

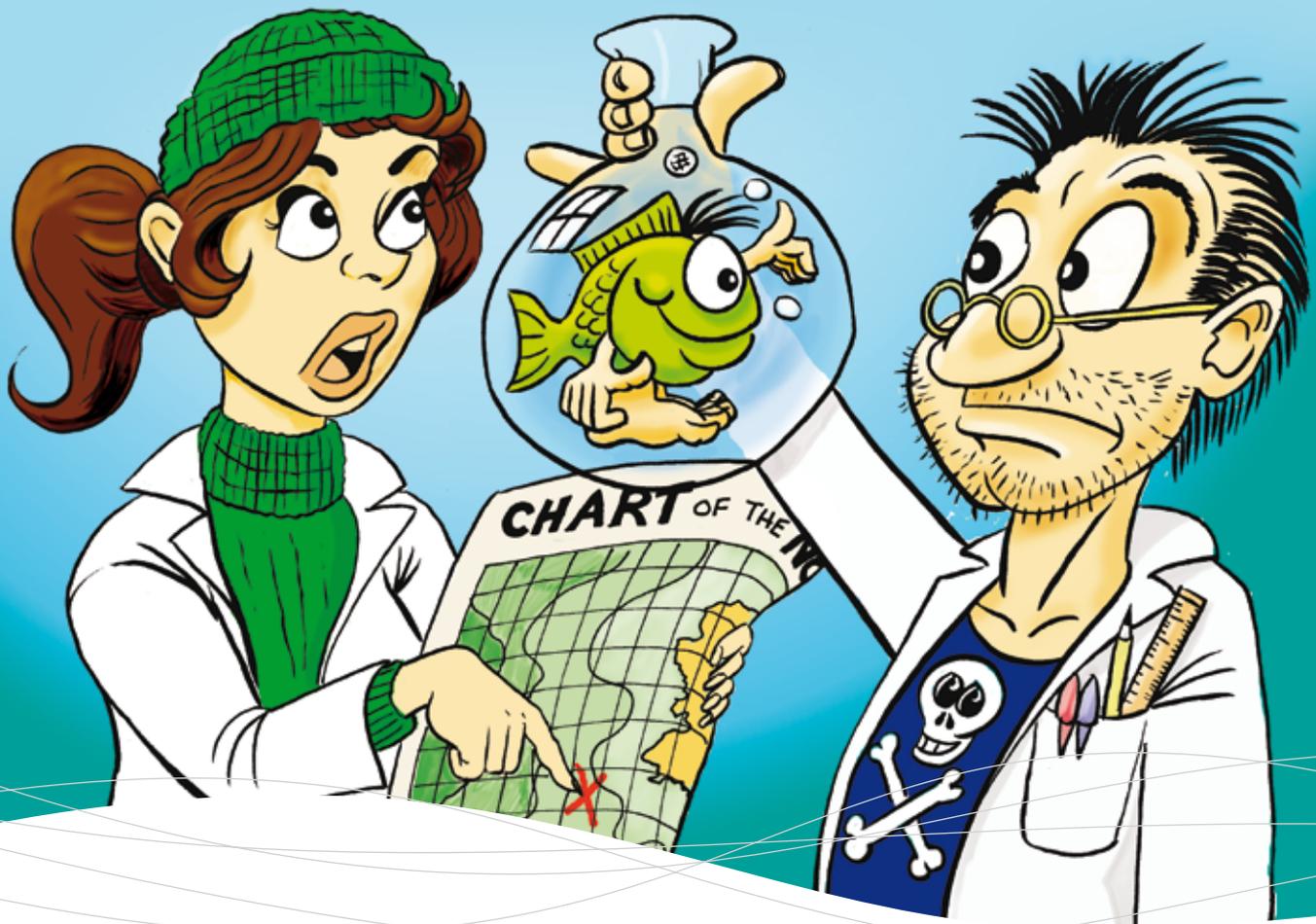
EXPLORERS EDUCATION PROGRAMME™

EXPLORERS TEACHERS PLANNING GUIDE

EXPLORERS MARINE PROJECTS

Marine Biodiversity Projects

**TEACHERS PRESENTATIONS
CROSS CURRICULAR LESSON PLANS
AND ACTIVITIES**



Illustrations are by Dr John Joyce.

WWW.EXPLORERS.IE



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INTRODUCTION

Ireland is an island with a seabed territory of approximately 880,000 km². Ireland's coastline is approximately 7500km long. The oceans, seas and shorelines around Ireland therefore present many opportunities to introduce cross-curricular lessons and activities for students of all age groups.

