ones stand out to them and why.

3 Discuss the question, is Afroz Shah a hero?

NOTES ON CORE SKILLS

In this lesson pupils will consider the actions of others in order to take informed constructive action themselves. They will need to be encouraged to be realistic and honest in their reflections, which takes critical self-evaluation.

The final two activities, in steps 4 and 5, allow pupils to collaborate creatively to come up with ideas for how everyone can take action. They will then express their thoughts through the design of a visual message for others to learn from.

STEP 2:

1. Ask the pupils to think about the question 'Are you a plastic hero?' Using the Plastic Oceans resource below, pupils answer the questions and calculate their total score before comparing it with their classmates. Did anyone score 18 or more? Encourage the children to be as honest and reflective as possible.

(Nb. Several of the questions in this resource may be more relevant to pupils in economically developed countries, however, it can be used to generate a very interesting partnership discussion about why this is more relevant to people living in certain places and whether that means the plastics problem is more pronounced in developed countries. The questions can also be adapted in order to be more contextually relevant and teachers can ask pupils what they might use/do instead of the examples in the questionnaire. For example, a significant problem in many South East Asian countries comes from people buying products in strips of small, cheap sachets made of plastic, which are less commonly used in Europe and America.)

STEP 3:

1 Watch pillar 4 (plastic solutions) from the Plastic Oceans schools presentation:

<https://tinyurl.com/yxgss9c8>

STEP 4:

1 Explain to pupils that they are going to contribute to making a pledge today. It will be a personal/school pledge to take action on reducing their use of single-use plastics as well as taking action in the community and advocating/campaigning to MPs and businesses/organisations.

2 Give the question sheet in the resources below to pupils and ask them to use it as a thought generator alongside the information in the Plastic Oceans presentation from step 3.

3 Ask each pupil to think of three ways they can take action and write them on sticky notes (or small pieces of paper), then ask them to stick them to the wall/board or lay them on a desk, helping them to group similar ones as they do so. Use these to pick out the key ideas and create a pledge. Ensure this is produced in a large format and displayed. The pledge can be directed at the school and shared through assemblies and staff meetings or can be copied and sent home with pupils to encourage action within families.

STEP 5:

Ask each pupil to bring in a single-use plastic item from home and use them to create a collaborative poster/mural that conveys a message, either about the importance of taking action to stop plastic pollution in our oceans or the ways in which people can do this. Use the community, public spaces and the media to ensure that the image reaches as many people as possible.

POTENTIAL COLLABORATION WITH PARTNER SCHOOL

As the specific actions needed and proposed may vary widely between locations this is a great opportunity to learn from and about partner schools as to how they approach the idea of taking action. There are many opportunities not only for shared learning, but for shared action as well. Pupils can:

- share any examples they know of where action is taking place in their own locality, such as beach clean-ups
- compare and contrast (as detailed in the note to step 2) what the pledge means in their own context, for example what specific things they use in their everyday lives that contribute to the problem
- combine their group/school pledges to create a 'world pledge'
- share the posters created in step 5 and make copies for their own school/community
- start a shared group using social media and use it to spread the messages and pledges they've created.

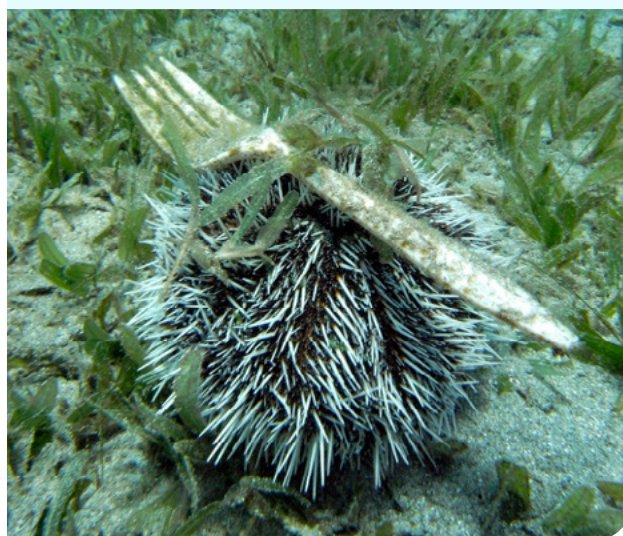


Image: flickr

Resources:

