

Sea and Sustainable Development

Unit 1st: “In my food table there is always fish, without the sea getting empty”

Did you know that...

Eco-friendly or sustainable development is designed taking into account environmental protection and sustainability. Its goal is to maximize the benefits taken from the environment, without interrupting the natural production of sufficient quantities in the future. Unfortunately, there are still ways of fishing that do not contribute to marine sustainability. Trawling can cause irreversible damages to sensitive habitats, like **coral reefs**, **Posidonia meadows** (a marine plant that provides breeding grounds and shelter to many marine organisms and contributes to the production of oxygen in the sea), and in **benthos** (the organisms that live up and down the seabed), but also in **sponges**. The bottom trawler is also responsible for half the bycatches worldwide.



Physics
Science, Linguistics



2 teaching hours



Αλιεία,
γόνος,βιώσιμη
ανάπτυξη

Goals

- To know the concept of sustainable development at sea
- To distinguish between sustainable and unsustainable fisheries
- To recognize illegal fishing
- To find out what season fishing is allowed regarding the most known fish we eat

Materials

Computer, projector, printer, glues, cardboards, markers, laminator, small magnets, fabric

Suggested Activities

Activity 1st:

We make cards in postcard size with pictures of different fishing methods (fish hook, net, fishing line, longline, creel, rod, snorkeling, small fishing boat, trawl, purse seine, big fishing boat with big nets, fishing with electricity, snorkeling with a diving bottle, dynamite, trawlers with immersed doors in copper sulphate) twice. Cards are initially used as a memory game (we turn all the cards upside down and the kids are asked one by one to pick up two cards, if the cards are the same they keep them open if the cards are not the same they are turning them back in the place they were, and so on). Photos of good



practices will be in a green background, photos of bad fishing practices in a red background, and photos of fisheries that could be misused and become unsustainable ways of fishing, in a yellow background. Thus, by playing the memory game the pupils will learn to recognize the unsustainable fishing practices as well as the illegal ones. (Under each photo on every card a small explanation can be written).

Activity 2nd:

We download the WWF poster that shows what length the fish must have in order to be fished <http://www.wwf.gr/images/pdfs/FishTips56X100.pdf>, and we enter into WWF's responsible fish consumption guide <https://fishguide.wwf.gr/local-recommendations/> regarding the permitted fishing period for different kind of fish.

We print the poster in such a way (shrink - enlarge) that each fish will be printed once larger than its allowed fishing size and once smaller. Then we get a lot of copies of each fish so we have enough adult fish and enough spawns. Then we cut the photos, we write the name of the fish behind each photo and we laminate them. After laminating them, we stick a small magnet on the back of each fish near its mouth. We make reeds about 100cm long with a fishing line about 150cm long but instead of a regular hook we will attach a small magnet at the end of the fishing line. By using a blue piece of fabric or cardboard we create the sea and we lay the fish on it.

We agree which time of year we are allowed to fish each time.

We fish

We measure the length of each fish and we consult the guide (we can download the related app on our mobile)

We draw conclusions

We throw the spawn back into the sea and so on.

Unit 2nd: Tourism and sustainable development

Did you know that...

Coastal areas are Europe's most popular holiday destination: 2/3 of European vacationers choose seaside areas for their holidays.

Tourism can make a strong contribution to sustainable development as it empowers local economies.



Geography,
Linguistics, Maths



2 teaching hours



Tourism,
Sustainable
development, Oil
spill, Sea pollution,
Sea currents

Goals

- Understand the term sustainable development
- Recognize the threats as well as the consequences of a maritime accident
- Develop empathy
- Be able to express themselves and make a case

Materials

Computer room, projector, papers, pencils

Suggested Activities

Activity 1st:

We distribute to the pupils the article "Tourists leave the beachfront hotels early" which will help them understand the magnitude of marine pollution problem and sustainable development of the coasts.

If children are not aware of the problem although it has been mentioned in previous worksheets we can make a refresher by giving them: a. the following article "Shocking pictures from the Ecological Disaster in Salamis" or b. the ability to collect information on the consequences of the above maritime accident and to process them in groups in their own class.

Activity 2nd:

Then, using the educational role-playing technique, we will try to highlight the consequences that marine pollution can have on one of the manifestations of sustainable tourism development.



We divide the children into groups:

- 1) Representatives of local government
- 2) Representatives of environmental organizations
- 3) Representatives of various professional groups of community who are related to tourism (hoteliers, restaurateurs, etc.)
- 4) Media representatives

Once the groups have been defined, the teacher and the pupils agree on the rules of the procedure and of the discussion. Before the dialogue begins, the representatives of each group should prepare their arguments in cooperation with the other members of the group. **It is suggested to apply the techniques of production of written speech and in particular the argumentative text.** At the beginning of preparation pupils can use brain storming techniques to generate ideas, organize and record their arguments for the role they play. **In order to reinforce the validity of their arguments, it is suggested to search related articles on the Internet and in general to make good use of multiple sources of information.**

Then the discussion follows with the representatives of the groups that the team itself has nominated beforehand. At the end of the process it is suggested to ask the pupils who took part in the dialogue, to summarize the results of the discussion and to come up with suggestions of realistic solutions (taking of measures, etc.) in order to deal effectively with similar problems. **Indicative text titles: “When tourism does not harm sustainable development” or “The Decalogue of sustainable development in tourist areas” or “Call out (on) sustainable development in our country”.**

- The piece “Tourists leave the beachfront hotels early” was retrieved by <https://www.kathimerini.gr/926718/article/epikairothta/ellada/oi-toyristes-feygoyn-prowra-apo-3enodoxeia-ths-paraliakhs>
- The piece "Shocking pictures from the Ecological Disaster in Salamis" was retrieved by <https://www.thetoc.gr/koinwnia/article/eikones-sok-apo-tin-oikologiki-katastrofi-sti-salamina>

Unit 3rd: No plastic! I Can!

