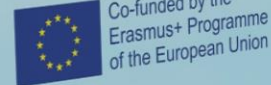


WE SHARE ONE FUTURE

learning and acting to transform



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Portugal



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Italy



Turkey



Greece

Climate Change



Part 1

R^G



*Students of 2nd Grade
Makrina Dimitriadou
Spyros Gkinis
Dionyssios – Ioannis Kyriakoulis
Maria Giannadaki*

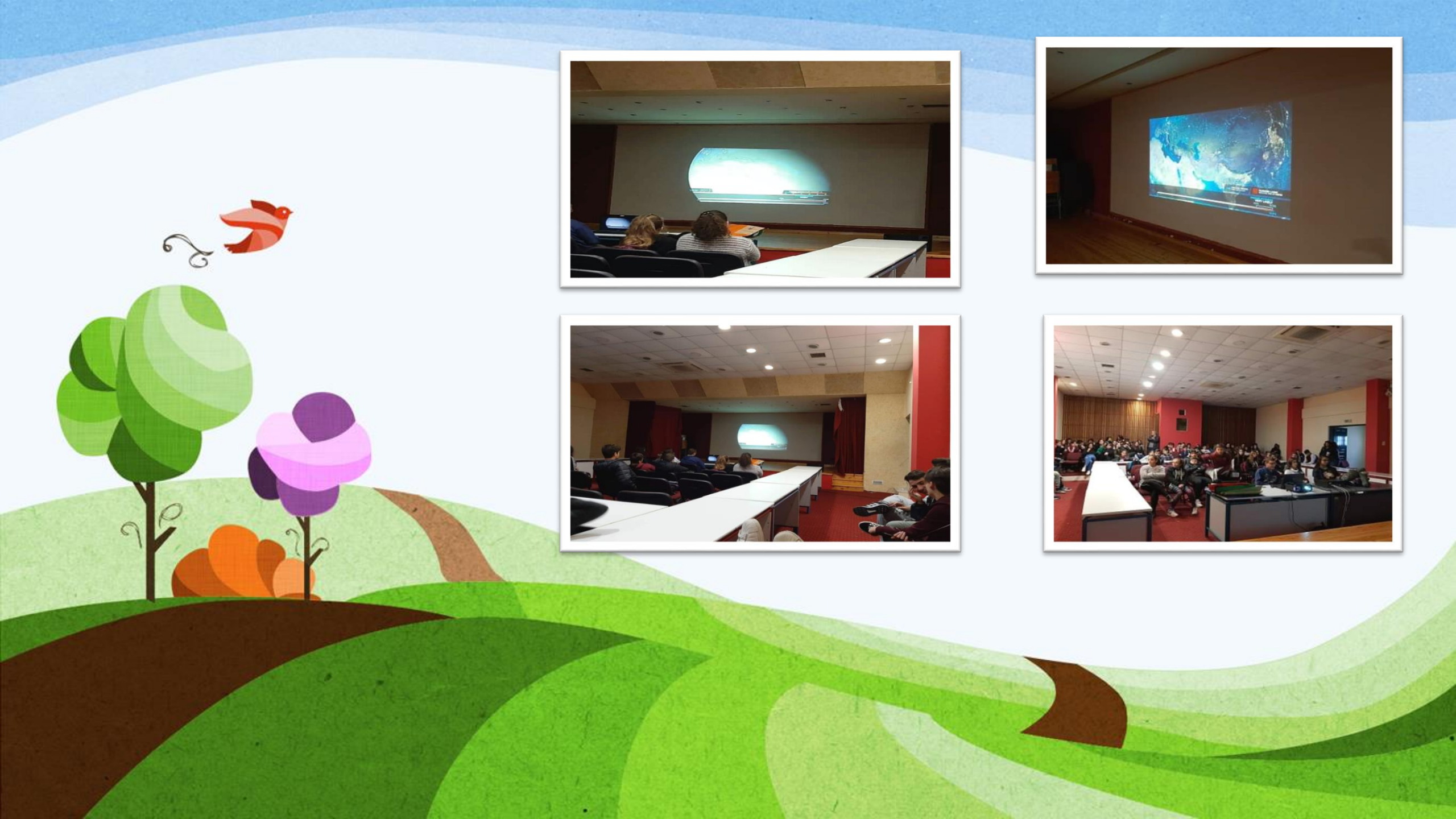
1st Activity - Save The Animals

- PROJECT 4 HOURS
- 22 STUDENTS (A CLASS)
- VIDEO(5 MIN.)WWF GREECE
- DISCUSSION
- FOCUS ON PROTECTED ANIMALS
- GROUPS OF 4-5
- POSTERS(PICTURES-CAUSES-SOLLUTIONS)
- PRESENTASION OF POSTERS



2nd Activity Climate Change

- 80 STUDENTS
- 3 TEACHERS
- VIDEO (10 MIN.)
- CONSEQUENCIES OF CLIMATE CHANGES
- QUESTIONS
- DISCUSSION



3rd Activity - Drawing Competition

"We love the Planet - Our Blue Home"

- 30 STUDENTS
- THE SEA LIFE
- THE WINNERS



Best drawings



4th Activity - Questionnaire

HOW ECO FRIENDLY ARE YOU?

1. How often do you use plastic bags and plastic straws?

Never Rarely Sometimes Everyday

2. How do you go to school?

On foot By bike By car

3. How often do you throw away food?

Never Rarely Often Everyday

4. In which degree do you use the air conditioner in summer?

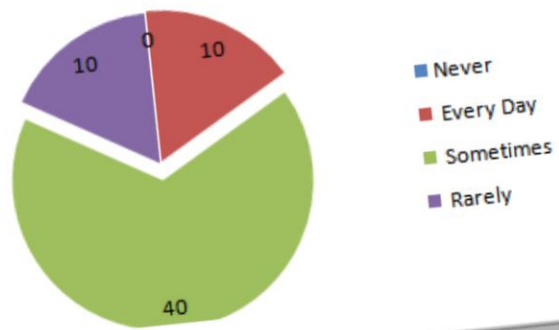
25 20 15 10

5. Do you care for the consumption of water in your home?

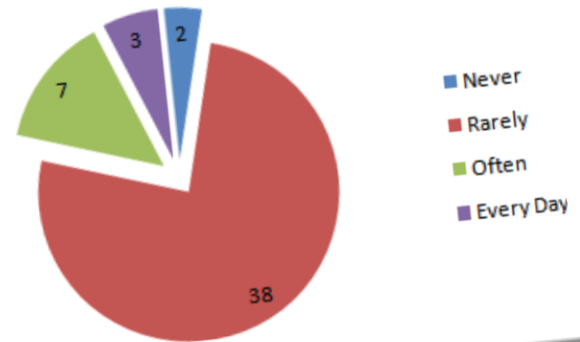
Yes Sometimes Never

Results

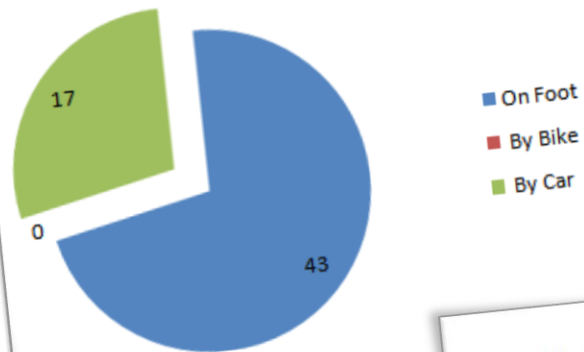
1. How often do you use plastic bags and plastic straws?