EXPLORERS MARINE BIODIVERSITY PROJECT

The Explorers Guide to Marine Biodiversity Projects provides a template for teachers to cover a range of cross curricular subjects under the theme of Irish Marine Biodiversity or living things.

As an Island nation with thousands of different types of marine animals living in Irish water, the theme of Marine Biodiversity has something for students of all ages. While the lesson plans in the booklet are recommended for specific class ranges, they may be adapted by teachers to suit a younger or older age groups if required.

EXPLORER LESSON PLANS AND MATERIALS

Explorer lesson plans and activities have been developed to support teaching students about our oceans, seashores and Ireland's marine resource. Subjects covered include: science, geography, history, mathematics, english, art and physical education. A selection of Explorer lesson plans are also available through Irish in a number of the curriculum subjects. Please see the Gaeilge section of the www.explorers.ie for more information.

The teachers' guide provides suitable lessons and activities that can be used in carrying out a project under the theme of Marine Biodiversity or Living Things. Suggested lesson plans and presentations can be found at 'Recommended Lesson Plan Schedule'. These can be carried out over one - two weeks with the class.

All the lesson plans are available to freely download from www.explorers.ie

TEACHERS' RESOURCES

Teachers' resources including class presentations, information books, games and evaluation techniques are available to download from www.explorers.ie.

CERTIFICATE OF PARTICIPATION

Schools and classes taking part in the Explorers Education Programme™ through an accredited centre will be awarded an Explorers Certificate of Participation. For more information about taking part in the Explorers Education Programme™ see www.explorers.ie





EXPLORERS EDUCATION PROGRAMME™ MISSION STATEMENT AND GOALS

OUR MISSION STATEMENT

The Explorers Education Programme™ aims to build on Ireland's marine and maritime heritage by increasing awareness of the value, opportunities and social benefits of our ocean wealth and identity.

OUR GOALS

- 1. Educate** school children, teachers and educators in Ireland, enabling them to understand the oceans influence on us and our influence on the ocean, through outreach and centre activities in Ireland.
- 2. Coordinate** professional development training and workshops for teachers and trainee teachers, to develop their marine literacy skills and promote the use of marine content in line with the national curriculum.
- 3. Develop** education materials and resources based on the Irish school curriculum to support teachers teaching marine subjects in schools.
- 4. Promote** ocean literacy and marine outreach activities with local communities, educators and influencers so as to create dialogue and engagement about our ocean.



OCEAN LITERACY PRINCIPLES AND FUNDAMENTAL CONCEPTS

OCEAN LITERACY

Ocean Literacy means ‘understanding the ocean’s influence on you and your influence on the ocean’.

An ocean literate person:

- understands the essential principles and fundamental concepts about the ocean;
- can communicate about the ocean in a meaningful way; and
- is able to make informed and responsible decisions regarding the ocean and its resources.

OCEAN LITERACY PRINCIPLES

Seven ocean literacy principles and concepts about the ocean have been developed by scientists and educators to help provide consistency and coherence when learning about the ocean.*

1. The Earth has one big ocean with many features.
2. The ocean and life in the ocean shape the features of Earth.
3. The ocean is a major influence on weather and climate.
4. The ocean makes the Earth habitable.
5. The ocean supports a great diversity of life and ecosystems.
6. The ocean and humans are inextricably interconnected.
7. The ocean is largely unexplored.

YOUR OCEAN – YOUR FUTURE

The ‘Blue Society’ (www.bluesociety.org) encapsulates a vision where people benefit from the ocean’s vast potential while preserving its environmental integrity. ‘Your Ocean – Your Future’ posters highlight this theme, along with the ocean principles and concepts. Ten posters are available to download from the resources section at www.explorers.ie

Samples of ‘Your Ocean – Your Future’ posters:



*The ocean literacy principles were first developed in the by an ocean literacy framework in the USA and are now being adopted by the EU. For further information see: *Ocean Literacy: The Essential Principles and Fundamental Concepts of Ocean Sciences for Learners of All Ages, Version 2 : March 2013*. Retrieved from: <http://www.coexploration.org/oceanliteracy/documents/OceanLitChart.pdf>

RECOMMENDED PLANS

The following schedule provides a list of recommended presentations and lesson plans that can be used with the Explorers Project Module.

