OCEANS

NETWORKING TO DISCOVER THE MARINE ENVIRONMENT

Educational international project for

students aged 12 to 16

– Teacher's Guide –

Edition 2017

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1. Introduction

S'Agulla and **iEARN Pangea** have got together to create the Oceans project. **S'Agulla** is a non-profit association founded in 2006 with a double objective: (a) to pursue scientific projects at a scale often overlooked by the large research centres; and (b) to make results accessible to the general public, through disseminating activities and educational projects.

The S'Agulla team is composed of biologists who are familiar with the Research world: some are still active researchers, others are freelance consultants, environmental disseminators and teachers; all united by the passion of protecting nature through science and environmental education.

iEARN Pangea gives educational and technological support to the Oceans project; provides the virtual spaces required for the development of the Project and the training that teachers require.

iEARN are the initials of the International Education and Resource Network. It is a non-profit organization that since 1988, promotes online collaborative projects among schools around the world using ICTs. Currently, the Association is present in 140 countries. The Spanish delegation is called iEARN-Pangea and it has been active since 1993.

The **Oceans'** project objective is **to make students aware that the sea is not the same worldwide**. This knowledge is achieved **through their own observations and sharing their results with those of other participating schools around the world**.

Oceans encourages students to rediscover the marine environment through a series of **cross-disciplinary** activities. Results will be shared and analysed. **The main source of information will be the surveys done at the beach and fishing port, along with experiments and data available on the Internet. Students will communicate through a public blog that will be shared by all participating schools. To express themselves they will be allowed to use all the free Information and Communication Technologies (ICTs) available on the Internet**. Consequently the students will have the leading role of their findings and become guides of their own territory. Therefore, starting from local data, they will obtain a global vision that encourages the awakening of the students' sensitivity to a rather unapproachable environment like marine systems.

The lingua franca of the Project is **English**, although materials are also available in Italian, Spanish and Catalan.

Total duration of the Project: **3 months**

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2.   Mission of the Oceans project

This is the mission of the Oceans project:

▪ Development of sensitivity towards the environment in general and to marine systems in particular.

▪ Encouragement to reanalyse the students' surroundings from a different point of view through cross-disciplinary activities.

▪ Give the students the pleasure of having the leading role, not only for their discoveries, but also as broadcasters of this knowledge.

3.   Basic skills developed with the Oceans project

Contribution of the Oceans project to the basic skills and the activities where they have more emphasis are described below.

SKILL	DESCRIPTION	ACTIVITY
Skills for communicating, language and audiovisual	Development of skills in communicating: -orally	-Preparation of **all the activities** -**presentation** *(optional)* -**audioguide** *(optional)*
	-written	-**all the activities**
	-audiovisual communication	-**presentation** -**marine species** -**audioguide**
Artistic and cultural skills	Encouragement of artistic productions as a means to transmit information	-**presentation** -**marine species** -**audioguide**

Analysis of the information and digital skills	Students will have to gather information from their personal experiences (including surveys at the beach and port), interviews and the Internet. Afterwards, these data will have to be reviewed, analysed with a critical outlook, to finally develop a message in a digital format to post on the blog. The Oceans project suggests the use of ICTs as a means of information, communication and production of knowledge	-**all the activities**
Mathematical skills	-Interpretation of numerical results	-**water** -**sand**
	-Calculation of the arithmetic mean	-**water**
	-Calculation of percentages	-**marine species**
	-Usage of graphs to represent data	-**marine species**
Skill of learning how to learn	Students will have to face the challenge that their results will not be limited to their classroom. They will have to assume that these results have to be the reflection of their environmental reality. Consequently, the students will have to be more demanding with themselves about their level of knowledge, become aware of their own deficiencies and look for efficient strategies in order to find the missing information and the best way to express it	-**all the activities**
Autonomy and personal initiative skills	The Oceans project offers main guidelines to follow, but it is also flexible. There is not a pre-established way to present results and conclusions. Students will have at their hand all the free ICTs available on the Internet to present the contents of their research as a clear message to the rest of the participating schools.	-**presentation** -**marine species** -**audioguide**

Skills of knowledge and interaction with the physical world	The main source of information to complete the activities is the survey at the beach and port. Data requested is so local that most of it is not available on the Internet.	-**water** -**sand** -**marine species** -**audioguide**
Social and civic skills	(1) The analysis of different features of their surroundings from an environmental and social approach (2) An awareness of their singularity when compared to the experiences of the other schools (3) Encourages the development of opinions and responsible attitudes.	-**all the activities**

4. Main objectives of the Oceans project

The Oceans project aims to make students understand that the sea is not the same worldwide. This understanding is reached by making them see their immediate surroundings from a different perspective and transmitting this information to the other participating schools through ICT tools.