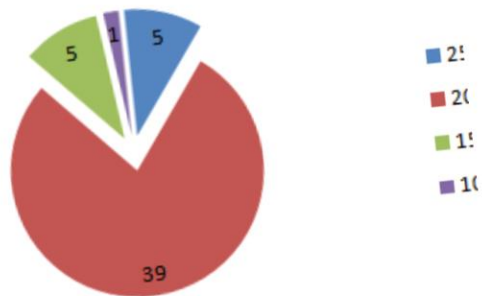
3. How often do you throw away food?



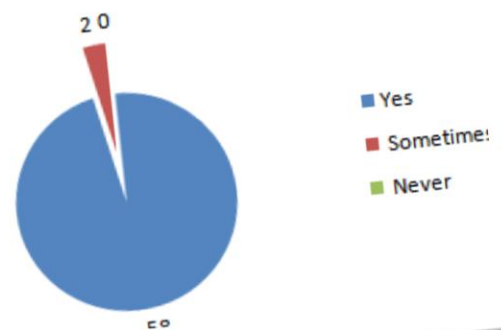
2. How do you go to school?



4. In which degree do you use the air conditioner in summer?



5. Do you care for the consumption of water in your home?





Part 2











Sound energy

Understanding the problem

Topics we talked about in class & theoretical background

- SPL (Sound Pressure Level in dB)
- Sound measurement
- Sound masking
- Duration of sound exposure daily
- Hearing loss
- Consequences of excessive loudness to the environment
- Documentary about hearing health "Human Body"
- European Commission regulations
- WHO (Worldwide Health Organisation) guidelines

Sound sources, sound levels, daily exposure to sound

Sound source										
dB	20	40	60 - 70	80 - 87	90	100	110	130	140	150
daily exposure duration	unlimited				4:00:00	0:00:00	0:01:52	0:00:02	<1''	<1''



2003/10/EC Council Directive on the minimum, health and safety requirements regarding the Exposure of workers to the risks arising from physical agents. Brussels: European Commission.



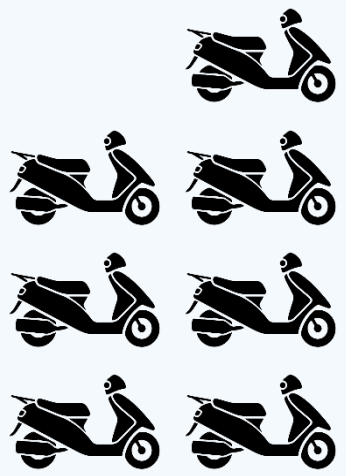
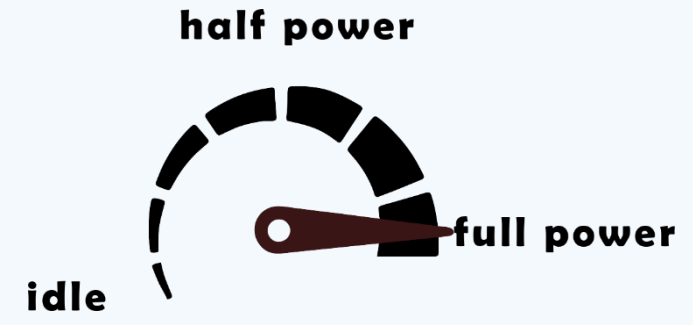
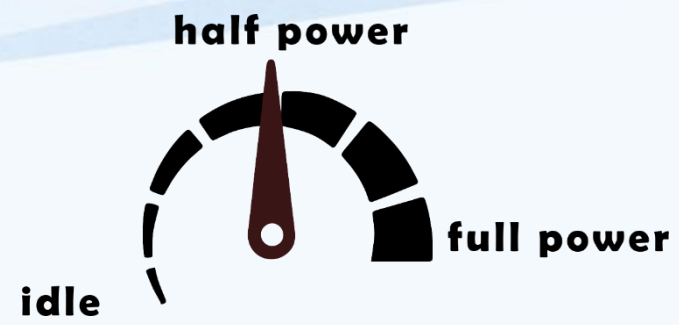
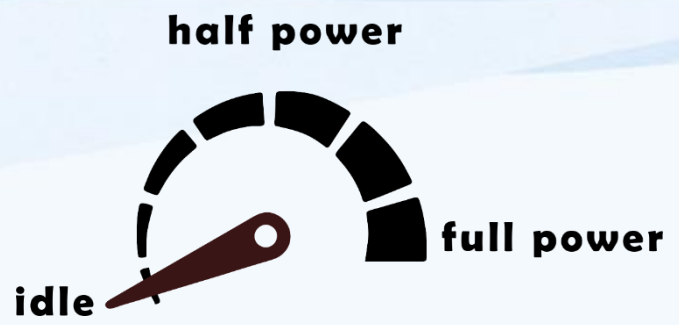
source of graphs: Flaticon

Understanding sound energy

- 1st activity: measuring scooter engines
- 2nd activity: measuring daily home sounds

1st activity





half power



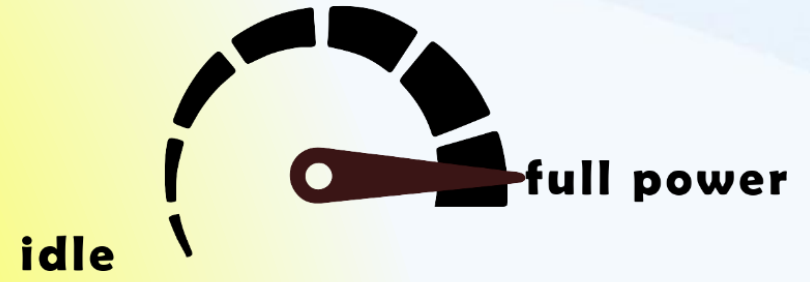
103 dB

98 dB

86 dB



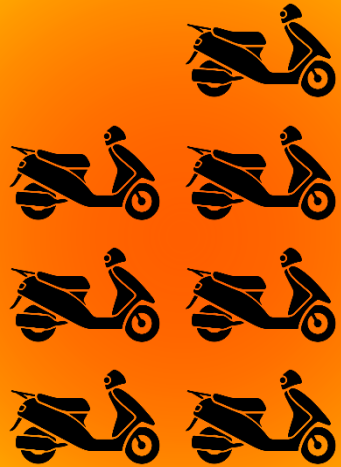
half power







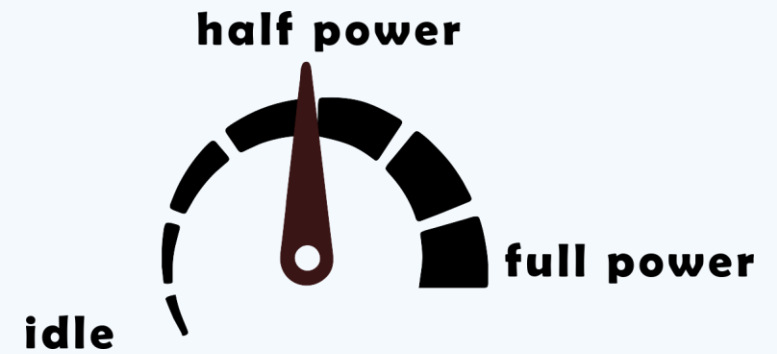
108 dB

104 dB

96,5 dB



<i>Number of sound sources</i>	<i>dB</i>	<i>distance</i>
	77.8	20m
	80.7	20m
	83.7	20m
	86.3	20m



