pLatform for INnovation in Natural science onlinE education

Didactic Unit (DU)/Lesson plan

Human Impact on Marine Life

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OVERALL DESCRIPTION

Sections	Description
1. Topic/DU Title	**HUMAN IMPACT ON MARINE LIFE**
2.Brief description of the DU	This DU deals with issues posed to marine life, namely, overfishing, alien species and efforts from our society to reverse this damage and transform it into something good.
3. Beneficiaries	Primary school students – Years 5-6, ages 8-10.
4. Total hours	2 hours
5. Situation problem / reality or authentic task	Overfishing is a huge problem globally but especially relevant to the Maltese islands since industrial fishing and fish farming practices are having a negative effect on our surrounding Mediterranean waters. Questions brought forward through this DU: “Why does overfishing represent a problem for the marine ecosytem?”, “How can awareness be raised about the problem of overfishing?”
6. Aim/s	To recognize that overfishing is a real threat to marine life. to understand how we can combat bad practices and help protect marine ecosystems from threats of human activity, alien species and climate change.
7. Subjects	Science, Biology, Environmental science, English.
8. Expected results	Final product – A campaign/chart to raise awareness on how we can help protect marine ecosystems.

WORKPLAN

Phase/Title/Lessons	Brief description	Subjects	Objectives	Knowledge and Competences	Educational strategy	Tools and resources	Setting*	Evaluation and assessment	Duration
Lesson 1: Overfishing	T introduces lesson by asking: how do humans catch fish? Class discussion: fishing on a small scale vs. fishing on a large scale. What happens if we catch too much fish? T plays video on industrial and artisanal fishing. Ss work out worksheet on different types of fishing and overfishing. Class correction: T says the correct answers and Ss correct their own work – issuing their own marks at the end. T asks each student for their final mark.	Science Biology Environmental Science English	To distinguish between industrial fishing methods and artisanal fishing methods. To recognize that industrial fishing is much more harmful to marine populations that artisanal fishing. To be able to explain why overfishing is so harmful to marine life.	English listening, speaking, reading & writing skills.	Directive - interactive lesson	Video from LINNEO project Industrial and Artisanal Fishing Fishing methods worksheet (annexed)	Physical Classroom Setting – Teacher at the front Projector + Speakers	Monitoring during classwork activity Correction of worksheet.	40 minutes

Lesson 2: Alien Marine Species	T introduces lesson by asking "what are alien species?" T shows video on alien marine species Class discussion: how do these species get to the Mediterranean? Why are they able to live in a different location? Ss workout worksheet as classwork, T can show the video a second time so that students can revisit certain points. Class correction: T gives Ss the answers and Ss correct their own work. At the end, Ss must tell the teacher their final mark.	Science Biology Environmental Science English	To explain what alien species are To understand why and how these species are introduced to new environments To identify at least 3 alien species found in the Mediterranean sea.	English listening, speaking, reading & writing skills.	Directive - interactive lesson	Video from LINNEO project Alien species due to the world overheating Worksheet on Alien Marine Species (annexed)	Physical Classroom Setting – Teacher at the front Projector + Speakers	Monitoring during classwork activity Correction of worksheet.	40 minutes
Lesson 3: Good human impacts	T introduces lesson by showing Ss a video on how to care for the ocean.	Science Biology Environmental Science English	To recognize the efforts to have a good impact on marine life through various means.	English listening, speaking, reading & writing skills.	Directive - interactive lesson, Collaborative.	YouTube video from National Geographic *Care for the Ocean*	Physical Classroom Setting – Teacher at the front	Monitoring during classwork activity	40 minutes

	Class discussion: how can humans have a good impact on marine ecosystems? Classwork: Ss work on worksheet about good human impacts on marine life (marine parks, sustainable fishing, coral reef conservation). Class correction – Ss correct their own work, T provides the answers, Ss give themselves a mark. Group activity: Ss create a campaign / chart on how we can all have a positive effect on marine ecosystems. Finally, Ss showcase their campaign/ chart to their classmates/school and say a few words about how we can all protect marine environments.		To explain how we can all take part in protecting marine ecosystems.			Video from LINNEO project Human positive Impact Worksheet on Positive Human Impacts (annexed) Stationary and materials for making a chart/ campaign	Desks are set in groups of 4 to ease group work Projector + speakers	Correction of worksheet. Assessment of final product – campaign/chart - Assessment Criteria: level of knowledge and consideration about the threat to marine ecosystems and knowledge of effective strategies put forward to combat these issues.	

*Setting: organisation of classroom space (physical and virtual) functional to the activity, provision of resources (technological and others), management of resources.

Lesson 1: Fishing Methods Worksheet

Name:_____ **Date:**_____

Exercise 1: Industrial Fishing

1. What is industrial fishing?

A. Fishing done by individual fishermen using small boats.

B. Fishing done on a large scale by companies using large vessels and machinery.

C. Fishing using traditional methods passed down through generations.

2. True or False: Industrial fishing often involves using large nets or trawls to catch fish in large quantities.

True / False

3. What are some environmental concerns associated with industrial fishing?

A. Overfishing of certain species

B. Destruction of marine habitats

C. Pollution from fishing vessels

D. All of the above

Exercise 2: Artisanal Fishing

1. What is artisanal fishing?

A. Fishing done by individual fishermen using small boats.

B. Fishing done on a large scale by companies using large vessels and machinery.

C. Fishing using traditional methods passed down through generations.

2. True or False: Artisanal fishing usually involves using small-scale, traditional methods such as handlines or small nets.