These are the main objectives:

▪ Understanding the **marine environment** and its main features

▪ Awakening the need of **research and discovery**

▪ Encourage the creation of effective strategies to **gather and analyse information**.

▪ Empower the students to **create and produce their own materials**.

▪ Develop the **culture of sharing** through the diffusion of their materials.

▪ Create strategies and resources that encourage **team working**.

▪ **Overcome the fear of communicating with non-English speaking people**

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5. Contents of the Oceans project

1. PRESENTATION

Objective: Presentation of the classroom

How? The participating groups will post on the public blog of the Oceans project a presentation of themselves. They will have to describe their classroom, school, the town where the school is and other information of their interest.

ICTs: Free format (i.e. photo/map with text, video, Prezzi, Genially…)

Revision and discussion: *Sharky*, the mascot and coordinator of the Project, will introduce itself. It is in charge of revising the results and making questions to encourage discussion.

Duration: 1 week

2. THE WATER

Objective: Definition of the water

How?

-Measure of the sea surface temperature (field data and satellite-borne data from NASA)

-Determination of water turbidity with a Secchi disc – *optional*- (field and Internet data)

-Observation of the formation of convection currents (experiments in the classroom with recycled materials and survey samples)

-Students will have to explain the causes of the results (i.e. influence of marine currents, season, etc…)

ICTs:

GPS App.

Secchi Disk App *(optional)*

The participating groups will present their data filling in a **Google Form** prepared by S'Agulla; results will be posted on the blog in a single sheet also by S'Agulla.

Revision and discussion: Sharky (mascot and coordinator) will revise the information and make a question to invite students to analyse everybody's results. The students will be allowed to add their comments to this same post.

The aim of the blog is to become a space of encounter and discussion of results.

Duration: 3 weeks

3. THE SAND

Objective: Definition of the sand

How?

-Grain size (survey sample)

-Colour (survey sample)

-Mineral composition and origin (survey sample and information from the Internet and other sources)

-Behaviour of the sand (experiment in the classroom with recycled materials and survey samples)

ICTs: This activity will be presented and published as the previous one.

Revision and discussion: This activity will be developed as the previous one.

Duration: 2 weeks

4. MARINE SPECIES

Objective: Learn which are the 10 marine species of major commercial interest and their economic impact

How? Survey at the closest fishing port including information referring to the percentage that represent of the total annual catch and billing

Students can add any other information of their interest

ICTs: Students will present the result of their research as an infographic* posted on the blog. ICTs suggested are **Piktochart** although other ICTs will be accepted.

*Poster that allows embedding text, photos, graphs and multimedia data.

Revision and discussion: Sharky will make another question to invite students to discuss about the results.

Duration: 3 weeks

5. AUDIOGUIDE

Objective: Creation of a geolocalised itinerary of the 'route of the fish'. Required points of interest are: fishing grounds, fish market, retail selling places and other information that students consider of interest

How? During the survey at the port students will have gathered information about the fishing grounds of the marine species of commercial interest. This is the beginning of the itinerary. Students will have to prepare the text, photos and other multimedia material that want to embed in it.

ICTs: Suggested ICT is **Eduloc** although other ICTs will also be accepted.

Revision and discussion: Sharky will make a last comment as a summary of all the activities developed, thanking participating schools for their collaboration and farewell.

Duration: 2 weeks

6. EVALUATION

The Oceans project leaves to the teacher's criteria the way to evaluate the academic progress of the students, that in any case it will not be shared on the blog. However we would like to suggest the creation of a personal portfolio, where students will collect evidences and thoughts done during the development of the Project using Google Drive.

