



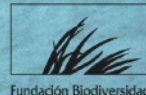
MISTIC SEAS II

MACARONESIA



GOBIERNO DE ESPAÑA

MINISTERIO PARA LA TRANSICIÓN ECOLÓGICA



Fundación Biodiversidad

20 AÑOS

TEACHING UNIT

PRIMARY

CREDITS

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Welcome



We bid you welcome on board the MISTIC SEAS 2 Project.

You have in your hands a proposal that has been prepared with loving care, with the intention of infecting you with our passion and encouraging you to put it into practice. Without teachers such as yourself, who are excited by our suggestions, the project would never have been born. The aim of the people who make up the MISTIC SEAS 2 team is to raise your awareness. Through teachers, we will get young people to become aware of the damage that the human being is causing to the seas so that they can be a driving force towards more sustainable practices.

These teaching materials form part of making the MISTIC SEAS 2 project more widely known, and the aim is to investigate the environmental state of the ocean in the Macaronesian region, with the aim of managing it and conserving the sea. The strategy aims to create a public awareness of the need to take steps to achieve or to maintain this satisfactory level, through actions with other social sectors such as fishermen, environmental agents, boys and girls, businesspeople or maritime professionals and the public in general.

The scope of action of the project is the area known as Macaronesia (the Azores, Madeira and the Canaries), one of the ecosystems which is richest in marine biodiversity in the world.

This material has been prepared by the Biodiversity Foundation of the Ministry of Agriculture and Fishing, Food and the Environment as part of the strategy of dissemination of the Mystic Seas 2 project.

Before you begin reading, we would like you to know that when we use the masculine gender we are referring to both sexes, although whenever we can we use words which include both of us.



MISTIC SEAS II



MACARONESIA

“The application of a coherent and co-ordinated sub-regional approach of monitoring and evaluation of the marine bio-diversity in Macaronesia for the second cycle of the Marine Strategies Framework Directive (MSFD)”

The MISTIC SEAS project worked on a methodology for monitoring marine biodiversity in Macaronesia, concentrating on the populations of three groups of species that inhabit all the archipelagos of this sub-region (the Azores, Madeira and the Canaries).

MISTIC SEAS 2 is the continuation of MISTIC SEAS and is within the framework of the second cycle of the Marine Strategies Framework Directive. It has as its objective the start up of joint programmes between Spain and Portugal for monitoring the condition of marine mammals, turtles and seabirds in the sub-region of Macaronesia.

The project, which has been under way from March 2017 to March 2019, has a total budget of 1.3 million Euros and is 80% co-financed by the European Commission. It is coordinated by the Regional Fund for Science and Technology (Regional Government of the Azores, Portugal), and has as partners the Regional Directorate of Affairs of the Sea, the Regional Government of the Azores (Portugal); the regional Secretariat of the Environment and Natural Resources, the Regional Government of Madeira (Portugal); the General Directorate of Natural Resources, Security and Maritime Services of the Ministry of the Sea, Portugal; the General Directorate of Sustainability of the Coast and the Bio-Diversity Foundation, both of the Ministry for Ecological Transition of the Government of Spain; the General Directorate of protection of the Natural Environment of the Government of the Canary Islands; the Regional Agency for the conduct of Research and Technology and Innovation of the Azores (ARDITI); and the Spanish Institute of Oceanography.

Coordinated by:



Partners:



Secretaria Regional do Ambiente e Recursos Naturais



Financed by:



TEACHING UNIT

Objectives of this teaching unit

The **main purpose** of the project with this material is to spread knowledge of **the marine biodiversity of Macaronesia among schoolchildren concentrating on seabirds, cetaceans and turtles, the elements that threaten their survival, the good practices which aid in their conservation and the actions to take if we find any of these animals in a life-or-death emergency.**

On the basis of this main objective of the project, each activity will cover the following contents:

Content	Activity 1	Activity 2	Activity 3	Activity 4
Marine bio-diversity				
Threats				
Good practices				
Actions in emergencies				

