Ocean Investigation

Overview and Learning Outcomes

Session Overview:

The Ocean Investigation workshop is all about getting hands on and discovering the world beneath the waves. Your children will have the opportunity to handle artefacts from our extensive specimen collections, which can include starfish, turtles, shark jaws, seashells, whale baleen plates and much more. Working in small groups, your children will investigate the artefacts by moving around five different skill-based stations.

	Foundation Phase:	Key Stage 2:	Key Stage 3:
	Our younger learners will explore features, textures and patterns, make comparisons and sort artefacts into groups; examine a real turtle and coral-reef habitat measure a sawfish's nose and identify a mystery marine item; create their own observational drawings; and begin to build marine food chains.	Our Junior pupils will describe features, textures and patterns; make comparisons and sort artefacts into groups; examine a real turtle and explore it's coral-reef home; measure and weigh artefacts and identify a mystery marine item; create their own observational drawings; and make connections between the artefacts to build marine food chains.	Our Key Stage 3 pupils will explore the classification of marine invertebrates; examine a real turtle and explore it's habitat; identify species with specific measurements; create their own observational drawings and construct a pyramid of biomass that represents the potentially harmful impact of pollutants on our marine life.
Learning Outcomes	1. Classify organisms as living, non-living and never alive 2. Observe the features of a turtle and it's natural habitat 3. Measure key features of a Sawfish's Rostrum 4. Create a scientific drawing of an unknown artefact 5. Reconstruct a marine food chain	1. Describe artefacts that are living, non-living and never alive 2. Label the features of a turtle and observe it's natural habitat 3. Measure key features of a Sawfish's Rostrum and Shark eggs 4. Create and label a scientific drawing of an unknown artefact 5. Build a marine food chain	1. Learn how to write species names for organisms in standard scientific nomenclature 2. Label the adaptations of a turtle and how they help it survive in it's natural habitat 3. Measure and identify features of a shark 4. Create and label a scientific drawing of an unknown artefact 5. Create a marine pyramid of biomass

Pre-Workshop Ideas	Post-Workshop Ideas
• Create land-based food chains and food webs, learning about the connections between predators, omnivores and herbivores • Have a class discussion about going to the beach, rock pooling and finding shells and other marine objects, e.g. crabs, sea snails, fish bones, seaweed. Talk about how they felt, textures and colours, then draw them from memory • Talk about the difference between vertebrates and invertebrates • Learn about marine habitats such as coral reefs, rock pools and seagrass	• Try creating five different posters of the five vertebrate groups using pictures from magazines • Create a simple dichotomous key using the creatures you will learn about in the workshop (and more if you like). You could use simple groupings, such as vertebrate/ invertebrate, size, habitat or number of legs • Use your adjective labels to create opposite pairs for a wall display at school • Practice your new investigative skills by visiting the coast and going rock pooling or beach combing

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Welsh Curriculum links

National Curriculum for Wales 2022: SCIENCE AND TECHNOLOGY

Being curious and searching for answers helps further our understanding of the natural world and helps society progress.

	Progression Step 2:	Progression Step 3:	Progression Step 4:
Inquiry	I can ask questions and use my experience to suggest simple methods of inquiry. I can collect data and communicate my findings.	I can collect and present data in a suitable format. I can identify trends, patterns and relationships to draw conclusions.	I can collect reliable data, process and present it accurately in a suitable format. I can describe trends, patterns and relationships in data, and use my scientific knowledge to explain them. I can use my findings to draw valid conclusions.
Models		I can use physical and conceptual models to represent the behaviour of real-world physical and digital systems.	I can make and use physical, mathematical and conceptual models to explain and predict the behaviour of real-world systems.
Impact of Science & Technology			I can explain why we sometimes choose to act in ways that impact negatively on the environment.

The world around us is full of living things which depend on each other for survival.

	Progression Step 2:	Progression Step 3:	Progression Step 4:
Diversity of Life	I can recognise and compare some features of living things and discuss similarities and differences. I can explore how different habitats provide resources for living things to survive.	I can use scientific criteria to describe the features of living things and use these to classify. I can describe how living things compete for specific resources and depend on each other for survival. I can discuss the positive and negative impact that changes in the environment and human activity have on living things and habitats.	I can explain how adaptation of organisms can affect their chances of survival. I can explain the interdependence of organisms in an ecosystem and how this leads to survival. I can analyse how environmental factors and human activity can contribute to changes in habitats and population size.
Biological Processes	I can identify parts of living things and their function.		I can describe cells within organisms and relate structure to function. I can describe biological processes within organisms and explain how these contribute to their development and survival.

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Ocean Conservation links

Ocean Literacy Principles

The Ocean Literacy Principles are international standards of education. The following Principles are achieved through this workshop:

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 Earth habitable	
5. The ocean supports a great diversity of life and ecosystems	✓
6. The ocean and humans inextricably interconnected	
7. The ocean is largely unexplored	

To find out more, please visit our website: http://www.national-aquarium.co.uk/education/lessonideas/.

OCT Generic Learning Outcomes

The Generic Learning Outcomes are a collection of conservation guiding principles that the OCT aim to achieve in all aspects of our work. The following GLOs are achieved through this workshop:

1). Knowledge & Understanding

A) Broaden knowledge of the marine environment and associated species.	✓
B) Deeper understanding of the relationship between myself and the seas.	
C) Raise awareness of the role that science plays in understanding our seas.	✓

2). Skills

A) Develop observation skills.	✓
B) Formulate scientific questions based on observations.	✓
C) Develop communication (speaking and listening) and social (learning together, working together, meeting people) skills.	✓

3) Attitudes & Values

A) Appreciate the value of the marine environment and develop respect and empathy for its inhabitants.	
B) Promote a positive view of science and scientists.	✓
C) Recognise that learning can be a positive process.	✓

4) Enjoyment, Inspiration, Creativity

A) Have fun with the National Marine Aquarium.	✓
B) Be surprised by the variety of marine life.	✓
C) Be inspired by the experience.	✓

5) Activity Behaviour and Progression

A) Motivation to go out and explore the marine environment further.	
B) Take steps to further understanding of the relationship between myself, my actions and the sea.	✓
C) Take action to reduce my negative impacts & increase my positive impacts on the marine environment.	