

Lesson Summary

Pollution is flooding into the ocean continuously, Plastic and toxic waste form a fatal hazard for marine wildlife. In this lesson we discuss the issue of pollution, how it ends up in the ocean and the impact on marine wildlife.



Activities

These activities are designed to enhance and expand on the key learnings from the Polluting the Ocean lesson. They can be used as part of the Lesson or assigned for research or projects.

English

LEARNING SKILLS – Creative thinking, questioning, research, communicate, critical thinking, empathy, explanation, teamwork and global citizenship.

Activity 1

Research and write a response or debate:

“The benefit of plastic to society does not justify the environmental impact”

Activity 2

The Plastic Ocean advertisement – watch the video and discuss what the advert means to the students.

How does it make them feel? What key message does it convey? How would they convey the same message?

The Plastic Ocean: https://www.youtube.com/watch?v=cYPeu_fdWas

Geography

LEARNING SKILLS – Understanding, questioning, research, communicate, critical thinking, analyse and explanation.

Activity 1

Select a country and follow its geography to see how rubbish can travel long distances to finally end up in the ocean.

Follow how rubbish from this country enters the ocean current and in which gyre it ends up.

Activity 2

Choose an ocean area (North Pacific, South Pacific, North Atlantic, South Atlantic or Indian ocean) and create a map showing the flow of currents along the coast and around the ocean.

Show how debris would move around the ocean. Identify in which other countries the debris could end up.

History

LEARNING SKILLS – Understanding, questioning, research, communicate, critical thinking and explanation.

Activity 1

Research the history of plastic and why it was produced.

When were single use type products introduced and when did they become popular?

Activity 2

Research the use of fertilisers and weedkillers. When were they introduced, what chemicals have been used, have any been banned?

What has been the impact on the ocean and marine wildlife?

Have laws or regulations been made to prevent impact on the ocean?

Note: Two issues to investigate could be the use and banning of DDT, or ocean dead zones created by the agriculture industry.

Math

LEARNING SKILLS – Problem solving, calculation, comparison and critical thinking.

Activity 1

Calculate how 12 million tonnes of plastics equates to distance – if converted to 1 metre cubes how far would it stretch?

1 metre cube = x tonnes

What factors and variables do you need to determine how long it would take for debris, floating on the ocean current, to travel from one location to another location?

The following reference will assist in calculating the weight of plastics:

<https://sciencing.com/calculate-weight-plastic-8201652.html>

Science

LEARNING SKILLS – Understanding, questioning, research, analyse, communicate, critical thinking and explanation.

Activity 1

We know that plastic pollution is a major issue impacting marine wildlife and the oceans, but what are the impacts of pollution on benthic habitats? How would this impact marine animals?

Activity 2

Create your own long term experiment to determine the impact of pollution on the ocean. Look at what the environmental impacts would be, which chemical compounds would be present and how would the pollutant disperse over time:

Examples could be:

- Filling sealed glass containers with seawater and items, such as plastics (bags/balloons or hard plastic pieces), weedkillers, oil etc.
- Monitoring and photographing how they break up, decompose.
- Measuring the chemical content of the water at the start and end of the experiment.
- Determining what the chemical implications would be for marine wildlife.

These experiments would be set up at the start of a term and monitored over the term or year.

Activity 3

Design a way to remove plastic or other pollutants from the ocean without impacting marine wildlife or habitats.

POLLUTING THE OCEAN LESSON ACTIVITY SHEET

TEACHING RESOURCE: SECONDARY SCHOOL (Age 11 – 16)

Social Science

LEARNING SKILLS – Understanding, questioning, research, communicate, critical thinking, empathy, explanation, advocate and global citizenship.

Activity 1

Reducing the impact of plastics or any pollution on marine wildlife starts with actions taken by individuals and laws imposed by governments. Investigate these areas and determine what actions could be taken:

Investigate what your local laws are on recycling and single use plastics.

What laws could the government create to reduce plastic pollution in the ocean?

How do plastics reach the ocean from your area, how could this be prevented?

Create a program to reduce plastic waste in your local area / school – look at replacing items week by week – create a guide for school – swap meets – repair workshops.

POLLUTING THE OCEAN LESSON ACTIVITY SHEET

TEACHING RESOURCE: SECONDARY SCHOOL (Age 11 – 16)

Arts / Media

LEARNING SKILLS – Creative thinking, research, communicate, critical thinking, empathy, explanation, advocate and global citizenship.

Activity 1

Create an artwork to show the impacts of pollution on the ocean and marine wildlife:

- Choose the type of pollution(s) you wish to represent.
- Determine what your key message will be.
- Select what type of artwork you wish to create – collage, poster, infographic, video, painting or sculpture.

YOUR FEEDBACK

We value your feedback and would be pleased to hear your thoughts about this lesson and activities. Any comments, suggestions or requests for further information can be sent to education@seashepherdglobal.org