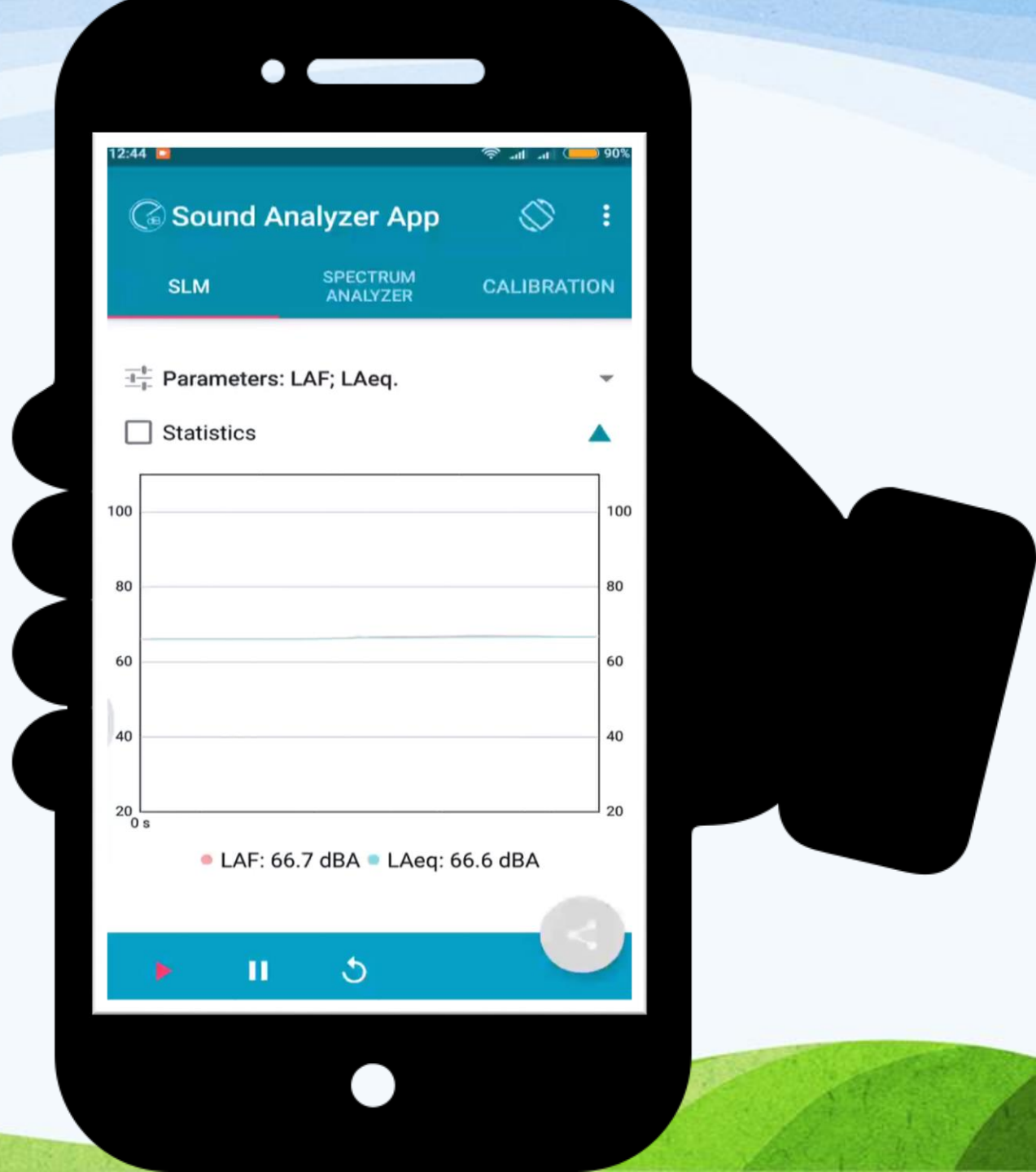
2nd activity

Let's start with a cup of tea
and Sound Analyzer App

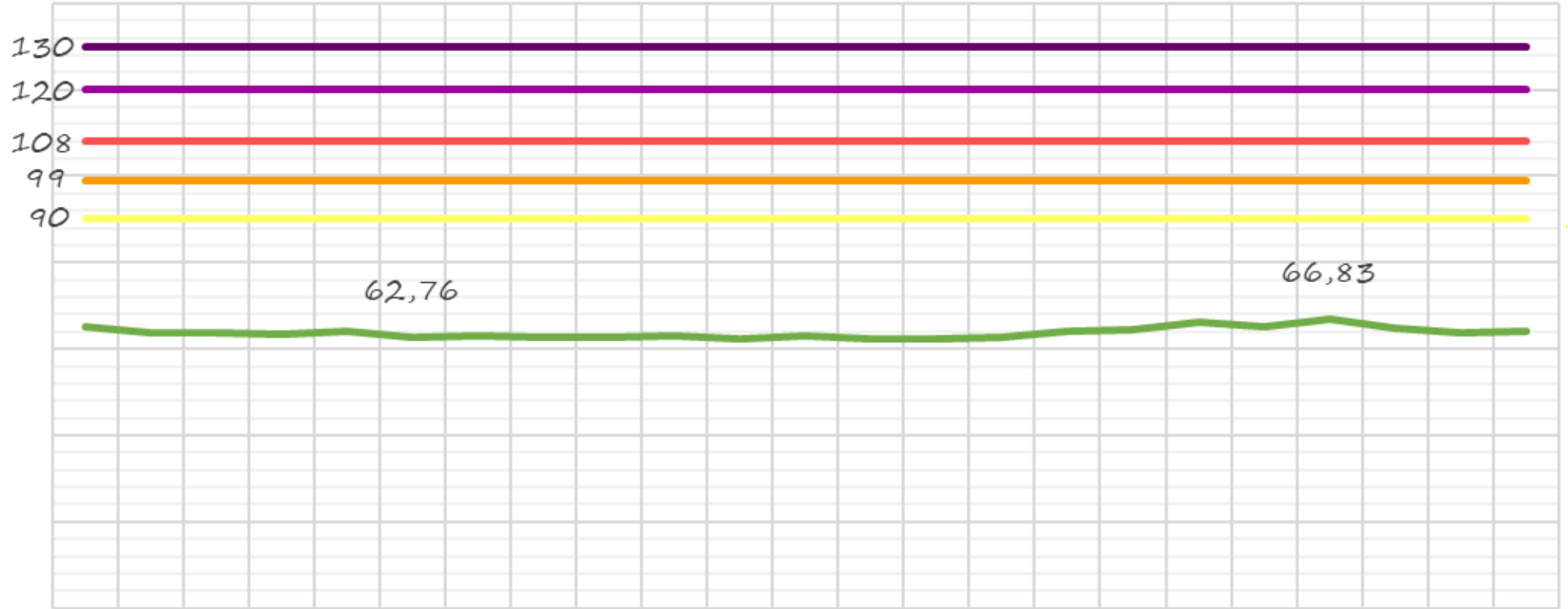




*Sound Analyzer App
by
Dominique Rodrigues*



Kettle (dB)

