

Mission: Protect our oceans

Ocean pollution guide



Mission: Protect our oceans offers a creative approach to learning about the oceans and issues that affect us all: the environment, the impacts of climate change, and our future. Developed with the Natural Sciences and Engineering Research Council of Canada (NSERC) in partnership with the Canadian Commission for the United Nations Educational, Scientific and Cultural Organization (CCUNESCO).

Students will be able to draw and submit their own inventions to appear on nserc.littleinventors.org, where they will be reviewed by the Little Inventors team, NSERC and CCUNESCO! Their idea might even be chosen as team favourite, turned into an animation or even made into a real object by one of our Magnificent Makers. The winners will be invited to take part in a special exhibition in 2021 to celebrate the launch of the **United Nations Decade of Ocean Science for Sustainable Development**.

Ocean Pollution is the first of a set of three extensions packs on pollution designed to complement our core challenge resource pack - **Mission: Protect our oceans**, which offers a fresh way to learn about why the oceans matter, about sea life and habitats, and the threats and challenges to ocean health.

A second extension pack, **Climate Power** (the water cycle, the role of oceans in the weather, climate change issues) will be available by June 8, 2020 for World Oceans Day.

You can download the resources from nserc.littleinventors.org

The resources have been designed to support scaffolded learning for students age 5 to 15 years old to stretch their imagination and creativity.

Use the notes in the presentation to deliver your workshop. You can choose the slides that you think are most appropriate to support your lesson, whether for elementary or secondary students. The notes are coded in regular font for content that is more accessible and **in bold for content that is more advanced**.



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Familiarize yourself with the resources available before the workshop

Ocean Pollution

- Presentation
- 1x Travelling without a trace activity sheet per student

And of course don't forget to give your students invention sheets to capture their ingenious ideas!

Tools or materials needed during the workshop

Make sure you have plenty of black pens and colouring pens available for the workshop!

Ocean Pollution presentation

This presentation focuses on the issue of pollution and how it affects the oceans and is more accessible for elementary students, although it can be used to review knowledge for secondary students. Go through the slides with your class:

- Slides 2 **'It's all trash'** explains the role that oceans play in regulating pollution on our planet by absorbing carbon and producing oxygen, and how most pollution ends up in the oceans.
- Slide 3 **'Waste away'** shows the different kinds of garbage and pollution that end in the ocean.
- Slide 4 **'Oil over it'** concentrates on the issue and nature of oil spills.
- Slide 5 **'What a racket'** is all about noise pollution.
- Slide 6 **'A new hope'** highlights inventions that aim to help with these issues - and an opportunity to brainstorm ideas with your students or in small groups.
- Slide 7 **'It's in our hands'** is about our responsibility as individuals, society and government.
- Slide 8 **'Travelling without a trace'** supports the activity sheet of the same name, to encourage students to think about ways to lessen the impact of transport on the planet and the ocean.
- Slide 9 **'Coming up with ideas'** offers tips to get ideas flowing!

You can make this PowerPoint as interactive as you wish by asking your students questions throughout, such as:

- What pollution do they think end up in the ocean?
- Why does land pollution matter to the health of the oceans?
- What could we do as individuals to reduce the amount of pollution on land and in the oceans?
- What kind of transport happens on the ocean?
- Why is noise an issue under water?
- Why do we need to look after our oceans?
- What could the future of the oceans look like?
- What would a happy ocean be like?

Then use the 'Travelling without a trace' activity sheet to explore how transport can be different and be kinder to the environment and the ocean. Brainstorm each of the different environments, get your students to come up with as many transportation modes for that environment, and then rank them from least to most polluting.

Finish by getting them to think up and draw an invention that tackles the plastic problem and submit it to the Mission: Protect our oceans challenge on nserc.littleinventors.org for a chance to see their invention being made real!

Customization: Concentrate on one aspect of pollution only.

Extended activity: You could ask students to research other examples of real inventions that tackle garbage, oil or noise pollution.



You could also include a hands on activity on how to clean oil spills to support the session: <https://letstalkscience.ca/educational-resources/hands-on-activities/what-best-way-clean-oil-spill>

Round-up!

After running the activity, gather all the student invention drawings in a gallery around the classroom/ workspace.

Get students to discuss their favourite ideas — what do they like and why? Encourage positive feedback throughout.

- What do they think of their invention?
- What are its strengths and weaknesses?
- How do they think their invention would work in real life?
- Can they imagine their invention being used by other people? What would they say?
- What other ideas or challenges can they think of?
- Why are inventions useful?
- How will they approach problems in the future?

Give students extra invention sheets to come up with more invention ideas at home. They can also download more invention sheets for free on nserc.littleinventors.org.

After the workshop: Make sure you collect all invention sheets during the workshop. Invention drawings should be scanned (rather than photographed) to be uploaded on nserc.littleinventors.org for a chance to get picked as Little Inventors team favourites, turned into animations or even get made into real objects!

With thanks to Let's Talk Science for contributing their expertise in bringing these resources together.

You can find useful learning strategies and further ocean related resources <https://letstalkscience.ca/educational-resources/learning-strategies>.

<https://letstalkscience.ca/resources/search> (type "ocean" in the search box)