This main objective is divided into the following **teaching objectives**, which are worked on in the different activities proposed as is shown in the following table:

Objetivos	Activ. 1	Activ. 2	Activ. 3	Activ. 4
1. To analyse the knowledge of marine species of birds, cetaceans and turtles, developing the capacity for observation and analysis of the near environment.				
2. To acquire awareness of the state of conservation of the marine environment in the Azores, Madeira and the Canaries.				
3. To recognise the different threats to marine bio-diversity.				
4. To identify the consequences of human actions as threats to marine bio-diversity.				
5. To get to know and apply best practices that respect the environment.				
6. To acquire habits of respect and defence of animals (seabirds, whales and dolphins and turtles).				
7. To develop critical attitudes, of social participation and respect in relation to the protection and conservation of our natural heritage.				
8. To get to know different actions to carry out in case of emergencies related with seabirds, cetaceans or turtles.				
9. To acquire confidence and a sense of responsibility in order to act in an emergency situation.				

Teaching guidance

The present material is aimed at Primary schools. If all the proposal is developed, it is estimated that this would amount to four sessions of forty-five minutes each.

Nevertheless, this is a flexible proposal and, despite being structured, the teacher can decide what to apply, how and for how long. He or she may choose from each session what seems to him or her interesting or necessary. The activities, furthermore, may be conducted by a single teacher in his or her classroom or by various teachers simultaneously, working in an inter-disciplinary manner or considering these materials as a transverse subject in a level or central project.

The proposal contains information for dissemination through digital presentations and activities which support group interaction and large groups, debate, games, creativity, art and interpretation. Attached to each activity is all the material necessary to carry it out.

If any of the activities is carried out independently, it is recommended that at least the contents should be introduced digitally, thus giving it greater contextualisation.

A wide range of activities are included which bring together different areas such as language, natural sciences, social sciences, art and music, thus achieving an interdisciplinary character.

Area of work	Activity 1	Activity 2	Activity 3	Activity 4
Language				
Natural				
Social				
Art				
Musi				

Contact for consultations and feedback

The authors make themselves available to teachers to resolve any doubts they may have about the theoretical materials, the application of the activities or other matters that may arise.

info@oceanografica.com

The project has published other materials that we will make available to you, such as a poster, an exhibition or a free loan, and a leaflet on best practices. In order to get them, please contact:

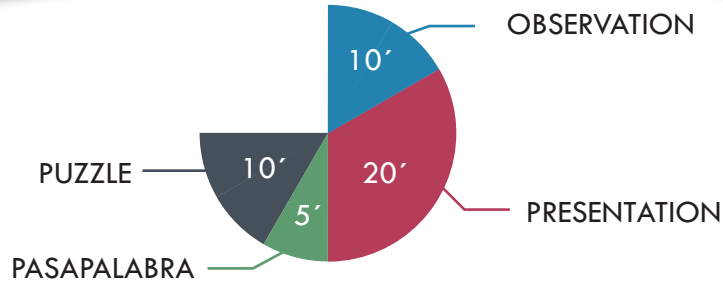
Canarias: info@oceanografica.com or 605772733

Madeira: OMM

The Azores: OMA

Activity 1: “LET’S OBSERVE”

TIMING:



OBJETIVOS: 1, 2, 3, 4, 5, 7

1 WE OBSERVE

10 min

This first task is making contact with the subject of the project. The intention is to get the pupils to freely communicate their knowledge or to set out questions that may arise. This is an introductory task where there are no correct or incorrect answers.

We shall project an image (Appendix 1) and in a large group everybody will answer questions. what can you see, what do you think, what questions do I ask myself as a result of viewing this picture, what do I feel... We shall show one or two images (you may choose) depending on the time available and the motivation of the students.

2 PRESENTATION

20 min

We shall lean on a Power Point presentation (Appendix 2) to introduce the project information. In the presentation, we shall show the pupils the different species, the threats that put their existence at risk and the good practices that can be adopted to reduce their impact. It is important that they should ask what they like during the presentation and they should not leave their questions until the end. In this way, it will be possible to better hold their attention. The presentation can be completed in ten minutes and we would expect to spend ten further minutes resolving doubts.

