

Educational activities notebook



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Project CONCHA



CONCHA is a **multidisciplinary project** that aims to bring together cultures, history, and heritage from different geographic locations in the Atlantic, with a focus on creating new human geographies and borders based on early modern transatlantic interactions.

The main goal of CONCHA is to address the various ways in which **port cities** developed around the Atlantic from the late 15th century to the early 18th century, in relation to diverse global, regional, and local ecological and economic environments.



As part of its objectives, CONCHA aims to facilitate the exchange of education and outreach strategies among different types of Atlantic local institutions, aiming to contribute to the preservation of knowledge, culture, and heritage of Atlantic identities.

This activities notebook is designed as a tool to facilitate such mutual exchange and learning in creating and implementing educational and outreach activities in Atlantic port cities.

Institutions





Sea Observatory of the Azores (OMA)



Localização: Horta (Açores, Portugal)

Field of work: Science Communication

The Sea Observatory of the Azores (OMA) is a non-profit association with the objectives of promoting scientific and technological culture through conducting environmental education activities in the field of Marine Sciences.

It was established in 2002 by 23 founding members associated with the Department of Oceanography and Fisheries of the University of the Azores and is currently part of the Azores Science Centers Network. With its headquarters located in the Whale Factory of Porto Pim (Horta, Faial Island), the center is also responsible for safeguarding, studying, and promoting the Whaling Heritage of Faial and the Azores Region.





CHAM – NOVA FCSH



Location: Lisbon - Azores (Portugal)

Field of work: Environmental History,
Archaeology and History

The CHAM - Center for Humanities is an inter-university research unit affiliated with NOVA-FCSH and UAç, funded by the Foundation for Science and Technology. In a multicultural and collaborative environment, the center brings together researchers with backgrounds from various eras and disciplines, including Archaeology, Heritage, and History. They work to cultivate human sciences and promote original and systematic research into the historicity of human representations and actions. This is achieved through specialized teams and programs, following a multidisciplinary approach capable of addressing the challenges and needs of today's society. The center remains attentive to the past while envisioning the future of humanities.





NGO MARAPA



Location: São Tomé (São Tomé e Príncipe)

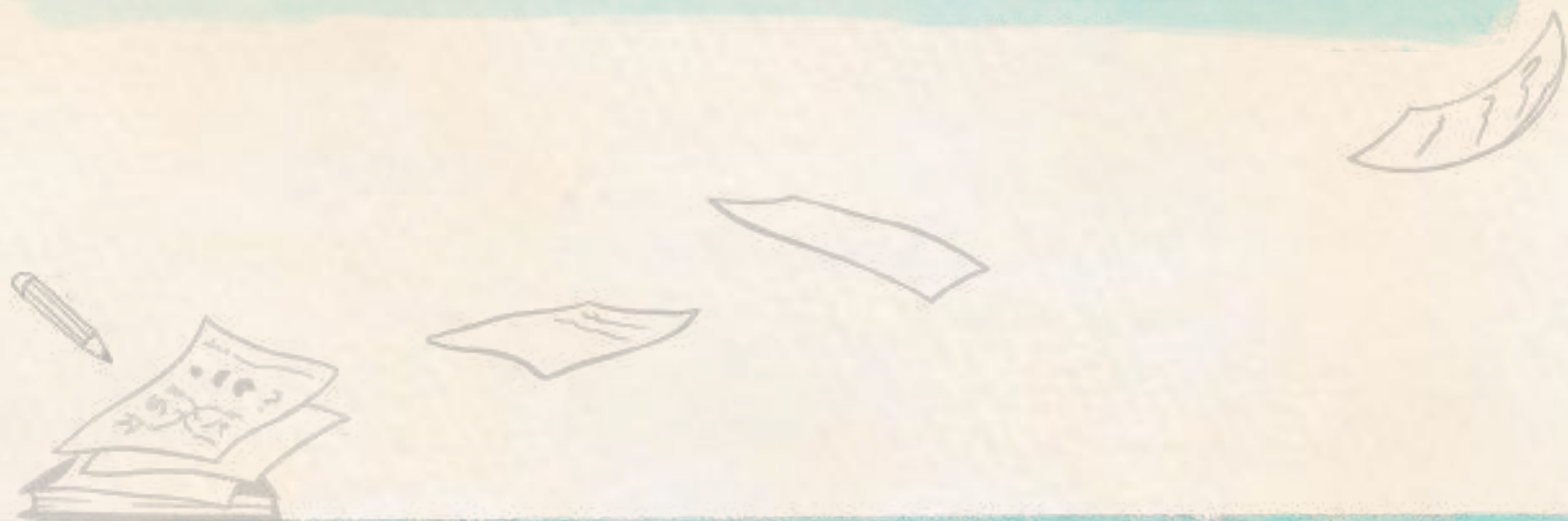
Field of work: Ocean Science and Fishing