Please **try to keep to the deadlines of the activities** as much as possible to allow the comparison of the results. The aim of the **blog is to become a space of dialog and discussion** between the participating schools.

Recommendation: we recommend for each activity to work in groups, comment results in the classroom and then post them on the blog. These results can be agreed upon, the most representative or even a combination of the different approaches suggested by the groups.

6. Learning areas

- Natural science (biology and geology)

- English

- Art

- Social science (geography and history)

- Computer science

- Maths

- Technology

7. Working space

- Virtual space for the **teachers**

    - This virtual space is a **Moodle** classroom of the iEARN Pangea Projects webpage. Teachers will find a detailed Activity Manual, resources, tutorials of the ICTs suggested and forums to contact other teachers and the coordinators of the Oceans project.

- Virtual space for the **students**

    - One **single blog, shared by all participant schools,** will be available using Blogger technology. This is the channel where students will be informed about the activities that they are about to do, including deadlines and sources of information. Participant schools will post their results using a single account for the whole school or classroom. All the posts will be **public**.

8. Development of the Oceans project

BEFORE STARTING

-Starting dates will be decided with the participating schools

-Working calendar will be supplied including the deadlines

-Teachers will get access to the Moodle to get familiarized with the teaching materials, programme the field outings and prepare the materials required for the survey (recycled materials)

DURING THE DEVELOPMENT OF THE PROJECT

-Previous to the beginning of every activity the Coordinator will send an e-mail informing about which activity is about to start, deadline and the teaching materials prepared by S'Agulla needed.

-The Coordinator will inform the students about the activity that is about to start, sources of information and deadline by posting it on the blog.

-Students will submit a single answer as a group in the required format

-Students, if they wish to, are allowed to post little chronicles about their experience doing the suggested activities (i.e. http://oceans2015a.blogspot.com.es/2016/02/28th-poettos-beach-830-a.html)

-Sharky, the mascot/coordinator of the Project, will get in touch with the students through the blog. It will post a message with reference to the data supplied and making a question to invite students to analyse all the results. (Teachers will be informed when the message is being posted on the blog)

-Students can answer Sharky using the 'comments' option that all the posts of the blog have by default.

The aim of the blog is to become a space of encounter and discussion of the activities.

-The audioguide is the last of the activities to share, where participants show their towns to the rest.

-Afterwards Sharky will post a last message as a summary of all the experiences, thanking everybody for their collaboration and farewell.

AFTER FINISHING THE PROJECT

-The Coordinator will get in touch with the teachers asking to answer an anonymous satisfaction survey, one for the students and one for the teachers.

The objective is to make the Oceans project a satisfying experience for all participants.

During the development of the Oceans project the Coordinator will be available to answer any doubts or questions.

9. Suggestions for teachers to manage the Oceans project

From our experience with the Oceans project, we would like to share the ways that participating schools have managed it so far.

Single teacher. In most cases one teacher has the role of coordinator and follows the sequence of activities during his/her classes.

Team of teachers. In some of the participating schools a team of teachers were collaborating to develop the Project. If this is your case, considering that you will already have the deadlines of the activities and the teaching materials, you can start different activities at the same time in different subjects. This way you will have more time to develop them.

Independently of which is your choice, activities will be posted on the blog in the original sequence, as if only one teacher was in charge to develop the Project.

10. Collaborators

The contents of the Oceans project are thought for students to acquire the basic knowledge to understand the marine environment. However, if the students or teachers are interested in some particular aspect you can contact our Collaborators. Among them you will find researchers, marine reserves, citizen science projects, fishermen guilds, museums and environmental associations. They will all be very happy to answer your questions or, if you wish, you can enrol in their educational activities.

In any case you will not have to share this extra activity on the blog.

Recommendation: this option is only feasible <u>with more than one school session per week.</u>

11. Working calendar

- <u>FIRST GROUP</u>: **September – December 2016**
  Enrolment till **10th September 2016**

- <u>SECOND GROUP</u>: **January– March 2017**
  Enrolment till **30th November 2016**

- <u>THIRD GROUP</u>: **March – May 2017**
  Enrolment till **18th February 2017**

(Precise starting and ending dates of the Project will be determined with the participating schools)