3 PASAPALABRA

5 min

We will propose a brief “pasapalabra” on the topic (Appendix 3). We will say a letter and we will read a definition, they will have to find out what word we are talking about. To give the answers they will have to ask for a speaking turn.

4 PUZZLE GAME

10 min

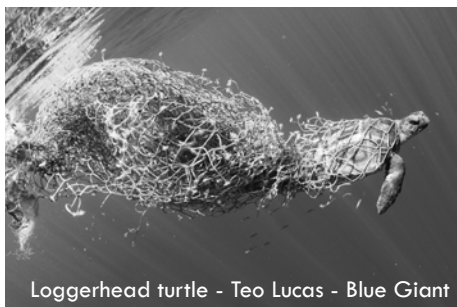
We will distribute some pieces of the puzzle (Appendix 4) among the students. In each of the pieces will come one of these three concepts: species-threat-good practice. The objective is to unite them in trios. They should get up from the seat and search among their partners who has the other pieces. The pieces will have a special shape to facilitate their union and self-correction. Once all the pieces are joined, a quick review of the work will be carried out. (We recommend to print each page of Appendix 4 on a different colored paper. Thus the species, threats and good practices will have three different colors. Therefore each trio will be composed of three different color pieces).

APPENDIX 1 Activity 1 "LET'S OBSERVE" Section 1 Observation



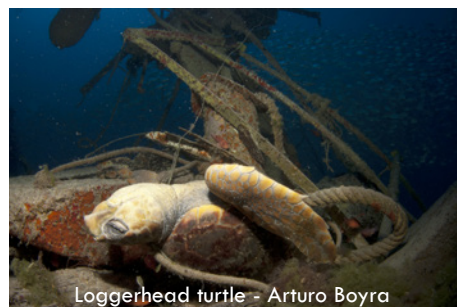
Short-finned pilot whale - Teo Lucas - Blue giant

A short-finned pilot whale with a plastic bag on its fin. Sometimes they play with them, sometimes they get tangled or they eat them by mistake confusing them with food.



Loggerhead turtle - Teo Lucas - Blue Giant

A loggerhead turtle tangled in an abandoned fishing net. The net weighs so much that it takes a great deal of energy just to swim, to which must be added the fact that it cannot dive for food.



Loggerhead turtle - Arturo Boyra

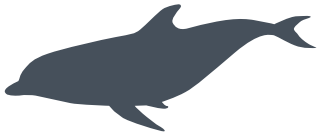
A dead loggerhead turtle, tangled up in cables, which are lying on the wreck of a sunken ship. Some fish can be seen in the sea or under the turtle, proof that life goes on despite the refuse and its tragic consequences.

APPENDIX 3 Activity 1 "LET'S OBSERVE" Section 3 The Alphabet Game

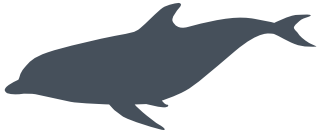
- A** Living beings that we must respect. **ANIMALS**
- B** Always take one of cloth to the supermarket. **BAG**
- C** Domestic animal that supposes a danger to seabirds. **CAT**
- E** Better if its sustainable. It can be extracted from solar panels and wind turbines. **ENERGY**
- L** The ocean is full of it. **LIFE**
- P** Compound whose distillation gives products like gasoline, very harmful to the environment. **PETROLEUM**
- R** Necessary action that turns garbage into usefull objects. **RECYCLE**
- S** Large marine mammal that feeds on squid. **SPERM WHALE**
- S** Many invertebrates protect themselves with it. **SHELL**



