# Plastic Pollution

## FROM SOURCE TO SEA

Interreg France (Channel Manche) England
European Regional Development Fund

PREVENTING PLASTIC POLLUTION

Environment Agency

# 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 plastics.

## Contents



# Teacher Notes KS3 Pack

## CELEBRATION AUDIT

**Curriculum link:** Science and Maths
**Age:** All ages
**Resources:** Worksheets, graph paper
This is an activity to carry out over a period of a 'normal' week and then a week which contains a celebration.

**ACTIVITY 1.**
**Resources:** Worksheets
**Time:** 30 mins in class, with work at home
Discuss plastics that are used every day, students can use the provided worksheet, or build their own table to collect the data. Ask the students what type of recording would be most appropriate for collecting the data (tally chart). Students record their plastic use during a normal week, and during a week which contains a celebration.

**ACTIVITY 2.**
**Time:** 45 minutes
Discuss with the students why a bar graph is the most appropriate way to display the information. Students draw the bar graphs and note which items increase and decrease during the celebration.

**ACTIVITY 3.**
**Time:** 10 minutes
Students identify plastic items that can be avoided during a normal week and during celebrations. Discuss the pros and cons of replacing with non-plastic single use items, and try to work out if there could be a reusable alternative.

## FULL PLASTIC WASTE AUDIT

**ACTIVITY 1**
**Curriculum link:** Science and Maths
**Age:** All ages
**Resources:** Worksheets, access to internet
**Time:** 15 minutes with home learning or 45 minutes as a classroom activity.
Discuss why a plastic audit may be useful. Students complete the survey on worksheets provided at home, in the garden or in the classroom, and fill in the survey. Students then go online and share the results with the Preventing Plastic Pollution Project using the on-line survey.

**ACTIVITY 2**
**Curriculum link:** Science and Maths
**Age:** All ages
**Resources:** Worksheets, a selection of plastics
**Time:** 30 minutes
Sort the plastics into piles according to their plastic code. Work out the percentage of each type of plastic waste and then complete the pie chart to show the proportion of plastics that are recyclable or non-recyclable. Depending on age and ability this can be done as a teacher led activity. Discuss what happens to these plastics if they end up in the environment.

**ACTIVITY 3**
**Curriculum link:** Science and Maths
**Age:** All ages
**Resources:** Access to the internet
**Time:** 15 minutes
Look up or provide the local council recycling rate. Students identify a piece of plastic on their list and pledge to try to avoid it.

# Teacher Notes KS3 Pack Continued

## BEACH DETECTIVES

**Curriculum link:** Science and Geography
**Age:** All ages
**Resources:** Catchment map, images of plastic items found on the beach, one item of beach litter
**Time:** 15 minutes

The worksheets are self-explanatory for the students to work through in groups. At the end of the activity discuss the group results as a class, and brainstorm ways of reducing avoidable plastics.

## THE CARBON COST OF PLASTIC WASTE

**Curriculum link:** Science and Maths
**Age:** All ages
**Resources:** Worksheets
**Time:** 15 minutes

Students work through the worksheets and carry out the simple calculations. For less able students this can be completed as a teacher-led activity.

## POLYMER PROPERTIES

### ACTIVITY 1

**Curriculum link:** Science and Maths
**Age:** All ages
**Resources:** Per group –5 clean plastic items, container of warm water
**Time:** 15 minutes

Students test each plastic item and complete the table provided.

### ACTIVITY 2

**Curriculum link:** Science and Maths
**Age:** All ages
**Resources:** Results from activity 1, identification chart
**Time:** 15 minutes

Students match their information and suggest which type of plastics they may have based on their properties. Then look at the plastic item to see if it has a polymer code to check their answers. Discuss how the properties of each plastic make it suitable for its use.

### ACTIVITY 3

**Curriculum link:** Science and Maths
**Age:** All ages
**Time:** 5 minutes

Discuss what happens to these plastics if they end up in the environment.