The NGO MARAPA, founded in 1999, is known for its expertise in various fields throughout the country. Created by fisheries technicians, marine biologists and development agents, MARAPA maintains a multidisciplinary team, in order to have a global vision of the archipelago's problems.

Its actions are aimed at protecting the territory's marine and coastal habitats and ecosystems, co-managing fish stocks and supporting those involved in the fishing industry.



Educational Activities



Here is a series of proposed educational activities, primarily intended for school-aged children, but in some cases, also suitable for the general public. A summary of each activity, along with its main objectives and procedures for execution, is provided below.

For the implementation of these activities, various types of educational resources have been developed that can serve as support for the activity or as an integral part of it. Some of these resources, such as explanatory presentations or graphic design products, are available in digital format. Therefore, they can be included in this exchange of educational proposals among project participants who wish to do so.

Participating institutions are encouraged to promote the exchange of ideas, clarifications, or more detailed explanations regarding the educational activities proposed in this handbook.





Know your fish



Description: Students are invited to take on the role of fishermen using the dichotomous key from the SOS Tuba Prof Guide project to identify different deep-sea sharks.

Goals:

- Acquire knowledge about deep-sea sharks.
- Understand bycatch and its contribution to scientific knowledge and ecosystem conservation.
- Learn to use a dichotomous key for species identification.

Procedure: A theoretical introduction about deep-sea sharks and bycatch is conducted. Next, a dichotomous key and one shark per student are distributed. The use of the dichotomous key, shark anatomy, and the distinction between "scientific name" and "common name" are explained. Students are then required to identify their assigned shark, and upon reaching the species, verify it using the species guide. If they have identified the species incorrectly, they should restart the identification from the beginning.



Recommended for:
children aged 10 - 14





Scan our sea



Description: Students step into the role of a whale spotter, rediscovering their ancient techniques of **scanning the ocean for signs of sperm whales**. This craft once essential for hunting is still used today in whale watching.

