

The treasure sends SOS

The value of the sea in economy

Unit 1st: The gifts of the sea to the economy

Did you know that...

The formation of sea routes dates back to the Paleolithic era. Those first trips have a rather social nature than a commercial one. People used trips to exchange objects as a demonstration of friendship and alliance. In Neolithic era large-scale sea networks are being developed for communication and interchange. Aegean and finally Northern Europe are the grantees of Neolithic economy.



Geography



40 minutes



Energy
Economy

Goals

Become aware of the importance of the sea in the economy.

Discover aspects of the sea economy which are not so obvious (energy, tourism).

Materials

Photos from the Appendix

Cardboard, glue, colored pencils

Threaded yarn, self-adhesive labels (white)

Recommended Activities

Activity 1st: A treasure for the human

We ask children in what ways they think humans can exploit sea economy. We observe the images of the Appendix in relation to the sea and the economy. We discuss about this relationship. Is it obvious in all its aspects? We enable pupils to discover the economic relationships that result from the exploitation of the sea. The conversation can be enriched with questions regarding the non-exploitation of marine resources.



For example, "What do you think would happen if we were not able to transport oil from oil deposit using oil tankers?", "Do you think that the conversion of marine resources into energy has positive or negative effects?", "Do you think that a coastal area has an economic advantage if it gets developed by having as basic field the sea?", "How do you assess imports and exports of products from/to abroad?"

Activity 2nd: The Collage of relationships

We stick on a paper of one meter long the images under the broad title "Sea and Economy". We ask from the children to write captions for these images. Then we work towards to creating connections between images. For example fishes and bananas are connected as they are both foods. Wind turbines to oil pumping and oil tanker to energy. The dock, the hotels and the cruise ship can be connected to each other as they are related to Tourism. Pay attention to the connections that are not obvious from the beginning: oil pumping and oil tanker can afterwards be linked to Tourism. Similarly, fishes to tourism etc. Use a different color pencil for each connection in order to make clear the complex relation between the sea and the economy. See the example below.

Activity 3rd: Let's be entangled to a web

We can play with children the grid-game of sea-economy relation. Each pupil chooses a "role" from the images and writes it on a white label sticker that puts to a visible spot on the front of his or her body. For example, they may be: a seabream, a lounge, an oil deposit, a wind turbine, a hotel, a barman at a Beach Bar, etc. The children sit in a circle. We give the yarn skein to a child at random, he/she wraps the yarn on his/her finger and he/she throws the skein to another "element" with which he/she is related to. A child may get the skein more than one time (such an example is the oil). We observe how complex and interdependent the grid of sea-economy relation becomes. It is important that the children give clear reasons every time they make a connection. The grid stops when a child cannot be connected to another new element. In order to enrich the grid, it is recommended that the pupils choose the element they represent from all categories and not just from one or two (e.g. Tourism-Nutrition).

Example:

SEA & ECONOMY



Here's the fresh fishes!



Oil's journey



A huge Marina



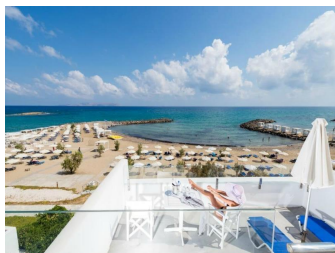
Gold from the seabed



Bananas from your Homeland?



I'll see you on board!



Relaxing



Wind and Sea

The grid of Sea and Economy relations

Unit 2nd: A life jacket for the Ecological Footprint

Did you know that...

The ecological footprint of humanity has doubled since 1961, surpassing the planet's regenerative capacity by approximately 30%. Indeed, three-quarters of the world's population live in countries that are "ecological debtors", i.e. their national consumption exceeds the country's bio-carrying capacity. The worst performance is recorded in the US and China, as each consumes nearly 21% of the Earth's biological capacity. This increase of the global footprint is mainly due to the emissions of fossil fuels (source WWF report, as mentioned in Athanasoula, 2010: 35).



