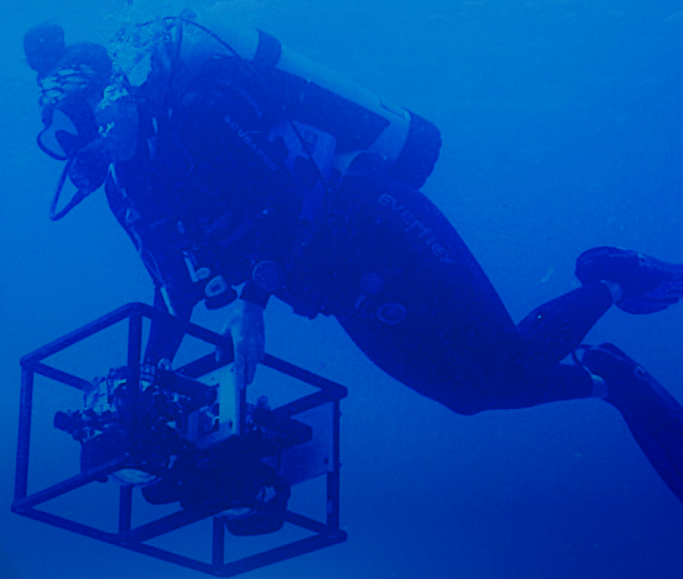


OCEANX



OCEANXPERIENCE



INSTRUCTIONAL SEQUENCE

RESPONDING TO OCEAN POLLUTION (PRE-VISIT)

Human Impact on the Environment

GRADE LEVEL: 9-12



Never stop wondering.
Never stop imagining.™

Presented for Australian audience by:

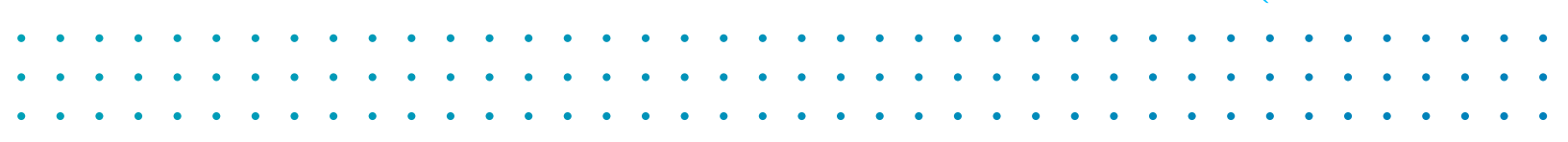


PURPOSE

One of the major impacts to the ocean is pollution. This can be from plastics, and from chemicals from fertilizers, sunscreens, and pesticides. Throughout the past century, humans have responded to the call to lessen our impact in different ways.

OBJECTIVE

Students will evaluate society's response to recent environmental movements to reduce single-use plastic usage and develop a campaign to bring awareness to another ocean pollution problem.



YEAR 9

HUMANITIES AND SOCIAL SCIENCES

Knowledge and understanding - Civics and Citizenship:

WA9HAKUC4 - How young people can participate in and contribute to civic life in Australia and as a global citizen.

Knowledge and understanding - Geography *Biomes and food security:*

WA9HAKUG1 - The characteristics and spatial distribution of biomes as regions with distinctive climates, soils and vegetation.

WA9HAKUG2 - The ways that humans in the production of food and fibre have altered some biomes.

Geographies of interconnections:

WA9HAKUG8 - The effects of people's travel, recreation, cultural or leisure choices on places, and the implications for the sustainability of these places.

Humanities and Social Sciences skills - Questioning and researching:

WA9HASKQ1 - Identify current personal knowledge, gaps, misconceptions, currency of information, personal perspective and possible perspectives of others.

Humanities and Social Sciences skills - Analysing:

WA9HASKA1 - Use criteria to analyse the reliability, bias, usefulness and currency of primary sources and/or secondary sources.

WA9HASKA2 - Analyse information and/or data in different formats.

WA9HASKA3 - Account for different interpretations and points of view/perspectives in information and/or data.

WA9HASKA4 - Analyse the 'big picture'.