# How sustainable are our celebrations?

Your challenge is to complete the following survey of your plastic use before and during a celebration such as birthdays or religious celebrations.

**ACTIVITY 1** Carry out a plastic survey during a 'normal' week without any celebrations to record how much plastic you use and compare this to the amount of plastic you use over a week when you are celebrating.

**PART 1** Using the following tables record the single-use items you use for food, drinks, and social gatherings over a 'normal' week without any celebrations. Can you think of any more items?

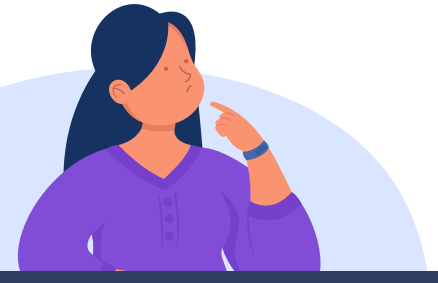
### Food and drink related

**A normal week**

| ITEM | EXAMPLES | NUMBER (APPROX) |
|---|---|---|
| Plastic food packaging | Sweet wrappers, crisp packets, sandwich packet | |
| Plastic food tubs and pots | Yoghurt pots, granola pot, butter tub | |
| Plastic trays | For fruit, vegetables or meat | |
| Plastic film or wrap | For fruit, wrapped sandwiches or vegetables | |
| Plastic bottles | Milk bottles, sauces, water, and soft drinks | |
| Drinking cartons with straws | Juice boxes | |
| Plastic plates | | |
| Single-use cups | Plastic, polystyrene, or paper | |
| Single-use hot drink cup | | |
| Teabags (assume they contain plastic unless labelled plastic free) | | |
| Plastic bags and sacks | Shopping bags, bread bags, bags for fruit or vegetables | |
| | | TOTAL: |

### Other

| ITEM | EXAMPLES | NUMBER (APPROX) |
|---|---|---|
| Balloons | Including foil and helium filled | |
| Single-use tablecloths | Plastic or paper | |
| Single-use decorations | Bunting, banners, badges, table and hanging decorations | |
| Wrapping paper | | |
| Plastic sticky tape | | |
| Gifts containing plastic | | |
| Greeting cards containing glitter | | |
| New clothes or accessories | | |
| | | TOTAL: |



**PART 2** Using the following tables record the single-use items you use for food, drinks, and social gatherings over one week when you have a celebration. This could be a birthday or a religious festival such as Christmas or Ramadan.

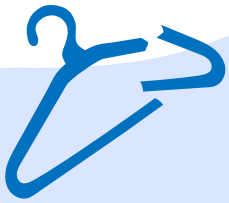
## Food and drink related

**A celebration week**

| ITEM | EXAMPLES | NUMBER (APPROX) |
|---|---|---|
| Plastic food packaging | Sweet wrappers, crisp packets, sandwich packet | |
| Plastic food tubs and pots | Yoghurt pots, granola pot, butter tub | |
| Plastic trays | For fruit, vegetables or meat | |
| Plastic film or wrap | For fruit, wrapped sandwiches or vegetables | |
| Plastic bottles | Milk bottles, sauces, water, and soft drinks | |
| Drinking cartons with straws | Juice boxes | |
| Plastic plates | | |
| Single-use cups | Plastic, polystyrene, or paper | |
| Single-use hot drink cup | | |
| Teabags (assume they contain plastic unless labelled plastic free) | | |
| Plastic bags and sacks | Shopping bags, bread bags, bags for fruit or vegetables | |
| | | TOTAL: |

## Other

| ITEM | EXAMPLES | NUMBER (APPROX) |
|---|---|---|
| Balloons | Including foil and helium filled | |
| Single-use tablecloths | Plastic or paper | |
| Single-use decorations | Bunting, banners, badges, table and hanging decorations | |
| Wrapping paper | | |
| Plastic sticky tape | | |
| Gifts containing plastic | | |
| Greeting cards containing glitter | | |
| New clothes or accessories | | |
| | | TOTAL: |



## ACTIVITY 2

Draw a bar graph to compare the results of your waste audit during a 'normal' week and a week with a celebration. Which items increase or decrease?