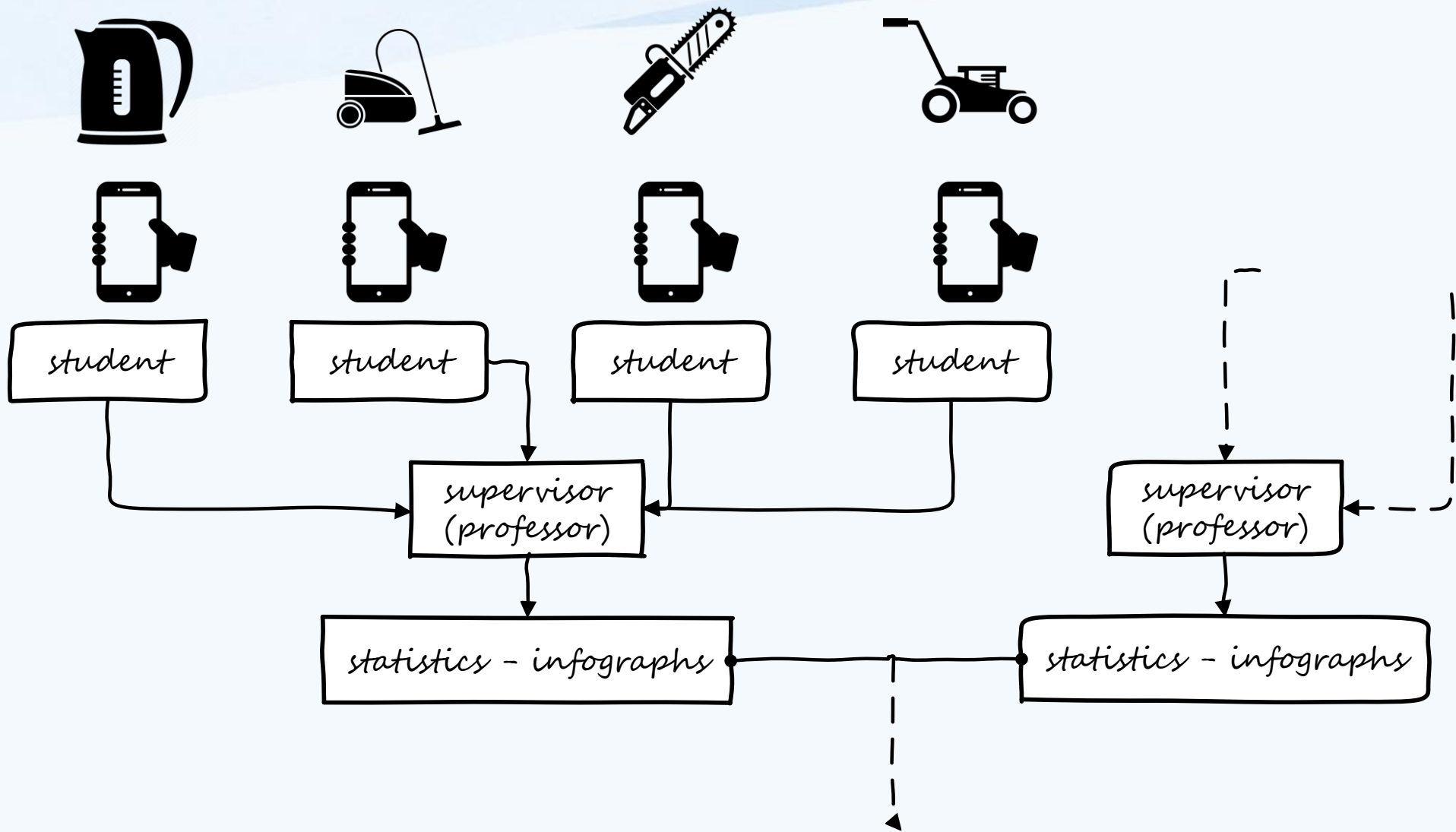


4hrs

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

— Kettle (unlimited duration) — 4 hrs — 30 min — 3min 45sec — 24 sec — 2 sec






Results and thoughts

Results



- The closer we are to the sound source, the higher sound level comes out.
- When the sound source is doubled, the sound levels increases by almost +3 dB

Thoughts

- How can sound engine affect the hearing of a scooter driver (1st activity?)
- How can noise pollution affect others' lives?
- Is population growth related to the increase of noise pollution?
- Can noise pollution affect species' population?
- Is species' population related to climate change?



ΕΝΤΟΣ, ΕΚΤΟΣ &... ΕΠΙ ΤΑ ΑΦΤΙΑ

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Ακουστική... Ηχολογία

Our research team



Sotiris Gatsoulis, Georgia Vareli, Konstantinos Varelis, Spyros Vlassis, Giorgos Soulanis

Resources

- Dangerous Decibels, <http://dangerousdecibels.org>
- Dale Richard, Alan Bookbinder, Lorraine Heggeseey, The human body, BBC/TLC co-production
- Greek Society of Acoustic Ecology <http://akouse.gr/wp/>
- Ichoripansi (Noise Pollution), <http://ixoripansi.gr>
- Infographics designs
 - Vector stock
 - Flaticon
 - Icon finder
 - Dangerous Decibels
- Kokkinomilioti Lena, *The impacts of sonic environment inside the venues of Marching Bands of Corfu on the musicians: Phenomenological research and educational approaches for hearing protection.* (unpublished dissertation)
- Papadimitriou Kimon, *Sound researchers* http://paki.webpages.auth.gr/wp/?page_id=1106
- Papadimitriou Kimon, "Sound Explorers"-A Workshop for the Training in the Exploration and the Documentation of the Sonic Environment
- www.ear-care.eu

Acknowledgements

- *Colleagues of Lyceum and Gymnasium of Lefkimmi*
- *Students participating in this project*
- *Papadimitriou Kimon*
- *Kokkinomilioti Lena*



