

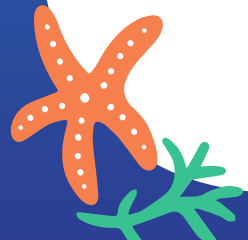
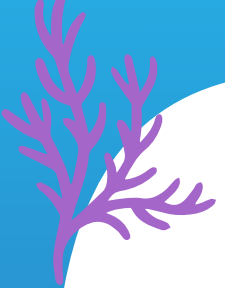
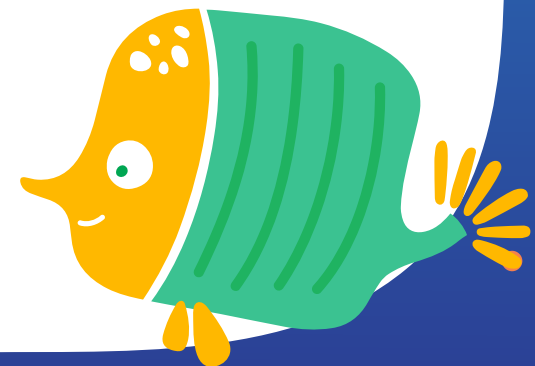
Plastic Pollution From Source to Sea

Plastic pollution

Plastic has transformed the way we live our lives. However, the amount of plastic we are using is not sustainable and some of these plastics are avoidable.

A piece of plastic found in our sea might have travelled a very long way from a park or bin located far inland, nowhere near the sea! This teaching pack follows the path of plastic from source to sea, and encourages students to consider reusable alternatives to avoidable 'single-use' plastics.

Contents



Key stage 1&2 pack – Teacher's notes

WHAT IS PLASTIC POLLUTION? (SOURCE)

Curriculum link: PSHE, IT, Literacy

Age: All ages

Resources: Access to internet (either teacher-led or individual)

Explain that plastic pollution is a problem all around the world, with plastic found in our rivers, streams and oceans. Tell students that they are going to investigate where plastic is coming from and how it might get into the environment. Show the picture of the bird and ask the students the questions that accompany it. Students watch the link and then carry out their own research to find other media about plastic pollution.

OCEAN PLASTICS (IMPACT)

Curriculum link: Art, PSHE

Age: All ages

Resources: Colouring sheets, pencils

Discuss with the class the kinds of plastics that they think may be in the ocean. Tell the students turtles like to eat jellyfish and ask them to suggest what kind of plastic may look like jellyfish in the water (plastic bags). Students draw plastic items that the turtle may come across in the water and then colour in the sheet.

WHAT'S IN YOUR LUNCH BOX? (SOURCE)

Curriculum link: Maths

Age: All ages

Resources: A filled lunch box or picnic, pencil and colouring pencils.

Discuss with the students that some of our lunch box items are wrapped in plastic. These include crisps, chocolate, sandwiches and yoghurts. These plastic wrappers can sometimes enter our environment as litter, dropped by mistake, blown out of bins and into drains travelling through waterways and rivers and into the sea.

A piece of plastic found in our sea might have travelled a very long way from a park or bin located far inland, nowhere near the sea! Students audit the lunch box/picnic by working through the activity sheets– this could be one that they have brought in, a picture of one or one you have provided. Providing your own example will prevent students from making judgments of other students' lunches. When talking about alternatives, students may suggest plastic free items that are still single-use, and the drawbacks of this can be discussed.

Key stage 1&2 pack – Teacher's notes CONTINUED



PLASTIC HEALTH CHECK (SOURCE)

Curriculum link: Science

Age: All ages

Resources: Worksheets

This activity will highlight the prevalence of plastic and show that plastic may be in items they won't necessarily have thought of such as wet wipes, hair bands. Students work through the sheet, identifying the plastics they have in their clothing, bags locker etc.

WHERE DID IT COME FROM? (PATHWAY)

Curriculum link: Literacy

Age: All ages

Resources: Worksheets, interactive map

Students write a story about the life of a plastic object. Support can be given by leading the class through the story of a similar item first. Use the interactive map to remind students of the pathways to the sea, if needed.