Environmental
Studies
Physics



40 minutes



Nautical mile
Ecological
footprint

Goals

Understand the importance of sea routes for the development of the trade.

Familiarize themselves with the concept of "ecological footprint" and the importance of reducing it.

Be aware of global equilibrium issues in ecosystems.

Materials

Supermarket brochure

World map

Recommended Activities

Activity 1st: The value of preferring your homeland products...

We give supermarket brochures to children and we observe the products. We focus on the country of their origin and record the information in a table as in the example:

Product	Country of origin
Bananas	Ecuador
Kettle	China
Apples	Greece

Activity 2nd: The globe map sends SOS

Afterwards we cut off the products we are interested in and stick them to the corresponding countries on the world map. We connect these areas with our own area via sea routes. For example:



Then we cut off the life jackets from the appendix with the images and stick them successively on the sea roads we have designed. If we wish we can calculate the distance using nautical miles and put one life jacket per nautical mile. We count the life jackets and realize how the planet's ecological footprint is burdened by importing products from abroad. We create a relevant memo on the map.

Product	Country of origin	
		
Bananas	Ecuador	
Kettle	China	
Apples	Greece	

Unit 3rd: A dilemma for Captain Nicolas

Did you know that...

The technique of moral dilemma deals exclusively with values and aims at highlighting and clarifying them. Through this technique, the values of each one are emphasized while internal contradictions of an issue are identified. Through this method, pupils have the opportunity to understand the environmental problem presented to them through an exchange of views and arguments (Demetriou, 2009).



Environmental
Studies
Physics



40 minutes



Ecological
footprint

Goals

Understand the importance of sustainable management of the seas.

Raise dilemmas with answers regarding the sustainable management of the seas.

Materials

Story "The end of the journey"

A newspaper article from the Appendix

Recommended Activities

Activity 1st: The end of the journey

We read with the children the script "The end of the journey" which presents Captain-Nicolas' problem. At first we let the children formulate their thoughts. Then we refer to the article "The Case of "AGHIA ZONI II": The ship that turned Saronikos into black" [source in.gr] from the Annex and we try to approach holistically the problem. We divide the children into small groups (up to 4 people) and we give them a relevant activity sheet to process. Each group presents its arguments in plenary.



The end of the journey

Captain Nicolas is at the helm of “Agia Fotia” nearly a lifetime. Starting from the central harbor of the capital city he transfers food supplies to remote islands twice a week. The goods he transfers are usually perishable: fruits, vegetables, meat. He often transfers essentials for small shops: detergents, sanitary ware, etc. In the islands everybody knows Captain Nicolas; he is very dear to all as even under adverse and extreme weather conditions he provided people with the necessary supplies without taking into account the menace of the sea.

Captain Nicolas is now too old. In a very short time he will retire. He dreams of a peaceful place near his great love, the sea. With him “Agia Fotia” got old too. However, it’s been quite some time that he faces great problems regarding the boat. He writes down these problems in the deck calendar and then sends them to the owner company.

The last problem had clearly to do with leakage. The Captain knows that something bad is likely to happen during next trips. Still the company assures him that they will take all the maintenance measures. But time goes by and nothing has been done regarding the problem.

He is very skeptical today. This is his last journey. Once he returns he will apply for retirement and this is something that generates mixed feelings to him. He will say goodbye to the islanders and then seek for his own haven.

People are waiting for him because supplies are almost over. But the Captain is very much afraid that the big leak will happen. He doesn’t know what to do. On the one hand, there are the islanders waiting for him, but on the other he does not want during the "end of his journey" to “hurt” the sea that accompanied him for a lifetime. It’s also his own dream, a house by the sea that he does not want to lose for an error that he is not responsible for...



Review- Evaluation

- **Questions of reflection:**

- Which ways of economic exploitation of the sea do you know?
- Sea routes: From yesterday to today. Write down your thoughts, making good use of data that highlight man's longstanding relationship with the sea.
- In which cases do you think that exploitation of the sea is necessary?
- How could we reduce the ecological footprint of our transportation?