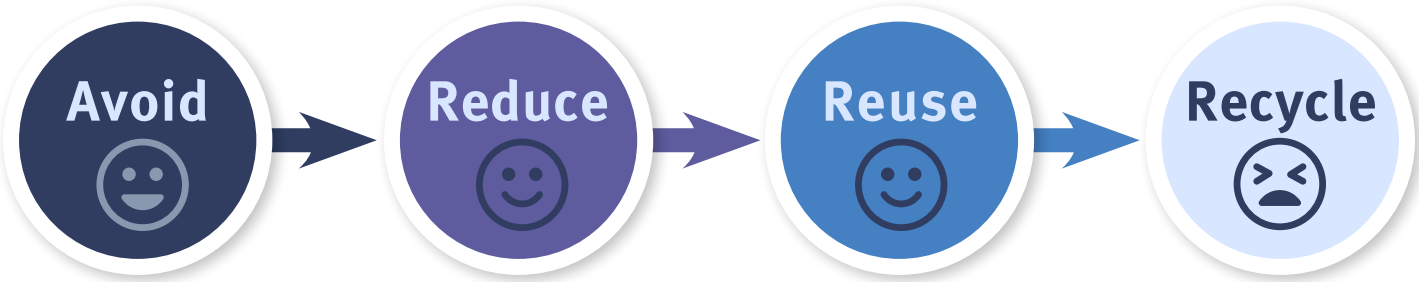
## ACTIVITY 3

### What can I do?

You now have a better understanding of the plastic you use regularly and how this plastic use changes during celebrations. Can you identify any single-use items that you use regularly that you could reduce or avoid?

Are there any changes you could make to future celebrations to make them more sustainable and reduce the amount of waste produced?

**Use the waste hierarchy and identify one item you will pledge to avoid or reduce:**




### Hints and tips for sustainable celebrations

The Environment Agency has produced guidance with hints and tips on sustainable celebrations such as Eid. Use the QR code to go to this guidance.

## How to reduce plastic waste

There are several ways to reduce our plastic waste. **It all counts**, even the smallest actions.
If you do buy plastic packaging make sure you choose items you know can be recycled locally.

Some examples of how we can reduce our plastic waste:

- Use reusable bottles and cups - take them to parties and events, carry them with you when out to avoid single-use
- Use reusable cutlery and plates/bowls during celebrations and gatherings
- Buy food in bulk to reduce packaging
- Refill your containers at refill stores
- Make your own snacks and store in reusable containers

### How can you recycle?

You can use the following link to find out details for your area:

- https://www.gov.uk/recycling-collections

Or you can also use the Recycle Now website to find out how to recycle a specific item in your local area:

- Recycle Now - A to Z of materials and what to do with them
- Recycle Now - search for recycling of different materials

# Plastic 'health check'

## Your challenge is to complete one or all of the following activities to:

1 Find out how much plastic you use
2 Identify the type of plastic you are using and how to correctly dispose of your plastic waste
3 Consider and pledge to make a change to reduce the amount of plastic you use

These activities can be completed individually or as a class.

## ACTIVITY 1

### Plastic 'health-check' and pledge

Carry out a plastic 'health-check' to work out how much plastic you use and make a pledge to take one action to reduce it.

### TASK

1 Find the plastic objects you use in your day-to-day life. You could look in your house, garden, or in the classroom
2 Fill in the tables on the following pages with the number of plastic objects you found for each category

