

Ocean World Lesson Two

How can we explore the Deep?

Contents: 'How can we Explore the Deep?'

1. Activity Sheet Guide

2. PPT 2 'How Can we Explore the Deep'

3. Teachers' narration for PPT

4. Activity 'Exploring Underwater'

5. Activity Design your own submersible.

6. Sea Music ideas

Teachers' Resources

'Ocean World'

KS1 - Year 1/2 - UK Curriculum: Geography/Science

Lesson TWO

'How can we Explore the Deep?'

Resources in this unit are:

1. Activity Sheet Guide for teachers, includes key words, ideas and literacy work.
2. Activity A :Ocean World Powerpoint 2 (14 slides.)
2a) Teachers' crib-sheet narration for Ppt, 3.
Activity B: ' Exploring Underwater'
3. Activity C. Design your own submersible
4. A list of 'sea music' is also included for use throughout the eight-lesson project.
5. The BIG Question (pupils are encouraged to discuss and/or write a sentence to answer -
The BIG question: - 'How can we explore the Deep?

Teachers can establish pupil progress when discussing with pupils what they have learnt so far. It is suggested that work can be glued into a BIG BOOK/JOURNAL where pupil's work can be built up over the full teaching unit of 8 lessons.

All lessons are flexible - so spend a whole day on the lesson, or one section a day or one a week to suit your Geography/Science time slot.

*All materials (c) gloria barnett
The Weird Fish Lady*



How can we explore the deep?

Resources:

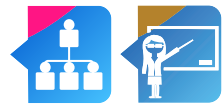


2: Exploring the Oceans



2a: Narration for PPT 2

Suggested Activities:



A: Teacher led discussion – Use PPT 2 : “Exploring the oceans”

Discussion:

Show and discuss the whole presentation.

Narration (Info Sheet 2a) for the teacher to discuss ideas with the class.

Emphasise:

- Danger in the marine environment.
- Humans are aliens in the ocean environment beneath the surface.
- The special equipment needed for humans to explore such an alien environment. Include:
 - SCUBA (Self Contained Underwater Breathing Apparatus).
 - Submersibles (Compare with Apollo spacecraft in outer space).
 - Health and Safety checks...what are the rules?
 - If you dive or go in a submersible – what can you see?
 - What does it feel like inside?
 - How do you feel as you descend in the depths?
 - Why does a submersible have a robotic arm attached?



B: Exploring Underwater

Pupil Task from Slide 12 (PPT 2:)

Imagine you are a scientist – you’re in a submersible – and very deep in the ocean.

Imagine collecting a weird animal.

Do a rough sketch of the animal you have found.

You can talk to the other scientists on the ‘mother ship’ on the surface.

- Imagine collecting a very weird animal ...
you mustn’t harm it or take it out of the water. How could you tell the people on the surface what it looks like?
- Describe it to your ‘buddy’ on the surface. Get them to draw it from your description
- Does their drawing look like your weird animal?



C: Design your own submersible

Pupil Task from Slide 13 (PPT 2) Refer to slide 13 on the board.

- You will need to keep a record of different stages of your design. All diagrams must be labelled.
- You must undertake and record research about submersible construction.
- How can it move?
- What controls will it have?
- Will you take photographs or video? How?
- Will you collect things? How?
- Write a log of your first journey into the depths.

**SUBMERSIBLE WRECK DIVER MARINE ENVIRONMENT ALIEN WORLD
TECHNOLOGY DANGEROUS RESEARCH OXYGEN SCUBA**



D: Answer the Big Question

How can we explore the deep?

The answer is.....?

Narration for Activity 2 Powerpoint**Slide 1****Title****Exploring the Oceans**

This submersible research vehicle is run by scientists from NOAA – the American National Oceanic and Atmospheric Administration.

Slide 2 and 3

Question: Remember from PPT 1 – how deep are the oceans and how difficult is it to explore?

Slide 4**Divers need special equipment**

Answer: Humans are not adapted to live in water. By using SCUBA kit it is possible to dive safely to 100 metres below the surface. Below 100 metres, divers have to use complicated submersibles – like underwater spaceships.

