

Session type: Workshop
Duration: 60 minutes
Key Stage: KS2

Session Overview

Our 'A Place to Live' workshop is the perfect introduction to Marine Science and a long-standing favorite with our younger scientists. The session begins with an introduction to marine science – why do we do science experiments? After this your pupils will work in groups to conduct two separate experiments. The first, 'Saltwater Eggs', gives pupils the chance to investigate the relationship between salt and buoyancy whilst allowing them to explore and raise questions of their own based on their observations. This can be linked to developing pupil understanding of density and the stratification of the water column for More Able and Talented groups. The second investigation, 'Picking Plankton', is a fun filled practical exploration of the feeding techniques used by basking sharks, humpback whales, butterflyfish and seahorses to catch plankton. Pupils have four different tools, but who uses what, and how do they work?

Learning Objectives

1. Learn about animals and their homes
2. Become scientists and do science experiments
3. Find out how we can use science to answer other questions

Learning Outcomes

1. Recognise that all living things have specific requirements which must be met by their habitat
 2. Follow a scientific method
 3. Develop a prediction
 4. Evaluate a scientific method
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Pre-Visit Suggestions

- Explore a map of the world. Investigate how all of the oceans in the world are connected
- Choose a variety of different animals and try to place them on the map, explore the idea that different animals need different environmental conditions to survive and so are found in different places
- Research adaptations that animals have that animals have and think about how they help them to survive.

Post-Visit Suggestions

- Investigate the water cycle and consider how fresh and salt water habitats are connected
 - Continue the Saltwater Eggs experiment in the class – what other objects can you find which sink or float in different concentrations of salt solution?
 - Make paper boats and load them with 'cargo'. Try them in fresh water and ask the pupils to predict what they think may happen in salt water
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To book, or for more information:

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English: National Curriculum Links

Science:

1. Lower Key Stage 2: Working Scientifically

- a) Asking relevant questions and using different types of scientific enquiries to answer them
- b) Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment
- c) Gathering, recording, and presenting data in a variety of ways to help in answering questions
- d) Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- e) Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- f) Using straightforward scientific evidence to answer questions or to support their findings

2. Upper Key Stage 2: Working Scientifically

- a) Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms
- b) Using test results to make predictions to set up further comparative and fair tests
- c) Identifying scientific evidence that has been used to support or refute ideas or arguments

3. Key Stage 2: Living things and their habitats

- a) Recognise that living things can be grouped in a variety of ways [Y4]
- b) Recognise that environments can change and that this can sometimes pose dangers to living things [Y4]
- c) Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and difference, including micro-organisms, plants and animals [Y6]

4. Mathematics:

Key Stage 2: Measurement

- a) compare durations of events [for example, to calculate the time taken by particular events or tasks]
- b) measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)
- c) convert between different units of measure [for example, kilometre to metre; hour to minute]
- d) calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm³) and cubic metres (m³), and extending to other units [for example, mm³ and km³]

5. English:

Years 1-6: Spoken language

- a) Listen and respond appropriately to adults and their peers
- b) Ask relevant questions to extend their understanding and knowledge
- c) Articulate and justify answers, arguments and opinions
- d) Maintain attention and participate actively in collaborative conversations, staying on topic and initiating and responding to comments
- e) Use spoken language to develop understanding through speculating, hypothesising, imagining and exploring ideas

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Welsh: National Curriculum Links

1. Skills across the Curriculum:

- a) Developing thinking
- b) Developing communication
- c) Developing number

2. Learning across the Curriculum:

- a) Personal and social education
- b) Careers and the world of work

Science: Key Stage 2

Enquiry Type: Exploring

3. Skills:

- a) **Planning:** Predict
- b) **Developing:** Explaining

4. Range:

- a) Interdependence of organisms
 - The environmental factors that affect what grows and lives in different environments
 - How humans affect the local environment
- b) The sustainable Earth
 - A consideration of what waste is and what happens to local waste that can be recycled and that which cannot be recycled

Mathematics: Key Stage 2

5. Strand: Developing numerical reasoning

- a) Identifying processes and connections
- b) Represent and communicate
- c) Review

6. Strand: Using number skills

- a) Estimate and check

7. Strand: Using measuring skills

- a) Length, weight/mass, capacity

8. Strand: Using data skills

- a) Collect and record data
- b) Present and analyse data
- c) Interpret results

English: Key Stage 2

Strand: Oracy

9. Element: Developing and presenting information and ideas

- a) Speaking
- b) Listening
- c) Collaboration and discussion

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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

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

NMA Generic Learning Outcomes

The Generic Learning Outcomes are a collection of conservation guiding principles that the NMA 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.

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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.

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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.

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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.

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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.

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To find out more, please visit our website: <http://www.national-aquarium.co.uk/marine-conservation/>.

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