



WHY DO THE OCEANS MATTER?



Over **700 million people** depend on fishing for their livelihoods.

Around **70 per cent of the world's people** live within 60 kms of the sea. And around **80 per cent of all tourism** takes place in coastal areas.

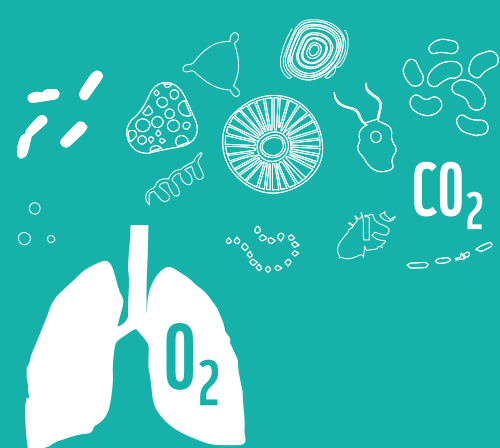


Around the world, approximately **one billion people** rely on fish and seafood for their main source of protein.



80%

Many **medical treatments** have been developed from resources that are found in the sea. These have been used to treat asthma, arthritis and several types of cancer.



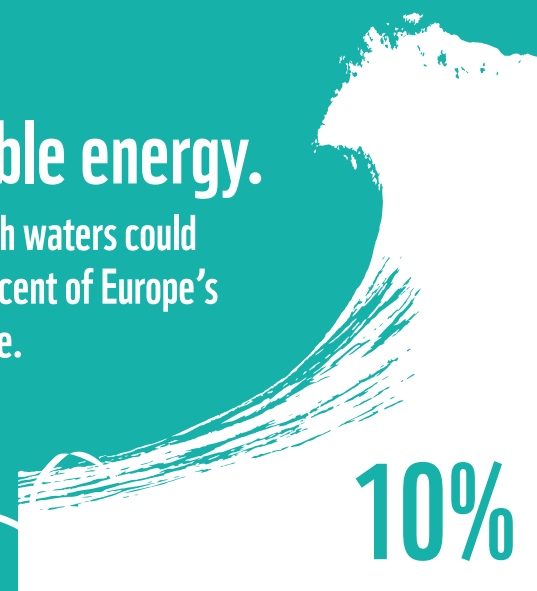
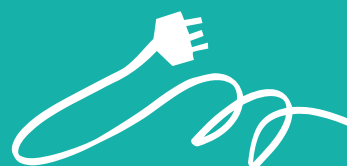
The sea is full of **tiny microscopic organisms called phytoplankton**. They absorb carbon dioxide and help to give out around 1/2 of the oxygen that we need to breathe.

CO₂

O₂

Wave power is creating **more renewable energy**.

It is thought that Scottish waters could generate around 10 per cent of Europe's wave power in the future.



10%



The oceans are **part of the water cycle**.

Water evaporates from the ocean surface and rises as water vapour. When this meets colder air, it condenses to form clouds and rain.

The ocean absorbs some of **the sun's heat** and carries it around the globe in ocean currents. This helps to regulate the climate of our planet.



58° F / 14° C

The oceans provide a **home to an incredible variety of wildlife**,

from the largest animal that has ever lived on the Earth, the blue whale, to the tiny krill that they eat.



The oceans provide transport routes. **Around 90 per cent of all trade between countries** is carried by ships.



90%

FACT SHEET: WHY DO THE OCEANS MATTER?

- 1 Over 700 million people depend on fishing for their livelihoods.
- 2 Around 70 per cent of the world's people live within 60 kms of the sea. And around 80 per cent of all tourism takes place in coastal areas.
- 3 Around the world, approximately one billion people rely on fish and seafood for their main source of protein.
- 4 Many medical treatments have been developed from resources that are found in the sea. These have been used to treat asthma, arthritis and several types of cancer.
- 5 The sea is full of tiny microscopic organisms called phytoplankton. They absorb carbon dioxide and help to give out around half of the oxygen that we need to breathe.
- 6 Wave power is creating more renewable energy. It is thought that Scottish waters could generate around 10 per cent of Europe's wave power in the future.
- 7 The oceans are part of the water cycle. Water evaporates from the ocean surface and rises as water vapour. When this meets colder air, it condenses to form clouds and rain.
- 8 The ocean absorbs some of the sun's heat and carries it around the globe in ocean currents. This helps to regulate the climate of our planet.
- 9 The oceans provide a home to an incredible variety of wildlife, from the largest animal that has ever lived on the Earth, the blue whale, to the tiny krill that they eat.
- 10 The oceans provide transport routes. Around 90 per cent of all trade between countries is carried by ships.

