



CIIMAR - Interdisciplinary
Center for Marine and
Environmental Research



EDUCATIONAL PROGRAMME

2024 / 2025

LECTURES

ONLINE OR IN PERSON (AT SCHOOL OR AT CIIMAR)

ADAPTABLE TO THE VARIOUS EDUCATIONAL LEVELS

THEMES

- Plastic Oceans: Pollution of the Ocean and Marine Litter.
 - Marine Biodiversity - Protection and Conservation
 - Climate Change.
 - Water Footprint and the Importance of Water.
 - Other themes suggested by the schools (to be analyzed case by case).
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VISITS TO CIIMAR

ADAPTABLE TO THE VARIOUS EDUCATIONAL LEVELS

Visit to CIIMAR facilities, to get to know the work developed by the different research areas that compose CIIMAR. This visit allows a closer connection to the research of excellence developed in the areas of Marine and Environmental Sciences, allowing the knowledge of innovative themes and techniques in these areas of knowledge.

FIELD TRIPS

IN AN EXTERNAL LOCATION TO BE ARRANGED

ADAPTABLE TO THE VARIOUS EDUCATIONAL LEVELS

THEMES

- Biodiversity between tides.
 - Help clean your beach.
 - There is life in the Ponds.
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HANDS-ON ACTIVITIES & GAMES

ONLINE OR IN PERSON (AT SCHOOL OR AT CIIMAR)

PLASTIC OCEAN

- **1st cycle:** This activity aims to raise awareness about the problem of marine litter with special emphasis on plastics. The activity is based on short animated videos produced especially for this purpose, that in a playful way will show the different sources of pollution of these waste residues, as well as the routes by which it enters the aquatic environments.

It will also be addressed the origin of the litter found and the consequences of its presence in the marine environment, raising awareness about the need to reduce the production and consumption of plastics and the care to be taken in the separation and disposal of the various types of waste. As a conclusion of the activity and in order to consolidate the knowledge learned, students will participate in a small quiz game.

THE 5 SENSES OF THE OCEAN



New

- **Kindergarten and 1st cycle:** Through the 5 senses of the human body, this activity challenges students to see, hear, smell, feel and taste the ocean and thus get to know it in a different and comprehensive way, exploring not only the enormous diversity of ocean life, but also its physical characteristics.

DISCOVERING THE OCEAN

- **1st cycle:** This activity begins with a short talk about the importance of the ocean, where some of the most emblematic species and small curiosities about the ocean will also be presented. Afterwards, the students will take part in a team game, where each team will have to answer various questions about what they have just learnt, focusing on the importance and services that the ocean provides to humanity and also on marine biodiversity.

TO HAVE FISH IN THE SEA YOU HAVE TO PRESERVE IT!



New

- **1st cycle:** This activity, which is based on a small workshop, consists of two parts. The first part is a short presentation on the importance of sustainable fishing for the proper functioning of all ecosystems, addressing the issues of overfishing and its consequences, as well as the solutions that exist to combat it. We then moved on to an activity that put the participants' artistic skills to the test by getting them to build their own ruler to measure the minimum catch sizes of different marine species.

The aim of this activity is to emphasise the behaviours that society as a whole can adopt, from the youngest to the oldest, to help combat the problem of overfishing.

WHAT IS A FISH? AND HOW CAN FISH SWIM?

In this activity, students will describe the main characteristics of fish, allowing the students to understand the advantages of these physiological adaptations to the way of life of these animals. In addition, and through the use of simple materials, the functioning of the swim bladder in bony fish and the presence of livers with large amounts of oil (in the case of elasmobranchs) will be addressed, as fundamental elements for the movement in the water column of these animals.

- **1st cycle:** simplified approach to the physiological characteristics of fish and implementation of an experimental activity.
 - **2nd and 3rd cycle:** In addition to the approach of the physiological characteristics of fish and the experimental activity, it will also be studied and discussed the examples of some fish that have some peculiar characteristics, in order to deepen the notion and concept of "fish".
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LIFE IN FRESH WATER



- **2nd and 3rd cycles:** This activity covers concepts such as the different bodies of water, their importance and their main threats, emphasising all the biodiversity that these wetlands promote. Using a game similar to the traditional 'Guess who?', participants will have to identify the different groups of living beings as well as the different species present in Porto's wetlands. The aim of this game is to raise awareness of the biodiversity of wetlands and sensitise participants to the importance of these organisms in maintaining the balance of different aquatic ecosystems.
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ALGAES? WHAT ARE THEY AND WHAT ARE THEY GOOD FOR?!

