

Plastic Pirates: - Go Europe Coastal sampling: step-by- step guide for teachers

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Co-funded by
the European Union

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Estonia – Latvia



What is Plastic Pirates campaign?



- The goal of the campaign is to **raise awareness** and learn more about **plastic pollution**. **Coastal sampling** lets you investigate your **local sea coast**
- The Plastic Pirates campaign was developed in **Germany** in 2016 focusing on rivers and streams. Now it has become a **Europe-wide campaign** with a **protocol for coastal sampling** created in 2024
- The campaign emphasizes the importance of **citizen science** and **international research collaboration**. **Uniform guidelines** and working steps for all participants ensure that throughout Europe the data collected is **comparable** and more locations appear on the [Plastic Pirates map](#).

How does it work?

Young people interested in learning more about the environment and science get the opportunity to **do their own research**:

- identify a beach nearby to explore
- collect litter data
- upload it to a shared database

Plastic Pirates samplings can be done in **spring or autumn**. Participants have to **follow a protocol** and **note down information** on litter types, quantity and other relevant details - like scientists do

There are **4 phases** - preparation, sampling, reflection and data uploading

Step 1.1 - Preparation

- Discuss in class - what do you know about plastic pollution in the ocean?
- Where is the closest sea coast near your school? Is it a popular beach?
- Do you notice a lot of plastic litter when you visit the local beach? What kind of litter do you see most often?
- Do you know what microplastics are?

Step 1.2 - Preparation

- Learn about the coastal sampling tasks and divide in groups
- Students must divide in **4 groups** (5 groups if you want to look for **microplastics**, too). Each group should have minimum 3-4 people
- Look through the next slide and **checklist** for each group - note what **materials** your group will need to use
- Identify where you will do the sampling, how much area does each group needs

Step 1.3 Preparation

Group A – Waste on the beach

- The aim of this group is assess **how much litter is found on the beach per m²** in 3 separate coast zones
- You will need **3 squares** in each zone, size of the square **3m x 3m**. Collect all litter items in each square. On a sheet of paper note down school name, date, location and the transect and sampling point number (e.g. Transect A, square 1 – 1A). Summarize the results in the table count litter items in each category.

In categories where no litter is found write 0.

- **Take photos** of litter items from each square with identifying square title!

Photo is needed even if no waste is found



Step 1.3 Preparation

Group B – Variety of waste on the beach (1/2)

- The aim of this group is to **assess variety of litter on the beach**
- Study area size – **50m** along the sea coast and width – depending on the beach, stop at vegetation zone (where grass starts growing). Note down how large is the area you covered (example, 50m x 75m)



Step 1.3 Preparation

Group B – Variety of waste on the beach (2/2)

- Follow checklist instructions – collect all litter items in the study area. Set up a **sorting station** next to the study area and sort found litter (if weather not suitable – windy, rainy - do this indoors)
- Fill out the table in the checklist. **Take a photo** of all sorted items. Take **separate photos of each category**, make sure items do not overlap!



- Please separate litter items, so they can be clearly counted!

Example – the red circles show categories where it is difficult to count individual items

Step 1.3 Preparation

Group C – Litter forensics

- The aim of this group is to **identify the origin of the litter items**
- As forensic scientists, you have to work closely with Group B at the sorting station. After group B has finished their task, examine litter items for any signs of information
- Look for brand name, any description, reference to country of origin. Fill out the information in the table. Assess the degradation stage (no degradation/low/medium/high)
- Take photos of the items with information

ID	Description	Origin	Hint to origin	Brand/Manufacturer	Degradation	Photo
1	Food packaging	Germany	German text	Nideregger	No degradation	X
2	Food packaging	Ukraine	Ukrainian brand/ cyrillic labelling	Konti	Low to medium degradation	X
3	Food packaging	Presumably Germany	Presumably Germany	Ricola	Medium degradation	X
4	Food packaging	Germany	German text fragments	Ferrero	High degradation	X

Step 1.3 Preparation

Group D – Team of reporters

- The aim of this group is to gather information about the sampling
- Document the sampling process with photos, gather information about the beach, **look for sources of waste**, interview other groups and estimate the effects of the **weather conditions**
- Look through the questions in the checklist, perhaps you can already start answering some questions about the beach before the sampling!

Group D – Team of reporters IBR reindžeri

Required materials: camera or smartphone, notepad and pen

Method - find information about the beach and how the other groups are doing!

Date: 16.05.26 ^{Sea} River: Baltic sea School name: Pātrne Kuningstīpa

Sampling point coordinates: Latitude _____ Longitude _____
57.749 580,24.34621

Weather over the last 7 days	Yes	No
Heavy rain, flooding	✓	
Storm, strong winds	✓	
Heat, dryness		✓

Source of waste	Yes	Possibly	No	Evidence
Local residents		✓		<i>people throw food packs on the ground</i>
Beach visitors	✓			
Fly tippers			✓	
Industry			✓	
Agriculture			✓	
Shipping				
Fishing		✓		<i>fishers often lose their ropes</i>

Remember to take photos of evidence!

Step 1.4 Preparation

Group E – Microplastics on the beach

- The aim of Group E is to look for **microplastics in beach sand**
- Please read the checklist for the instructions
- All the found microplastics must be collected in **zip-lock bags** after the sampling - one bag for each sampling square, 3 squares in total. Make sure to mark the bags with the sampling point number
- Give the zip-lock bags with found microplastics to scientists



Step 2 - Sampling

- You will need around 1,5-2 hours for sampling
- Make sure you wear **clothes suitable for the weather**, possibly strong wind
- At the beach divide in groups, mark the area for each group so you do not overlap and start your tasks
- Note down everything that is asked in the checklist
- Make sure to take photos - all findings must be recorded

Step 3 - Reflections

After the sampling trip discuss the following questions with your classmates:

- How has the campaign changed your view of the issue of plastic waste?
- What did you find particularly surprising during the activity?
- What do you regard as the greatest challenge?
- Who would you like to tell about the project, and why?
- What have you learned about yourself throughout the project?
- How has your understanding of the term 'science' changed over the course of the project?

Step 4 - Data upload

- After the sampling you will need to gather all the **photos and notes** from all groups (please include photos of protocol pages, too)
- This can be done by a teacher or a student, but supervision is needed
- Follow the link to campaign website:

<https://www.plastic-pirates.eu/en/results/data-upload>

Thank you for participating!

Presentation and simplified checklists were prepared and customized by Latvian Institute of Aquatic Ecology in the framework of **Interreg Estonia-Latvia cross-border cooperation programme project No. EE-LV00218**
Community cooperation for rivers and coasts (CoCoRiCo)

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