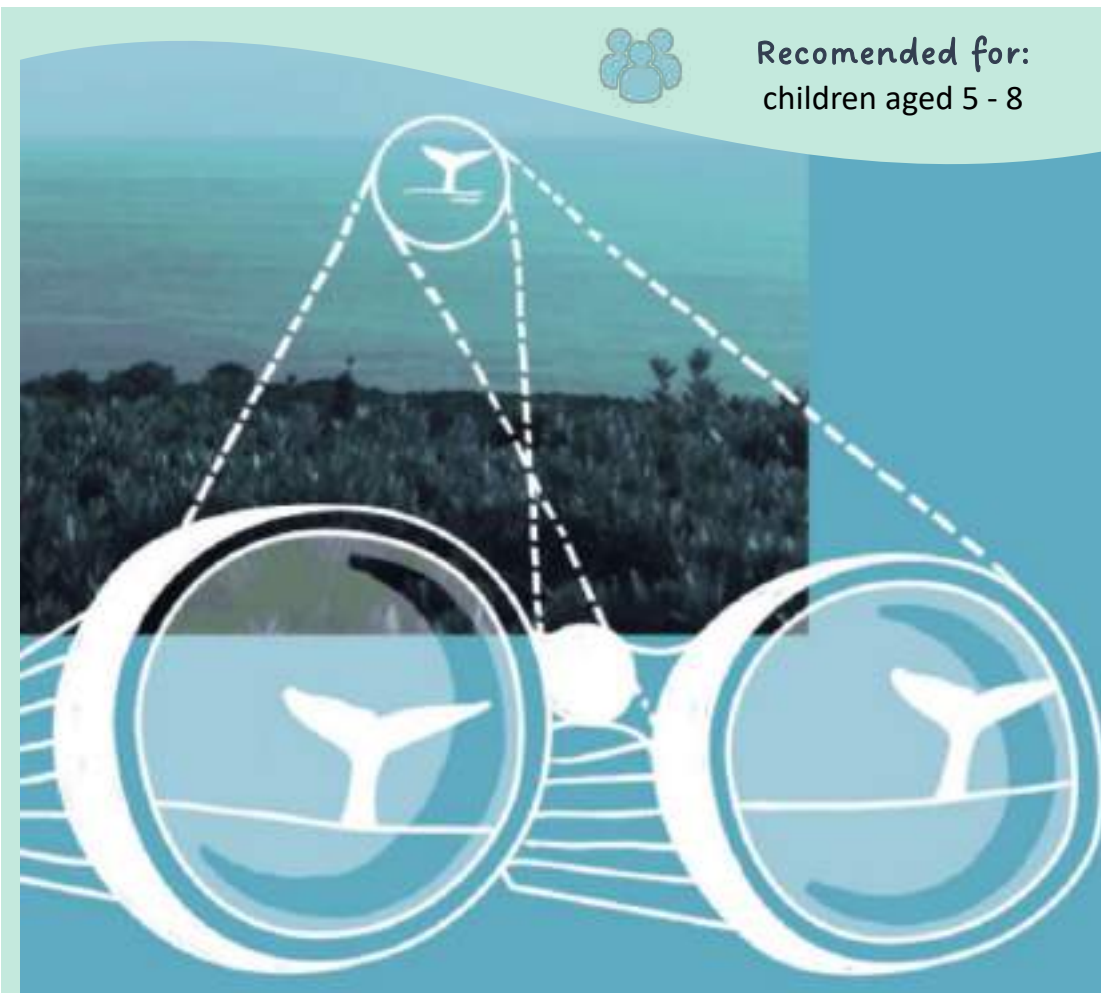
Goals:

- Understanding the role of lookouts and their significance in **whaling**.
- Learning about the connection between the history of whaling in the past and current research, including some of the present-day methods in cetacean **studies**.
- Developing the ability to identify different **whale species** on the surface of the sea.

Procedure: It begins with a brief presentation of the work of whale lookouts and how it has been adapted for whale watching. Next, cards displaying different cetacean species are shown, along with explanations of their distinguishing characteristics. Finally, students use binoculars to observe images of the cetaceans (placed at a certain distance) and identify each one. If they don't have binoculars, students can simulate them using toilet paper rolls.



Recommended for:
children aged 5 - 8





Scrimshaw Art



Description: Participants are introduced to the scrimshaw technique - the art of carving, engraving and painting **teeth and jawbones of sperm whales** - and create their own piece using an adaptation that mimics this art.

Goals:

- Introduce the art of scrimshaw and its importance for whalers.

Procedure: To start, the scrimshaw technique is introduced, and its importance for whalers is explained. Then, each participant will create their own scrimshaw piece: participants receive a light-colored **soap bar** and a sharpened **wooden stick**, which they will use to draw a simple image on the soap. Next, **black grease** is applied over the drawing with a soaked sponge, so that the entire soap turns black. Finally, the black part of the soap is carefully wiped off with a paper, leaving only the engraved drawing black, as the grease remains in the grooves made with the stick - just like in a scrimshaw piece!



Recommended for:
children of any age and adults





S.O.S. Marine Wildlife



Description: The stranding of a sea turtle is simulated (if possible, on the beach), and participants learn how to behave to rescue it, as well as how biologists collect data.

Goals:

- Create awareness about marine wildlife rescue actions
- Highlight the importance of biodiversity conservation.
- Encourage drama theatre skills.