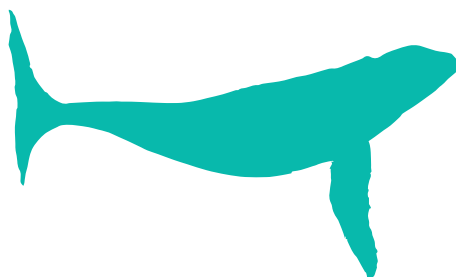
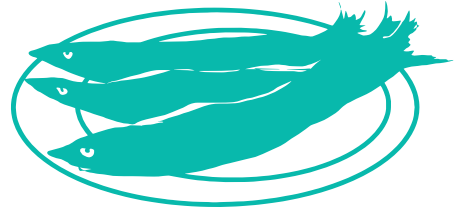




Photo: © Martin Harvey / WWF.



Photo: © Shutterstock / Rich Carey / WWF.



Photo: © WWF/Troy Mayne.



Photo: © WWF / Greg Armfield.

ACTIVITY 5

PLASTIC POLLUTION IN GREENSEA COVE ROLE PLAY CARDS



Photo: Photospin

Manager of the Greensea Cove tourist office

Tourism brings much-needed money into your quiet seaside town. But the beaches are full of litter and most of it comes from food packaging and plastic bags that people leave behind. You are worried that unsightly rubbish on the beach will keep tourists away. Hotels, shops and other local businesses will lose customers.

You believe the council should do more to clean up the beaches and provide better rubbish disposal and recycling services.



Photo: © WWF Intl. / Jonathan Diamond / The Stand

Environmentalist

You are worried because the plastic left on the beaches is polluting the seas and affecting wildlife. For you, the problem is not how to dispose of plastic waste, but how to make sure that there is less of it in the first place. You believe that more than half the plastic rubbish that homes throw away comes from supermarket packaging.

You think that supermarkets should pay a tax on all plastic packaging, just as they do on plastic bags.

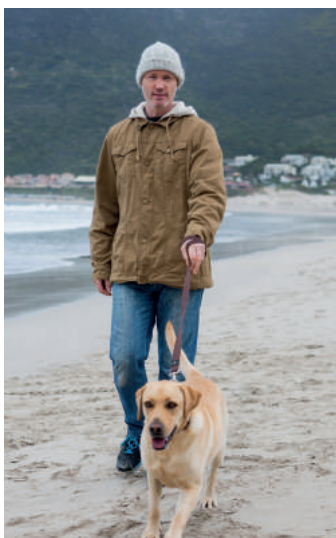


Photo: Photospin



Resident of Greensea Cove

You moved to Greensea Cove to live near its beautiful beaches. But you have noticed that it's becoming more littered with plastic. You help to organise a beach clean-up every year, but the rubbish keeps piling up. Visitors enjoy picnics on the beach, but they often leave their litter behind. The rubbish bins are always full, and litter blows into the sea.

You know that this pollutes the seas and can kill wildlife.



Photo: Photospin



Supermarket manager

You are the manager of the supermarket in Greensea Cove. You know that your customers expect the best food at low prices. Plastic packaging keeps your food fresh and clean. It's also strong, which means that less food is damaged when it is transported. This means that less food is wasted.

You want to keep your customers happy and keep prices down – after all, you don't want them to shop at a different supermarket!