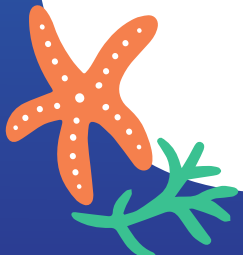
IMPACTS OF PLASTIC POLLUTION (IMPACT)

Curriculum link: Maths, science

Age: 9-11

Resources: Worksheets

This will work best as a guided or staged activity, rather than presenting the whole worksheet at once. More able or older students may be able to work through the sheet independently. Discuss why it is important to talk about carbon and plastics together. Discuss with the students that oil and gas stored under the sea and land are important carbon stores. Using fossil fuels as a starting material, and energy source for plastic production and use, releases greenhouse gases into our atmosphere, contribute to the climate emergency. Each piece of avoidable plastic we purchase also has a carbon cost. Using some simple calculations, we can work out the equivalent carbon dioxide (CO₂) emitted from our plastic waste, and more importantly, how we can reduce this through simple changes in our actions and behaviours. Discuss with the students that through our actions we can reduce our plastic waste. For example, choosing to use a reusable item or buying a product with no packaging.





What is plastic pollution?

The picture below shows you one of the issues of plastic pollution



Think about the following questions:

1. What is happening in this picture?
2. What may have caused this to happen?
3. What could happen to this animal?
4. How does this make you feel?
5. What can be done about it?

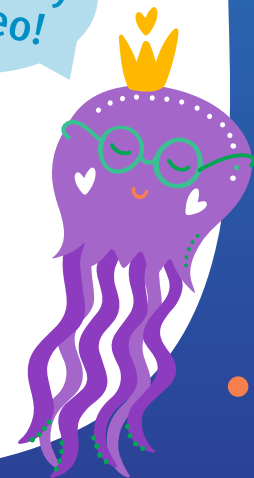
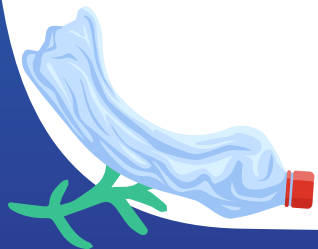


About plastic pollution

Here is a [link](#) to a short video clip from the naturalist Sir David Attenborough showing some of the issues of plastic pollution but also how easy it is for us all to take action.

Click to play
the video!

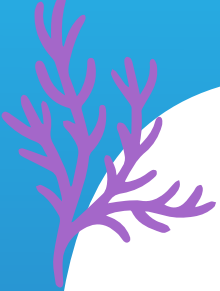
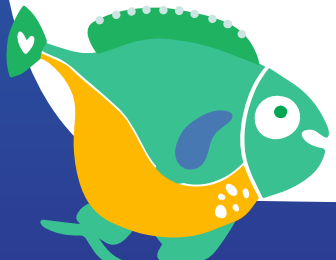
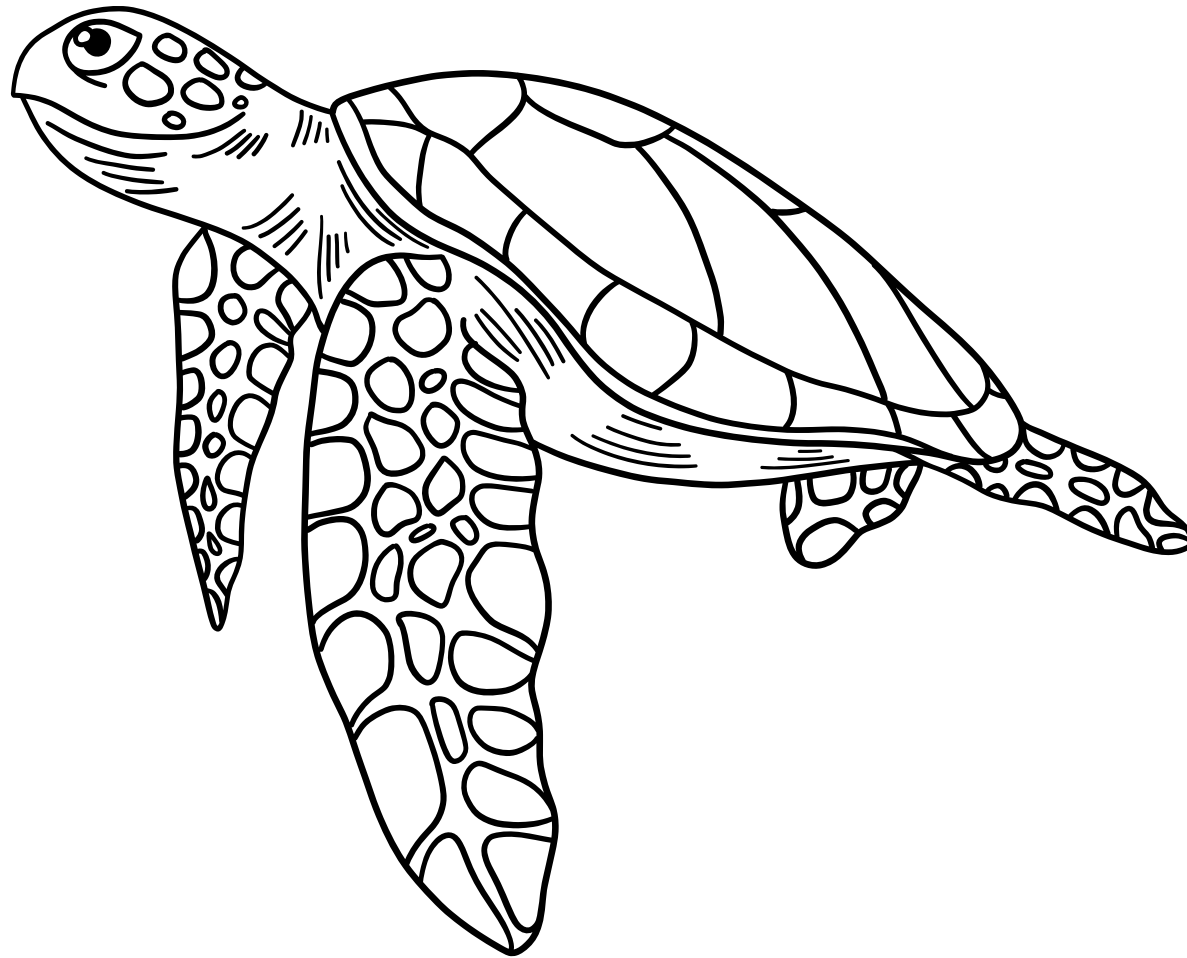
Can you find any other naturalists, video clips or programmes that help us understand our planet and the importance of protecting it?