- **2nd, 3rd Cycles**: In this activity, students will get to know a little bit about the biodiversity of algae that populate our coast and learn the main aspects of their biology. Through a small game, they will also learn that algae are very important resources and that they have a variety of applications, being present in several everyday life products.

HOW DOES OCEAN ACIDIFICATION OCCURS?

- **2nd, 3rd Cycles and Secondary**: In this activity we intend that students investigate the phenomenon of ocean acidification and how it occurs, addressing the consequences of ocean acidification for marine life, especially for animals with shells. Concepts related to climate change and the increase of carbon dioxide in the atmosphere as well as the Greenhouse Effect will also be discussed.

DOES THE WATER MOVES?!

- **3rd cycle and Secondary**: This activity allows us to approach the concept of a body of water, focusing on its different characteristics, such as salinity or temperature, and analysing the influence of these characteristics on the movement of bodies of water. The concepts of the thermohaline model, the phenomenon of upwelling and its importance for fishing resources and the consequences of climate change on the modification of ocean currents will be covered.

OTOLITHS: THE IDENTITY CARD OF FISH

- **3rd cycle and Secondary School:** This activity allows students to get to know these important and unique structures of fish, addressing its importance to the fishes. Students will also understand the uses that we make of the diverse information provided by these structures, focusing particularly on their application in the management of aquatic resources. During the activity, students will extract otoliths from some fish specimens and estimate the age of those fishes.

WHAT GIVES COLOR TO ALGAE?

- **3rd cycle and Secondary:** In this activity the students will get to know a little bit about the biodiversity of algae that populate our coast and learn the main aspects of their biology. In addition, through the realization of a paper chromatography of different macroalgae (green, red brown), will proceed to the separation and identification of the pigments and analyze the distinctive characteristics of each tested group.

BIODIVERSITY AND WATER QUALITY



- **3rd Cycles and Secondary:** In this activity, participants are invited to be researchers for a day, having to plan a water quality study. Through this activity, participants will realise that the biodiversity of water bodies can be an excellent indicator of water quality and will have to use their creativity to solve problems that freshwater bodies are facing today. The aim is to sensitise participants to the different roles that biodiversity can play on our planet.

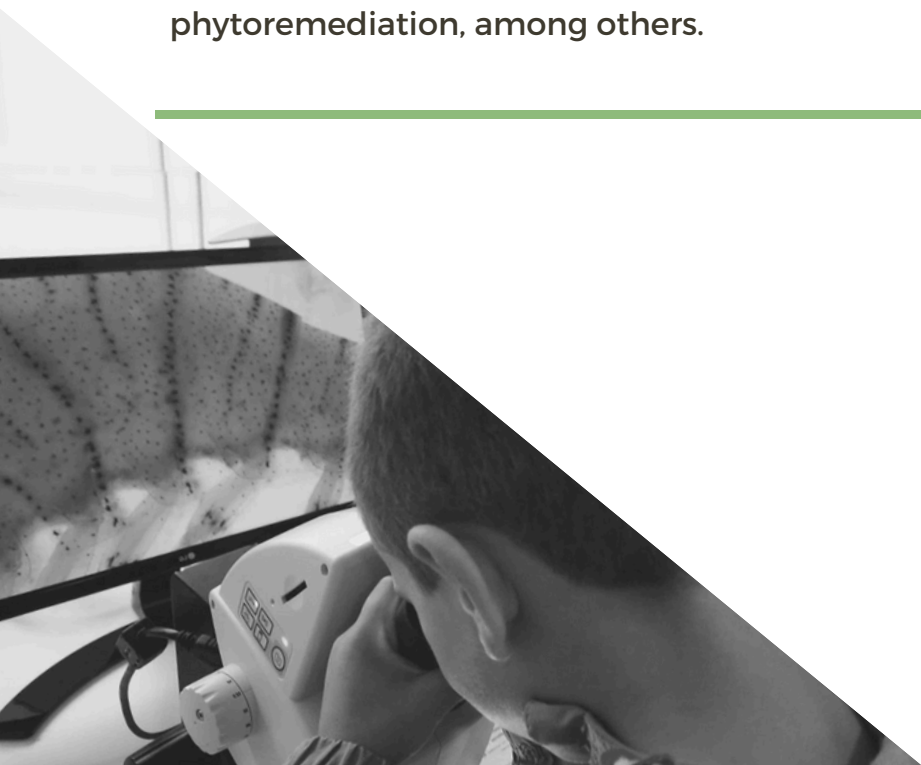
MICROPLASTICS: WHAT DO OUR MUSSELS EAT?