Procedure: We start with a theoretical presentation (if possible, accompanied by images) on general aspects of the anatomy and biology of sea turtles. The species inhabiting the local waters are mentioned, and their threats, such as marine litter, are explained. Next, an inflatable sea turtle entangled in marine litter is presented. Participants approach in groups to play each stage of the rescue as if performing a play: 1) they find the turtle (informed not to touch it) and call the local **responsible wildlife network**; 2) while waiting, they place a wet towel over the turtle to protect it from dehydration; 3) upon the arrival of the **responsible wildlife network**, they remove the marine litter, record the turtle's scientific data (carapace metrics, etc.), determine if it's ready for release, and release it.



Recommended for:
children of any age and adults



#De-litter your water



Description: Through a presentation and an experimental activity, participants are made aware of the impacts of **water** shortages and poor quality on living organisms and the planet.

Goals:

- Identify the properties of water, relating them to its **role** in living organisms.
- Distinguish between water suitable/unsuitable for consumption.
- Understand water **treatment processes**.
- Analyse local, regional, and national water-related issues.

Procedure: We start with a presentation (if possible, accompanied by images) explaining what water is; its properties and importance for living organisms; the types of water on the planet, differentiating between those suitable/unsuitable for consumption; and the processes of water treatment. Following this, students observe an experiment: three bottles are set up, each with a funnel; stones are placed in the first funnel, a coffee filter with sand in the second, and a coffee filter with cotton in the third. Dirty water is poured into the first funnel; next, this water is passed through the sand filter, and finally, the same water is passed through the cotton filter. Students observe how different materials purify water and discuss the results.



Recommended for:
children aged 5-7





#De-litter your hygiene



Description: The students learn about the negative impacts of cosmetic products on the planet and how to prepare their own cosmetics to reduce this impact.

Goals:

- Learn the importance of **hygiene**, especially personal hygiene.
- Raise awareness about the negative impacts of cosmetic products on the planet.
- Discover the possibility of **making our own cosmetics** and thus reduce our impact on the planet.

Procedure: We start with a presentation (if possible, accompanied by a PowerPoint or similar) explaining what hygiene is, with a focus on personal one; what cosmetic products are and their impact on the planet (e.g., water pollution). Finally, ideas are proposed to reduce the negative impact of the cosmetics we use by making homemade deodorant and lip balm. The recipe and preparation method are provided so that the children can make these products during the activity or at home. For example, for the lip balm: melt a teaspoon of coconut oil, add a teaspoon of honey, and a drop of essential oil (optional); place the mixture in a container and let it cool.



Recommended for:
children aged 10-12





In the wetsuit of an archaeologist



Description: The students discover what **archaeology** is and create their own underwater archaeologist outfit.

Goals:


- Learn about underwater archaeology.
- Stimulate imagination and skills in the visual arts.

Procedure: After a brief introduction on underwater archaeology, the students create their own underwater archaeologist outfit using the items listed in the image and following these steps:

1. Draw the shape of two fins on the cardboard and cut them out.
2. Make a hole in the back of the fins and attach the elastic from one side to the other.
3. Draw a diving mask on the cardboard and cut it out. Make a hole and thread the elastic as with the fins.
4. Paint the bottles yellow and let them dry. Then, use the duct tape to connect them.
5. Make 4 holes in the cardboard, one at each corner, and thread the elastic through the top.
6. Make two small cuts at the top, in the middle of the cardboard, and thread the tape through the holes to stick to the bottles.
7. Now, just put on your outfit and strap the bottles to your back!



Recommended for:
children aged 3-10

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- 2 bottles of 1.5 L
 - 1 black swim cap
 - 1 black t-shirt
 - 1 pair of black pants
 - 1 coloured cardboard
 - Yellow paint
 - Thin sewing elastic
 - 1 thick A4-sized cardboard
 - Duct tape



Discoveries in your bathtub



Description: As a continuation of the "In the wetsuit of an underwater archaeologist" activity, the students step into the fins of an underwater archaeologist, wearing their outfit and observing objects beneath the water.

Goals:

- Learn what archaeology is and how the work of an underwater archaeologist is conducted.
- Stimulate imagination and skills in the visual arts.