Further information and links for downloading the lesson plans are available in the Teachers Resources and Lesson Plans section of this booklet. All of the materials are freely available to download from www.explorers.ie. A number of the lesson plans are also available in Irish and can be downloaded from the Gaeilge section of the website.

PRESENTATION / LESSON PLAN SCHEDULE		ESTIMATED TIME ALLOCATION FOR CLASS ACTIVITY
EXPLORERS TEACHERS PRESENTATIONS AND RESOURCES		
All Subjects	Living Things - simple PowerPoint presentation	The presentations can be used as an introduction to lesson plans across all subjects. Therefore teachers may shorten or expand the presentations as required.
	The Explorers Seashore Ecology - PowerPoint presentation	
	Explorers Species information Book - Guide	
	Captain Cockle Colouring Book	
	Secrets of Ireland Seas	
EXPLORERS LESSON PLANS		
Evaluation	Mind mapping	20 minutes
Science	Seashore Exploration & Guided Tour	40 minutes - 4 hours
Science	Plant and Animal life on the seashore - creating a seashore, species and seaweed guide	40 minutes
Science	Communication and Echolocation in Cetaceans	40 minutes
Science	Squid Dissection and Project plan and worksheet	40 minutes
Geography	Visualising the seashore habitat	40 minutes
Geography	Observing features of the local beach	40 minutes
English	Writing a newsletter about the ocean	2 hours
English	Writing poetry about Ireland's seashore and oceans	2 hours
History	The History of Seaweed in Ireland- research and creating an information poster board	40 minutes
Mathematics	At the Fishmongers - Practical Problems	40 minutes
Visual Arts	Save the seas poster	40 minutes - 2 hours
Physical Education	Marine Food Chain Game	40 minutes



TEACHERS RESOURCES AND LESSON PLANS

The Explorers seashore module provides an opportunity for a range of cross curricular subjects to be taught including: science, geography, history, mathematics, english and physical education. A selection of Explorer lesson plans are also available through Irish in a number of the curriculum subjects. Please see the Gaeilge section of the www.explorers.ie for more information.

TEACHERS RESOURCES

EXPLORERS SEASHORE ECOLOGY - POWERPOINT PRESENTATION

The Explorers Seashore Ecology PowerPoint Presentation provides a range of slides that can be used to introduce the students to the common species and plants found on the Irish seashore. The presentation also provides illustrations of the seashore zones.

LIVING THINGS – SIMPLE PRESENTATION

The Living Things Presentation provides a range of slides that can be used to introduce the students to the common species found on the Irish seashore.

SEASHORE ANIMALS SORTING AND CLASSIFYING PRESENTATION

The Seashore Animals Sorting and Classifying Presentation provides a range of slides that can be used on an interactive board. Students can learn about sorting and classifying the different types of living things from the Irish seashore.

EXPLORERS SPECIES INFORMATION BOOK

The Explorers Species Information book provides the common English and Irish names of many of the species found on the seashore. Images of the species are included highlighting key information about what the animals eat, their habitat, as well as their adult size.

ANEDOTES ABOUT SEASHORE ANIMALS GUIDE

Anedotes about Seashore Animals is a useful and fun guide that can be used when explaining the life stories of the different animals .

SECRETS OF IRELAND'S SEAS

The teachers' resource and lesson plans from The Secrets of Ireland's Seas (PDF, 2MB) demonstrates the excitement of the new era that Ireland is entering in terms of sustainable marine development and the sheer fun of being involved in the exploration of Ireland's seas. This book was compiled for the An Post's Educational Award Scheme with the assistance of the Marine Institute.



SCIENCE

Title: SEASHORE EXPLORATION AND GUIDED TOUR

<http://oar.marine.ie/handle/10793/1097>

Strand:
Living Things

Strand Unit:
Plants and Animals

OBJECTIVE(S)

The teacher and children will conduct a field trip on the seashore exploring the plants and animal life. Working scientifically the children will learn about the variety and characteristics of living things and processes of life typically found on the seashore.

SKILLS

Working scientifically by • Questioning • Observing • Investigating • Estimating and measuring
• Analysing by sorting and classifying, recognising patterns, and interpreting • Recording and communicating.

