

Case Study “Plastics in our waterways”

Activity Sheet 7 “Strategies to reduce the amount of plastic being used”

Introduction

Whilst the previous activity sheet concentrated on strategies to remove the existing plastic from our waterways some believe that this is only reducing the *size* of the problem, not solving the *cause* of the problem. In this activity sheet students explore the nature, purpose and effectiveness of specific measures to prevent and reduce the amounts of plastics being used and consequently entering our waterways. Again, strategies at a global, national and local scale are investigated.

The content of this activity sheet relates to the following Key Knowledge and Skills:

Key Knowledge – Area of Study 2

- Natural and human factors influencing responses to selected hazards and disasters
- The types of responses to selected hazards and disasters, including prediction of risk and vulnerability, planning protection and mitigation, recovery and reconstruction
- Specific responses by national and global organisations regarding prediction, planning, recovery and reconstruction to similar hazards and disasters in other parts of the world
- Human responses to selected hazards and disasters and how their effectiveness can be measured

Key Skills

- Describe and explain the nature and purpose of responses to specific hazards and disasters in a variety of locations.
- Explain the usefulness of spatial technologies in developing effective prevention and mitigation measures with selected hazards and disasters.

Strategies to reduce the amount of plastic items used

Introductory Activity

The purpose of this activity is to get students considering the options that are available as alternatives to every day plastic items and the reasons why these alternatives are not being used on a larger scale.

Begin by completing a table similar to that below.

Plastic item	Alternative non-plastic item	Cost comparison	Are you or would you use the alternative non-plastic item? (Briefly explain why/why not)
Water Bottles			
Retail Bags (e.g. Myer)			
Straws			
Cotton Buds			
iPhone Cover			
Garbage Bags			
Tooth Brush			
Cooking Utensils			
Take Away Coffee Cups			
Sandwich Wrap			
Food Storage			
Facial Scrubs			
Lunch Box			
Plastic wrapping used in supermarkets			
Bags from baker, butcher, green grocers			
Plastic Cutlery (used at parties/picnics)			
Other			

Use the results from the table to initiate class discussion. Some points that could be raised include:

- Which of the alternative solutions are class members already using and why?
- Which of the alternative non-plastic items would class members be happy to use? Why?
- Which of the alternative non-plastic items would class members not want to use? Why? What would need to change for you to use these items?
- During your research what other items did you come across that could reduce the amount of plastics being used?
- Given the availability of these non-plastic items suggest factors that could explain why they are not common place in households. A good article to read in conjunction with this is "[My week without plastic in the kitchen](#)" – Good Food
- What could Governments do to make non-plastic alternatives more common in households? (You can use this as an introduction to the next topic).

Extension Activity:

As an extension to the above task you could research ways in which the building industry could reduce their use of plastics. (You could also look at other industries, such as the automotive industry).

Government policies aiming to reduce the use of plastic items

As awareness of the impact of plastics in our waterways grows, governments across the globe are beginning to take action. This next task requires students to research and evaluate some of these actions. The final section of this task compares the actions of the governments in Australia to those of their overseas counterparts and asks students to comment on the effectiveness of Australia's approach.

Steps

1. Divide the class into small groups or pairs. Using the lucky dip approach allocate each group a country to research. These countries/regions could include:
 - The United Kingdom
 - European Union (if you wish you could break this down into separate countries)
 - United States of America
 - Canada
 - New Zealand
 - Indonesia
 - Japan
 - China
 - Kenya
 - South Africa.
 - Brazil

Please note that the number of actions for each country will vary which will affect the time required for research. For example the United Kingdom has recently released a number of initiatives, and consequently this group may take longer. It is suggested that if a group finishes earlier that they commence researching Australia's policies.

2. Each group undertakes research to complete the table below:

Country: _____

Description of Government Strategy	Date of implementation	Comments about effectiveness of this strategy (consider whether the strategies are sustainable and whether they achieve the aims set).

3. Once each group has finished the results are shared and discussed. Students should write their responses and then pair and share with students from another group and so on until they have a comprehensive understanding of the different government strategies. Part of this discussion and follow up questions could include:

- Which of the initiatives do you believe will be the most effective? Why?
- Which country/region has the best set of strategies? Explain why.
- Are the timelines regarding the implementation of the strategies appropriate?
- Are the Governments around the globe doing enough to combat plastics? What factors could be limiting Government action? (E.g. What processes do governments have to follow to introduce such legislation?)
- What other strategies do you believe Governments could implement?