Procedure: After a brief introduction to archaeology, and the underwater sites in the area (e.g., shipwrecks), the students will put on their underwater archaeologist outfits and make a **magnifying glass** to observe objects underwater using the items listed in the image and following these steps:

1. Remove the bottom of the can (ask for help if needed).
2. Open the bag in half and place it over the can.
3. Attach the bag to the can with an elastic or tape.
4. Fill your bathtub (or a bucket) with water and spread some toys and seeds (e.g., beans and dry grains) on the bottom.
5. Try your magnifying glass: gently press it onto the water until the bag takes on a concave shape and see what happens!



Recommended for:
children aged 3-10





Sea monsters



Description: The students learn about **ancient beliefs in sea monsters** and how it is important to understand them to overcome fear. Additionally, they differentiate between real animals and sea monsters using red-filtered glasses.

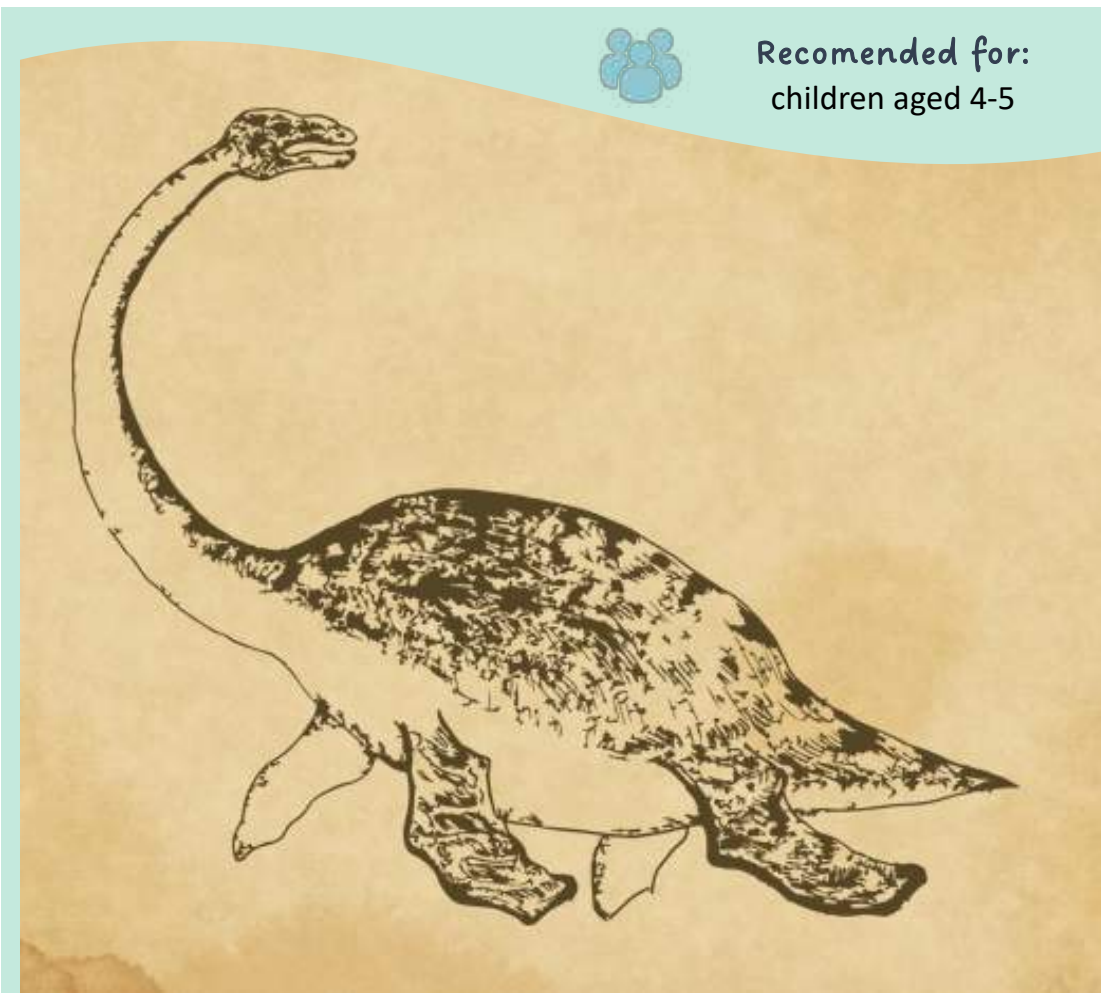
Goals:

- Understand the perspective that early navigators had of the sea.
- Comprehend how the unknown can be frightening until it is revealed - the importance of scientific knowledge.
- Learn about the different marine creatures that were once perceived as monsters.

