

BE THE WAVE AR FRIG YDON

Ecosystems Services

Lesson Plan



cadwch keep
gymru'n wales
daclus tidy

**MARINE
CONSERVATION
SOCIETY**



UNDEB EWROPEAIDD
EUROPEAN UNION



Llywodraeth Cymru
Welsh Government

**Cronfeydd Strwythurol a
Buddosoddi Ewropeaidd
European Structural
and Investment Funds**



Ariennir gan
Lywodraeth Cymru
Funded by
Welsh Government



Aims
<ul style="list-style-type: none"> Pupils will begin to understand the many services that oceans ecosystems provide us, including the oceans ability to provide food, store carbon, create oxygen, and sustain livelihoods.
Objectives
<ul style="list-style-type: none"> Describe what the term ecosystem services means. Give examples of services provided by the ocean and categorise these. Create an infographic to educate and inform others about the value of ecosystem services.

Eco-Schools topic	Global Goals
<ul style="list-style-type: none"> Biodiversity 	2 – Zero Hunger 3 – Good Health & Wellbeing 7 – Affordable & Clean Energy 8 – Decent Work & Economic Growth 13 – Climate Action 14 – Life Below Water

Links to the Curriculum for Wales	
Purpose	
<p>Ambitious, capable learners who are:</p> <ul style="list-style-type: none"> Building up a body of knowledge and have the skills to connect and apply that knowledge in different contexts. <p>Ethical, informed citizens who:</p> <ul style="list-style-type: none"> Find, evaluate, and use evidence in forming their views. Show their commitment to the sustainability of their planet. <p>Enterprising, creative contributors who:</p> <ul style="list-style-type: none"> Express ideas and emotions through different media. 	
What Matters Descriptions of Learning	Progression Step: Four
<p>Science and Technology</p> <ul style="list-style-type: none"> Describe how the impact of our actions contribute to the changes in the environment and biodiversity. Describe the interdependence of organisms in ecosystems and explain how this affects their chances of survival. <p>Humanities</p> <ul style="list-style-type: none"> Understand the range of factors that affect the interrelationships between humans and physical processes. Understand and explain how significant places, spaces, environments and landforms in the natural world are associated with economic, historical, political and religious and non-religious beliefs and practices. An understanding of my own and others environmental, economic, and social responsibilities in creating a sustainable future. 	



DCF	Progression Step: Four
Creating digital content <ul style="list-style-type: none"> Select and use a variety of appropriate software, tools and techniques to create, modify and combine multimedia components for a range of audiences and purposes such as: text and images e.g. explore and use effectively image manipulation techniques; explore and use appropriately the many aspects of document layout; use animation, video and audio effects such as echo, tempo, envelope, layering, frame rate, key frames. presentation e.g. use design tools. 	
LNF	Progression Step: Four
Writing <ul style="list-style-type: none"> Present work appropriately in digital contexts using appropriate digital conventions e.g. thumbnails, language preferences. Adapt writing style, choosing and using the best structures for different contexts and purposes e.g. to successfully describe, explain, persuade, discuss. Select and use appropriate strategies to plan and develop my writing for different purposes and audiences. 	
Cynefin	
Ecosystem examples from Wales.	

Activity One	Resources and Equipment
<p>What are ecosystem services?</p> <p>Start by defining the term ecosystem. A definition is given in Ecosystem Services Presentation. Watch the video in the presentation. While watching the video, students should complete the associated worksheet. By the end of the video students should also be able to define indirect services, direct services, and ethical and aesthetic services.</p>	<p>Ecosystem Services Presentation</p> <p>Ecosystem services Worksheet</p>