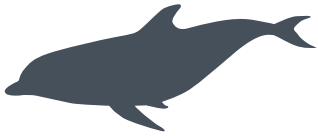
Loggerhead turtle



Common dolphin



Sperm whale



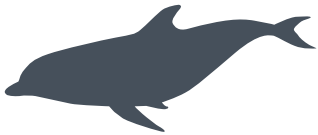
Bottlenose dolphin



Green sea turtle



Atlantic Shearwater



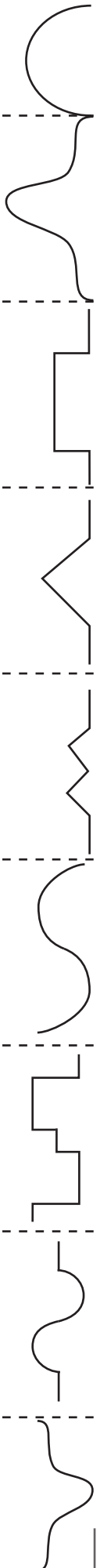
Common whale



Bulwer's petrel



Band-rumped storm petrel





MARINE LITTER: plastics



MARINE LITTER: Abandoned fishing nets



CHEMICAL CONTAMINATION: Batteries



CHEMICAL CONTAMINATION: Paints



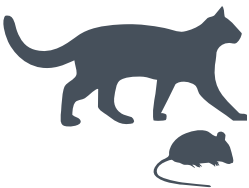
HUMAN DISTURBANCE & FEEDING



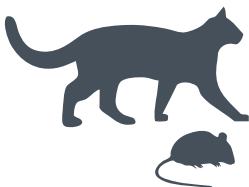
LIGHTS (oriented to the sky)



CHEMICAL CONTAMINATION: Bleach



PREDATORS: Rats



PREDATORS: Cats



Reject plastic bags

Say NO to disposable plastic

Use rechargeable batteries

Recycle and Use Recycling center

Respect the marine animals

Don't light up the night sky

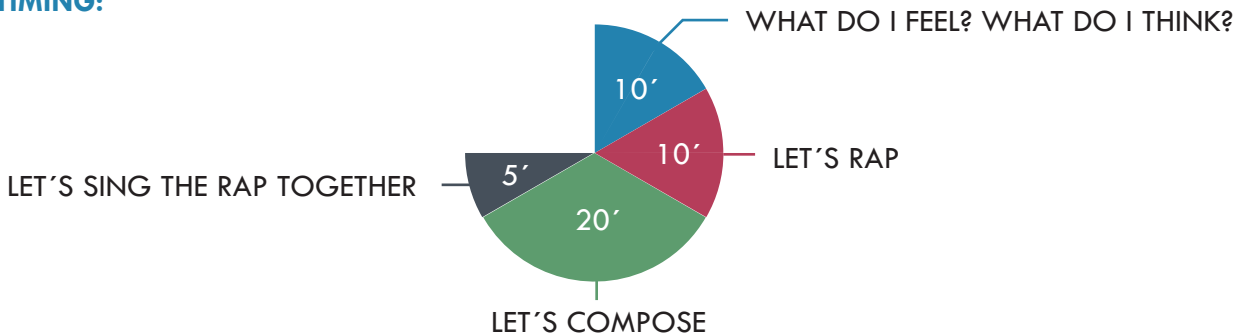
Use less toxic cleaning products

Don't feed the wild cats

Don't abandon your pet

Activity 2: “RAPPING”

TIMING:



OBJECTIVES: 1, 2, 3, 4, 5, 6, 7

This activity is intended to be motivating, creative and significant for the whole classroom. Through music, we want to put the project message in their minds for a long time. Furthermore, as music is a discipline which is closely related with the emotions, we shall begin the session by connecting with our feelings so as to create a profound reflection which will lead to changes of conduct.

1 WHAT DO I FEEL? WHAT DO I THINK?

10 min

We shall present images (Appendix 5), of free species and of animals with problems,, threats and good practices, so that they can all express out loud everything they want to share with their classmates.

2 LET'S RAP

10 min

First they will listen to the project rap (Appendix 6) with the lyrics in front of them (Appendix 7) and then they will be encouraged to sing it. We shall begin by learning the chorus and little by little the verses. We shall repeat this a number of times.