I could see it, the oceans are not healthy

It's not blaming, it's our habits

I decided to wear gloves and start myself

I didn't know what to do
Government have not done anything for 70 years now

As a citizen someone has to take a lead

Week 43 and we have over 200 people

We have a huge group of 'ocean-lovers to core' who have stuck like glue

If we start, I'm sure more residents will come along

I want this to be replicated across 18 beaches in Mumbai

I hold a clean decent environment in trust for the next generation

This is the time, this is now



ARE YOU A PLASTIC HERO?

Question	Answer (3 points)	Answer (2 points)	Answer (1 points)	Answer (0 points)
How often do you play with things with glitter in?	Never	Sometimes	Quite a lot	All the time
How often do you forget to bring a reusable water bottle out with you?	Never	Sometimes	Quite a lot	I normally forget
Do you have plastic plates or cups at your birthday parties?	Never	Sometimes	Quite a lot	Always
How would you wrap a sandwich for lunch?	Using a lunchbox	Using a tin foil	Using a plastic bag	Using plastic cling film
How often do you use a plastic straw?	Never	Sometimes	Often	Always
How often do your family have to buy a plastic bag because you forgot to bring your own?	Never	Sometimes	Often	Always
How much do you know about the problems caused by using single-use plastic?	I know everything	I know quite a lot	I know a bit	I have no idea!

SCORE 18 OR MORE

+ + + + + =



Example questions for plastic pledge thought generator

How many single-use plastic items do I use at home?

What can I replace them with?

How can I reuse things instead of throwing them away? Look at Pinterest for ideas.

Ask yourself, do I really need this? Think about items such as straws, balloons, glitter and plastic cutlery.

Am I recycling enough?

Am I recycling carefully - washing out, squashing, separating lids etc.?

Do I know what can and can't be recycled?

Can I make a difference with the things that I buy and the places that I shop?

Can I write letters to supermarkets, restaurant chains and food outlets to ask them to make changes?

Can I contact my local member of parliament to talk about the issues?

Can I talk to people in my community about the importance of taking action?

Lesson 10

PUPILS WILL:

- use a guided discussion format to think about and share their general thoughts on life below water and the problems that face our oceans and waterways
- reflect on their learning and complete the final column of the KWL chart to show what they have learned, including skills
- think again about what their priorities are and discover whether they have changed as a result of learning about life below water
- make a plan of action for the future of life below water using other sustainable development plans as templates.

STEP 1:

Teachers facilitate a guided discussion using the prompt sheet in the resources below. Teachers can adapt this for use with different age groups by using selected questions or strategies such as flat chart and think-pair-share.

STEP 2:

What have we learned? Pupils can now complete the final column of their KWL chart from lesson 1. Give pupils real thinking time in the right environment and encourage younger pupils to look back on some records of learning as prompts, such as posters on the walls. Guide pupils by asking them to pick out five key points that stand out to them and encourage older pupils to note skills as well as knowledge.

NOTES ON CORE SKILLS

Reflection is the central skill that pupils will use here. They will be asked to spend time thinking deeply about what they have learned, how their knowledge and skills have developed as a result of this, and how their opinions and feelings may have changed. Through this journey, teachers as well as students are expected to have been able to question their own understanding and assumptions about life below water and plastic pollution, including thinking about how they can take personal action to address the issues. Creating a 'life below water plan' encourages pupils to see themselves as part of the solution, not just the problem.



Image: Shutterstock Rich Carey

STEP 3:

Repeat the ranking activity from lesson 1 using the diamond nine or a list so pupils can prioritise what is important to them. A variation of this could be to include one or two blank cards and allow the pupils to add in their own ideas. Ask pupils to annotate cards/lists to show changes and then give them opportunities to walk around the room and look at what others have done.