Ocean plastics

Draw plastic the turtle might find in the ocean and then colour it in.

Name







What's in your lunch box?




You might take a packed lunch to school or on a family picnic. Count how many of these plastic items are in your lunch box, and tally them in the table.

For this activity you will need:

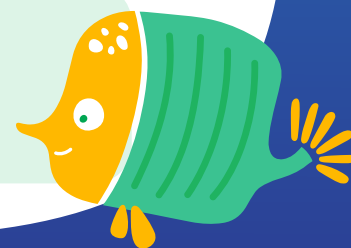
- A filled lunch box or picnic
- Pencil and colouring pencils/pens



Item	Number of each item (Tally)
 Plastic drinks bottle	
 Crisps	
 Drink carton	
 Chocolate	

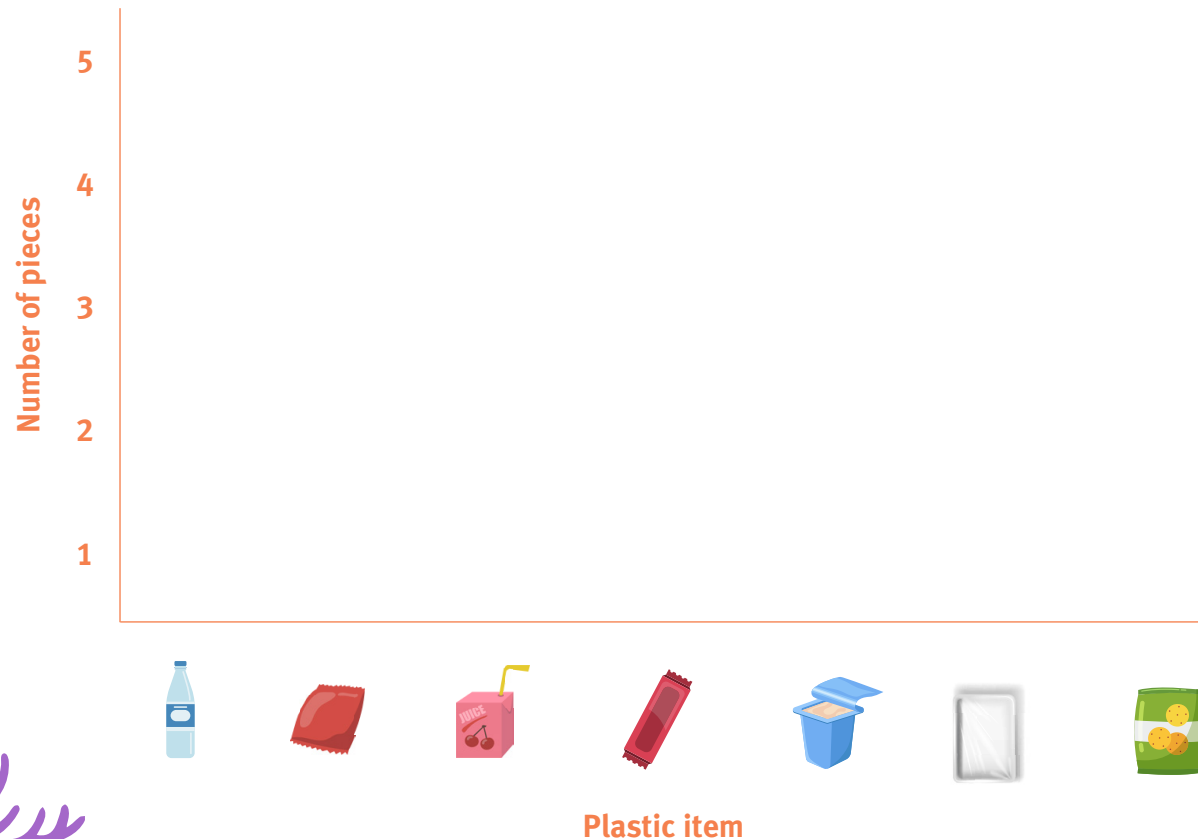
Item	Number of each item (Tally)
 Yoghurt	
 Cling film	
 Other (plastic wrapped fruit flakes or biscuits)	

