



SEARCHING FOR
MICROPLASTICS IN
SAND SAMPLES

Geography | Geology | Biology | Chemistry | Mother Language | Mathematics



MED
EDUC



Erasmus+

WASTE AND
POLLUTION



PEDAGOGIC CONTENT :

- Marine pollution
- Waste
- Micro plastics
- Plastic microbeads
- Environmental sustainability

PRE-REQUISITES:

- Knowledge of notions relevant to marine pollution issues

NEW COMPETENCIES TARGETED/LEARNING OUTCOMES:

STUDENTS WILL BE ABLE TO:



- Investigate this type of pollution in sea shores
- Be familiar with scientific procedures
- Be familiar with the use of scientific equipment
- Behave like a scientist
- Help raise awareness and thus encourage behavioral change that reduces practices which cause microplastics input into the marine environment.











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DESCRIPTION:

PREPARATION

-  **#1:** (In the classroom). Educator discuss with the students about the marine litter issues. What we mean when we refer to marine litter, how marine litter enters the sea, how marine litter items impact the marine ecosystems, what kind of plastics we observe etc. He / She asks the students to search for microplastics in the internet.
-  **#2:** (in the beach). The students go to different areas of the same beach or they go to different beaches and collect some sand samples.

IMPLEMENTATION

-  **#1:** (In the lab, or classroom). Students are divided into pairs or groups and each group takes a sample of sand and examines it for plastic items and micro plastics. They complete the worksheet below with information for the plastics they found in their sample. They use magnifying lenses for their observations, and tongs or tweezers, for removing the plastic items. They also take photos of the plastic items. It is possible that students could weigh the sand so they can calculate the number of microplastic items present per kg of sand.
-  **#2:** (In the lab or classroom). Students remove from their sample all the plastic items (micro plastic, bigger plastics, or micro beads) and they put them in another plate.
-  **#3:** (In the lab) Students observe the different sizes of micro plastics with the use of magnifying lenses or stereoscopes and they note this information.
-  **#4:** (In the lab or classroom). Students calculate how many plastic items they have found in their samples.
-  **#5:** Students create a microplastics photo guide (e.g. filaments, films, foam, fragments, pellets etc.)
-  **#6:** Students make a poster with their results and discuss about them with the educator and the rest of the class.
-  **#7:** Educator makes reference to the relevant legislation (local provisions, national laws, European laws for marine pollution)
-  **#8:** Students make an exhibition with all the posters (results, comments, photos, etc.) to inform the rest of the school community about the major environmental problem from micro plastics.

Type of activity ⓘ Publication, exhibition, experimental activities

Target audience ⓘ From 12 years old

Place ⓘ Classroom, laboratory

Material needed ⓘ Magnifying lenses Stereoscopes, sand samples, plates, tongs, worksheets, pencils, cameras, glass petri dishes, teasing needles

Duration of activity ⓘ Preparation :1-2 hours
Implementation : 2-3 hours

Authorship ⓘ HCMR (Education Unit)
No authorization required

Links ⓘ <https://oceanservice.noaa.gov/facts/microplastics.html>

Notes by the author ⓘ Background information relevant to the microplastics and the chemistry behind them.



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Worksheet

How many items of plastic did you find in your sample?	How many of these items are micro plastics ?
<i>Photo</i>	<i>photo</i>
What kind of color have the plastics you found Red Blue Green Black Other	Did you find another material except plastic in your sample (e.g. glass, iron, etc.) ?
<i>Photo</i>	<i>photo</i>