### Kitchen

| OBJECT/CATEGORY | EXAMPLES | NUMBER (APPROX) |
|---|---|---|
| Food packets | Packets of pasta, sweets, crisps, frozen food packets | |
| Food tubs and pots | Yoghurt pots, butter tub | |
| Plastic trays | For fruit, vegetables or meat | |
| Plastic film or wrap (e.g over trays) | For fruit, vegetables or meat | |
| Bottles | Milk bottles, washing up liquid, water bottles, sauces | |
| Reusable plastic containers | Take away containers, lunch boxes, storage boxes | |
| Crockery | Plastic cups, plates, cutlery cooking utensils | |
| Sponges | | |
| Teabags | If they contain plastic (assume the do unless they state they are plastic free) | |
| Plastic bags and sacks | Shopping bags, bread bags, bags for fruit or vegetables | |
| Other (please give details) | | |
| | | TOTAL: |

## Living Room

| OBJECT/CATEGORY | EXAMPLES | NUMBER (APPROX) |
|---|---|---|
| Decorations | Vases, picture frames | |
| Pens | Pens, felt tips | |
| Toys | | |
| Electronics | TV remote, TV screen, games consoles, computer | |
| Plastic wallets/binders | | |
| DVD/CD covers | | |
| Other (please give details) | | |
| | | TOTAL: |

## Bedroom

| OBJECT/CATEGORY | EXAMPLES | NUMBER (APPROX) |
|---|---|---|
| Clothes containing synthetic fabric | Polyesters, nylon, acrylic | |
| Hard plastic toys | Building bricks, dolls, trains, balls | |
| Soft toys | | |
| Storage basket/boxes | | |
| Mattress/bedding | Pillows, duvets (polyester, nylon or acrylic) | |
| Other (please give details) | | |
| | | TOTAL: |

## Bathroom

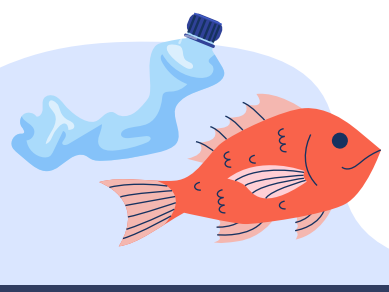
| OBJECT/CATEGORY | EXAMPLES | NUMBER (APPROX) |
|---|---|---|
| Bottles and tubes | Shampoo, shower gel, toothpaste, creams | |
| Toothbrushes | | |
| Cotton buds (if plastic) | | |
| Cosmetics | Make up palette, lipstick tube | |
| Baby nappies | | |
| Other (please give details) | | |
| | | TOTAL: |

## Garden

| OBJECT/CATEGORY | EXAMPLES | NUMBER (APPROX) |
|---|---|---|
| Garden furniture | | |
| Plant pots and labels | | |
| Wellies | | |
| Watering cans | | |
| Plant care products (fertiliser, pesticides) | | |
| Bags of compost | | |
| Outdoor games | | |
| Other (please give details) | | |
| | | TOTAL: |

## Classroom

| OBJECT/CATEGORY | EXAMPLES | NUMBER (APPROX) |
|---|---|---|
| Board markers | | |
| Board rubbers | | |
| Stationary | Pens, pencil cases | |
| Plastic wallets | Page savers | |
| Plastic binders/folders | | |
| Laminated posters | | |
| | | TOTAL: |



# ACTIVITY 2

## Your plastic waste

This activity will take a closer look at your plastic waste, which may include single-use items (for example, yogurt pots, plastic packaging, or bottles).

## What are they made from? How do I dispose of them?

There are several different kinds of plastics, some more or less flexible, some more or less transparent, each designed for a different purpose.

During this activity we will try to find out the different plastic types used in different household items, and which plastics are recyclable and how to recycle them.

### You will need:

- A sample of your household or classroom/tutor group's plastic waste (you can collect this in advance of the activity)
- For example this could include the plastic packaging some online shopping may arrive in, plastic bottles in the bathroom and plastic wrapping of your fruit and vegetables. Finding these different plastic items is part of the challenge!