YEAR 9 - CONTINUED

Humanities and Social Sciences skills - Evaluating:

WA9HASKE1 - Draw evidence-based conclusions by evaluating information and/or data, taking into account ambiguities and multiple perspectives; negotiate and resolve contentious issues; propose individual and collective action in response to contemporary events, challenges, developments, issues, problems and/or phenomena.

WA9HASKE2 - Critically evaluate information and/or data and ideas from a range of sources.

Humanities and Social Sciences skills - Communicating and reflecting:

WA9HASKC1 - Select a range of appropriate formats based on their effectiveness to suit audience and purpose, using relevant digital technologies as appropriate.

WA9HASKC2 - Reflect on why all findings are tentative.

WA9HASKC3 - Develop texts, particularly explanations and discussions, using evidence from a range of sources to support conclusions and/or arguments.

WA9HASKC5 - Compare evidence to substantiate judgements.

WA9HASKC6 - Generate a range of viable options in response to an issue or event to recommend and justify a course of action, and predict the potential consequences of the proposed action.

YEAR 10

HUMANITIES AND SOCIAL SCIENCES

Knowledge and understanding - Civics and Citizenship

Australia as a global citizen:

WA10HAKUC5 - Australia's roles and responsibilities at a global level.

Knowledge and understanding - Economics and Business

The changing world of business:

WA10HAKUE8 The role of ethical decision-making in production and consumption.

Knowledge and understanding - Geography

Environmental change and management:

WA10HAKUG1 - The human-induced changes that challenge the sustainability of natural environments.

WA10HAKUG2 - The environmental world views of people, including Aboriginal and Torres Strait Islander peoples; approaches to custodial responsibilities, and their implications for environmental management.

WA10HAKUG3 - The causes and consequences of one environmental change at a local, national or global scale.

WA10HAKUG4 - The responses to manage the environmental change and the application of environmental, economic and social criteria in evaluating these management responses.

Humanities and Social Sciences skills - Questioning and researching:

WA10HASKQ1 - Identify current personal knowledge, gaps, misconceptions, currency of information, personal perspective and possible perspectives of others.

WA10HASKQ2 - Construct, select and evaluate a range of questions and hypotheses involving cause and effect, patterns and trends, and different perspectives.

YEAR 10 - CONTINUED

WA10HASKQ3 - Analyse and clarify the purpose of an inquiry using appropriate methodologies, ethical protocols and concepts to plan for, and inform, an investigation.

WA10HASKQ5 - Identify the origin, purpose and context of primary sources and/or secondary sources.

Humanities and Social Sciences skills - Analysing:

WA10HASKA1 - Use criteria to analyse the reliability, bias, usefulness and currency of primary sources and/or secondary sources.

WA10HASKA2 - Analyse information and/or data in different formats.

WA10HASKA3 - Account for different interpretations and points of view/perspectives in information and/or data.

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Humanities and Social Sciences skills - Evaluating:

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Humanities and Social Sciences skills - Communicating and reflecting:

WA10HASKC1 - Select a range of appropriate formats based on their effectiveness to suit audience and purpose, using relevant digital technologies as appropriate.

YEAR 11

Animal Production Systems
Marine and Maritime Studies
Earth and Environmental Studies

YEAR 12

Animal Production Systems
Marine and Maritime Studies
Earth and Environmental Studies

VOCABULARY

CAMPAIGN

A series of actions or events that are meant to achieve a specific result

MICROPLASTICS

Tiny bits of plastic that pollute water

DDT

An insecticide used in agriculture

MATERIALS

PRESENTATION MENU BOARD

***SILENT SPRING* REFLECTION QUESTIONS**

ENVIRONMENTAL MOVEMENTS GRAPHIC ORGANIZER

ONLINE RESOURCES

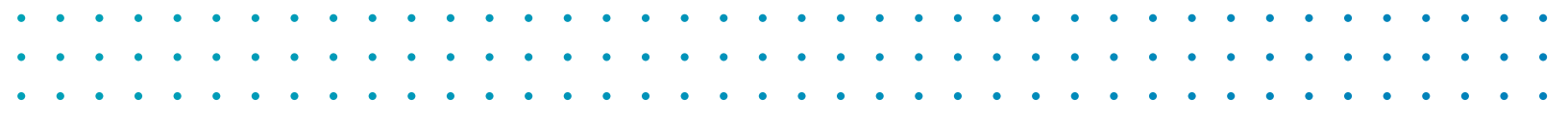
[OCEAN POLLUTION AND MARINE DEBRIS ARTICLE](#)