3 LET'S COMPOSE

20 min

Subsequently, we shall group the children in groups of five so that they can create a new verse for the rap.

4 LET'S SING THE RAP TOGETHER

5 min

We shall devote the last few minutes to singing the version we have all created all together. We shall decide in what order the groups will join in like a “rapper’s competition”. We shall sing the initial rap together and then each group will sing its new verse and we shall sing the chorus all together.

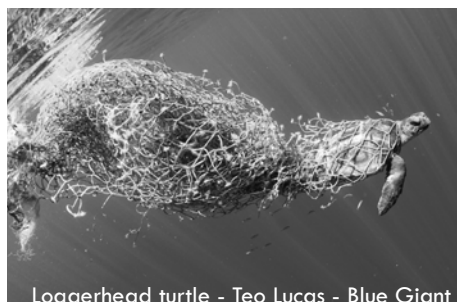
APPENDIX 5

Activity 2 "RAPPING"

Section 1 "WHAT DO I FEEL? WHAT DO I THINK?"



A short-finned pilot whale with a plastic bag on its fin. Sometimes they play with them, sometimes they get tangled or they eat them by mistake confusing them with food.



A loggerhead turtle tangled in an abandoned fishing net.



A loggerhead turtle doused in oil, rescued by the Guardia Civil after the Russian fishing ship, the Oleg Naidenov, suffered an accident in Gran Canaria in 2015.



A free-flying Atlantic shearwater.



Refuse on the seabed.



Refuse floating on the sea together with other junk.



Oil drilling platform.



A recently-hatched loggerhead turtle held in one hand.



Bulwer's petrel on its nest.



A group of three bottlenose dolphins jumping together. The last one is a young animal.



Green turtle swimming free.



Two loggerhead turtles walking towards the water. They are being freed after being looked after at the fauna recovery centre and helped to recover from injury.



Sperm whale · IUSA · ULPGC

Sperm whale dead from cuts from the screw of a ship.



Arturo Boyra · Oceanográfica

Volunteer divers gathering refuse from the seabed.



Arturo Boyra · Oceanográfica

Volunteers gathering litter from the beach.



Arturo Boyra · Oceanográfica

Cleaning staff removing an oil slick on the coast.



Bulwer's petrel · Miriam Cuesta

Bulwer's petrel chick held in one hand during a research campaign in which the chicks were ringed so as to be able to monitor the population.

APPENDIX 6

Activity 2 "RAPPING"

Section 2. LET'S RAP

Mistic Seas: El cambio empieza en ti

Creando conciencia la sociedad, la cambiamos
así, el planeta Tierra, entre todos, lo valoramos
los océanos van a necesitar nuestros cuidados
pues producen el oxígeno que respiramos

Estas rimas no se ensayan
creando conciencia marina
de una forma necesaria
la Macaronesia es
de una belleza extraordinaria
desde Madeira hasta Azores
pasando por Canarias

En el mar navegaré
basuras flotantes vamos a recoger
Los micro plásticos son un problema también
porque están ahí pero tú no los puedes ver
Así que si el planeta quieres conservar
todos tus plásticos los debes reciclar
y aunque tú no lo puedas escuchar
el océano seguro que te lo agradecerá

**El gran azul entre todos lo disfrutamos
lo navegamos, lo buceamos
Si quieres disfrutar de un océano sano
el cambio empieza en ti y lo tienes en tus manos
(bis)**

Atentos a la superficie del mar
muchos cetáceos podemos avistar
De Europa, tenemos la mayor biodiversidad
y lo primero que aparece
es el soplo de un rorcual
tropical,
como un calderón
un zifio comenzando su inmersión
y después de millones de años de evolución
al ser mamíferos compartimos respiración

Madeira, la foca monje de Desertas
Monteiro en Azores, viendo paños de cerca
La Graciosa tampoco se me olvidó
su reserva marina es ejemplo de conservación