Activity Two	Resources and Equipment
<p>Examples of the indirect, direct and ethical services</p> <p>Split the class into groups of 2 -3 and hand out ecosystem cards to each group. Students should read through the cards and then create a mind map of the indirect services, direct services, aesthetic and ethical services all these ecosystems provide. They could also add to the mind map with knowledge gained from watching the video in activity 1 and any of their own ideas e.g. for direct services they could say seagrass beds are nurse habitats for commercial fish. For ethical services they could say beaches provide recreational activities.</p>	<p>Ecosystem cards – (Print slides 6-10 of the Presentation to form cards)</p> <p>Ecosystem Background Notes</p>



Once students have had time to draft their ideas, discuss these as a class and add any services that may have missed using the background knowledge as a guide.	
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Activity Three	Resources and Equipment
<p>Creating an ecosystems infographic</p> <p>Show the oyster infographic on the Ecosystems Services Presentation. Go through the infographic together, which shows how oysters are a key species that provide many ecosystem services including water filtration and habitat formation.</p> <p>Students should use the infographic as inspiration for creating their own. Their infographic should showcase one of the habitats featured in the ecosystem cards. The infographic should highlight the ecosystem services of this habitat. To further enhance and provide facts to their infographics, students could also research their chosen habitat online. Infographics should include any indirect, direct or cultural services.</p> <p>Students could work independently or in small groups of 2-3. The website below has lots of infographic templates students could either directly use or use as inspiration.</p> <p>https://www.canva.com/design/play?category=tACFahzNhT4&locale=en-GB</p>	<p>Ecosystem Services Presentation</p> <p>Ecosystem cards – (Print slides 6-10 of the Presentations to form cards)</p> <p>Laptops</p>



#BeTheWave

Apply the knowledge gathered in the lesson into action as ethical and informed citizens. It is an important aspect to ensure students know they have the power to enact and make changes within their own lives and within the school. It is also a positive step which helps to balance some of the negative impacts explored within the lesson.

Decide on an action or actions to take forward either as individuals or as a class. Below are some suggestions, or the class could generate their own.

School:

- Is your school an Eco-School? Consider joining the national network of eco schools to help improve environmental awareness in your school and empower students.
<https://www.eco-schools.org.uk/about/benefits-of-joining/>
- Does your school have a biodiversity area? Having a small area in your school grounds where nature can thrive is not only a great way to improve your school grounds for the benefit of nature but also a great teaching aid. Biodiversity areas could include a pond, woodland, small meadow or hedgerows. These make great study sites for students to study biodiversity and ecosystems services and help students to connect with, and ultimately care for nature. You can seek advice on how to improve your school grounds for nature through your local Wildlife Trust.
<https://www.wildlifetrusts.org/schools>

Individual:

- Stay inspired and learn more by getting out and exploring your local natural space, whether it's a park, a nature reserve or the coastline.
- Help to transform the way people view nature by sharing with friends and family what you have learnt about the incredible services natural ecosystems provide and how we simply can't survive without healthy ecosystems.
- Think about how you can reduce your footprint to decrease the strain on nature. For example, eat sustainable fish, reduce, reuse, recycle and be conscious of your energy usage.



Ecosystems Services Worksheet

Answer these questions while watching the ecosystem services video

What are the three main ways in which biodiversity is crucial for humans?

1. _____
2. _____
3. _____

List three things that we get directly from biodiversity:

1. _____
2. _____
3. _____

Name an indirect service we get from mangroves.

What ecosystem services do wetlands provide?

Complete this sentence.

Lost biodiversity is something _____



Answer these questions while watching the ecosystem services video

What are the three main ways in which biodiversity is crucial for humans?

1. Direct services
2. Indirect services
3. Ethical and aesthetic services

List three things that we get directly from biodiversity:

1. Food
2. Housing/ shelter
3. Medicines

(Also – Transportation, Clothing, Energy)

Name an indirect service we get from mangroves

Protect the coast from wave action and erosion (also – Nurseries for different organisms including food sources such as fish)

What ecosystem services do wetlands provide?

Recycle and removed dangerous chemicals from water and clarify and clean water

Complete this sentence.

Lost biodiversity is something we cannot bring back



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