Workshop 7: Quartet Game Overfishing

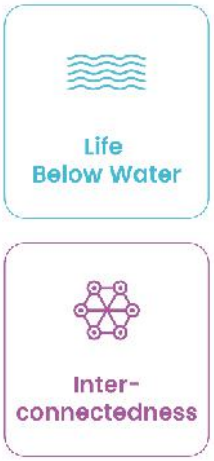
Ages 12-15

LEAF Theme(s)

ECOSYSTEMS, FORESTS & WATER

ECOSYSTEMS, FORESTS & BIODIVERSITY

BioBeo Theme(s)



Teacher Instructions

Overfishing is a worldwide phenomenon occurring in oceans and seas across the globe. It has devastating consequences for marine ecosystems and human society. Addressing these issues and ensuring a sustainable future for our oceans is crucial, requiring awareness among students of the problems associated with overfishing.

Learning Objectives

- At the end of the workshop, students should be able to acquire in-depth knowledge about endangered fish species due to overfishing, including information about their location, population, threats, and dietary habits, through active participation in creating the quartet game.
- At the end of the workshop, students will apply critical thinking skills when selecting endangered fish species for the quartet game, demonstrating an understanding of the intricate relationship between overfishing, food security, and the circular economy.

Depletion of fish stocks

Overfishing has severe consequences, including the depletion and potential extinction of some fish species. To address these problems, embracing sustainable fishing practices is essential. Sustainability means maintaining a balance between what we extract from the seas and what these natural systems can regenerate. Parallelly, the circular economy aims to minimize waste and maximize the reuse of materials and resources. This principle applies to the fishing sector,

This lesson was developed by Rotterdam University of Applied Sciences for the BioBeo project and subsequently adapted for the Learning about Ecosystems and Forests (LEAF) programme.

where bycatch can be utilized for other purposes, such as producing valuable products, like fishmeal and fish oil. This creates new opportunities to utilize these byproducts, mitigating the negative effects of overfishing.

Disruption of marine ecosystems

Overfishing causes significant harm to the marine ecosystem by removing crucial fish species, impacting the entire food chain. To address these issues, embracing sustainable practices in fishing is essential. Sustainability involves committing to protecting biodiversity and preserving the ecosystems.

Economic consequences

Overfishing puts significant pressure on the profitability of the fishing industry, forcing fishermen to exert greater efforts to catch the same quantities of fish. In contrast, applying sustainable practices in fishing can lead to more consistent catches and open the door to a sustainable economic future for fishermen. Sustainability in the fishing sector involves focusing on preserving fish stocks and marine ecosystems, which can result in a more sustainable fish supply in the long run. Moreover, the circular economy promotes innovative business opportunities by reusing and recycling products and materials, potentially lowering costs and creating new business prospects. Utilizing bycatch and leftover catches for the production of valuable goods, can benefit fishermen and businesses through this circular approach, leading to improved profitability and sustainability.

Food security

Overfishing has far-reaching consequences and can lead to food insecurity, especially since fish is a crucial source of protein for many people. Addressing this issue is crucial to ensure that fish stocks remain available in the long term to meet the needs of a growing world population.

In this regard, the circular economy can play a significant role in maximizing the availability of fish products. This is achieved by minimizing waste through more efficient use of fish resources. This not only promotes food security but also contributes to the conservation of marine ecosystems.

Conclusion

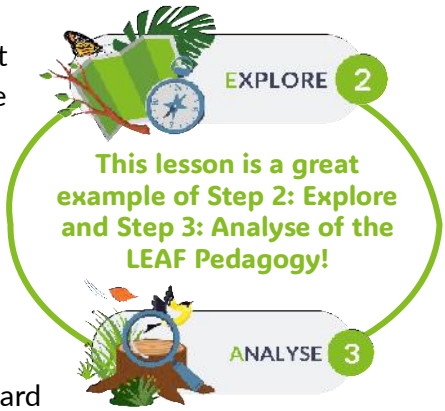
Embracing sustainability in the fishing sector and promoting the principles of the circular economy are of immense importance in mitigating the consequences of overfishing. These solutions contribute to the conservation of fish stocks, protection of marine ecosystems, economic stability, and food security for future generations. It is a shared responsibility of governments, the fishing sector, and society to act and strive for a more sustainable future for our oceans.