Son los recursos que el planeta nos ha dado
y si no los cuidamos el turismo se irá a otro lado
dado que está claro que si no cambiamos
tus hijos no disfrutarán de lo que tú si has disfrutado

La tortuga boba respira
pues tiene los pulmones que oxigenan estas rimas
Ven a disfrutar de nuestra naturaleza
esto es un paraíso llamado Macaronesia

**El gran azul entre todos lo disfrutamos
lo navegamos, lo buceamos
Si quieres disfrutar de un océano sano
el cambio empieza en ti y lo tienes en tus manos
(bis)**

APPENDIX 6

Activity 2 "RAPPING"

Section 2. LET'S RAP

Mistic Seas: The change begins with you

By creating awareness in society, we change the world that way, all of us, we value the oceans. They are going to need our care because they produce the oxygen that we breathe.

These rhymes are not to be practised creating marine awareness in a necessary way Macaronesia is extraordinarily beautiful from Madeira to the Azores Including the Canaries

I shall sail the seas
We shall collect any floating rubbish
Micro-plastics are a problem too
Because they are there even though you can't see them
So if you want to save the planet
You have to recycle all your plastics
And although you can't hear it
The Ocean will surely thank you.

**We all enjoy the Great Blue Sea,
We sail it, we dive in it,
If you want to enjoy a healthy ocean
The change must begin with you and you hold it in your hands.**
(Repeat)

Pay attention to the surface of the sea
you can see many cetaceans
We have the greatest biodiversity in Europe
and the first thing that appears
is the breathing of a tropical orqual
like a pilot whale
A Cuvier's beaked whale beginning its dive
and after millions of years of evolution
because they are mammals we both breathe

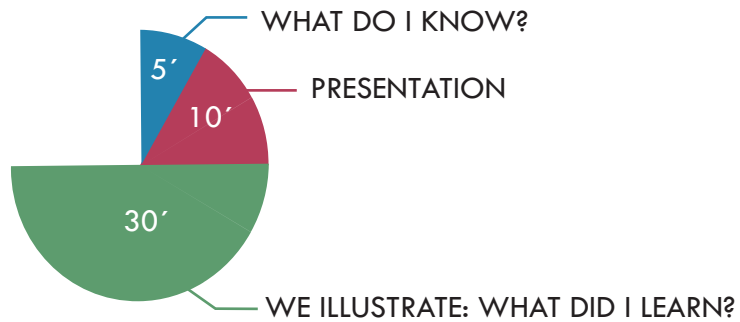
Madeira, the monk seal of Desertas,
Monteiro in the Azores, seeing European storm
petrels close up
I did not forget La Graciosa either
The marine reserve is an example of conservation..
These are the resources that the planet has given us
and if we are not careful with them, tourism will
go elsewhere
given that it is clear that if we don't change
your children won't enjoy what you have enjoyed

The loggerhead turtle breathes
because its lungs oxygenate these rhymes
Come and enjoy our nature
this is a paradise called Macaronesia

**We all enjoy the Great Blue
We sail it and we dive in it
If you want to enjoy a healthy Ocean
Change begins in you and you have it in your hands**
(Repeat)

Activity 3 “TELL THE WORLD”

TIMING:



OBJECTIVES: 1, 2, 3, 4, 5, 7

With this activity we intend to awaken the creativity of the students. By proposing this task we want they see “beyond” and to illustrate what has impressed them most of what they have learned.

1 WHAT DO I KNOW?

5 min

We will ask the classroom to become aware of what we know about the subject. There will be no right or wrong answers, and they can freely contribute with they want.

- Do many whales and dolphins live in our archipelago?
- Do you think that sea turtles breed on the beaches of the Canaries, Madeira or the Azores?
- Where do the shearwaters lay their eggs?
- What is the relation between plastic bags and the previous animals?
- Do you think it is possible to fish a turtle with a hook or rod?
- Could do you something to improve the conservation of these animals?