- **Activities**

- (1) A Minoan sailor tells his son about his last trip and the "gifts" of the land he brought with him from distant places. What could he say? Choose a Minoan sea route and create your own story.
- (2) Captain Nicolas is in a small house by the sea and looks back on his journeys. He often resorts to writing; he keeps a personal calendar, and records his feelings and experiences. Now he wants to write three letters: one to his favorite islanders and the other to the owner company of "Agia Fotia". He wants to dedicate the third to the sea: he will put it in a glass bottle and leave it on the shore. Separate into groups and write the letters of Captain Nicolas.

Possible Extensions

We find the script of "Agia Zoni II" and play it in the game of Sea4All.

Keywords

- **Nautical mile**

A **nautical mile** is **equal** to the distance of 1/60 of the degree i.e. equal **to 1'** of the latitude (calculated at the latitude of 45 degrees). This is actually equivalent to **1852 meters** or 6,076 feet, as internationally defined in 1954 [source Wikipedia].

- **Ecological footprint**

A way to measure the effects of human activity on the earth is "**ecological footprint**". The "ecological footprint" is a measure of the "demand" (consumption) of natural resources by a society in order to meet its needs, comparing it with the total capacity of the earth to produce and reproduce these resources. It estimates the natural resources needed to support the physical needs of a person or a population according to the lifestyle, habits and technology used [source SOS Mediterranean Network].



Bibliography

Athanasoula, S. (2010). *Analysis of the concept of Ecological footprint - Mesochora Dam Case Study*. Thesis. University of Thessaly, Volos.

Demetriou, A. (2009). *Environmental education: environment, sustainability. Theoretical and pedagogical approaches*. Thessaloniki: Epikentro Publications

APPENTIX

PHOTO GALLERY



[source <http://www.greekgastronomyguide.gr>]



[source www.e-nautilia.g]



[source www.newsbomb.gr]



[source www.efsyn.gr]



[source www.skyscrapercity.com]