Part 3



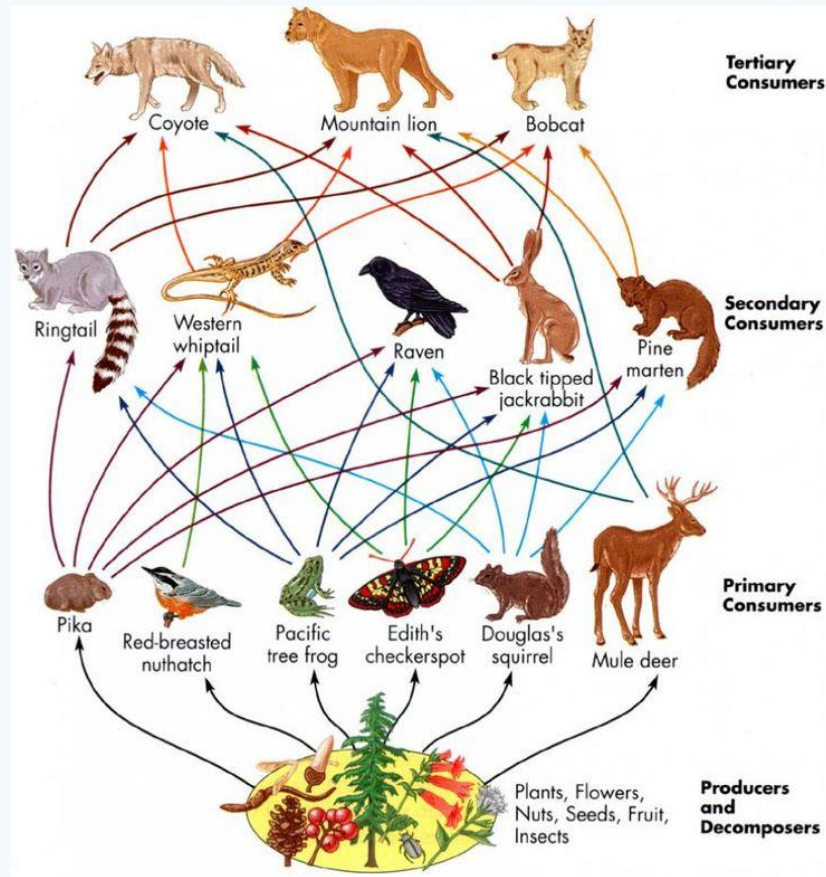
*Students of 2nd Grade
Giannadaki Maria*

1st Activity – What is Biodiversity?

- A MINI RESEARCH
- 26 STUDENTS (A CLASS)
- STUDENT LERNING OBJECTIVES
 1. DEFINE BIODIVERSITY
 2. DISCUSS FACTS AND IUSSES RELATED TO LEFKIMMI BIODIVERSITY (ALYKES LEFKIMMIS, KORISSION LAGOON) AND
 3. LIST REASONS WHY BIODIVERSITY IS IMPORTANT



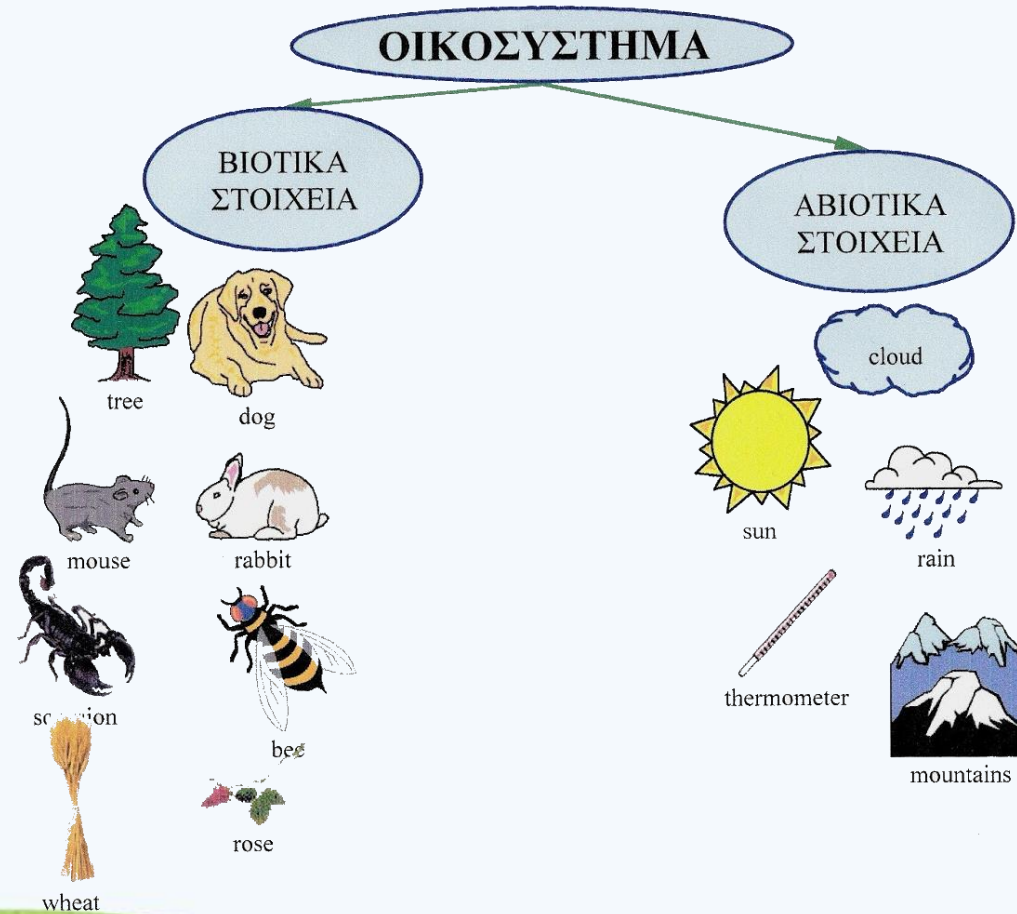
1st Activity - A mini Research



Main vocabulary: biodiversity, ecosystems, migration, species, habitats, population, community, food chain

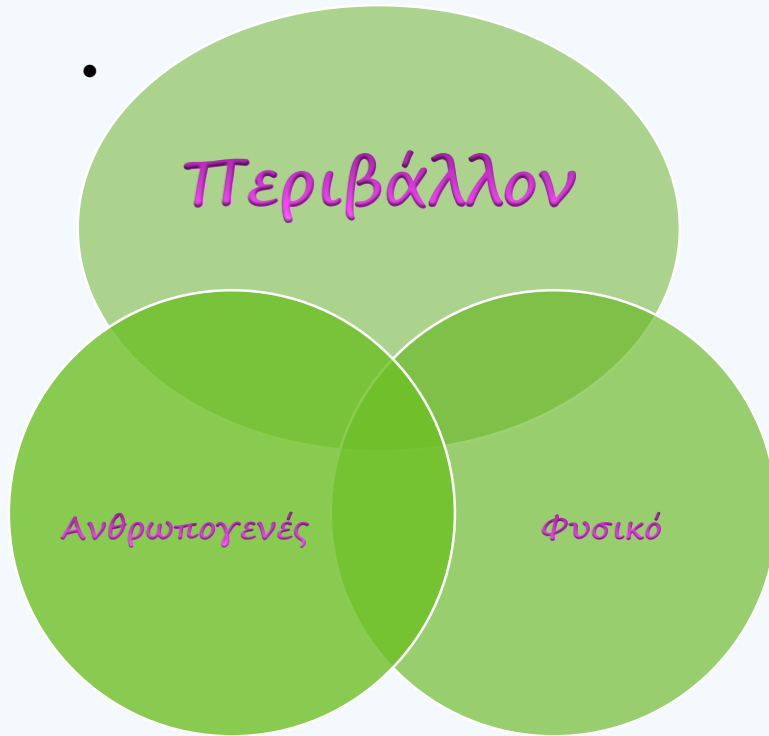
1st Activity - A mini Research

Background information: What is an ecosystem?



1st Activity – A mini Research

Background information: What is the relation between Environment and ecology?



Οικολογία (οίκος + λόγος): η μελέτη των οργανισμών στον «οίκο» τους, μελέτη των ζωντανών οργανισμών στον «οίκο» τους, στο χώρο που ζουν και αναπτύσσονται.