### TASK 1

Look closely on the packaging to find a triangle with a number or letters written in it. It is often found under the container. Below are some examples:

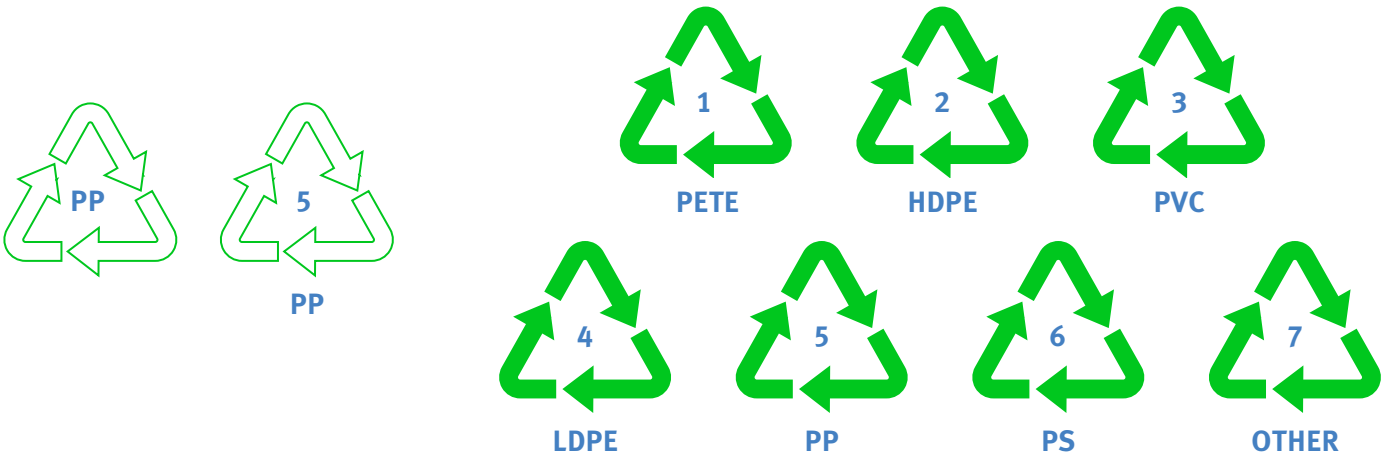



Figure 1. Plastic polymer symbols (Chelmsford City Council, 2020)

These letters are abbreviations for the full plastic polymer name, for example, PP instead of the full chemical name of Polypropylene. This tells us which polymer the plastic item is made from. A full list of abbreviations and their full names can be found at the British Plastics Federation:
https://www.bpf.co.uk/plastipedia/abbreviations/Default.aspx

## TASK 2

Using your collected plastic waste or those plastic items found around your school/classroom complete the following table to record which items, and how many of each, are within each of the seven categories.

| PLASTIC CODE | ITEM DESCRIPTION AND HOW MANY OF EACH ITEM (USE A TALLY) | CAN THIS BE RECYCLED? HOW? |
|---|---|---|
| 1 PETE | | |
| 2 HDPE | | |
| 3 PVC | | |
| 4 LDPE | | |
| 5 PP | | |
| 6 PS | | |
| 7 OTHER | | |
| NO LABEL OR NUMBER | | |

## TASK 3

Using the recycling guide for your area, find out which plastic items can be recycled and how. You can use the following link to find out details for your area:

- https://www.gov.uk/recycling-collections

Or you can also use the Recycle Now website to find out how to recycle a specific item in your local area:

- Recycle Now - A to Z of materials and what to do with them
- Recycle Now - search for recycling of different materials

## TASK 4

What percentage of your plastic waste is recyclable? Shade in the amount on the pie chart.




Among some of the plastic waste that we cannot yet recycle are the so-called single-use plastics, which means all the plastics that we use once and then throw away, such as plastic wrapping, films, straws or plastic cups.

Some of these single-use plastic items are now banned, such as plastic straws, stirrers and cotton buds which came into action on the 1 October 2020.

Some of these plastic items will escape into the natural environment through littering, wind blown from bins and other pathways.

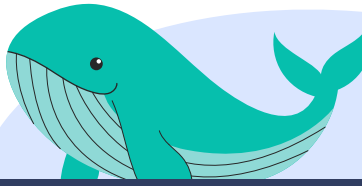
**What do you think happens once these plastic items enter the environment?**

### Ingestion

Plastics could be eaten by animals either by accident indirectly when they are eating their natural diet, for example a fish that filters the water for plankton will also take in small plastic particles. Or they may be eaten intentionally when they are mistaken for prey items or their normal diet.

### Entanglement

Animals can become trapped or injured by plastic pollution. This could lead to wounds or death in severe cases.



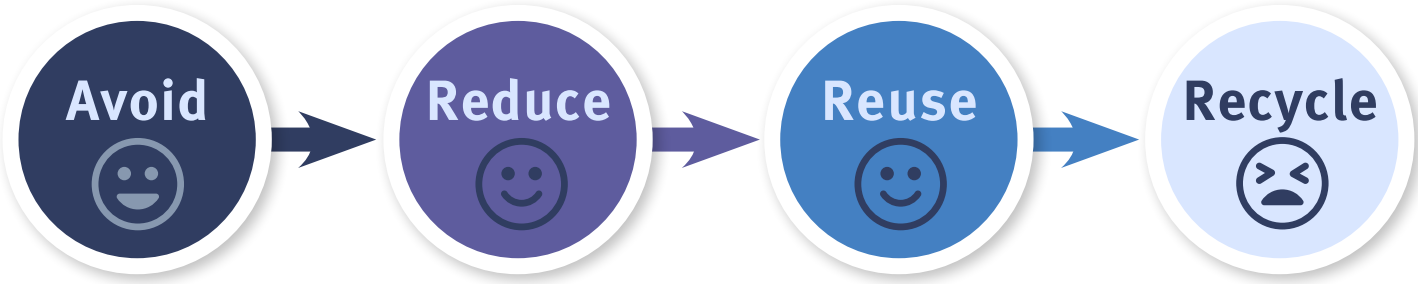
## ACTIVITY 3

### What can I do?

Now you have a better understanding of the plastic you and your classroom use and the plastic waste this generates, why not make a pledge?

Pledge to make one change to your habits to reduce your plastic waste. Select one plastic waste item from the items you found. For example, shampoo bottles or crisp packets. Then think of a way to reduce the number you use.

**Use the waste hierarchy to help you decide on your pledge:**




### Some examples of how we can reduce our plastic waste:

- Use reusable bottles and cups- take them to parties and events, carry them with you when out to avoid single-use
- Take cutlery and plates/bowls from home when having a picnic
- Buy food in bulk to reduce packaging
- Refill your containers at refill stores

There are several ways to reduce our plastic waste. **It all counts**, even the smallest actions.
If you do buy plastic packaging make sure you choose items you know can be recycled locally.

## Summary

Using your local council website you should be able to find out the recycling rate for your area and also what happens to your recycling.

Now you have a better understanding of what can and can't be recycled and how, are there actions you can take to improve your household recycling rate? Will you consider reducing and avoiding single-use plastic items, in particular those you know you cannot recycle?

**Why not write a pledge to describe one or more actions you will take to reduce your plastic waste.**

# Properties of plastic polymers

In small groups, you will investigate different properties of plastics you can find in your home. You will do a few simple experiments and note down your observations in the spaces provided.

### Materials needed for this session:

- 5 clean plastic items such as shampoo bottle, milk bottle, drinks bottle, bin liner, yoghurt pot, plastic food tray
- Container or bucket of water (warm if possible)


## ACTIVITY 1

### Testing properties of plastic polymers

You will need to test different properties of your plastic items by bending or stretching it and adding it to water. Record your observations by circling the correct option in the table below.

| Plastic Item | TEST | | | |
|---|---|---|---|---|
| | **Tensile strength** If you can stretch it, it has a low tensile strength | **Resistance to temperature** If it softens in warm water, it is resistant to low temperatures | **Flexibility** Fold it in half – if you can it is flexible. If it cracks it is rigid | **Density** Does it float in the water? If it does, it has a low density |
| 1. | High/Low | High/Low | Flexible/Rigid | High/Low |
| 2. | High/Low | High/Low | Flexible/Rigid | High/Low |
| 3. | High/Low | High/Low | Flexible/Rigid | High/Low |
| 4. | High/Low | High/Low | Flexible/Rigid | High/Low |
| 5. | High/Low | High/Low | Flexible/Rigid | High/Low |

# ACTIVITY 2

## Identifying the plastic type you have tested

Not all plastic is suitable for recycling. The chart below shows the different types of plastic you will find in your home. Using your answers from Activity 1 and the information below, identify the type of plastic you have tested.

| Polymer abbreviation | PET | HDPE | PVC | LDPE | PP | PS | OTHER |
|---|---|---|---|---|---|---|---|
| Polymer code | 1 PETE | 2 HDPE | 3 PVC | 4 LDPE | 5 PP | 6 PS | 7 OTHER |
| Tensile strength | High | High | High | Low | High | Low | Range |
| Resistance to temperature | High | High | High | Low | High | Mid | Range |
| Flexibility | Rigid | Quite rigid | Flexible or rigid | Flexible | Semi-flexible | Rigid | Range |
| Density | Low | High | High | Low | Low | Mid | Range |

Plastic 1

Plastic 2

Plastic 3

Plastic 4

Plastic 5

Next, check if your plastic item has a code on it and see whether you have identified your plastic polymer correctly based on the properties from Activity 1. **Were you correct? If not then what do you think affected your results? What could you do differently next time?**

## ACTIVITY 3

### Discussion

Using the information on the plastic properties you have identified, what do you think could be the potential problems if these plastic items escape into the environment?

### Extension

Find out the full name of the plastic polymer you have identified on the British Plastics Foundation plastipedia:
Polymer name: https://www.bpf.co.uk/plastipedia/abbreviations/Default.aspx

Find out where and how you can correctly dispose or recycle these items locally:
https://www.recyclenow.com/what-to-do-with
https://www.recyclenow.com/local-recycling?rlw-initial-path=places/all%3Fmaterials%3D46%2C118

# Beach detectives

In small groups investigate different sources of plastic pollution and discuss how they may end up in the sea.

**Materials needed for this session:**

- Catchment map
- Images of plastic items found on the beach
- One item of beach litter

15 mins

## Catchment map


1 Farm or countryside 2 Toilet 3 Drain 4 Bins 5 Litter

# ACTIVITY 1

## Identify the source

In your group use your catchment map to identify where plastic items labelled A - H may have come from. You have been given printouts of the images. Remember, some plastics could be from more than one source.

## Plastic items

A 

B 

C 

D 

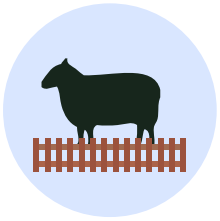
E 

F 

G 

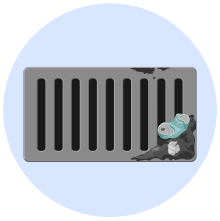
H 

## Item source



Farm or countryside

Toilet



Drain

Bins

Litter

| PLASTIC ITEM | SOURCE |
|---|---|
| A | |
| B | |
| C | |
| D | |
| E | |
| F | |
| G | |
| H | |

## ACTIVITY 2

### Identify the source of your item

Your group has also been given a piece of plastic found at a local beach.

**In your group discuss:**

- What this piece of plastic was originally
- Which source on the map this plastic could have come from
- What has caused this plastic to change shape and possibly colour from its original form

**Add your answer below.**

## ACTIVITY 3

### Actions we could take

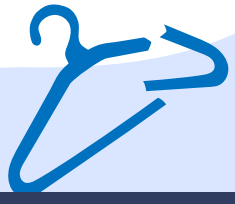
Discuss in your group different ways you think we could stop plastics entering our natural world.

**List three of these ideas in the box below.**

1.

2.

3.



# The carbon cost of plastic waste

In small groups, you will investigate the carbon cost of our plastic waste, and different ways we can reduce this through a change in our actions and behaviours.