2 REDUCED DIGITAL PRESENTATION

10 min

Once we have introduced the activity through the questions, we will show them the digital presentation with the project information (Appendix 2). We will talk about the different species of the project, the threats that endanger their existence and the good practices that we can adopt to reduce our impact.

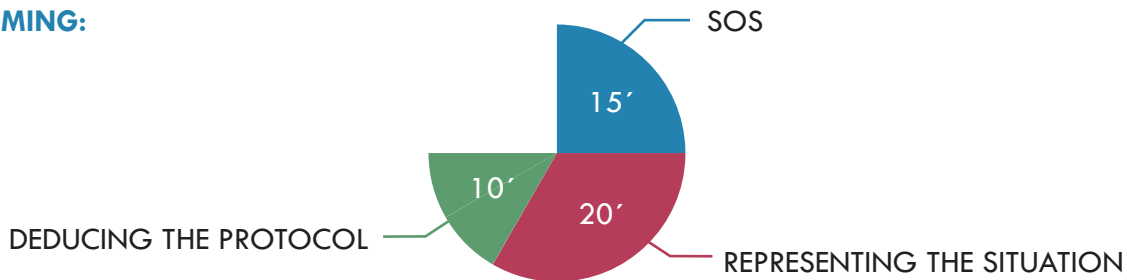
3 WE ILLUSTRATE: WHAT DID I LEARN?

30 min

Once all the information is presented, we will propose a creative activity. Each one of them will illustrate what they want about the exposed content. We will encourage children to draw things like any species of the project, a scene of species with its threat or a good practice that favors the conservation of them. All their proposals will be valid as long as they contemplate the information received, in addition, they can work by teams or couples if they wish. During the illustration task, we recommend that the poster of representative species remain as visual support. Under the image we will encourage them to write a sentence that describes what they have drawn.

Activity 4 “SOS, I NEED YOU”

TIMING:



OBJECTIVES: 1, 2, 3, 4, 5, 6, 7, 8, 9

With this activity, we want the students to acquire awareness about the correct actions in case of an emergency, both in case they have to act as an active part and so they can inform other people about how to proceed.

1 SOS

15 min

We will put the entire class into groups of four or five and each team will be given a situation which requires intervention related with the animals involved in the project (Appendix 7) The group must deduce how to handle each situation. After the first ten minutes, we will hand out an action protocol (Appendix 7) to each group with sections not filled in to guide their reflections. The group must deduce what is missing from the empty boxes and thus correct their deviations with regard to their initial reflections. The different roles will be handed out to the members of the group to make a role play of the situation.

Remember to print one copy of Appendix 7 and as many copies as you need of Appendix 9 (one per group, check whether the case of each group is beaching on land or disabled in the water so as to give the correct protocol).

2 PERFORMING THE SITUATION

20 min

The groups will perform the different scenes for the class, explaining their deductions. They will do this as role playing and will find objects or people who will pretend to be the animals. We shall warn them of possible problems arising from the actions they have decided on (they are present in the protocol, in bold).

3 DEDUCING THE PROTOCOL

10 min

In order to close the activity, the teacher will explain the protocol of action as a conclusion for all the situations to the entire class (Appendix 9) and if there is time, conclusions can be drawn about what has been performed by the different groups.

APPENDIX 7

Activity 4 "SOS, I NEED YOU"

Section 1 SOS

Group 1

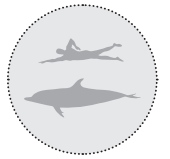
Situation: How would you react?

On the beach, you find a small dolphin that is still alive. You do not know what is wrong with it but it is breathing in an agitated manner. It seems exhausted and it has the mark of a powerful blow to its head with a bruise and a small apparently insignificant wound.



Atlantic spotted dolphin
Stenella frontalis

140 Kg ↔ 2,5 m



Group 2



Bulwer's petrel
Bulweria bulwerii



Atlantic shearwater
Calonectris borealis

Situation: How would you react?