4. From the above table make a list of the policies that countries have implemented to reduce the use of plastic. Place these in a table, similar to that below. Research whether Federal or State Governments of Australia have implemented or planned to implement similar policies. Some sites to assist your research include

- [Australian Government Department of the Environment and Energy](#)
- [Engage Victoria](#)
- [Microbead reduction](#)
- [How successful are waste abatement campaigns and government policies at reducing plastic waste into the marine environment?](#)

Strategy to reduce use of plastic item	Has this strategy been implemented by Federal or State Governments in Australia	Date of implementation or proposed timeline
Other strategy which is unique to Australia (e.g. education programs)		

Using the information from the above table as a guide, complete the following tasks:

- Compare and contrast Australia's progress in reducing the amount of plastic items with that of the other countries.
- How effective do you believe the strategies implemented will be in Australia?
- What are some potential limitations to these policies and strategies? Suggest ways they can be overcome.
- What other strategies would you like the Governments of Australia to implement? Share these with another classmate and get them to comment on the feasibility of them.

How are businesses reducing the use of plastic items?

1. As an example of the efforts of businesses to reduce the amount of plastics, read over the following article from [New Plastics Economy](#).

Complete the following tasks:

- a. For the companies discussed in the article list the ways in which they are/ plan to reduce their use of plastics.
- b. What are the timelines for the above strategies? Comment on whether you consider these timelines to be suitable.
- c. For one/two of those companies go to their website to find more specific details about the programs discussed in the article. Other companies such as Starbucks, Coles and Woolworths can also be included. When researching these companies you should look at the websites of their Australian branches as they can contain information about programs that are specific to Australia.

As an alternative to the above, you could divide the class into pairs and allocate each pair a specific company to research.

A table similar to that below could be used to record and share the information.

Company : _____

Description of strategy to reduce the use of plastics	Date of implementation	Comments about the effectiveness of this strategy (consider whether the strategies are sustainable and whether they achieve the aims set)

3. Complete a SWOT analysis regarding the decision by Coles and Woolworths to phase out the use of plastic bags. Whilst there are a range of articles on this strategy, to get you started you could look at:
- [Coles and Woolworths' plastic bag ban and the choices that remain](#)
 - [Getting rid of plastic bags: a windfall for supermarkets but it won't do much for the environment](#)

<u>Strengths</u>	<u>Weaknesses</u>
<u>Opportunities</u>	<u>Threats</u>

Using the results from the SWOT analysis evaluate the effectiveness of the announcements by Coles and Woolworths. Summarise this evaluation in a written paragraph.

How are non- profit organisations reducing the use of plastics

Please refer to Activity Sheet 8.

Recycling Plastics

According to a range of sources only 9% of all plastics are recycled (Source: [National Geographic](#)). The majority of plastics are produced by virgin fossil fuels. It is estimated producing plastics from recycling saves between 70-80% of the energy required to produce plastics from fossil fuels. So given the overall benefits to the environment and the fact that recycling would create less plastic waste it seems logical to invest into reusing plastics.

1. Go to [The Liquid Grid](#) and download the diagram showing the separation of plastics for recycling. You can copy it into your workbooks if you would prefer.
2. Read over the following articles:
 - [Recycling in Australia is in crisis. Can it be fixed?](#)
 - [Australia needs to start recycling and reusing its own waste, says industry struggling under China's ban](#)
 - [Plastics recycling: challenges and opportunities](#)

- a. According to these articles what are the reasons why products are not necessarily being recycled?
 - b. What suggestions did the articles suggest to improve the percentage of recycled products being used?
3. Read over the following articles:
- [If we can't recycle it, why not turn our waste plastic into fuel?](#)
 - [Campaigners reject plastics-to-fuel projects: but are they right?](#)
 - [Waste crisis: Australia isn't recycling, we're 'just collecting'](#)
 - [What Australia can learn from world's best and worst recyclers](#)

Using the information contained in the above articles, summarise the strategies that other countries are using to reduce their plastic waste.

For each of the methods evaluate whether it would be effective in Australia.

Alternatively, break the class up into small groups. Allow each group time to research inventive ways that recycled plastics could be used on a mass scale. For example, there are trials of laying bitumen that contains plastics. From their research students are required to present a proposal containing what they consider to be the best package of methods to reuse plastics on a large scale.

In their presentation the following points need to be raised:

- An outline of how the method uses recycled plastics
- The technology and infrastructure required for this method
- The amount of plastic that could be used
- An estimation of the costs involved (this may not always be available)
- An outline of the pros and cons of this approach
- A summary of why they chose this particular approach

This could be presented in a poster format, as if they were presenting at a conference. It could be presented on a Powerpoint or as an oral presentation, or in a written report.