Are there any other plastic items in your lunch box or picnic that we have not included? Perhaps plastic cutlery? Write these below.



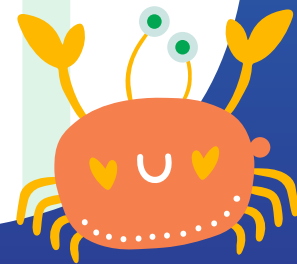
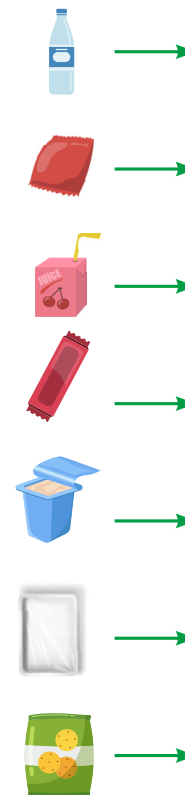
What's in your lunch box?

Let's put the information you recorded in your table into a bar chart. Draw a column to show the number of pieces of each item. Colour in each bar using colouring pencils or pens. Which item had the highest number?



Different packaging?

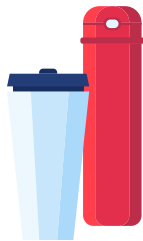
Can you think of an alternative for any of these items? Maybe a different form of packaging or a different lunch item instead of the plastic packaged one?



Different packaging suggestions



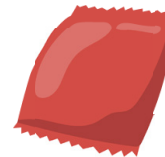
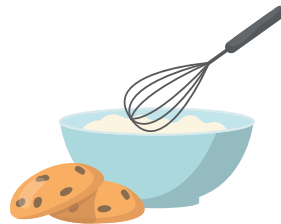
A reusable drinks bottle



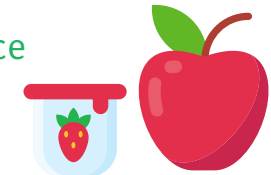
A small portion of yoghurt from a large sharing pot in a reusable container



Homemade baked goods such as cookies and cakes in a reusable container



Fruit, dried fruit or rice cakes loose or in a reusable container



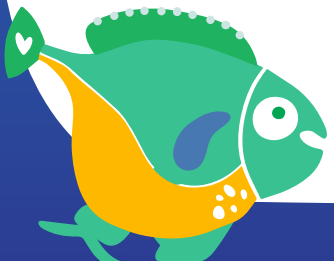
Sandwiches in a reusable container



A delicious packed lunch or picnic!



Which sustainable choices will you make?



Plastic 'health check'

We are surrounded by plastic - from the chair we are sat on and the mobile device we are using to the car or bus we travel in.

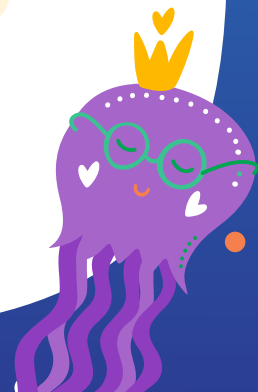
Activity

Working in small groups, go through the questions below to carry out a plastic 'health-check'. You can select more than one option for each question.

1

**What are your clothes made from? You might have to check your labels to help.
Write down all the items you are wearing.**

- a. Cotton
- b. Polyester
- c. Nylon
- d. Acrylic
- e. Other





2

Which of these items do you have in your bag, pockets, or locker?