- **3rd cycle and Secondary**: In this activity we intend to study the existence of microplastics in the digestive system of a marine organism, present in most of our beaches, the mussel. We will also discuss the formation and origin of microplastics, as well as the origin of many marine debris and the consequences of their presence in the marine environment, both for marine animals and humanity. It is also intended to raise awareness of the need to reduce the production and consumption of plastics and the care needed when separating and disposing of various types of waste residues.

NEXUS ISLAND



- **3rd cycle and Secondary**: This game takes place in a hypothetical island scenario, in which different groups are responsible for exploring the biodiversity of a different part of the island. Throughout the game, an event takes place that will destabilise this biodiversity. Students are challenged to use their critical thinking and observation skills to find the cause of this event and establish possible solutions. It explores the concepts of biodiversity, interconnections, ecosystem services, blue biotechnology, bioremediation, phytoremediation, among others.



TALKS WITH A SCIENTIST

ONLINE ACTIVITIES CARRIED OUT BY DIFFERENT CIIMAR RESEARCHERS (ACCORDING TO THE CHOSEN THEME AND AVAILABILITY OF THE RESEARCHER)

ADAPTABLE TO THE VARIOUS EDUCATIONAL LEVELS

Activity carried out through videoconference:

- Viewing of videos about the researchers' work.
- Talk/debate between the researcher and students (question and answer session).

THEMES

- Marine artificial reefs: what they are and their use for studying biodiversity.
- Cyanobacteria and Microalgae: sources of natural products with various biotechnological applications.
- Study and monitoring of cetaceans as a tool for marine conservation.
- Drones and Science: Use of technological tools for the study of coastal ecosystems..
- The importance and technological innovations of modern and sustainable Aquaculture.
- From the deep of our sea: biodiversity management and conservation at the planet's frontier.
- Marine Forests! What are they and what is the importance of Marine Forests and Grasslands.

Novidade

PONDS CONSTRUCTION

PONDS WITH LIFE PROJECT

The construction of ponds in a school environment is intended to encourage the whole school community to discover, value and investigate ponds and their biodiversity. As well as contributing to the knowledge of the biodiversity and importance of these habitats, it is also intended to raise awareness and mobilize the school and local community to preserve the ponds as reservoirs of biodiversity and living laboratories.

The budget for Ponds construction is provided after reviewing the request and the conditions of the construction site.

TEACHER'S TRAINING ACTION

PONDS WITH LIFE - A TOOL FOR PEDAGOGICAL EXPLORATION AND CONSERVATION OF BIODIVERSITY

This training action allows for the development of skills in the construction and management of ponds, important habitats for biodiversity and excellent educational resources. It is an extremely timely topic, given the relevance of ponds in water management and biodiversity conservation, increasingly relevant in the face of climate change. It is a very dynamic training course, with both theoretical and practical components.

**Accredited Training of 25h (1 credit) or 15h (0,6 credits).
Conditions and budget for the Training Action under consultation.**

PRICE LIST

- 35€ - activity developed at CIIMAR* (Visit to CIIMAR, Hands-on Activity or Lecture, including online)
- 50€ - activity developed outside or at the school (Hands-on Activity, Field trip or Lecture)

Note: This value applies to travel within the Metropolitan area of Porto. Outside this area values apply upon request.

- 50€ - Visit to CIIMAR + Lecture or Hands-on Activity (held at CIIMAR).
- **Talk with a Scientist** - Free activity, subject to the scheduling and availability of researchers.

* Activities developed at CIIMAR are limited to groups with a maximum number of about 25 participants

REGISTRATION

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[REGISTRATION FORM](#)



[MORE INFORMATION](#)