Photo: Photospin

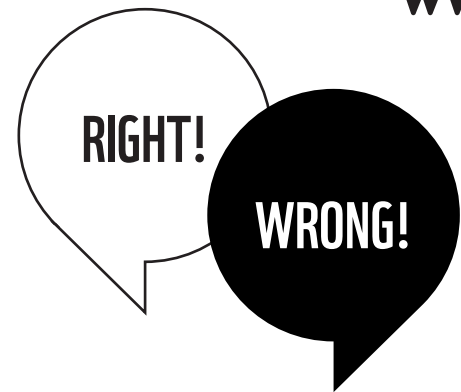
Local councillor

Plastic rubbish is a big problem in Greensea Cove. You want visitors to keep coming to the beach (they bring in money), but it costs the council a lot to provide rubbish bins and recycling services. The council does not have a lot of money to spare and you have many services to pay for including local transport, care for the elderly, education services, libraries and parks. Who should pay for rubbish disposal?

You are going to be chairing this meeting and inviting people to present their views. Make sure that everyone has the chance to be heard and ask them what can be done to solve the problem.



OCEANS AND PLASTICS QUIZ ANSWERS



- 1** Oceans cover about 70 per cent of our planet's surface.
TRUE: *Oceans cover 71 per cent of our planet's surface and make up 95 per cent of all the space available to life.*
- 2** In the UK, we eat £2.5 billion worth of seafood each year.
FALSE: *In the UK, we actually eat a staggering £4.5 billion worth of seafood each year, with the most common fish eaten in the UK being salmon, tuna and cod.*
- 3** Only 30 per cent of the ocean is protected.
FALSE: *Only 4 per cent of the ocean is under some form of protection. We need to do far more to protect our oceans and the plant and animal species that live there, as well as provide a healthier future for us too!*
- 4** Around half of the oxygen that we breathe comes from the ocean.
TRUE: *Tiny marine organisms, called phytoplankton produce around 50 per cent of the oxygen that we breathe.*
- 5** It can take fishing lines 300 years to degrade in the ocean.
FALSE: *According to some sources, sadly, it can take twice as long as this – 600 years. Around 10 per cent of all rubbish in the sea comes from the fishing industry. Nets and fishing gear can get lost or thrown away and these 'ghost nets' can keep trapping fish, seals, turtles and other sea life for years.*

6

By 2050, oceans could contain more plastic than fish.

TRUE: *We are producing around 20 times more plastic than we did 50 years ago and this is expected to double again in the next 20 years. Much of this ends up in the sea.*

7

About 45 per cent of plastic waste is properly recycled.

FALSE: *In fact, just 9 per cent of all plastics are recycled. Around 40 per cent of our plastic ends up in landfill and a third finds its way into fragile ecosystems such as the world's oceans.*

8

On average there are 358 items of litter per square kilometre on Britain's sea floor.

TRUE: *The amount of litter on Britain's sea floor has increased by over 200% since 1992 and nearly 80% of this is plastic.*

9

Over 80 per cent of pollution in the sea comes from activities that have taken place on land.

TRUE: *Most of our waste eventually reaches the sea. If they are not thrown away carefully, plastics can enter drains and rivers. Fertilisers and pesticides from farms and gardens can run to the sea and in many parts of the world, untreated sewage is pumped into the ocean.*

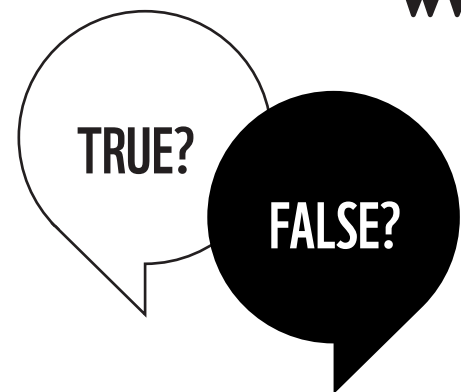
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Microplastics are found in over 75% of mussels taken from British beaches.

TRUE: *According to research, microplastics are found in up to 80% of mussels taken from British beaches! Every day millions of microplastics enter the sea from products such as toothpaste and scrubs, so we need to reduce the amount of plastic entering the oceans.*

OCEANS AND PLASTICS QUIZ QUESTIONS

Discuss these statements with a partner and agree on whether you think that they are true or false. Circle your answer on the sheet.