1st Activity – A mini Research field study

Students study the flora and fauna of two dynamic ecosystems in their area, they visit them and they discover the threats from human activities or other causes, which destroy the biodiversity and upset the balance of ecosystems!

1st Activity – A mini Research

Field study-Activity sheet

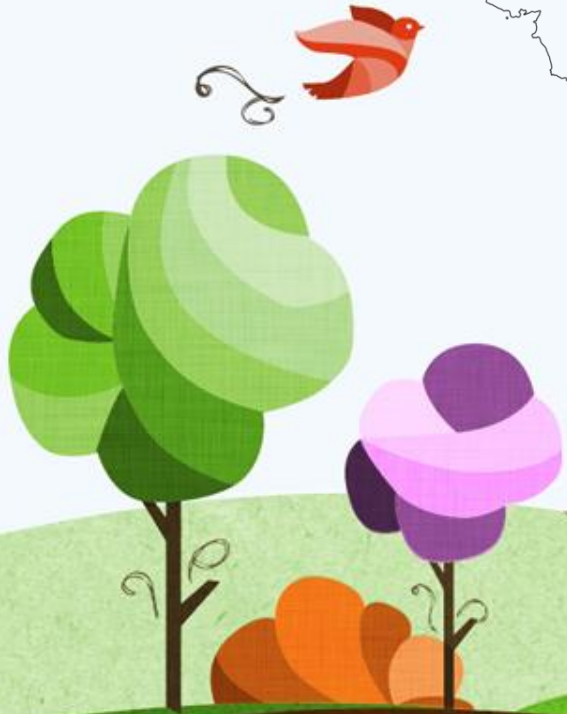
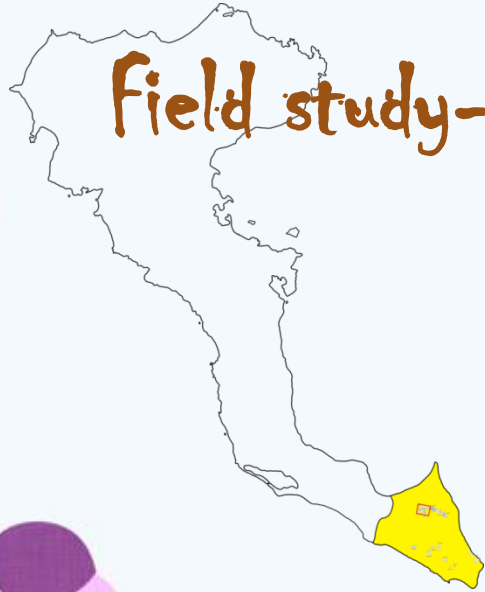
Φυτά		Πουλιά	Ανθρώπινες Παρεμβάσεις
Αρωματικά			
Αλόφυτα			
Δέντρα			
Θάμνοι			
Θάμνοι			
Πόες			

1st Activity – A mini Research Field study – Alykes Lefkimmis



1st Activity - A mini Research

Field study - Alykes Lefkimmis (Salt pit)



1st Activity - A mini Research

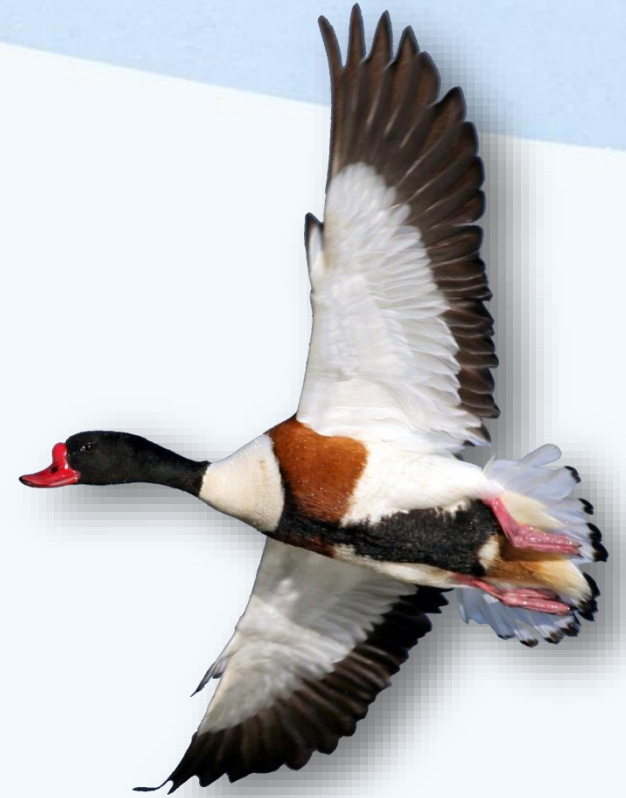
Alykes: An important wetland



1st Activity – A mini Research

Alykes: A dynamic ecosystem

Fauna: Gulls, Aquatic



1st Activity – A mini Research

Alykes: A dynamic ecosystem

Fauna: Flamingo, kingfisher



1st Activity – A mini Research

Alykes: A dynamic ecosystem

FLORA: Halophytes



1st Activity - A mini Research

Field study- Korission Lagoon



1st Activity - A mini Research

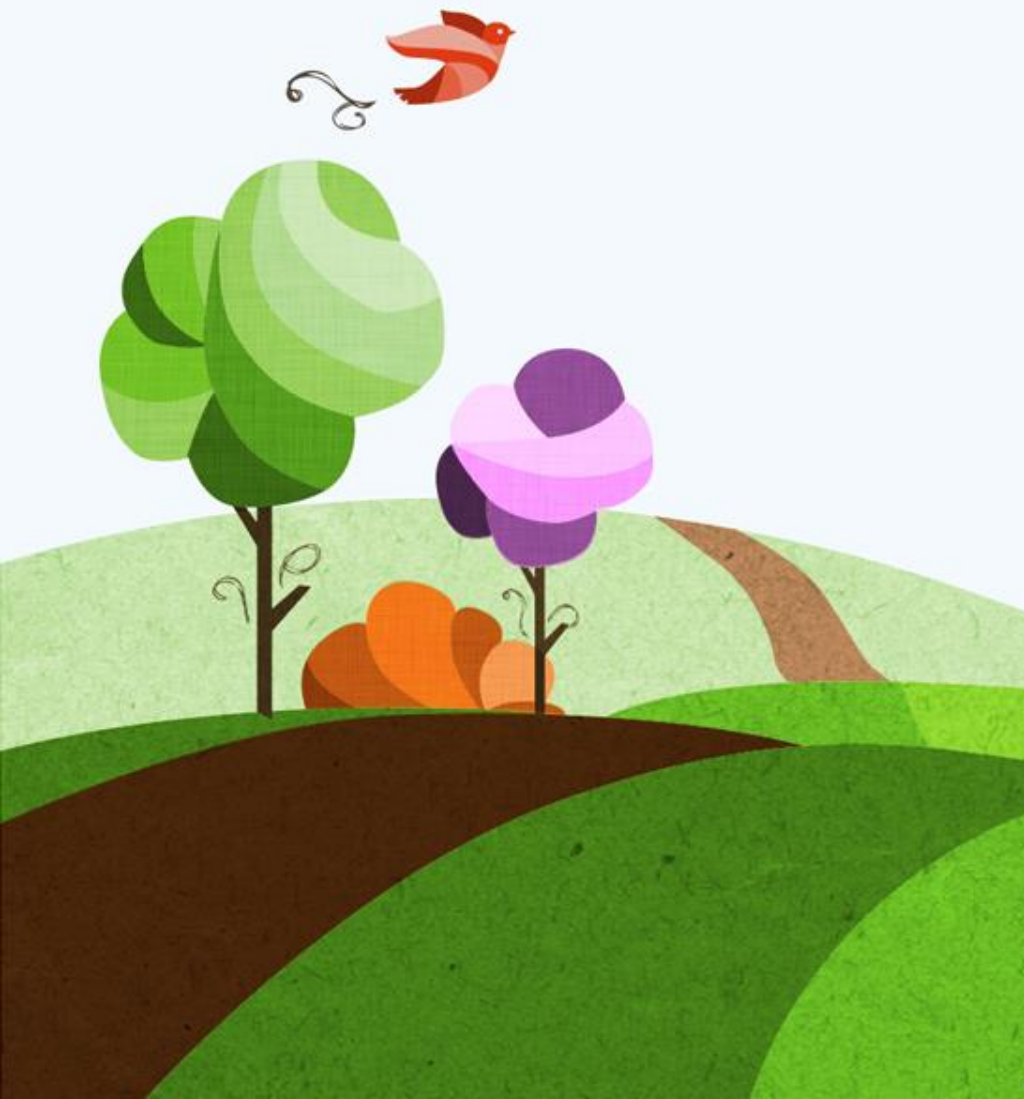
Korission lagoon: Another dynamic ecosystem