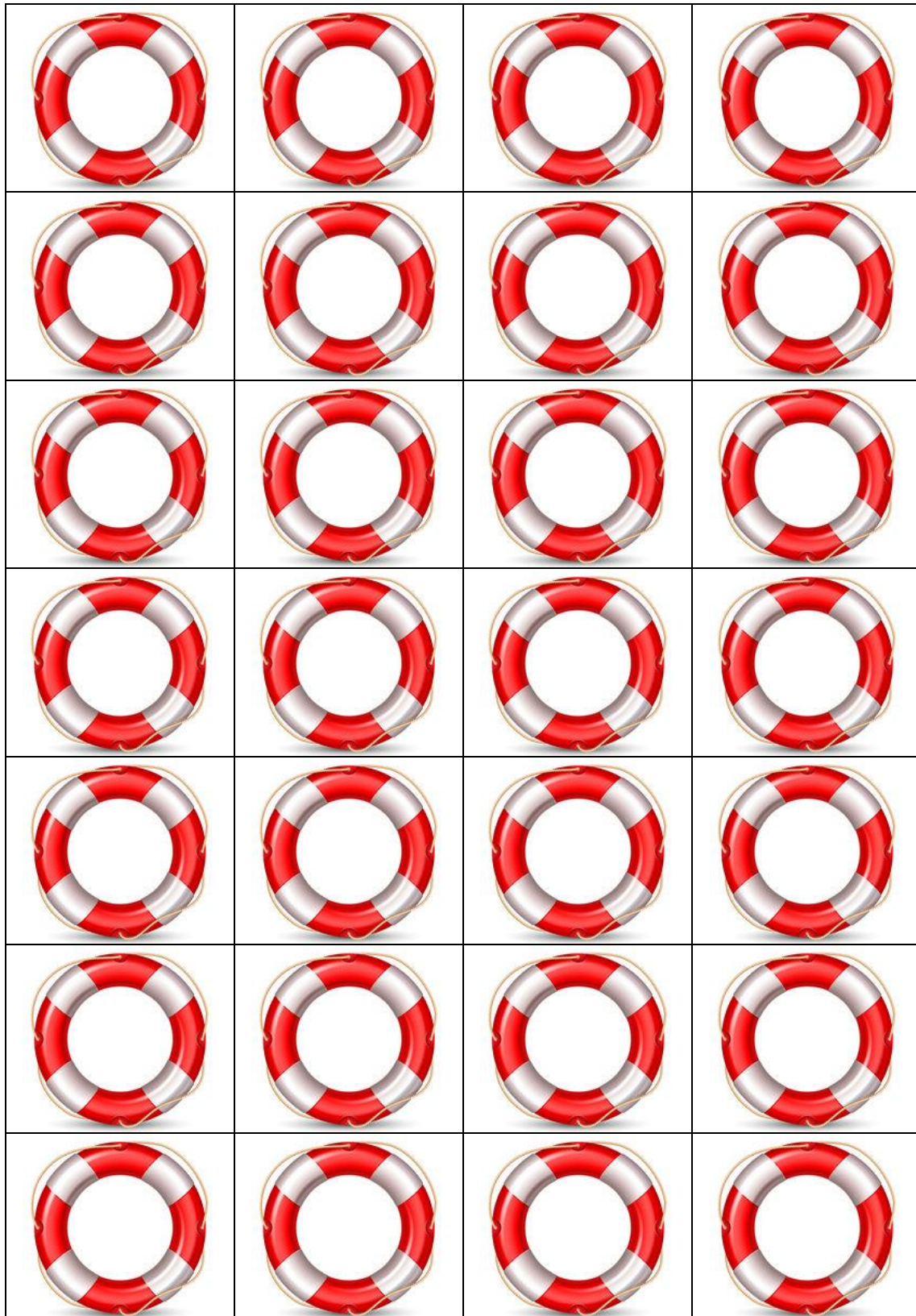
[source www.travelstyle.gr]



[source www.businessinsider.com]



[source www.davaocinto.wordpress.com]





Article regarding the naval accident of “Agia Zoni II”

The Case of “AGHIA ZONI II”: The ship that turned Saronikos into black

The scandalous pollution caused by "AGIA ZONI II" is one of the worst cases in Greek times.

[News Story Olga Stefou 18 May 2018, source in.gr]

The owner of "AGIA ZONI" seems to be incorrigible since a ship of his fleet polluted for second time 120 square meters of sea with light petroleum products. The owner was arrested again. It is reminded that he had already been summoned to pay a fine of 1.2 million euro for the huge pollution of the Saronic Gulf in the early hours of September 10, 2017.

Shortly thereafter, the representative of the manager company of the tankers "Agia Zoni I" and "Agia Zoni III", who had been arrested in flagrante delicto was released. The prosecution authorities have ordered a preliminary investigation to be carried out by the Coast Guard. The lawyer of "Agia Zoni", speaking to the press, said that the two tankers are securely moored to the port, they do not have any cargo and they are at that point since July 2017. She also added that the two ships do not constitute a risk to shipping or to the marine environment in regards to the place they are located.

The scandalous pollution caused by "AGIA ZONI II" is one of the worst cases in Greek times. The ship was carrying 2,570 tons of fuel and in particular had sailed from the Aspropyrgos refineries with 2,200 metric tons of fuel oil and 370 metric tons of marine gas oil. The pollution was spread throughout the area. The photographs of the dead fishes and birds were shocking, while the heavy smell of the spilled fuel was perceivable for days even in non-purely coastal areas of Attica.