Title: PLANT AND ANIMAL LIFE ON THE SEASHORE - CREATING A SEASHORE, SPECIES AND SEAWEED GUIDE

<http://oar.marine.ie/handle/10793/1099>

Strand:
Living Things

Strand Unit:
Plant and animal life

OBJECTIVE(S)

The children will create a Seashore, Species and Seaweed Guide. The lesson plan includes a series of activities for in the classroom and / or on the seashore including completing drawings and illustrations from observation. The children will also write about the seashore animals and plants demonstrating their understanding of the animals, habitats and the zones where the animals and seaweeds are typically found

SKILLS

Working scientifically by • Questioning • Observing • Investigating • Estimating and measuring
• Analysing by sorting and classifying, recognising patterns, and interpreting • Recording and communicating.
Drawing using • Line • Shape • Form • Colour and tone • Texture • Pattern and rhythm • Space.



Title: SQUID DISSECTION AND PROJECT PLAN AND WORKSHOP

<http://oar.marine.ie/handle/10793/1102>

Strand:
Living Things

Strand Unit:
Plant and animal life

OBJECTIVE(S)

The children will be provided with an introduction to the life process of a squid. They will also learn about the external and internal parts of a squid. The children will also explore some of the ways squids have adapted to environmental conditions as well as discuss simple food chains.

SKILLS

Working scientifically by • Questioning • Observation • Recording and communicating.

Title: EXPLORING COMMUNICATIONS AND ECHOLOCCATION IN CETACEANS

<http://oar.marine.ie/handle/10793/1011>

Strand:
Energy and Forces

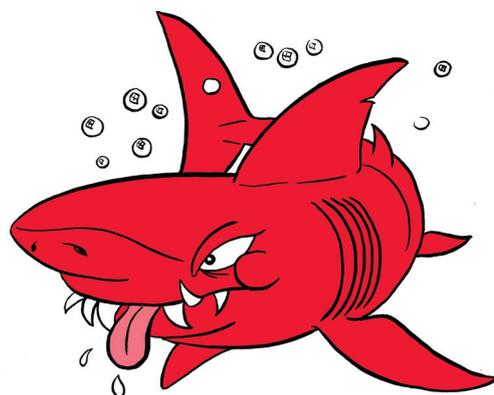
Strand Unit:
Sound

OBJECTIVE(S)

The child should be enabled to explore how sound travels through materials and how cetaceans (whales and dolphins) communicate.

SKILLS

Working scientifically by • Questioning • Observing • Investigating and experimenting • Estimating and measuring • Analysing and communicating.
Designing and making by • Exploring • Planning • Making • Evaluating.





GEOGRAPHY

Title: OBSERVING FEATURES OF THE LOCAL BEACH

<http://oar.marine.ie/handle/10793/1003>

Strand:
Natural Environments

Strand Unit:
The Local Natural Environment.

OBJECTIVE(S)

The aim of the lesson plan is for children to become aware of, explore and discuss some aspects of natural environments, such as the local beach, which is in the immediate locality of the school.

SKILLS

Developing a sense of • Place • Space • Using pictures, maps and globes.
Developing geographical investigation skills by • Observing • Questioning

Title: VISUALISING THE SEASHORE HABITAT

<http://oar.marine.ie/handle/10793/1006>

Strand:
Natural environments

Strand Unit:
Local natural environment

OBJECTIVE(S)

The aim of the lesson plan is for children to observe and explore ways in which features of the natural environment affect the lives of plants, animals and humans. The children will study the beach as a habitat for plants and animals.

SKILLS

Developing a sense of • Place • Space
Developing geographical investigation skills by • Questioning • Observing • Recording and communicating • Evaluating.



HISTORY

Title: THE HISTORY OF SEAWEED IN IRELAND – RESEARCH AND CREATING AN INFORMATION POSTER BOARD

<http://oar.marine.ie/handle/10793/1052>

Strand:
Change and continuity

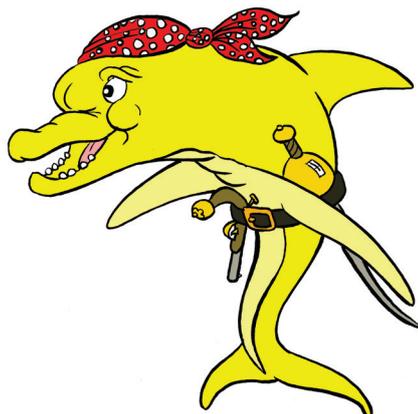
Strand Unit:
Food and farming

OBJECTIVE(S)

The aim of the lesson plan is for the children to develop an understanding of how seaweed has been used for food and farming in Ireland over a number of centuries. Research will also include how seaweed has been used by other countries as a resource and source of food and medicine.