You will do a few simple calculations and note down your answers in the spaces provided.

15 mins

### Materials needed for this session:

- Calculator

### Background

Have you thought about the carbon cost of our plastic waste? Most plastic is made from non-renewable fossil fuels such as oil, and energy is needed to extract oil, manufacture, transport and dispose of our plastics. Oil and gas stored under the seabed 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, contributing to the climate emergency. Each piece of avoidable plastic we purchase also has a carbon cost.

## ACTIVITY 1

### Calculating the carbon cost of our plastic waste

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 $CO_2$ based on production and disposal of plastic!

| PLASTIC WASTE (KG) | $CO_2$ EMITTED (KG) |
|---|---|
| 1,000 | 3,000 |

**Let's work out the average carbon cost of one person's plastic waste per year.**

### 1 STEP ONE

### Calculate the amount of $CO_2$ released per kg of plastic waste

If 1 tonne or 1,000 kg of plastic waste represents 3,000kg of $CO_2$, what is the $CO_2$ value for 1kg of plastic waste?

| PLASTIC WASTE (KG) | $CO_2$ EMITTED (KG) |
|---|---|
| 1 | |

### 2 STEP TWO

### Calculate the average person's $CO_2$ cost for their annual plastic waste.

If we now know the carbon cost of 1kg of plastic waste, what is the $CO_2$ value for 98kg, which represents one person's average plastic waste?

| PLASTIC WASTE (KG) | $CO_2$ EMITTED (KG) |
|---|---|
| 98 | |

# ACTIVITY 2

## Calculate our carbon savings when we avoid plastic waste

Through our actions we can reduce our plastic waste. For example, choosing to use a reusable item or buying a product with no packaging. A useful way to calculate how much plastic we use in our everyday life is to complete a plastic survey to see which plastic items we use the most, and which items we can easily avoid or reduce.

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:

**109** Single-use coffee cups
**242** Plastic bottles
**209** Foil crisp packets
**241** Plastic yoghurt pots/pudding pots
**378** Snack wrappers
**10** Shampoo/conditioner bottles
**9** Body wash soap bottles

We can also use a waste audit or plastic survey to calculate how any changes we make to the amount of plastic packaging we use will affect the total amount of plastic waste produced. We can compare the results of the waste audit before and after making any changes.

## Calculate the amount of plastic waste avoided

Assume that the following two people have carried out a plastic survey before and after making a change in their use of plastic packaging and calculated the percentage saving. Use this information to calculate how much plastic waste has been saved over the year for both Person 1 and Person 2, and what this means in terms of a $CO_2$ saving.

### Person 1

**Action:** Bought a reusable hot drink container and reusable water bottle
**Result:** Reduced plastic waste by 15%

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

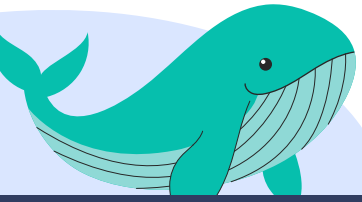
**a** How much plastic waste has person 1 avoided (kg) by changing to reusable drink containers?

Plastic waste saved (kg): _____

Using the information from above and in Step one, calculate the following:

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

$CO_2$ saved (kg): _____



## Person 2

**Action:** Changed to shampoo bars and solid soap
**Result:** Reduced waste by 1%

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

**a** How much plastic waste has person 2 avoided (kg) by changing to shampoo bars and solid soap?

Plastic waste saved (kg): _____

Using the information from above and in Step one, calculate the following:

**b** How much $CO_2$ (kg) has been saved after changing to shampoo bars and solid soap?

$CO_2$ saved (kg): _____

* Poll reveals 'typical' Brit's annual waste. Circular. May 2020; Lavender-Law et al. (2020) United States contribution of plastic waste to land and ocean. Science Advances

## Futher resources:

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

https://preventingplasticpollution.com

Interreg France (Channel Manche) England
European Regional Development Fund

PREVENTING PLASTIC POLLUTION

Environment Agency