True / False

2. What are some benefits of artisanal fishing?

A. It supports local economies and communities.

B. It has less impact on the environment compared to industrial fishing.

C. It allows fishermen to catch fish selectively, reducing bycatch.

D. All of the above

Exercise 3: Overfishing Damage

1. What is overfishing?

A. Fishing beyond sustainable levels, causing depletion of fish populations.

B. Fishing using traditional methods passed down through generations.

C. Fishing only during certain seasons to allow fish populations to replenish.

2. True or False: Overfishing can lead to the collapse of fish populations and disrupt entire marine ecosystems.

True / False

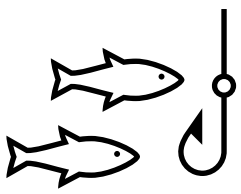
3. How can overfishing be prevented?

A. Implementing fishing quotas and regulations

B. Protecting marine habitats and spawning grounds

C. Supporting sustainable fishing practices

D. All of the above



Bonus Question:

Can you think of one action you can take to help protect fish populations and marine ecosystems?

_____

_____

_____

_____

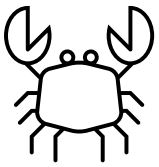
Total mark: ____/ 10 marks

Lesson 2 : Alien Marine species Worksheet

Name:_____ **Date:**_____

Exercise 1: True or False

Circle whether the statement is true or false.



1.Alien species are organisms that come from another planet.

True / False

2. Humans have introduced alien species into new environments both intentionally and accidentally.

True / False

3. The tomato is an example of an alien species that has provided significant benefits to humans.

True / False

4. Ballast water from ships is a common unintentional way for alien species to be introduced into new environments.

True / False

5. Global warming is making the Mediterranean Sea less hospitable to tropical species.

True / False

Exercise 2: Fill in the Blank

Fill in the blank with the correct word or phrase from the word bank below.

ballast, dorsal, Mediterranean, Atlantic

1.Alien species often escape from farms or nurseries, or are introduced unintentionally through _____ water.

2. The lionfish, rapidly expanding westwards in the Mediterranean, is dangerous to humans due to the powerful poison secreted by glands in its _____ fins.

3. The rabbit fish, a voracious herbivore, can cause decertification of the seabed in areas where it lives in the eastern basin of the _____ Sea.

4. The blue crab, introduced into the Mediterranean from the _____ coasts, threatens the survival of many native species and causes damage to fishing equipment.

Exercise 3: Identify the Invasive Alien Species

Read the descriptions of marine species below and identify which ones are considered invasive aliens.

1.This fish is rapidly expanding in the Mediterranean Sea and poses a threat to humans due to the poisonous glands in its dorsal fins:

_____

2. A voracious herbivore that can cause decertification of the seabed in the eastern Mediterranean:

_____

3. Introduced into the Mediterranean from Atlantic coasts, it threatens native species and damages fishing equipment:

_____

Bonus Question:

Can you think of one way humans can help prevent the spread of invasive alien species in marine environments?

_____

_____

_____

_____

Total mark: ____/ 13 marks

Lesson 3: Positive Human Impacts on Marine Life Worksheet

Name:_____ **Date:**_____

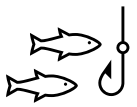
Read the extracts below about positive human impacts of marine life and answer the questions that follow.

Extract 1: Marine Parks

Marine parks are areas of protected ocean where human activities such as fishing and boating are regulated to preserve marine ecosystems and species. These parks provide safe havens for marine life to thrive and for scientists to study them.

Extract 2: Sustainable Fishing

Sustainable fishing practices are methods of catching fish that ensure the long-term health of fish populations and the marine environment. This includes techniques like using selective gear to minimize bycatch, respecting catch limits, and avoiding fishing in sensitive areas.



Extract 3: Coral Reef Conservation

Coral reefs are diverse marine ecosystems that support countless species of fish and other marine life. Human efforts to conserve coral reefs include measures such as reducing pollution, implementing marine protected areas, and promoting sustainable tourism practices.

Exercise 1: Multiple Choice

Choose the correct answer for each question.

1.What are marine parks?

A. Areas where humans can fish without regulations.

B. Protected ocean areas where human activities are regulated to preserve marine ecosystems.

C. Locations where marine life is captured for aquariums.

2.What is sustainable fishing?

A. Catching fish without regard for population levels.

B. Methods of catching fish that ensure the long-term health of fish populations and the marine environment.

C. Fishing without any regulations or limits.

3. How do humans contribute to coral reef conservation?

A. By overfishing coral reef ecosystems.

B. By reducing pollution and implementing marine protected areas.

C. By engaging in unsustainable tourism practices.

Exercise 2: True or False

Indicate whether the statement is true or false.

1.Marine parks regulate human activities to preserve marine ecosystems.

True / False

2. Sustainable fishing practices ensure the long-term health of fish populations.

True / False

3. Coral reef conservation efforts include reducing pollution and promoting sustainable tourism.

True / False

Exercise 3: Environmental Awareness

Fill in the blank with the appropriate term related to marine environmental issues.

Sustainable, Coastal, Coral bleaching

_____ fishing practices aim to catch only a specific type of fish, reducing unintended catches of other marine species.

Pollution from activities like _____ runoff can harm marine ecosystems and coral reefs.

Climate change can lead to _____ _____, causing damage to coral reefs and marine habitats.

Bonus Question:

Can you think of one action you can take to help protect marine ecosystems and marine life?

_____

_____

_____

Total mark: _____/10 marks