

Case Study: Plastics in our water ways

Activity Sheet 7: What are the facts?

Introduction

The previous activity sheets have shown the pressure that is being placed on water and the importance of protecting and managing this valuable resource. Whilst there are several environmental concerns placing pressure on our waterways this next topic focuses on the amount and impact of plastics in our water ways.

This specific activity sheet is an introduction to this topic and aims to raise student awareness about the size and significance of plastics in our waterways.

The content of this activity sheet relates to the following Geographical Concepts and Skills and Geographical Knowledge.

Geographical Skills

Place, space and interconnection

- Explain processes that influence the characteristics of places

Data and Information

- Collect and record relevant geographical data and information from useful primary and secondary sources, using ethical protocols.
- Select and represent data and information in different forms, including by constructing appropriate maps at different scales that conform to cartographic conventions, using digital and spatial technologies as appropriate.

Geographical knowledge

- Causes of an atmospheric or hydrological hazard and its impacts on places, and human responses to it to minimise harmful effects on places in the future.

Introductory Activity

Steps

1. Explain the rules of the game.
 - a. All students are to stand while a statement will be read out regarding plastics.
 - b. If students believe the statement to be true they are to place both hands on their heads, if they believe that the statement is false they are to place both hands on their tail.
 - c. If they make an incorrect guess they are to sit down.

- d. The last remaining person standing is the winner. (N.B: This could also be done in teams.)

Teacher note: The statements below have been organised into TRUE and FALSE. Ensure you mix and match so students don't suspect a pattern! Select the statements that you would like to use. You may wish to give the extended answer immediately or "carpark" it for later.

<u>TRUE</u>	<u>FALSE</u>
More than 8 million tons of plastic are dumped in our oceans every year.	Plastic in the ocean breaks down into such small fragments that pieces from a 1 litre bottle could end up on every 10 kilometres of beach throughout the world. False: it is every 1 km
We are now producing 300 million tons of plastic every year.	Plastics don't float. False: 46% of plastics float.
Packaging accounts for 40% of plastic waste.	Most plastics degrade within a year of being put in the rubbish. False: It takes between 500-1,000 years for plastics to degrade.
Approximately half of plastics are used only once.	Plastics are only a small proportion of all the rubbish floating in the oceans. False: Plastic constitutes approximately 90% of all trash floating
Annually approximately 500 billion plastic bags are used worldwide.	80% of plastic rubbish in the oceans enters the water from rubbish left on the beach. False: About 80% of the plastic pollution found in our waterways enters from the land.
Enough plastic is thrown away each year to circle the earth 4 times.	There will always be more marine life than plastic in our ocean. False: It is estimated that shortly the total amount of plastic pieces of waste will be greater than the total number of fish.
A plastic bag has an average working life of 15 minutes.	The number of birds and sea mammals killed by plastics is reducing annually. False: 1 million sea birds and 1000,000 mammals are killed annually by plastics.
About 97% of all plastics still exist.	Plastics don't affect fish as their digestive systems are different from ours. False: A growing number of fish have plastics in their bodies.
Plastic beads exist in several toiletries and toothpaste.	Only 10% of seabirds have plastics either in or on their bodies. False: 44% of seabirds have either plastic on or in their bodies.
The human body can absorb plastic chemicals.	

It is likely that you will have enough statements to play this game more than once.

The above information could also be used to create a [Kahoot Quiz](#).

Follow Up Activities:

1. Ask for student feedback about the above statements, especially the ones that have been “carparked”. They may wish to share their feedback in an [Answergarden](#) or in a [Word cloud](#).

Prompt questions could include

- How did you feel when these facts were read out?
- Which of these facts surprised you the most?
- Based on the facts which areas do you consider need the most attention?
- Are you aware of any actions reducing the use of plastics in the local community?

2. Get students to create an infographic about plastics in our waterways. Begin by showing samples of an infographic. The steps required to create an infographic can be found at sites such as:

[How to Make an Infographic in 10 Steps \[Guide\] - Infogram](#)

The infographics could be presented or displayed in the classroom.

3. To introduce students to the broad content of this case study watch “[Baykeepers Documentary Film](#)” or look at the resources available from the [Port Philip Ecocentre website](#).

Extension Activity:

1. Complete an audit of how many plastic items are in a selected area. Some examples include: the school cafeteria, the class room, a take away shop etc. One way to complete the audit is to create a simple table such as that shown below.

After the audit is compiled graph the results.

(For example: What percentage of plastic is recycled? What percentage of plastic could be replaced by an alternative solution)

Name of plastic item	Number	Is the plastic used able to be recycled?	Estimate the number of times the plastic item can be used.	Could the plastic be replaced by alternatives? Propose the alternative
	Total:			

Teacher note: A more sophisticated version of this activity can be found in Activity Sheet 2: Hazards and Disasters. Adjust to suit the abilities in your class.