At night, on a rocky beach at the foot of a remote cliff you hear a loud blow, as you approach with a torch you see that it is a shearwater or a petrel which has fallen. It is disoriented and cannot fly.

Group 3

Situation: How would you react?

On the news, you have heard about a fishing boat which has lost control and is sinking. It has lost a ton of fuel into the sea and the authorities are cleaning up the sea.

On the coast, you find a band-rumped storm petrel covered in oil, its beak is full of oil and its feathers are also very badly marked, but it is still alive, struggling to survive.





Band-rumped storm petrel
Hydrobates castro

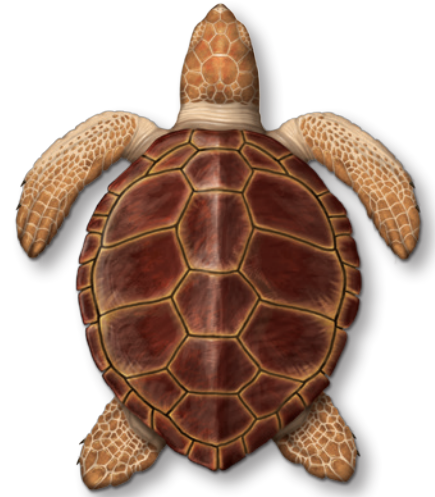
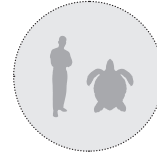
Group 4

Situation: How would you react?

As you are walking along a beach, you see a dead turtle. It smells terrible as a result of decomposition.

Loggerhead turtle
Caretta caretta

 200 kg
 1,2 m





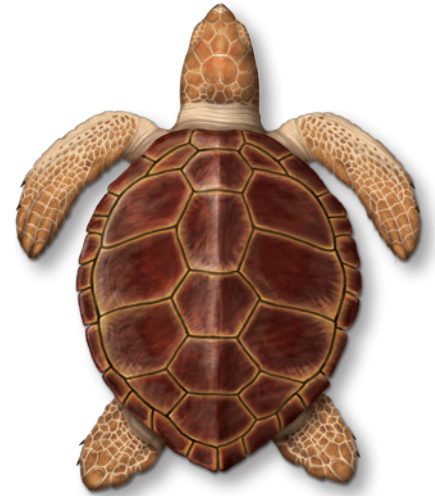
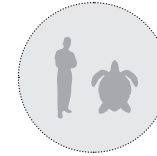
Group 5

Situation: How would you react?

In the beach, you see a green turtle arriving. It is having difficulty swimming. It seems to be very weak and you can see a steel fishing cable coming from its mouth. It only has one eye and it has a large wound on its head through which you can see its skull.

Loggerhead turtle
Caretta caretta

 200 kg
 1,2 m



EVALUATION

Evaluation from 1 to 5, where "1" means least satisfactory and "5" means very satisfactory.

Teaching proposal	Not satisfied at all	Not very satisfied	Normal	Satisfied	Very satisfied
The teaching unit is expressed in a clear manner, easy to apply in the classroom	1	2	3	4	5
The objectives are suitable with regard to what is achieved with the application of the activities	1	2	3	4	5
The timing of the activities in the project is realistic and applicable	1	2	3	4	5
The proposal is flexible and applicable to any school context	1	2	3	4	5
The planned activities are motivating for pupils	1	2	3	4	5
The activities are suitable for the level for which they have been designed	1	2	3	4	5
As a teacher, it has been enjoyable to carry out these activities	1	2	3	4	5
I had the information and the resources necessary to carry them out	1	2	3	4	5
The digital presentations are attractive for the pupils	1	2	3	4	5
The information supplied in the preamble and the poster is visual, attractive and accessible	1	2	3	4	5

Proposals _____

Suggestions that I would make regarding the project _____

Has it been a gratifying experience (Circle correct answer) Yes No

Would you repeat the experience (Circle correct answer) Yes No

Weak points to improve: _____

Send to information@oceanografica.com

Contact:

School:

Level of students to which it has been applied:

Number of students: