

World Oceans Day at ZSL London Zoo

Trail Worksheets: Teachers Notes KS1 & KS2

How to use these notes

The notes in this pack will help to structure an ocean-focused self-guided activity at ZSL London Zoo for KS1 and KS2 groups. They are separated into these 3 exhibit areas and will support the activities in each exhibit as set out per the trail booklet (available on the ZSL website- <http://www.zsl.org/zsl-london-zoo/london-online-resources>).

- **Text highlighted in blue** = answer to tasks set out in the booklet
- **Text highlighted in yellow** = prompts of where to find the relevant information

World Oceans Day trail route at ZSL London Zoo

The World Oceans Day trail route focuses on three exhibit areas of ZSL London Zoo as shown in the map and numbered in order of appearance in the trail booklet below:

1. Aquarium
2. B.U.G.S.
3. Penguin Beach



World Oceans Day Trail Worksheets: Teachers Notes KS1 & KS2

Below are details of areas on the 2015 National Curriculum that are relevant to the activities in this worksheet trail:

Science KS1	Science KS2
<p><i>Working Scientifically</i></p> <ul style="list-style-type: none"> -Asking simple questions and recognising that they can be answered in different ways -using their observations and ideas to suggest answers to questions -gathering and recording data to help in answering questions -identifying and classifying <p><i>Animals, including humans</i></p> <ul style="list-style-type: none"> -Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals -Describe and compare the structure of a variety of common animals <p><i>Living things & their habitats</i></p> <ul style="list-style-type: none"> -Identify and name a variety of plants and animals in their habitats -Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other, -Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain 	<p><i>Working scientifically</i></p> <ul style="list-style-type: none"> -asking relevant questions and using different types of scientific enquiries to answer them -Recording findings using simple scientific language and tables - Using straightforward scientific evidence to answer questions or to support their findings <p><i>Living things and their habitats</i></p> <ul style="list-style-type: none"> -Recognise that living things can be grouped in a variety of ways -Recognise that environments can change and this can sometimes pose dangers to living things <p><i>Animals including humans</i></p> <ul style="list-style-type: none"> -Construct and interpret a variety of food chains <p><i>Evolution and inheritance</i></p> <ul style="list-style-type: none"> -Identify how animals and plants are adapted to suit their environment in different ways

Before your visit to ZSL London Zoo:

Do we need to protect the oceans? Why?

This activity has a literacy focus- discuss with the students some of the animals and plants that live in the ocean or related aquatic habitats. Encourage students to list as many positive things about the oceans as possible, then ask them to write a letter to the Prime Minister to explain why they think we should protect the oceans.

World Oceans Day is an annual celebration of the world's oceans. As an invaluable resource, the ocean provides us with numerous benefits including protein, oxygen, transport, renewable energy, climate regulation, livelihood, recreation, wonder and scientific discovery! Everyone on the planet depends on a healthy ocean.

Ask the students to discuss how they personally value the ocean; why they think the ocean is in trouble and what happens if we do nothing about it.

What is ZSL doing to help protect the oceans?

ZSL is a dedicated charity that recognises the importance of improving the management and sustainable use of aquatic resources. ZSL staff are involved in a range of different projects to target the problems that affect the ocean. A few examples are:

- Project Ocean;
- Chagos Archipelago
- EDGE corals
- Project Seahorse
- Net Works
- Fish Nets
- Angel Sharks
- Net-Works
- Pitcairn Islands
- Eel conservation

Information about individual projects can be found around the Zoo and online:

<http://www.zsl.org/conservation/habitats/marine-and-freshwater>

During your visit at ZSL London Zoo

AQUARIUM

Seahorses

- Explore the 'Threats to seahorses' board so the students can link the threats to how we can help (and fill in the blank for medicine). The answers are in found in the table below:

Threat	What we can do to help
Use in traditional Asian medicine	Never buy medicines that contain seahorses
Bycatch from shrimp fishing	Buy only MSC certified fish and seafood
Collection for souvenirs	Never buy souvenirs that contain seahorses

- The seahorse area displays native seahorses and pipefish and a sample of their habitat in the UK- ask the students to identify ONE species of seahorse that is found in the UK: Either the Long-snouted seahorse or the Short-snouted seahorse.

Corals

- Encourage a quick discussion about what is happening to coral reefs out in the wild and whether they need protection and why.
- Information can be found in 'Trouble in Paradise' section of interpretation around the coral exhibits. Threats to corals are listed below:
 - destructive fishery practices
 - overfishing
 - Pollution
 - careless tourism
 - warmer sea temperatures caused by climate change- leads to coral bleaching and disease
 - increased ocean acidity- reduces corals' ability to build hard skeletons
- students can use the information around the coral exhibits to find out that corals are very important to people because:

- They provide jobs and resources for millions of people who live near them
- They act as a natural buffer- protecting vulnerable shorelines from waves and storms
- students will need to identify different types of corals within the different exhibits and use their spotter sheet to tick some of the species they find during their observations

Other areas of the Aquarium to explore:

The 'Saving Seas and Rivers' display covers a variety of different habitats and their specific threats. As an extension task you could ask the students to explain how protecting rivers will help to protect oceans too. Point out the *Regent's Canal* exhibit near the entrance- they can see animals here that live in the Canal that runs through London Zoo!

Explore the Amazon area and encourage the students to find out the threats that freshwater animals face and how they are different to marine animals.

