

# SUSSEX MARINE EDUCATION PROGRAMME

Shoreham Beach Local Nature Reserve Marine programme delivered locally and at schools and sites across Sussex

**Includes our new outreach sessions for 2017, 'Bringing the Seashore into the Classroom' and topics for the new science curriculum**



# Site visits and what they can add to classroom study

This varied programme provides many opportunities for schools to engage with the Sussex Coast to enhance local studies or to give a local dimension to a wider topic. Sussex has a wealth of marine wildlife and fascinating coastal geography entwined with maritime history.

Schools can visit the Shoreham Beach Local Nature Reserve and explore the rare vegetated shingle habitat and dynamic coastline. For schools that are unable to visit the nature reserve our education staff can also visit your school with an outreach session or support a visit to your own local beach.

Our education coordinator is a biologist, environmental educator and natural history author with 30 years of experience working with local schools.



**West Beach, West Sussex**



**Shoreham West Sussex**



**Brighton East Sussex**

# INTRODUCTION TO SHOREHAM BEACH LOCAL NATURE RESERVE



Shoreham Beach Local Nature Reserve is situated on a shingle spit shaped by coastal and river processes. This Beach was made a Local Nature Reserve in 2006 to help protect the local and internationally rare habitat called vegetated shingle.

This is a fringing habitat colonising the shingle beach between the high tide mark and the houses at the top of the beach. The vegetated shingle habitat is also visited by many types of birds and insects.

# WHAT MAKES SHOREHAM BEACH SPECIAL

Over 90 different plants have been recorded on the nature reserve.

Visiting schools can explore the reserve and discover how these plants are adapted to survive the very harsh conditions on a shingle beach.



The vegetated shingle supports a rich biodiversity of terrestrial animals. These include birds, insects and lizards that find food and shelter amongst the shingle plants.



Guided activities can be provided to help support investigation and identification of the shingle plants and wildlife.

Habitat and wildlife surveys undertaken on the beach can be repeated in the school grounds to compare these two habitats



## The Shoreham Beach Local Nature Reserve Education Programme

The Shoreham Beach Local Nature Reserve Education Programme provides many opportunities for children to explore the marine environment.

Visiting schools can choose from two to three of the main topics which they will be able to explore through a series of Educator and teacher led activities. These can include the following popular examples. Other examples are illustrated in this document.

Inter-tidal seashore life

Vegetated shingle plants and wildlife

Sea and weather

Coastal processes and sea defences

Seashore strandline

Plastic debris and other human impacts



We also have an outreach programme for schools who are unable to visit Shoreham Beach. We can also work with schools on their own local beach.

The following examples are a taster of what we can provide for schools

## EXPLORING THE INTER-TIDAL ZONE

At the eastern end of the nature reserve, by the Old Fort, there is a sandy beach where schools can explore the seashore life between the tides exploring habitats, adaptation, life processes, food chains and much more.



**A visit to your beach** If you are unable to come to Shoreham we may be able provide a guided visit, with activities to your own local beach.



# The Amazing World of Plants

We have had an increase in requests from teachers who are keen to bring a fresh approach to their topic on plants and inspire children about the fascinating world of plants. So we have expanded this topic and made it part of our core programme. We look at three type of plants; vegetated shingle, estuary plants and seaweed.



Pupils are asked to consider what conditions plants need to survive and if the plant I have brought with me from home would survive if I planted it on the beach. If not why not?

Pupils will then investigate the vegetated shingle plants to see what special adaptations they have that allow them to survive in such as harsh environment. We will also look at the wildlife they support.

We will also consider seaweeds, estuary plants and also about how plants help to create habitats.

Elements of this topic can be further explored in your school grounds or similar local habitat for which we can provide ideas. You may also explore global examples.



# SEA AND WEATHER

The coast is a great location to explore weather and this is usually undertaken as part of another project. For example, beach habitats, to measure the influences of weather on the animals and plants, or coastal geography to help understand weather as part of the natural processes that shape the beach.