SCUBA stands for Self-Contained Underwater Breathing Apparatus.

Slide 5**The Marine Environment**

- Very much an Alien world where humans cannot exist without specialised technology.
- The picture is a Lionfish – which has poisonous spines.

The Marine environment – discuss how impossible it is for humans to visit the ocean environment – why is exploring the oceans so life-threatening for humans? (KS2: Scientific concepts – i.e. pressure – from weight of water bearing down on the body the deeper you dive down – can be explained in simple terms here. KS3 – use this opportunity to teach pressure ideas/do experiments for testing pressure).

Slide 6**Which way of exploring is safer? Why?**

Think about safety.

What sort of animal could be dangerous in the ocean?

- If humans exploring the ocean are in an “Alien World” – then you’re not in a zoo with the wild animals in cages to protect you.
- It is unsafe for divers to go deeper than 30 metres without very specialised equipment as the increased pressure at depth can make your lungs explode!

Slide 7

Submersibles

Humans can explore deep water by using submersibles.

Submersibles can be robots sent down to deep water by a Research Ship on the surface. These are pictures of manned submersibles which can take 2 or 3 people down to 1,000 or 2,000 metres. Because the Deep Sea is cold, dark and lacks oxygen, the manned submersibles have a supply of oxygen, warmth, and inside working lights. Outside they have strong lights and cameras to film the creatures which live deep in the ocean.

Modern submersibles are far more complicated than the Apollo spacecraft which took humans to the Moon.

Did you know that the Apollo spacecraft had less computing power than a present-day mobile phone?

Slide 8

What would you want to look at?

If you were an underwater explorer – what would you like to go and see?

Wrecks – are 'historic' – they always have a story to tell.

Weird Fish – there's plenty of those too!

Slide 9

What is it like underwater?

(What are the conditions – wet, cold, darker with depth)

Slide 10

Question – What do you need to take with you?

Slide 11

Answer – air to breathe, food, water, warm clothing, camera tools and collection boxes.

Slide 12

What is a Robotic Arm?

It can collect samples from deep under the ocean without the scientists getting out of their submersible.

Imagine you are a scientist – you're in a submersible – and very deep.

Imagine collecting a weird animal. Do a rough sketch of the animal you have found.

Imagine using a radio to describe your weird animal to the other scientists on the 'mother ship' at the surface.

Put this slide up for reference when the pupils are working on this task.

- Imagine collecting a very weird animal ... you mustn't harm it, or take it out of the water. How could you tell the people on the surface what it looks like?
- Describe it to your 'buddy' on the surface.
- Can they draw it from your description?
- Does their drawing look like your weird animal?

Pupils will love this activity of working together.

Slide 13

Design your own Submersible

Some ideas here for thinking about what is needed and writing about your ideas.

Put this slide up for reference when pupils are working on this task.

1	The Mystic	Van Morrison
2	Yellow Submarine	The Beatles
3	https://www.youtube.com/watch?v=GHgE5fQxvW8	
4	The Hebrides (Fingal's Cave http://www.bbc.co.uk/programmes/articles/3Fm3H66YnxN2slrSX3mMvh/top-six-sea-pieces	Felix Mendelsohn
5	La Mer	Debussy
6	Sea Fever	John Ireland
7	Storm	Benjamin Britten
8	The Flying Dutchman	Richard Wagner
9	Octopuses Garden	Beatles
10	Under the Sea	Little Mermaid
11	Hawaii Five-O	The Ventures
12	Shark Attack	John Williams
13	Wipe Out	The Safaris
14	Sittin' on the Dock of the Bay	Ottis Reding
15	Pirates of the Caribbean	Any
16	Sparticus (Onedin Line Theme)	Kachaturian
17	Preservation / Kyance Cove / Marazion	Keynvor
18	The Aquarium: Carnival of the Animals	Saint -Saens

Ideas to enhance this lesson ...

Buy your Teachers' 'Guide *'The Amazing World Beneath the Waves'* or the '50 Facts' Books for your classroom from the book section on www.barnettauthor.co.uk