[HOW ONE SCIENTIST TOOK ON THE CHEMICAL INDUSTRY](#)

LITERARY CONNECTIONS

Silent Spring by Rachel Carson

A Sand County Almanac by Aldo Leopold



ENGAGE

Ask students if they can think of any recent environmental campaigns or movements. Prompt students to add their ideas to a class graffiti wall (large blank butcher paper) - they can explain their ideas using words or pictures. Possible student responses: 'Save the Turtles' movement and decrease the use of plastic straws, California's recent ban on single use plastic bags at stores, etc.

Students view a [TED-Ed video](#) about Rachel Carson's book, *Silent Spring*. After the video, hand out 'Silent Spring Reflection Questions' to students in small groups of 2-4, and encourage thoughtful discussion of each question in their small groups.

After students have had time to discuss their thoughts in small groups, facilitate a class discussion of the reflection questions.

EXPLORE

Handout the 'Environmental Movements Graphic Organizer' to small groups, and ask students to research other environmental movements that have occurred over the past century. Students can add their findings to the graphic organizer.

After student groups have had time to complete their graphic organizers, facilitate a class discussion to gather a list of environmental movements recorded on the board or on butcher paper.

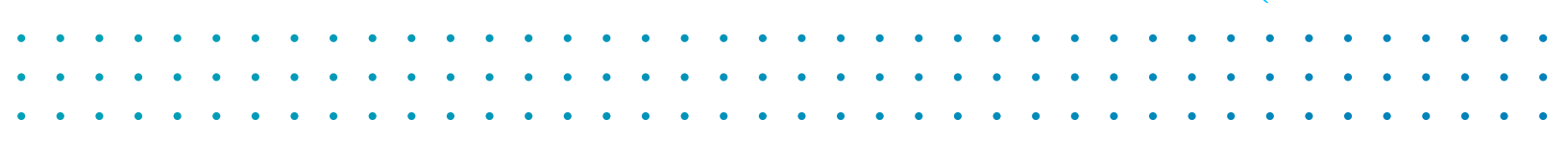
EXPLAIN

Allow student groups to choose one environmental movement to research further and present their findings.

Handout 'Presentation Menu Board' to each group. Groups can choose a presentation style using the menu board handout.

Allow student groups to research and prepare a presentation for the class. Their presentation should include how the movement was started, when it began, who was involved, positive and negative outcomes, and what the general societal response was.

Suggested preparation time: one class period. Suggested presentation time: 3-5 minutes.



EXTEND

Ask students to think about the different techniques these environmental movements from the past used to spread awareness, such as writing a book, news interviews, and protests. Ask students if they think that these techniques are still as effective in today's world.

Ask students what might be a more effective way to spread awareness, guiding them to mention the impact of social media.

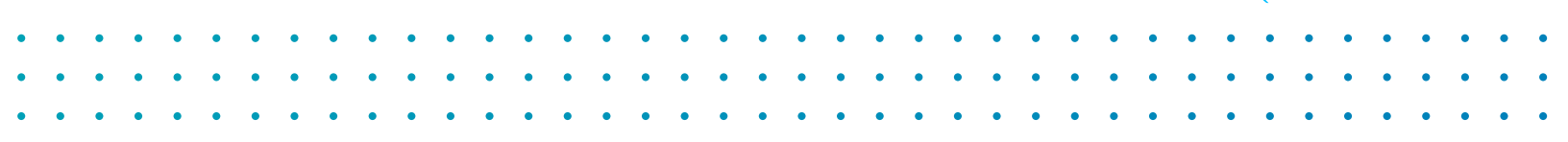
Discuss the [viral video](#) from 2017 that showed a straw being removed from a sea turtle's nostril, and how it led to the 'Save the Turtles!' movement.

Handout the [article](#) (or students can visit the website) from NOAA: Ocean Pollution and Marine Debris

Ask students to identify ways that plastic pollution is causing problems for marine wildlife.

EVALUATE

Students work in teams to create a new campaign similar to 'Save the Turtles' to bring awareness to another ocean pollution problem. Their campaign must include a hashtag and ways to bring awareness to their campaign, and an action plan/timeline with at least five realistic steps.