If appropriate, ask the students to read the displays and exhibit information and find 3 ways that ZSL is helping to protect marine and freshwater environments: prompts of where to find the relevant info

- *research and community projects worldwide working with local people*
- *Net-Works → turn fishing nets into tiles*
- *enforce regulations to stop the illegal import and trade of organisms*
- *EDGE corals project (Corals section)*

On leaving the Aquarium exhibit gather students together to discuss their findings. Most importantly, encourage the students to think about how everyone's actions will have an impact! Everyone can help:

- *only buy sustainably sourced seafood → blue Marine Stewardship Council logo*
- *take part in beach clean ups*
- *recycle and dispose of your rubbish sensibly*
- *do not release foreign/pet species into UK waterways*
- *do not buy souvenirs/medicines/pets/plants illegally or from unsustainable sources*

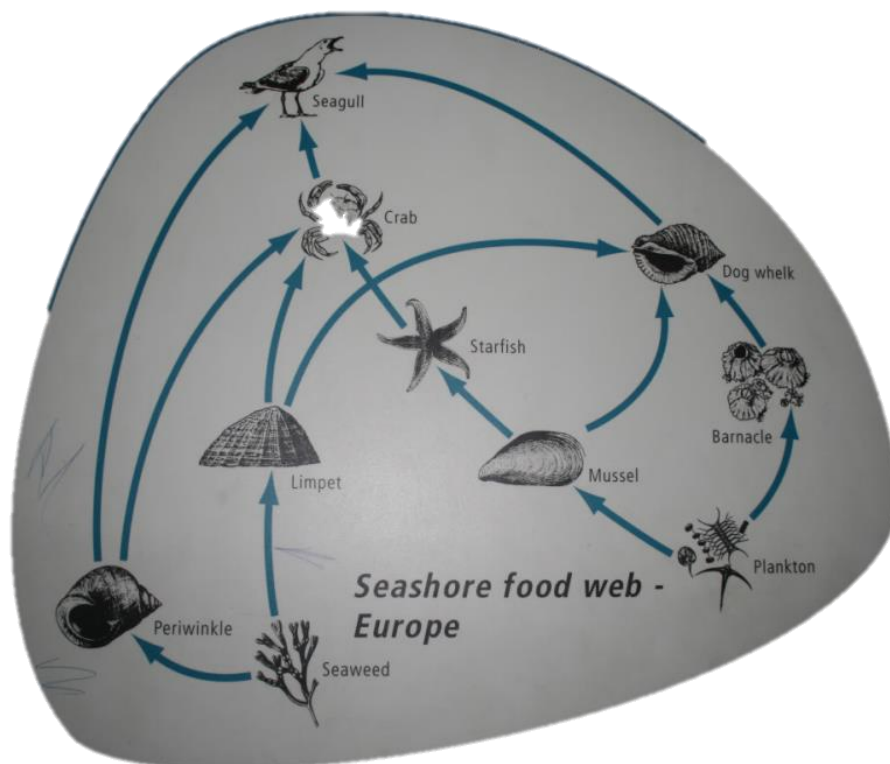
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B.U.G.S. actually stands for Biodiversity Underpinning Global Survival. Over 140 different species (not just creepy crawlies!) are found in the B.U.G.S. exhibit and they highlight the importance of biodiversity! The B.U.G.S. exhibit includes many aquatic species such as the ones featured in the World Oceans Day booklet.

Life on the seashore

The Seashore food web is displayed within the B.U.G.S. house- students can use their trail worksheet to complete what is missing from this food web. Completed version below:



The students are asked to suggest the impact of one of the organisms in this food web was removed. This should prompt them to identify that all organisms in this food web are interdependent. For example, if the starfish was removed, the number of mussels could increase as they wouldn't have as many predators. This could mean that more mussels

would eat more zooplankton and there may not be enough zooplankton to feed other organisms that depend on this food source such as whales!

Jellyfish

The jellyfish activity encourages students to compare two similar animals and use descriptive words. This should also allow the students to understand that jellyfish can live in a range of different aquatic habitats:

Jellyfish	description	habitat
Moon jellyfish	Clear/translucent, 4 circles/horseshoe shapes at the top of its body (bell), numerous flowing tentacles	Cold water, North Atlantic
Upside-down jellyfish	Upside down, stripes on bell, thick white tentacles facing upwards	Shallow water, mangrove swamps, Indo-Pacific

The jellyfish display information will provide ideas to discuss what jellyfish eat: zooplankton; shrimps; plankton. Some jellyfish can produce their own food (upside-down jellyfish) using algae that live in their tissues as well as catching food as listed above.

Encourage the students to think about how jellyfish catch their food (using their tentacles)- by observing the animals in their exhibits (maybe try to see if they are being fed at the time of your visit).

During your visit at ZSL London Zoo



Adaptations

The 'Useful Penguin Parts' display board lists 5 different adaptations that penguins have. Students can list any three of five explained, however the clues on their work sheet correspond to the following specifically:

Feathers and fat- Penguins have 100 downy feathers per square inch for insulation (more than most birds). The feathers are also closely overlapping and waterproof.



Water filters & sneezes- special 'supraorbital' gland to filter salt from blood, because sometimes penguins take in seawater. This drips from their beak as brine (saltwater), or they can sneeze it out!



Flippers- Paddle-like flippers, for 'flying underwater'



Students can find out what species of penguin live at ZSL London Zoo by looking at the signs around penguin beach- There are two species of penguin at London Zoo: the Humboldt Penguin and the Rockhopper Penguin (only one individual Rockhopper penguin 'Ricky'- you can ask a member of staff if he is out and about on the day/time of your visit).

The Rockhopper penguin species is classed as 'Endangered' on the IUCN Red list of Endangered animals. The threats that penguins face out in the wild are mainly:

- Overfishing
- Climate Change
- Disease

Humans can help- buying sustainably caught fish with the MSC logo to help with the overfishing threat (ensuring plenty of food is available for penguins) and recycling, reducing and reusing materials to help towards the climate change threats.