**Measuring temperatures**



**How plants create microclimates**



**Measuring cloud cover using Octa**



**investigating wind strength and direction using ribbon and bubbles**



**Investigating waves**

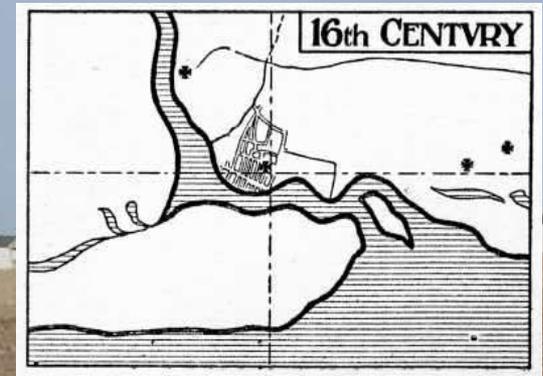
# The Challenges of Running a Nature Reserve

The children can learn about the challenges of running a nature reserve, balancing the conservation of a rare habitat with public access. This includes water sports and other recreation that access the sea from the beach.



# Coastal geography

The Sussex coastline has many locations suitable for studying coastal processes, and coastal management. This includes Shoreham beach, a shingle spit formed by the action of river deposition and longshore drift. This is a region that has been recognised as being at risk from future flooding by the Environment Agency.



## Rocks, pebbles and soil

Its not just the living things that make Shoreham Beach fascinating but also the very pebbles that the beach is formed from.

The shingle spit formed over many centuries and the pebbles have been pounded, eroded and transported around by the waves.



Pupils will discover the rock types that are present on Shoreham Beach including flint, quartzite, Larvikite, sandstone, chalk, and sea coal. Each pebble also has a fascinating story to tell.

This session can also include crystals (present in some pebbles) and fossils

A rock investigation activity can be included as a beach visit activities or as part of an outreach visit.



# Outreach Programme

## Bringing the Seashore to the Classroom



## Seashore to Classroom

Following an increased demand for this session we have further developed our Every Rock is Someone's Home tide pool session

For schools unable to visit the shore, this session will allow children to experience the wonders of the rock pool. We use USB cam and media projector, to provide a living presentation. Using first hand observation, the pupils will experience live marine creatures, guided and encouraged to compare life processes, locomotion, defence and adaptation to a rock pool habitat.



The pupils will be able to observe sea anemones opening their tentacles, barnacles feeding, crabs scuttling sideways, marine worms, crustaceans and sea snails (depending on specimens collected) and learn more about their habitat.

# SEASHORE STRANDLINE

**Secrets of the seashore.** This session is based around the fascinating objects that you can find washed up on the beach at low tide.

The pupils will be able to investigate and identify a selection of objects and learn more about the natural history of the animals that the objects come from.



Dogfish egg case



whelk eggs



Ray egg case



Dogfish egg



Adult whelk



Ray



This includes the use of photographs of marine animals and how they relate to the objects, fascinating facts and also myths and folklore surrounding seashore objects. We also discuss how the strandline is a habitat in its own right.

**Marine debris.** This session focuses on plastic pollution and other man-made objects that pollute the sea. This can be investigated as a local and global issue including various examples of the harm that it causes in the marine environment.

Pupils can investigate why plastic is such a problem and also the sources of beach litter, including the results of a local beach litter clean/survey.

A class activity explores the issues of plastic pollution and its impact on seabirds.



Plastic



Beach litter



Deep ocean floor



Good or bad invention?

Plastic and wildlife

Is anywhere free of pollution?

This session can be included as part of the Secrets of the Seashore session and can also include an activity looking at things that once lived and never lived.

**Especially designed for local schools.** Shoreham has a fascinating history that entwines with the history of Shoreham Beach and the harbour, important since the 11<sup>th</sup> Century trade and ship building.



**Bungalow town**



**Norman Church**



**Lighthouse**



**Old Napoleonic Fort**



Pupils can learn how this influenced their town, key periods such as Norman and Victorian and glimpses of this history that remain.



**Historic ship building**

# THE ADVENTURES OF Ed the Bear

One ocean adventures is a project combining science and literacy, local and global.

**Ed the Bears adventure to find out why oceans are so special.**

Concerned that his precious beach at Shoreham is threatened, Ed the Bear travels to scientists around the world to find out about climate change and how it might damage the rare vegetated shingle habitat at Shoreham.