Did you know that...

"Citizenship", being a citizen, is a concept very important in Western political philosophy and is associated with other concepts such as "democracy", "rights", "values". However, it often contains contradictory meanings, such as the common good, the national interest, political action, political virtue and individual interests.

In recent years the main objective of the curricula, especially in the economically developed countries, has been to create "active citizens". In order to succeed, particular emphasis is placed on the characteristics that a citizen must have in order to meet the requirements of the modern age. Education is often addressed as the ideal means for pupils to adopt the "ideal citizen" model in order to meet modern needs while enhancing social cohesion and common good. The important role of education in promoting "citizenship" is demonstrated in the documents of the European Commission "Education and Active Citizenship in the European Union" (1998) and in Greek, "Towards a European Dimension of Education and Active Citizenship" (2000), aiming at encouraging pupils active participation and at learning that addresses this same active participation.



Linguistics

Civics



1 teaching hour



Citizenship,

active citizen

Goals

- Realize the need for action in order to reduce pollution and restore the natural environment
- Understand the need to activate citizens in order to reduce pollution
- Explore and propose specific actions that they and their peers can implement in order to create a wider culture of protection regarding their marine and coastal environment

Materials

Computer, projector, printer, cardboards and other materials that can be proposed by pupils groups

Suggested Activities

Activity 1st: Life without plastic. Do we want? Can we?

A. We discuss with the pupils the concept of citizenship, individual responsibility and active citizenship. The starting point in raising pupils' awareness of the above mentioned sense could be one of N. Kazantzakis' very popular quote:

"Love responsibility

Say: It is my duty, and mine alone



to save the world.

If it's lost, then I alone am to blame!"

In such a case, pupils could be asked, after being divided into groups, to write down their ideas on how N. Kazantzakis' words are intertwined with sustainable development initiatives. Alternatively, it is suggested to make use of the brain storming technique in order to write down ideas at group level.

B. We look up online the European Commission's documents as well as the UN's goals for sustainable development.

We recommend ways to protect our planet that each of us could implement. We are exploring materials and actions of our own that will help replace the use of plastic with other materials more friendly to the environment. The goal is for children to understand that recycling and reuse is not enough. The real solution is not using plastic where is possible because the more we produce the more we burden the planet.

Then we divide the children into groups, aiming at finding proposals to activate as many citizens as possible into taking of measures.

Indicative group activities:

- The first group will produce posters, banners either in electronic form or on large cardboards that can be displayed at various points of the school as well as at pupils' residences.
- The second group will look for ways to inform and protest through the media (radio, local newspapers) but also through social media (school website or Facebook account).
- The third group will undertake the creation of a brochure. They can also ask for help from a graphic artist, if possible.
- The fourth group will be engaged in writing a letter of protest which they will sent to the Mayor and the Minister responsible for the Environment, informing them at the same time about the current situation and the ways of dealing with it. This is yet another case of producing "authentic" speech texts that require consideration of the communication context, contributing to the development of written speech production skills.



Enhancing critical thinking in schools for marine pollution using innovative ICT technologies (Sea4All)



Erasmus+





Report - Evaluation

- We talk about our behavior as consumers
- We reflect on our behavior as tourists
- We create a brochure of "good tourist behavior": **Indicative title: "The Decalogue of Good Tourism Behavior"**.

Possible extensions

- We visit a sustainable tourism unit in our area. Alternatively we look for similar photos on the internet. **We process in the best teaching way (collectively, in**



individual groups) queries, such as: ***“What are the characteristics that make it sustainable? What difficulties are there? How do you assume they could be overcome?”*** or alternatively: *“With the voice of our planet. If I could change the world I would dye the sea blue again”* (https://youtu.be/Oco_NOeBWx4). How do you think this can happen with your own contribution? Express your ideas.

- They are prompted to search online cases of other marine accidents in tourist areas in order to critically approach the way they are dealt with. What happened? What could have happened?
- For the effective implementation of this activity, the acquired knowledge on maritime pollution control, in the context of the previous courses of the program, is expected to make a major contribution. At the same time it is possible to evaluate the ability of our pupils to transfer learning.
- In interdisciplinary approach context, it is suggested to use mathematics. For example, pupils are asked to look for information regarding the loss of income that tourism entrepreneurs will suffer from a decline in tourists e.g. an order of 50%.

Keywords

Sustainable development, spawn, fishing, fishing methods, citizenship, active citizen, Oil spill, Sea pollution, sea currents,

Bibliography - Links

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