Fauna

Cormorant



Eurasian wigeons



1st Activity - A mini Research

Korission lagoon: Another dynamic ecosystem

Fauna



Egrets



Flamingo

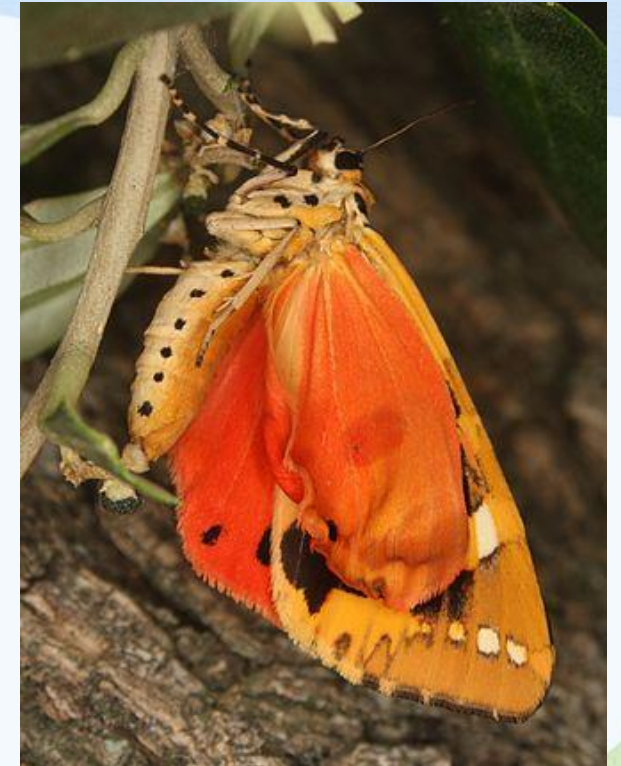


1st Activity - A mini Research

Korission lagoon: Another dynamic ecosystem
Fauna



Tortoises



Butterflies

1st Activity – A mini Research

Korission Lagoon: A dynamic ecosystem

FLORA



Juniperus phoenicea



Orchid

1st Activity – A mini Research

Korission Lagoon: A dynamic ecosystem

FLORA



Halophytes



Thyme



Results and thoughts

Results: The threats

Motor vehicles (motorbikes - cars)
Trash
Hunters
Human activities
Noise pollution
Light pollution

Thoughts

How we can do about these threats?

- Protect the animals
- No using motor vehicles in natura areas
- Avoid lighting fires in the woods
- Don't pollute the environment
- Recycling
- Stop hunting in forbidden areas

2nd Activity – Experiential Learning

Food chain: A game in the field

- 40 STUDENTS
- 3 TEACHERS
- A GAME IN THE FIELD
- QUESTIONS
- DISCUSSION



2nd Activity – Experiential Learning

Food chain: A game in the field



The students make a circle and the teachers share the cards to all of them, in which many of the species, that live in this ecosystem are presented. The first student starts to read the card information : animal name, species, food, problems and daily dangers and after holds the end of a rope's thread, throwing the rest to another student (it is better to choose the student who is exactly opposite), who in turn will read his own card.

2nd Activity – Experiential Learning

Food chain: A game in the field



In that way they learn experientially the fauna of this ecosystem, they shape a very strong food chain and they understand the importance of the coexistence of so many species in a dynamic ecosystem, where no species is unnecessary, and all depend on each other.

2nd Activity – Experiential Learning

Food chain: A game in the field



After the students-animals start to look for food, and, as many species feed on others, the students observe the decomposition of the strong food chain (the thread loosens, when the student animal is eaten and leaves the circle).

2nd Activity – Experiential Learning

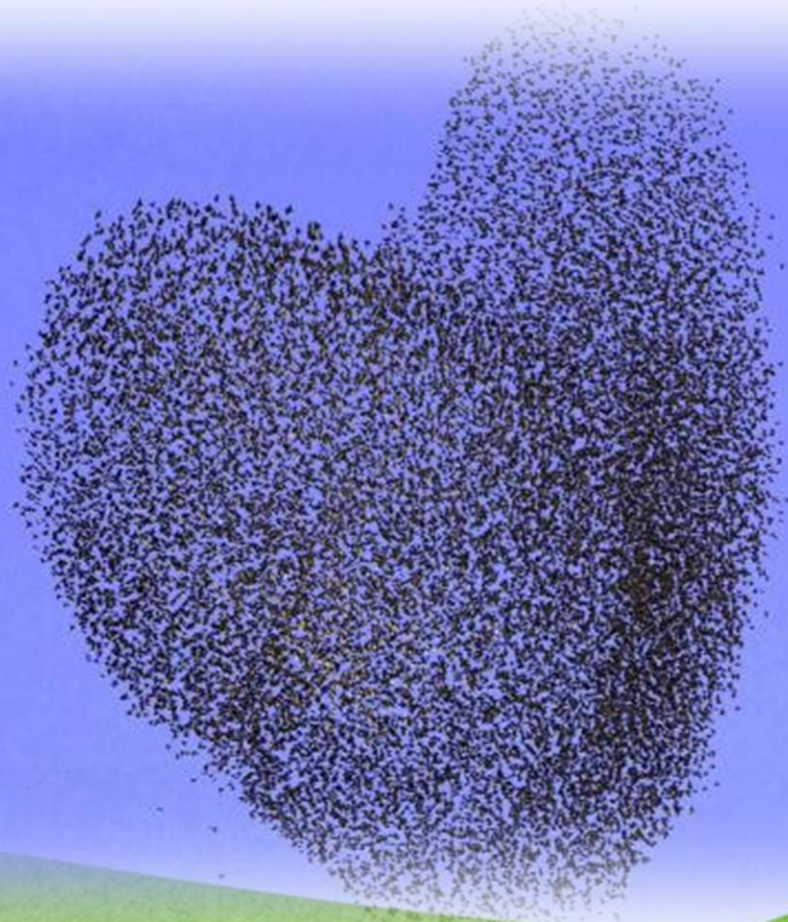
Food chain: A game in the field



At the end of the game, when the food chain is almost dissolved, students discuss solutions, so that the food chain does not disintegrate so easily.