- | | |
|--|-------------------------------------|
| a. Plastic-wrapped sweets | g. Package free fruit or vegetables |
| b. Plastic-wrapped crisps | h. Plastic yoghurt tube or pot |
| c. Plastic-wrapped sandwich, snack or wrap | i. Drinks carton with plastic straw |
| d. Plastic drink or water bottle | j. Hairband or rubber band |
| e. Homemade snacks in a reusable container | k. Plastic-coated paperclip |
| f. Refillable drink bottle | l. Plastic hair or ear accessory |

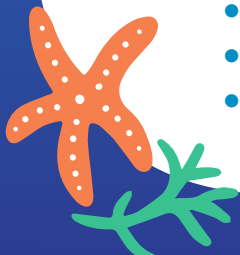
3

Thinking about items you may have at home, which of the following do you use? Write down all those items you may use.

- | | |
|--|--|
| a. Spray or roll-on deodorant in a plastic container | g. Face or body wash in plastic container |
| b. Shampoo bottle | h. Plastic kitchen sponge or scourer |
| c. Solid deodorant - no packaging | i. Reusable material face wipes or flannel |
| d. Shampoo bar - no packaging | j. Coconut or natural kitchen scourer |
| e. Plastic toothbrush | k. Solid soap bar |
| f. Wet wipes or face wipes | |

In your groups discuss the following questions

- Are you surprised by the amount of plastic on you right now, and around you at school and at home?
- Discuss which plastic items are avoidable and which are not.
- What do you think will happen when some of these plastic items escape into the environment?



Where did it come from?

Plastic can reach the ocean in lots of different ways. **Choose 1** of the items that have been found on the beach and write a short story about how it ended up there.



Balloon



Animal food bag



Plastic lid



Chocolate bar wrapper

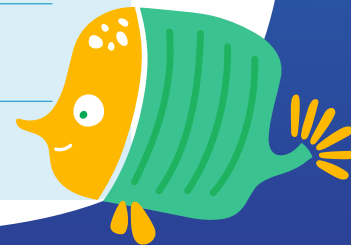


Rope



Juice carton

My chosen item is: _____



Impacts of plastic pollution

Have you thought about the carbon cost of our plastic waste? Most plastic is made from non-renewable fossil fuels such as oil. Energy is needed to extract oil, manufacture, transport and dispose of our plastics.

Activity - Climate change

During this activity you are going to investigate the possible impacts of our plastic use - climate change.

ACTIVITY 1 Calculating the carbon cost of our plastic waste

Plastic waste (kg)	CO ₂ emitted (kg)
1,000	3,000

1 Calculate the amount of CO₂ released per kg of plastic waste

If one tonne or 1,000kg of plastic waste represents 3,000kg of CO₂, what is the CO₂ value for 1kg of plastic waste?

Plastic waste (kg)	CO ₂ emitted (kg)
1	

Latest research suggests each person in the UK generates an average of 98kg of plastic waste per year*. It is also reported that for every tonne or 1,000kg of plastic waste, this represents approximately 3,000kg of CO₂ based on production and disposal of plastic! Let's work out the average carbon cost of one person's plastic waste per year.

2 Calculate the average person's CO₂ cost for their annual plastic waste.

If we now know the carbon cost of 1kg of plastic waste, what is the CO₂ value for 98kg, which represents one person's average plastic waste?

Plastic waste (kg)	CO ₂ emitted (kg)
98	

*Poll reveals 'typical' Brit's annual waste. Circular. May 2020



ACTIVITY 1 Calculate how much carbon we can save when we avoid plastic waste

A recent waste survey* of 2,000 British people found that on average they threw away 2,087 individual plastic items per year, which included:



*Lavender-Law et al. (2020) United States contribution of plastic waste to land and ocean. Science Advances

1 Calculate the amount of plastic waste avoided

Assume that the following person has carried out a plastic survey before and after changing from single-use plastic bottles and hot drink cups to a refillable bottle and reusable cup. Let's calculate how much plastic waste has been saved over the year by this action and what this means in terms of a CO₂ saving.



Person 1

Action: Started using a reusable hot drink container and refillable drink bottle

Result: Reduced plastic waste by 15%

If we assume each person produces 98kg of plastic packaging waste per year:

a. How much plastic waste has person 1 avoided (kg) by changing to reusable drink containers?

Plastic waste saved (kg)



Using the information from above and in step 1, calculate the following:

b. How much CO₂ (kg) has been saved after changing to reusable drinks containers?

CO₂ saved (kg)





Futher resources:

This resources pack has been produced as part of the Interreg Preventing Plastic Pollution project.

<https://preventingplasticpollution.com/resource-type/schools/>

