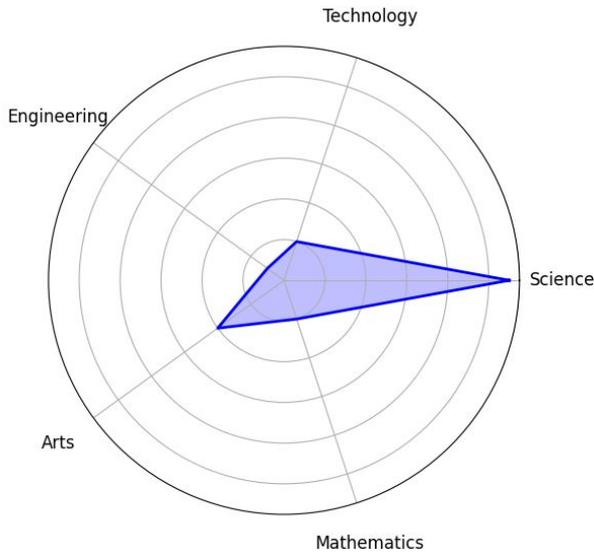




Curricular



MYSTERIES OF THE SEA

Duration	Age	Difficulty
90	11-12	Medium
#EXPERIMENTATION #SCIENCE		

DESCRIPTION

In this activity, students will explore the biodiversity and functioning of marine ecosystems through an inquiry-based and experiential learning approach. They will build simulated food webs, analyze environmental threats, and design creative awareness campaigns. The session integrates scientific method, collaborative work, and artistic expression.

Students will:

- Describe the interdependence within marine food webs.
- Apply the scientific method to evaluate human impacts on marine ecosystems.
- Create a marine awareness campaign using artistic and design tools.
- Promote inclusive participation, leadership, and awareness of gender roles in STEAM.
- Collect and visualize environmental data relevant to marine threats.

ACTIVITY OBJECTIVES

- Understand the structure and interdependence of marine food webs.
- Apply the scientific method to explore the impact of human activity on marine ecosystems.
- Develop critical thinking and problem-solving skills.
- Foster environmental awareness and a sense of stewardship.
- Promote collaborative work and inclusive participation in scientific inquiry.

KEY COMPETENCES (EU)

- Mathematical competence and basic competences in science and technology
- Digital competence
- Learning to learn
- Social and civic competences
- Cultural awareness and expression



MATERIALS



Notebook, pens, markers



Mobile phone



Marine food web template



Threats-to-oceans infographic



Research guide

- Provided by students
- Provided by the teacher/institution
- Downloadable Elements



Printed marine species cards



String



Scissors



Glue



Cardboard



Projector or screen



Access to scientific articles or documentaries

PREVIOUS PREPARATION

List of actions to complete before starting the activity, such as:

- Divide students into groups of 3–4.
- Prepare printed cards of marine species and roles.
- Watch the short documentary: "A Day in the Life of Coral Reefs" ([YouTube link](#)).
- Teacher: review the downloadable research guide.

CONTEXTUALIZATION AND ADAPTATION

The sea covers more than 70% of our planet's surface and is vital for life on Earth. However, marine ecosystems face serious challenges due to pollution, overfishing, and climate change. By exploring the food webs and interactions between marine species, students will learn about these problems and brainstorm solutions to help protect the oceans.

Key Questions:

- What organisms live in the ocean, and how do they depend on one another?
- How does human activity affect marine life?
- What actions can we take to protect the oceans?



ACTIVITY

STEP 1: Introduction (15 min)

- Watch the video and have a guided discussion.
- Present the concept of food webs and trophic levels.

STEP 2: Marine Food Web Construction (25 min)

- Students use string and printed organism cards to simulate a marine food web.
- Draw relationships and energy flow on a poster.

STEP 3: Threat Analysis (20 min)

- In groups, read short cases (oil spill, plastic pollution, coral bleaching).
- Identify how these threats affect the food web.

STEP 4: Creative Communication (20 min)

- Groups create a poster, mini-video, or infographic to raise awareness.
- Encourage creativity and visual design.

STEP 5: Presentation and Reflection (10 min)

- Each group presents their work and answers reflection questions.

CONCLUSION AND SHARING

Time for students to present their work! Encourage them to discuss:

- What surprised you most about marine life?
- Which human actions harm ocean ecosystems the most?
- What ideas do you have to reduce ocean pollution?

Share results online (optional):

- Instagram: @steambrace_eu
- Hashtag: #MysteriesOfTheSeaSTEAM





Don't forget to take a photo of your experience and share it with us!



[LinkedIn](#)



[Instagram](#)



[X](#)

BIBLIOGRAPHY AND REFERENCES

- National Geographic Education: Oceans and Life
- European Environment Agency: Marine Issues
- <https://www.noaa.gov/education/resource-collections/ocean-coasts/ocean-pollution>