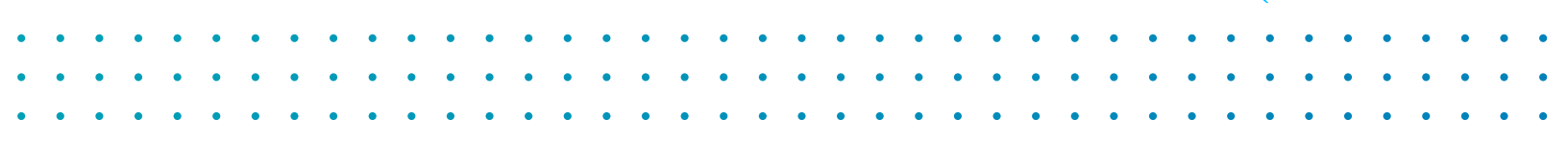
SILENT SPRING REFLECTION QUESTIONS

1. How did society respond to Silent Spring?

2. Given the timing of the book and thinking about American history, why do you think society responded the way it did?

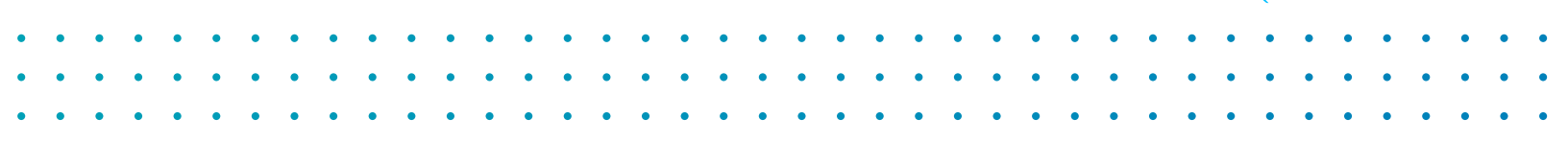
3. What were some of the scientific suggestions that Carson describes in her book?

4. If this scenario were to happen today, how do you believe society would react?



ENVIRONMENTAL MOVEMENTS GRAPHIC ORGANIZER

DESCRIBE THE ENVIRONMENTAL MOVEMENT:	YEAR(S) IT TOOK PLACE:	POSITIVE OUTCOME	NEGATIVE OUTCOME
<p>Rachel Carson's <i>Silent Spring</i> made people aware of the harmful effects of DDT.</p>	<p>1960-1980</p>	<p>Helped people realize that our actions can be harmful to the environment. Paved the way for other environmental movements to be heard. Laws were put into effect to regulate the use of pesticides.</p>	<p>Some blame <i>Silent Spring</i> for rising levels of malaria in the subsequent years after the book's release.</p>



PRESENTATION MENU BOARD

ONLINE VIDEO

Create an online video that features your environmental campaign.

POSTER

Create an eye-catching poster that informs people of your environmental campaign.

TED TALK

As a group, create a speech to inform the class about your environmental campaign, and persuade them to help lessen the impact.

JINGLE

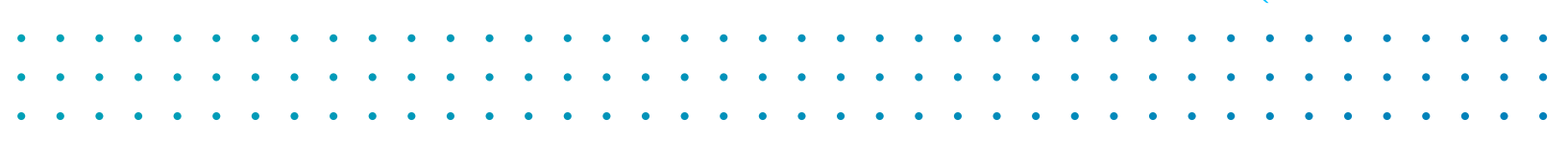
Write and perform a song that informs people of your environmental campaign and tells them how they can help.

BROCHURE

Design a tri-fold brochure that explains your environmental campaign and tells people how they can help.

STUDENT'S CHOICE

Come up with a presentation style, and ask your teacher for approval before presenting.



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