Procedure: A presentation with images of sea monsters is given, explaining how people in the past believed in these creatures to make sense of accidents, sightings, or situations that were not understood (e.g., unknown currents or flora/fauna). The importance of science is discussed, which revealed the reality behind these monsters. Finally, images of sea monsters and real animals are shown to be observed with **red-filtered glasses**. After observing the creatures, students build a magnifying glass using paper and red acetate and are given images of animals and monsters to observe.



Recommended for:
children aged 4-5





Light in the sea



Description: Students are taught how light penetrates the sea, creating different layers inhabited by different species. The theory is exemplified through a practical activity.

Goals:

- Understand the behaviour of light as it penetrates the ocean and how it affects marine life.
- Comprehend the different marine habitats in the water column.
- Learn about density and how it affects liquids.

Procedure: It is explained that the penetration of light into the sea creates three zones (**euphotic**, **dysphotic**, and **aphotic**), where, in addition to light, temperature, salinity, and water density vary. Most animals are adapted to live in a specific layer. Next, a paper ruler is attached to a bottle to show the depth of the three layers (as in the image). Detergent mixed with black ink is poured into the aphotic layer; water with two drops of blue dye is added to the dysphotic layer, and cooking oil is poured into the euphotic layer. With the help of the students, animals that live in each layer are cut out and glued onto the bottle (as in the image). It is explained that the liquids have different densities, and why they are placed in a specific order. Finally, each student can create their own bottle.



Recommended for:
children aged 3-5





Sustainable Fishing Game



Description: Through a game, students are taught the impacts of different fishing methods on fish populations and other marine animals, as well as how to fish sustainably.

Goals:

- Learn about the impacts of different fishing methods on the marine ecosystem.
- Understand which fish are more vulnerable to fishing and should not be caught.

Procedure: A box filled with fish (made of cardboard or fabric) with three colours and sizes is used: small red fish (should not be caught), medium yellow fish (should be caught in moderation), and large green fish (can be caught). Some examples of other animals usually caught as bycatch (turtles, sharks, etc.) are also included. Students are divided into two teams, one fishing with rods and the other with nets. Both teams must try to avoid the red fish and other non-fish animals and catch the yellow fish in moderation. This game aims to make students realize that fishing with a rod is more selective than using a net, making it a more sustainable fishing method.



Recommended for:
children aged 3-5





Archaeologist for a day

Description: Students are invited to take on the role of an **underwater archaeologist** using only their sense of touch to describe and identify objects they find within a water tank.

Goals :

- Raise awareness about the importance of **underwater archaeology**.
- Understand the significance of recording archaeological materials underwater.
- Learn to **identify and describe** different materials (ceramic, metal, plastic) and object shapes (bowl, plate, utensil, etc.).

Procedure: The educator provides a theoretical introduction and explains the work of an archaeologist, distinguishing archaeology from the undifferentiated recovery of artifacts and highlighting the importance of archaeological context. Students wear blindfolded **diving masks** and place their hands in the water, attempting to identify objects inside the tank. They describe the shape and material of the objects, differentiating between various artifacts and combining them to identify the archaeological context.



Recommended for:
children aged 8-14





Sea monster

Description: The students are invited to create an **illustration and/or taxonomic card** of a sea monster.

Goals:

- Learn about sea monsters, both **real and imaginary**, through descriptions and representations from the Iberian Peninsula and Europe.
- Learn about the medieval and modern periods beliefs, as well as the exploration voyages of the Atlantic Ocean from the 16th to 17th centuries.

Procedure: The educator provides a theoretical introduction and explains the historical context from the historical periods, addressing the presence of sea monsters in written documentation, cartography, and illustration. The great Leviathan, the sea serpent, and the Kraken, as well as marine animals like dolphins, sharks, sea elephants, and sea lions, are discussed in light of the history of natural science. After the presentation, students are invited to **create their sea monster and describe it** from the standpoint of natural history.



Recommended for:
children aged 8-14