They discover that the balance of food chain depends on the proportion of populations that, although nature provides, humans disturb for many reasons, but the most important is climatic change!

3rd Activity – The migrating birds and the climatic change



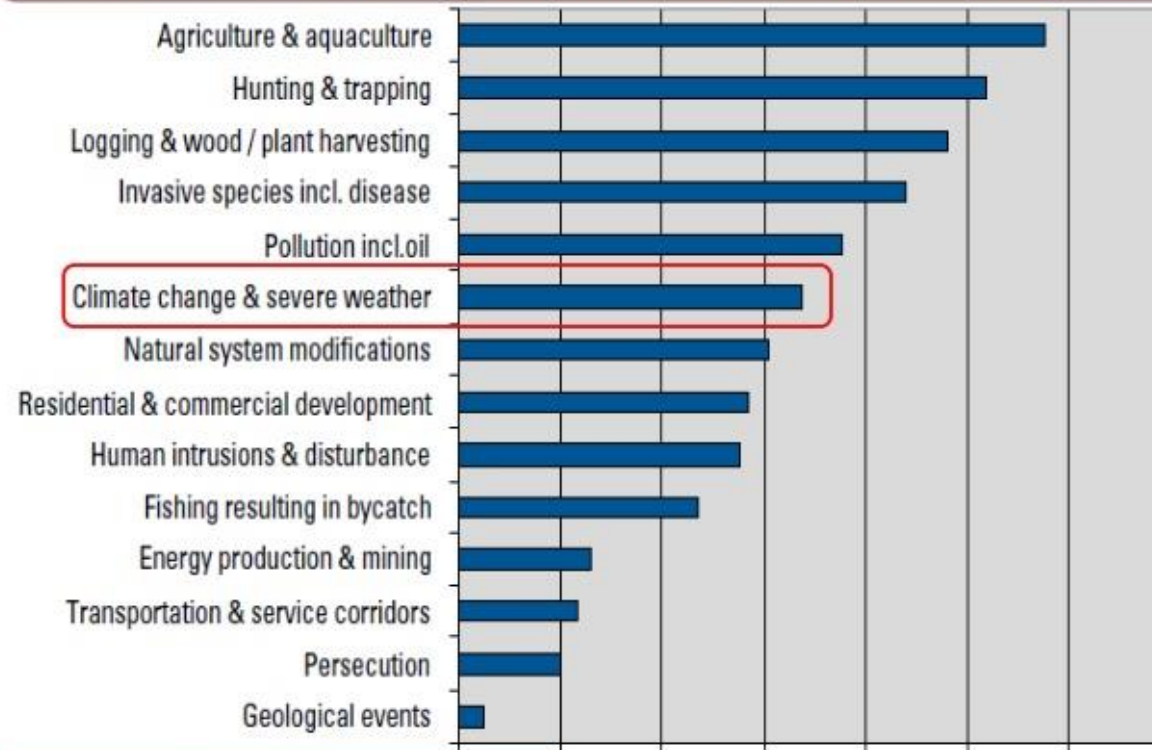
3rd Activity

The migrating birds and the climatic change

- PROJECT 2 HOURS
- 22 STUDENTS (A CLASS)
- VIDEO(5 MIN.)WWF
GREECE
- QUESTIONS
- DISCUSSION

3rd Activity – The migrating birds and the climatic change

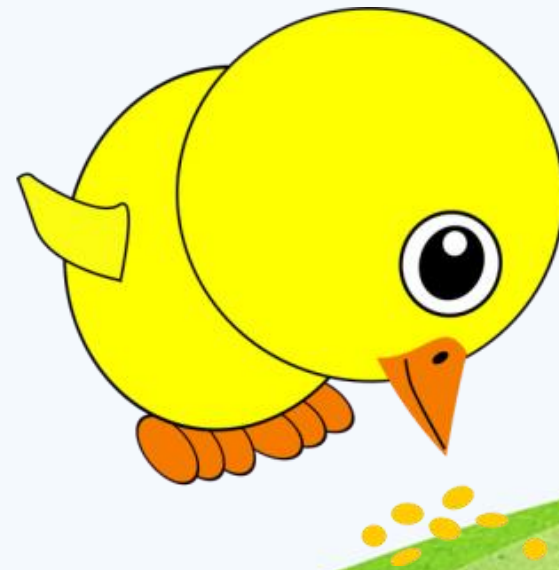
Main threats to migratory bird species



Sources: Shoo et al., 2005

% of species affected

What we can do except stopping climatic change?



4th Activity - Climatic change



4th Activity – Climatic change

- 60 STUDENTS
- 2 TEACHERS
- WATCHING A VIDEO
- QUESTIONS
- DISCUSSION
- EXPERIENTIAL LEARNING ABOUT THE RENEWABLE ENERGY SOURCES

4th Activity - Climatic change

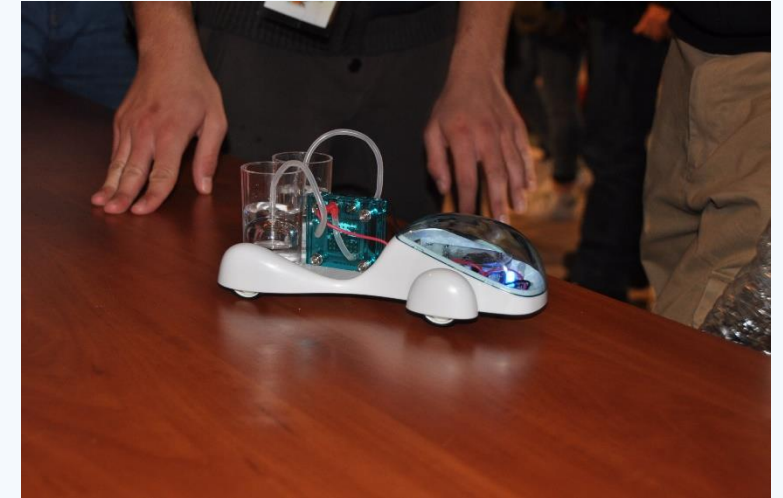
Discussion and interactive games after wathing video



4th Activity – Climatic change

EXPERIENTAL LEARNING ABOUT THE RENEWABLE ENERGY SOURRRCES

Hydrokinesis experiment



4th Activity – Climatic change

EXPERIENTAL LEARNING ABOUT THE RENEWABLE ENERGY SOURRRCES



Hydraulic Energy



4th Activity – Climatic change

EXPERIENTAL LEARNING ABOUT THE RENEWABLE ENERGY SOURRRCES



Solar Energy



4th Activity – Climatic change

EXPERIENTAL LEARNING ABOUT THE RENEWABLE ENERGY SOURRRCES



Solar Energy



4th Activity – Climatic change

EXPERIENTIAL LEARNING ABOUT THE RENEWABLE ENERGY SOURRRCES



Wind Energy



4th Activity – Climatic change

Solutions: It's up to us to solve it