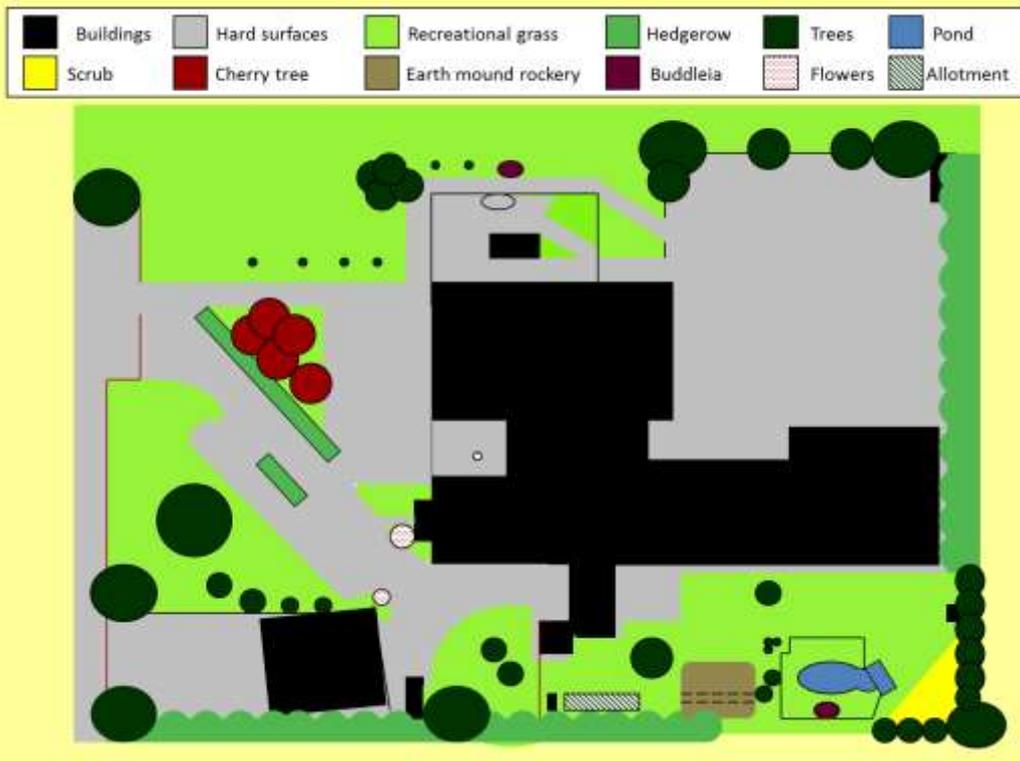
Ed visits real scientists including the National Oceanic Atmospheric Administration in the USA and learns about the ocean. He discovers how oceans moderate our climate and weather, that they produce 50% of the oxygen we breathe, freshwater, food, new medicines, renewable energy, well-being and much more.

He discovers first hand the problems of plastic debris and how climate change is threatening coral reefs, food chains, seabirds and much more.

On his travels he encounters amazing marine life, visits people who are helping to protect the oceans and learns how we can all help.



# School Ground Habitat Mapping



School ground habitat mapping to create opportunities for science investigation skills.

We combine learning about the wildlife in your school grounds with development of grounds habitats and placement of features. Do you need a bee garden, how healthy is your pond, where should I place our nest box.

Mapping activities can also provide first hand experience of habitats environments, preferred living conditions and microclimates.

School grounds can be explored to provide a local view of wildlife compared to a global location or can be used to follow up a field trip



# Planning a visit

Our marine programme offers many topics to choose from and we can tailor a visit to suit your needs, as a beach visit or for sessions we might deliver in your school.

You can find out more about the Sussex Marine Education Programme and also the Shoreham Beach Local Nature Reserve on our website below.

<http://www.fosbeach.com/education-on-shoreham-beach/>

For further information and fees please contact our education coordinator Stephen Savage on [stevep.savage@ntlworld.com](mailto:stevep.savage@ntlworld.com) or visit

<https://exploresussexnature.wordpress.com/about/>