1	Oceans cover about 70 per cent of our planet's surface.	TRUE / FALSE
2	In the UK, we eat £2.5 billion worth of seafood each year.	TRUE / FALSE
3	Only 30 per cent of the ocean is protected.	TRUE / FALSE
4	Around half of the oxygen that we breathe comes from the ocean.	TRUE / FALSE
5	It can take fishing lines 300 years to degrade in the ocean.	TRUE / FALSE
6	By 2050 oceans could contain more plastic than fish.	TRUE / FALSE
7	About 45 per cent of plastic waste is properly recycled.	TRUE / FALSE
8	On average there are 358 items of litter per square kilometre on Britain's sea floor.	TRUE / FALSE
9	Over 80 per cent of pollution in the sea comes from activities that have taken place on land.	TRUE / FALSE
10	Microplastics are found in over 75% of mussels taken from British beaches.	TRUE / FALSE

THE LAST STRAW?

SCENARIO AND SET OF STATEMENTS

Dan uses a plastic straw to drink his juice when he goes for a picnic in the local park. **How might this end up on his dinner plate?**

.....✂

1 Zooplankton, are eaten by a huge variety of animals including small fish, penguins, and the largest animal on Earth, the blue whale.

.....✂

2 Dan is having a picnic. He sips his juice through a bright orange plastic straw.

.....✂

3 According to the BBC, it is estimated that in the UK we throw away 42 billion plastic straws a year. That's around 640 per person.

.....✂

4 After being eaten by minute organisms such as zooplankton, microplastics can pass up the food chain, from smaller fish to bigger fish, and eventually to us.

.....✂

5 Some human-made materials, like plastic, that end up in the ocean could take hundreds of years to degrade.

.....✂

6 Unfortunately, Dan does not pick up all the litter from his picnic. The straw blows into the gutter by the road.

.....✂



7 Plastics look like food to many animal species. Marine turtles can mistake plastic bags for jelly fish, their favourite food.



8 Zooplankton, tiny animals that live in the sea, can eat microplastics.



9 Dan's favourite food is fish and chips.



10 In the sea, plastics break up into tiny pieces called microplastics. These are less than 5mm in size.



11 When it rains, litter is carried away down the drain. It ends up in the river which flows into the sea.



12 Fish are caught and sold to people who eat them for dinner.



ACTIVITY 4

THE LAST STRAW?

Completed timeline

- 2 Dan is having a picnic. He sips his juice through a bright orange plastic straw.
- 6 Unfortunately, Dan does not pick up all the litter from his picnic. The straw blows into the gutter by the road.
- 11 When it rains, litter is carried away down the drain. It ends up in the river which flows into the sea.
- 10 In the sea, plastics break up into tiny pieces called microplastics. These are less than 5mm in size.
- 8 Zooplankton, tiny animals that live in the sea, can eat microplastics.
- 4 After being eaten by minute organisms such as zooplankton, microplastics can pass up the food chain, from smaller fish to bigger fish, and eventually to us.
- 12 Fish are caught and sold to people who eat them for dinner.
- 9 Dan's favourite food is fish and chips.

Statements that sit alongside the completed timeline

- 3 According to the BBC, it is estimated that in the UK we throw away 42 billion plastic straws a year. That's around 640 per person.
- 5 Some human-made materials, like plastic, that end up in the ocean could take hundreds of years to degrade.
- 7 Plastics look like food to many animal species. Marine turtles can mistake plastic bags for jelly fish, their favourite food.
- 1 Zooplankton, are eaten by a huge variety of animals including small fish, penguins, and the largest animal on Earth, the blue whale.



ACTIVITY 6

MY PLASTIC DIARY



Your name

Over the next week, keep a ‘plastic diary’, recording how much single-use plastic you use.

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Add up your totals here
Plastic bags								
Plastic bottles								
Plastic drinking straws								
Plastic food wrappers and packets								
Yoghurt pots and other food containers								

What other plastic items have you used this week?

.....

ACTIVITY 6

WHAT CAN BE DONE?

Write down one thing that you will do to use less plastic and help keep our oceans free of plastic pollution.