Raise awareness and understanding among students by a quartet game

To raise awareness among students about the issues of overfishing in an engaging and educational manner, we propose having students collaborate in groups to create a quartet game. The quartet will consist of cards featuring endangered fish species due to overfishing, with information such as location, population, threat and food. To create these cards, students can utilize the provided worksheet. This activity aims to deepen their understanding and

encourage teamwork during the project week.

Teacher Instructions



- The teacher initiates the session by utilizing a PowerPoint presentation (attachment 4) to delve into the multifaceted problem of overfishing. Key topics, including the Depletion of Fish Stocks, Disruption of Marine Ecosystems, Economic Consequences, and Food Security, are elucidated. This serves to activate the students' prior knowledge and provides them with a foundational understanding of the issue at hand.
- Moving on, the teacher introduces the classic quartet card game (attachment 2 and 3), which the students may create themselves. The teacher outlines the process for Workshop 1. Students are organized into groups of five, tasked with collaboratively creating their own quartet. Each student contributes two pairs of four cards, amounting to a total of eight cards per person. The content of these cards encompasses crucial information about an endangered fish species, such as its location, population size, threats faced, dietary habits, and a corresponding photo. Students are encouraged to research and gather information using their devices and the internet.
- The teacher then distributes worksheets and assists students in initiating their independent work. The provided sample set serves as a guide during this phase, ensuring that students are on the right track.
- Subsequently, students are given one hour to work independently on their cards, followed by 15 minutes for the printing and laminating process. The teacher actively guides students through these final steps, addressing any queries or concerns that may arise.
- A crucial aspect of the workshop is the 15-minute reflection period where the teacher facilitates a discussion on the learning objectives. The PowerPoint presentation is employed to guide the conversation, with a focus on what students have learned and a clarification of the issue of overfishing along with potential circular solutions.
- The workshop concludes with the last half-hour dedicated to students playing the game they have collectively created. As an additional option, students may choose to sell their games at the Bioeconomy Market Day on day 5, thereby incorporating a real-world element into the learning experience.

Supplies needed	List of endangered fish species
• Attached PowerPoint	• Atlantic Bluefin Tuna
• Provided worksheets	• Vaquita
• Scissors	• Chinese Paddlefish
• Glue	• Ganges River Dolphin

• Writing material • Internet access • Device	• Green Sturgeon • Leatherback Sea Turtle • Beluga Sturgeon

Attachment 1: Worksheets

Species:	Species:
Location:	Location:
Population:	Population:
Threat:	Threat:
Dietary habits:	Dietary habits:

Species:	Species:
Location:	Location:
Population:	Population:
Threat:	Threat:
Dietary habits:	Dietary habits:

Attachment 2: Quartet game

Four by Four

Objective: The objective is to strategically play and inquire to collect as many sets of four cards, known as quartets, as possible. By paying close attention during other players' turns, you can deduce who holds which quartet cards. The player with the most quartets at the end of the game wins.

Preparation: All cards are distributed among the players, with some players potentially having more cards than others. Hold the cards in your hand without revealing them to the other players.

The Game: A random player begins. When it's your turn, you ask another player for a card you don't have. However, it must be a card from a quartet of which you already possess at least one card. State the name of the quartet and request the specific card you want. If the player has the requested card, they must give it to you, and you can continue asking for cards. This can be directed to the same player or a different one. Once you have a set of four cards, declare 'Quartet!' and place the four corresponding cards together on the table in front of you. If the player doesn't have the requested card, your turn ends, and the player you last asked takes their turn. The game concludes when all quartets are complete.