STEP 4:

Look together at the UK's 25 Year Environmental Plan (on the slides, the Global Goals (<https://www.globalgoals.org/>) or a similar plan from your own country. In small groups pupils create a 25 year 'life below water' plan with approximately five key targets for all countries to work towards. Discuss how to make the targets realistic and measurable. Highlight examples of infinitive verbs from the example plan such as develop, reduce, dedicate and restrict. An extension activity could be to note the changes they expect to see as a result of each of their targets.

POTENTIAL COLLABORATION WITH PARTNER SCHOOL

Potential collaboration with partner school

Sharing the learning journey that pupils have been on can be extremely beneficial in terms of thinking about how learning about these key global issues can encourage all pupils to become globally aware citizens of the future. Teachers can:

- compile and share a summary of the KWL and ranking activities and compare and contrast answers, sharing a selection with the pupils
- compare with an environmental plan from a partner country. Think about what their priorities are and how they may differ to their own
- where technology allows, use video-linking to write a joint plan, combining ideas to reflect a global approach to saving and protecting life below water.

Guided discussion prompts

Use all or some of these prompts to generate a class or small group discussion. To create a relaxed group setting, give pupils time to talk together in pairs before sharing their thoughts with the whole group.

Can you describe the oceans? What do they look like? What surprises you most?

Allow pupils to convey their sense of wonder at these underwater places that they will possibly never have seen.

Which is your favourite sea creature and why?

What does the sea give us?

The sea gives us food, but it also provides us with water activities and beaches to play on. Millions of people depend on the sea to earn their living. Even if we don't live near the sea, it plays a big part in our lives.

Imagine it is 2030. What do you hope the oceans will be like? What would you want to be different about how we treat them?

Lots of fish, big variety of different marine creatures, clean, areas with no fishing (MPAs), lots of fish being caught to eat – but enough left behind to keep the population healthy.

Why do we need our oceans?

They provide us with food, they supply us with clean air to breathe, they soak up dangerous carbon dioxide in the earth's atmosphere and they help to regulate our climate, they support biodiversity.

What do you think is harming high seas and the wildlife that live there?

Over-fishing, mining, shipping, pollution, climate change

How can we look after the seas?

Eat fish with an MSC label*, keep beaches clean, use less plastic, and support organisations that are working to protect the seas.

Why is no one stopping these things happening?

International waters belong to no country so no one has the responsibility to protect them.

What do you think could be done to make things better?

Adapted from: <https://tinyurl.com/y3fe96mw>

*MSC- Marine Stewardship Council- an international non-profit organisation. The MSC's blue fish label is found on more than 25,000 seafood products all over the world, with around 300 fisheries certified globally from Iceland to Argentina. This makes the MSC label the most widely used and recognised label for certified sustainable seafood. You may want to look for or consider local alternatives such as Fair Trade USA and Seafish's responsible fishing scheme.

The UK's 25 Year Environmental Plan

- 1 To reduce the UK's habit of relying on single use plastic products.
- 2 To place restrictions on the use of neonicotinoids, an insecticide (a chemical used to kill insects) that has been proven to be fatal to bees.
- 3 To provide greater support for UK farmers who nurture the environment and local wildlife.
- 4 To launch a policy that will prevent overfishing and protect marine ecosystems.
- 5 To dedicate £5.7 million to the creation of a new Northern Forest, stretching from Liverpool to Hull, with 50 million trees being planted.
- 6 To develop a Nature Friendly Schools programme to help improve school grounds and ensure that children learn about their natural environment, e.g. building a garden; creating a vegetable patch.



Reference: <https://www.tui.co.uk/better-world-detectives/> Lesson 2, Overfishing PPT



www.globalcitizen.org

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Find a partner school or browse more resources at www.britishcouncil.org/school-resources