SKILLS

Working as an historian • Change and continuity • Synthesis and communication.





MATHEMATICS

Title: AT THE FISHMONGERS: PRACTICAL MONEY PROBLEMS

<http://oar.marine.ie/handle/10793/1046>

Strand:
Measures

Strand Unit:
Money

OBJECTIVE(S)

The children will compare and determine value for money through tasks and practical problems. The children will compare and calculate practical money problems at the fishmongers including hourly rate of pay and shopping bills by engaging in role play.

SKILLS

Develop skills through •Estimating •Evaluating •Comparing •Comparing •Recording.





ENGLISH

Title: CREATING A NEWSLETTER / NEWSPAPER

<http://oar.marine.ie/handle/10793/934>

Strand:

Strand Unit:

- Receptiveness to language
- Competence and confidence in using language
- Developing cognitive abilities through language
- Emotional and imaginative development through language

OBJECTIVE(S)

Creating a class newsletter, the children will build their vocabulary and writing skills through drafting, revising, editing, and publishing. Through interaction with others in the class, students will also learn how to work within a team environment.

SKILLS

- Develop skills through**
- Receptiveness to language, reading, listening and understanding
 - Writing, spelling, grammar, drafting, revising and editing
 - Developing imagination, confidence in using oral language, and creative skills
 - Extend and develop vocabulary and spelling.

Title: WRITING POETRY ABOUT IRELAND'S SEASHORE AND OCEANS

<http://oar.marine.ie/handle/10793/880>

Strand:

Oral Language • Reading
• Writing

Strand Unit:

Receptiveness to language • Competence and confidence in using language • Developing cognitive abilities through language • Emotional and imaginative development through language.

OBJECTIVE(S)

Students will learn about the different types of poems using structures and formatting techniques. As part of the lesson, students will read, listen and develop their understanding of a poem by expressing their reaction through discussion. The students will use their creative thought to write a poem about the seashore and Ireland's oceans.

SKILLS

- Receptiveness to language, reading, listening and understanding
- Writing, spelling, grammar, drafting, revising and editing
- Developing imagination, confidence in using oral language, and creative skills
- Extend and develop vocabulary and spelling.




VISUAL ARTS
Title: SAVE OUR SEAS POSTER

<http://oar.marine.ie/handle/10793/929>

Strand:
• Drawing • Paint

Strand Unit:
Making drawings • Creating in fabric and fibre

OBJECTIVE(S)

The children will draw, paint and colour, as well as use fabric, fibre (including shells, seaweed, flotsam and jetsam from the seashore) to create a 3D poster showing how people can protect the marine environment and save the sea. The lesson plan should be delivered after the students have learned about the environment and the sea.

SKILLS

Developing awareness of • Line • Shape • Form • Colour
and tone • Texture • Space

Developing receptiveness to language • Competence and confidence using language

• Developing cognitive abilities through language

• Emotional and imaginative development through language



PHYSICAL EDUCATION

Title: MARINE FOOD CHAIN GAME

<http://oar.marine.ie/handle/10793/1026>

Strand:
Games

Strand Unit:
Creating and playing games • Understanding and appreciation of games

OBJECTIVE(S)

The aim of the lesson plan is for the children to play playground games, learning about the marine food chain.

SKILLS

- Develop their participatory, social, personal interaction and communication skills through teamwork and competition.

EVALUATION

Title: SEASHORE MARINE TABLE QUIZ

<http://oar.marine.ie/handle/10793/943>

Strand:
Science / Geography

Strand Unit:
Plants and Animals • Local and natural environment
• Land and seas of my country

OBJECTIVE(S)

Develop an increased awareness of plants and animals that live in local marine environments including the seashore, seas and oceans of Ireland. After learning all about the seashore and other marine related lessons, this quiz can be used to evaluate the student's knowledge of the marine related living things and natural environments relating to the marine. The table quiz can be used as a guide, highlighting facts about the marine environment and some of the animals that live there.

SKILLS

Develop an understanding and knowledge about the seashore and marine environment • Work in a team setting • Work scientifically questioning and observing.

Please refer to the Explorers Education Programme's website www.explorers.ie for more information, tips and techniques to evaluate your classes learning experiences relating to the marine and ocean literacy.





EXPLORERS EDUCATION PROGRAMME™

EXPLORERS PLANNING GUIDE FOR PRIMARY SCHOOL TEACHERS

Marine Biodiversity Projects

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