The Plastic Diet:
Micro-plastics and how to fight them.

1. Introduction to the subject

Micro-plastic pollution is a growing problem around the globe, but many of us don’t realise that we are introducing micro-plastics into our oceans through our everyday lifestyle. Recent research has shown that we can now find micro-plastics in the food we eat. This is not a new problem, it has been circulating in our oceans and our food chain since plastic was first invented, and if we do not act now, we will reach the point of no return.

This lesson aims to make students question the consequences of their everyday actions and to give them the tools necessary to reduce their personal contribution to the global plastic pollution issue.

2. Key objectives

a) To know the definition of micro-plastics.
b) Understand how micro-plastics effect the environment and human health.
c) Identify ways to prevent micro-plastics becoming a global issue.

3. Video presentation

- Are you eating plastic for dinner? https://www.youtube.com/watch?v=FjT8GG0ETQg
  What are Micro-plastics, how are they effecting our ecosystems and how are they ending up on our dinner plates.

  The micro-plastic problem in relation to marine life, with emphasis on the amplification of the problem from ingestion by zoo-plankton to mega-fauna to human consumption.

- Fighting the Plague: How to save our seas from plastic pollution. https://www.youtube.com/watch?v=hE9bDq1UZQA
  Be a part of the solution; simple changes you can make in your everyday life to tackle the micro-plastic problem.

4. Questions.

Each group to present to the class the findings of their discussions (5 mins per group)

Online Classroom

Using a virtual classroom or conference style video calls, each group to discuss one of the following questions (20 mins)

Independent Online Learning

Read each of the questions below. Make notes on each question and submit them to your teacher via email (20 mins)

Film a short video clip outlining your key points for each question. Submit to your teacher (5 mins per question)
a) How does plastic end up in the sea, what can we do to prevent this?

b) There are 5 trillion pieces of plastic waste in the ocean, how do we remove this plastic from the sea?

c) Name 10 ways we can all reduce the amount of plastic we use in everyday life?

d) Name 10 ways your school can use less plastic today!

e) Imagine you are in a position of power (i.e. the Prime Minister), what laws would you impose to tackle the plastic pollution problem.

5. Workshop/Activity

- **In School**
  - At home, record/collect all the plastic you use in the week. Bring in the following week to be placed in a box in the classroom and see how much plastic we all use in one week. Now what do we do to ensure this doesn’t end up in our oceans?

- **Online Classroom**
  - At home, record/collect all the plastic you use in the week. For the on-line classroom, you can take a picture of the quantity to show the rest of classroom. Now what do we do to ensure this doesn’t end up in our oceans?

- **Independent Online Learning**
  - At home, record/collect all the plastic you use in the week. Send a picture to your teacher to visualise how much plastic we use in a week. Now what do we do to ensure this doesn’t end up in our oceans?

6. Action plan/ fund-raiser

- a) Be a part of the largest clean up in history. Host a fund-raising event to support THE OCEAN CLEAN UP. [https://theoceancleanup.com/](https://theoceancleanup.com/)

7. Take home assignment

- a) Ask the students to design a community clean up action plan, to place recycling efforts within the school and further into the local community. The winning action plan will be published on The Fair Earth Foundation website and given an award, that will include a Global Citizenship Voucher. Send the action plan to mimi@fairearthfoundation.org

- b) Create a list of simple swaps you can do today to reduce your plastic footprint. E.g. Plastic bag to reusable organic cotton tote bag.

Useful links for further research:

The Plastic Diet: Micro-plastics and how to fight them

Primary micro-plastics, which are 5mm or less in size before entering the environment.
Secondary micro-plastics, which degrade over time into smaller fragments. Soda bottles, fishnets and carrier bags are some examples of these.

Micro-plastics are deadly. Up to one million people and 100,000 marine animals are dying every year as a result of micro-plastic pollution.

Micro-plastics are consumed by virtually all marine creatures, including cetaceans, birds, pinnipeds, fish, crustaceans, cephalopods and even plankton!

Many primary micro-plastics are derived from cosmetics, like toothpaste, face scrub and shower gels.

From consumption, micro-plastics enter the human food chain. Plastic particles eaten by haddock, cod, prawns and mussels will end up on your plate - potentially causing tissue damage, reduced fitness, inflammation

We can help to fight the plastic plague by:

Reduce the amount of single-use plastic products that we use, such as straws and carrier bags.
Switch to alternative cosmetics that use natural ingredients such as crushed nutshells.
Use products made with natural materials - such as cotton reusable cotton tote bags.
Advocate for changes in the law to dramatically reduce the production, consumption and disposal of plastic in our society.

Educate the public and encouraging people to get involved in organisations working to remove the plastic blight from our oceans.

Encourage and fund research for the development of technologies that can help to clean our oceans and reduce the toxic impact on our environment and ecosystems from all kinds of plastic.
Teacher Guide on Micro-plastics Lesson Plan (2 x 50 minute lesson)

1. Introduce the subject to the students with a short summary on the topic, provided in the lesson plan. (5 minutes)
2. State the key objectives with the students so that they know what the lesson will achieve. (2 minutes)
3. Show the students the three video presentations on Micro-plastics shown in the lesson plan. Ask the students to take notes on the three different videos, to fully take in the information. (20 minutes).
4. Bring the students into groups to discuss the questions stated in the lesson plan. Once they have discussed questions, they should prepare a 5 minute presentation on their answers (to be presented in the next lesson) (20 minutes).
5. Inform them of the at home activity listed on the lesson plan, to collect their plastic waste (ask them to rinse/clean it so it does not smell) into a box or bag until next lesson (a week).

Break

6. Summarise what the previous lesson was about, a quick mention of the video presentations. (5 minutes).
7. Each group of students will come up and present their answers on the questions, and the discussion results. (5 minutes each)
8. Remind the students of the at home task they had about the plastic waste and ask them to take a picture before the second lesson.
9. As a take home final assignment, ask the students to plan out an action plan to help recycle the plastic waste they have accumulated during that week, and to expand it to the local community. Make it a competition, as mentioned in the lesson plan. (5 minutes)
10. As an extra assignment, ask the students to go home and create a swap list with all the plastic products they can replace for environmentally friendly alternatives. (5 minutes)