Ocean Blue Incursion for K-6

Incursion Outline

Your Incursion

Offered to primary schools in the St George and Sutherland Shire regions of Southern Sydney, the Ocean Blue Incursion is delivered to your classroom by experienced and passionate science educators.

Requirements for this incursion are as follows:

- The incursion requires 45 mins set-up time and 30 mins pack-down time.
- The presentation uses PowerPoint and requires an appropriate projection system.
- The Whale Migration Game is a physical game best played outdoors. A covered COLA area or other large outdoor area is appropriate. It can also be played in the school hall.
- Access to a tap/water is required for the STEM activities.

For further enquiries or to book this incursion, contact the ANSTO Education Team:

Phone: 02 9717 3090 email: education@ansto.gov.au

Overview

The Ocean Blue Incursion introduces ocean life with a focus on animal needs, behaviours and features. It also considers the properties of water and looks at human threats to the ocean environment.

The incursion provides a comprehensive education experience that addresses Science knowledge outcomes for the Australian Curriculum and encourages creative and critical thinking through engaging STEM activities. All materials are provided.

Format

The Ocean Blue Incursion consists of three components:

i) Introductory presentation (with 5-10 mins for questions)
ii) Whale Migration Game (with 10 mins for reflection)
iii) One hands-on STEM activity

The age-range suitability, suggested duration and maximum student numbers for each component are provided below.

	Component	Suitability	Suggested Duration (mins)	Maximum Students
1	K-2 Presentation and Q & A	K-2	15-30	Unlimited
	3-6 Presentation and Q & A	3-6	30	Unlimited
2	K-2 Whale Migration Game	K-2	45	30
	3-6 Whale Migration Game	3-6	45	30
3	**STEM Activity– choose from this list:**			
	Density and Buoyancy	K-2	45	30
	Deep Sea Features/Adaptations	K-6	45	30
	Waterpower	3-6	45	30
	Acid Ocean (science experiment)	5-6	45	30

Outline

1. Presentation

We introduce key concepts relating to ocean geography, living world and human impacts. Content covered includes the following: proportion of Earth covered by ocean, oceans near us, ocean layers and conditions, an ocean ecosystem, human impacts and ANSTO research. The language will be tailored to the age range of the students, and they will have an opportunity to ask questions from our science educators.

2. Whale Migration Game

Students pretend to be humpback whales migrating between their feeding grounds in Antarctica to their breeding grounds in the South Pacific Ocean. They travel in *pods* between important locations, rest in estuaries along our coastline, and experience various good news and bad news scenarios along their journey.

This highly engaging game provides students with relevant learning on the needs, behaviour and lifecycle of humpback whales and provides an understanding of their ocean home and threats. Year 3-6 students will also consider the interdependence between all living things and their environment and adaptations of humpback whales to support their survival.

This is a physical game best played in an open space, such as a covered COLA area, playground or school hall.

3. STEM Activities

Density and Buoyancy Activity (for K-2). We discuss the meaning of density and demonstrate differences between salt and fresh water and hot and cold water. We discuss how the relative densities of objects and water relates to buoyancy and students practise making a boat or sea creature that floats.

Deep Sea Features/Adaptations Activity (for K-6). We consider the conditions at the bottom of the ocean and the features or adaptations that animals living there need to survive. We think about the important work that scientists do in discovering and describing organisms. Working in pairs we create a model of a deep-sea animal and compare its features with those in photos of real animals. A short presentation on the deep-sea is included.

Waterpower Activity (for Year 3-6). We consider the ability of water to be put to work in historical water wheels and in modern turbines to produce electricity and discuss transformation of energy. Working in pairs we construct a water wheel out of craft materials and test how well it works.

Acid Ocean Activity (for Year 5-6). We consider the “evil twin” of global warming: ocean acidification from carbon dioxide. We demonstrate how shells can dissolve in water that has become acidic and discuss the impacts of this for shellfish, crustaceans and the wider ecosystem. We then learn how scientists measure acidity and using indicator papers get to do real life science experiments (safe ones) with solutions and test tubes!

Ocean Blue Incursion - Links to the Australian Curriculum

	Science Understanding	Science as a Human Endeavour	Science Inquiry Skills
Foundation	Living things have basic needs, including food and water (ACSSU002) Daily and seasonal changes in our environment affect everyday life (ACSSU004)	Science involves observing, asking questions about, and describing changes in, objects and events (ACSHE013)	Engage in discussions about observations and represent ideas (ACSIS233) Share observations and ideas (ACSIS012)
Year 1 – 2	Living things have a variety of external features (ACSSU017) Living things live in different places where their needs are met (ACSSU211) Living things grow, change and have offspring similar to themselves (ACSSU030)	Science involves observing, asking questions about, and describing changes in, objects and events (ACSHE021) People use science in their daily lives, including when caring for their environment and living things (ACSHE022, ACSHE035)	Compare observations with those of others (ACSIS213, ACSIS041) Represent and communicate observations and ideas in a variety of ways (ACSIS029, ACSIS042)
Year 3 – 4	Living things can be grouped on the basis of observable features and can be distinguished from non-living things (ACSSU044) Living things have life cycles (ACSSU072) Living things depend on each other and the environment to survive (ACSSU073)	Science knowledge helps people to understand the effect of their actions (ACSHE051, ACSHE062)	Represent and communicate observations, ideas and findings using formal and informal representations (ACSIS060, ACSIS071)
Year 5 - 6	Living things have structural features and adaptations that help them to survive in their environment (ACSSU043) The growth and survival of living things are affected by physical conditions of their environment (ACSSU094) Changes to materials can be reversible or irreversible (ACSSU095) Electrical energy can be transferred and transformed in electrical circuits and can be generated from a range of sources (ACSSU097)	Scientific knowledge is used to solve problems and inform personal and community decisions (ACSHE083, ACSHE100)	Communicate ideas, explanations and processes using scientific representations in a variety of ways, including multimodal texts (ACSIS093, ACSIS110)