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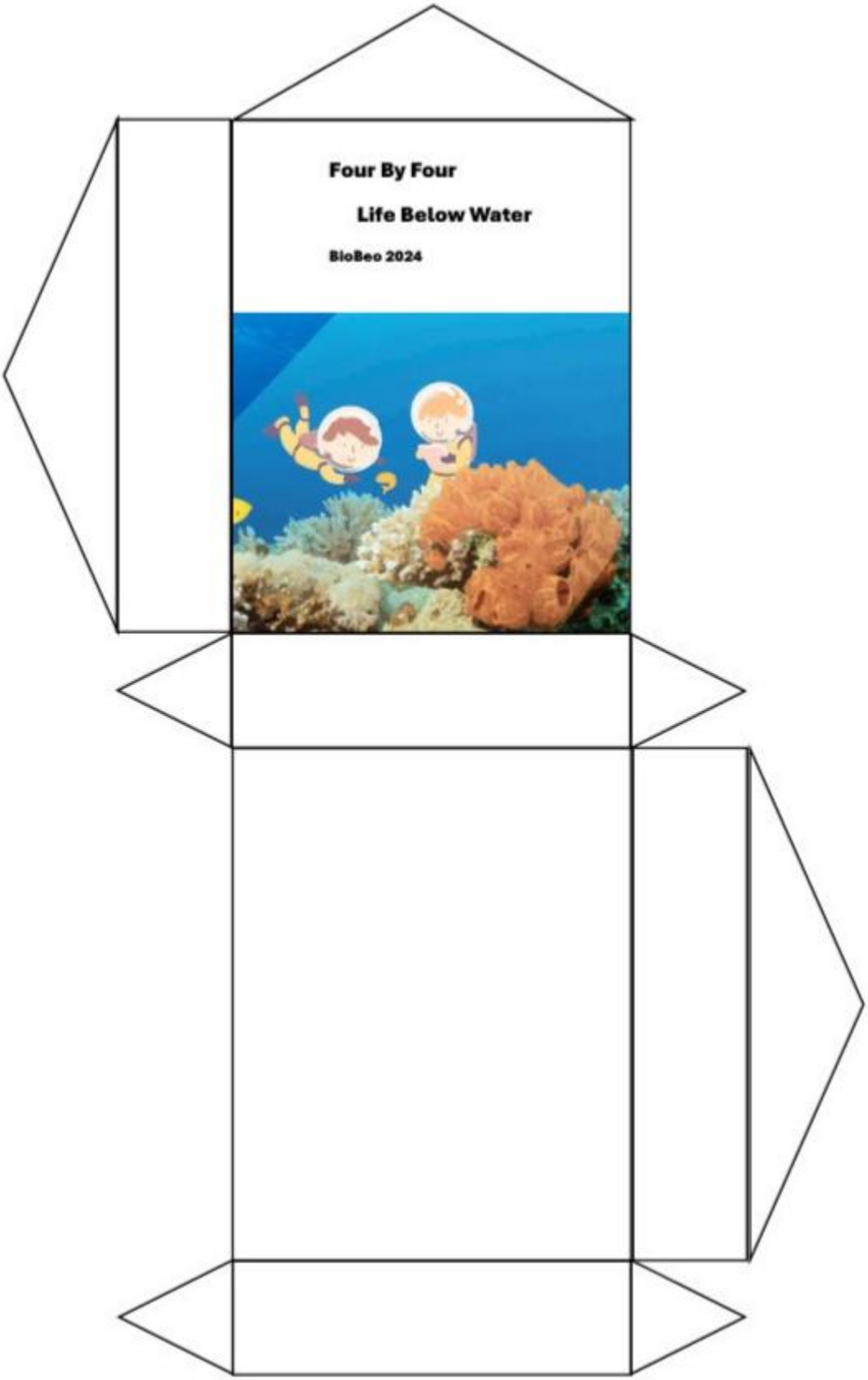
Attachment 3: Storage package for the quartet cards



Attachment 4: PowerPoint slides 1 & 2

Attachment 5: PowerPoint slides 3 & 4

Attachment 6: PowerPoint slides 5 & 6