The captain and the first engineer of the tanker which sank in the Saronic Gulf were arrested and since then one throws responsibilities onto the other. The ΠΕΝΕΝ (Panhellenic Union of Merchant Navy Sailors) issued an offensive announcement for the ship. The announcement referred to big and unanswered questions. The Government and the Ministry were charged with major responsibilities. It was reported that the ship was 45 years old and with many patches, it was also stressed that nine of the 11 crew members were absent. In particular “ΥΕΝ (Hellenic Ministry of Mercantile Marine) regarding the sinking of the ship mentioned that it lasted 13 hours while in the same report paradoxically there is a hasty note which stresses the fact that all the ship's certificates had been checked and found to be OK”.

What kind of ship it was

"Agia Zoni II" was built in 1972 at the German Lindenau Schiffswerft & Masch Shipyard in Kiel. In the early years, she was performing routes in the river and near



the coast where the waters have no insignificant ripples, but when she began to get older, she was practically laid-up for a certain period. At that time, aged and not active, she was allegedly acquired by its Greek owner. Since June 16, 2008, she is officially under the management and ownership of Th. Kountouri's family interest groups.

Two months after she was included in the owner's fleet, in August 2008, the owner withdrew her from the reputable Norwegian classification society DNV-GL placing her under the Greek regulatory framework which allows ships of this kind of size and class to be monitored by the Inspectorate Merchant Shipping of the Hellenic Ministry of Mercantile Marine. When she sank, she was 45 years old, a ship of controversial security.

Complaints and responsibilities

The complaints against the Minister of Shipping Panayiotis Kouroumplis start in the next few days and gradually increase. The Head of the opposition party from the ΔΕΘ (THESSALONIKI INTERNATIONAL FAIR) as well as the authorities denounce the ministry for obstruction and delayed response to the disaster. Just a few days after the shipwreck, there were press reports indicating the good (if not friendly) relations between the ship's owners and the Greek minister. The Greek minister himself Mr Kouroumplis refuted the above reports denouncing mudslinging against the Government. In an effort to respond to complaints of negligence, the Minister in the Special Standing Committee on the Environment will state:

"I'm sorry but you were not properly informed. We called the European boat from the very first moment but she was on a mission. As soon the mission was completed, European boat provides services in Saronic Gulf and she is now reserved by the Greek State. There were no party representatives in the operation room to see the signs" and he committed that within the next - from then - 40 days the problem will be solved.

The ship was pulled from the bottom of the sea at the end of November. After December 2017, there were no significant findings regarding the presence of petroleum hydrocarbons on the coastline which was polluted, marine organisms were not affected, and no residues of petroleum hydrocarbons were found in the seabed. However, the blow in the local economies was significant already. The fine imposed on the ship owning company of "Agia Zoni II" reached 1.2 million euro. Panagiotis Kouroumplis announced the fine and pledged to collect it, a statement which was made one month before the new pollution incident by the same company took place.



Activities regarding the elaboration of the article “The Case of “AGHIA ZONI II”: The ship that turned Saronikos into black”

You can put the following questions in the classroom:

1. One month before the accident, the Standing Committee on the Protection of the Environment had a meeting taking into consideration all the incriminating elements of "Agia Fotia". What the committee could have suggested to the ship owning company in order the accident to be prevented?
2. Which State authorities appear not to have operated properly in order the accident to be prevented?
3. Could a fine heal the wounds of pollution?
4. Taking into account the accident data as well as the way it was handled by the authorities and after having crosschecked all the necessary information, write an open letter as citizens to the co-responsible ministers demanding respect for the marine life.
5. Taking into account the characteristics of “Agia Fotia” and being in Captain Nicolas’ shoes write a few words in your journal some days before the accident. Subsequently identify which features of Captain Nicolas, if any, might have prevented the accident.
Justify your point of view.
6. The dead fishes get a voice in the dream of the owner of "Agia Fotia". Write down their words, putting a brief phrase on their mouth.



The end of the journey

After having read the script regarding the End of the Journey as well as the article of
“Agia Zoni II” accident

fill in the following activity sheet by group

What is the dilemma of Captain Nicolas?	
What will happen if he decides to travel? What values does this decision promote?	
What will happen if he decides not to travel? What values does this decision promote?	
You are Captain Nicolas. Which will be your final decision and why?	