

# Blue Abyss

Spring 1: 2021- 2022

Year 4



## Key Learning Area - SCIENCE

The children will learn all about the rich biodiversity found within the world's seas and oceans. They will learn about the oceanic layers and the creatures that have adapted to survival in each layer. We will further explore deep-sea adaptations, considering how and why animals need to adapt to their environment. In addition, we will research oceanic food chains, understanding and utilising subject-specific scientific terminology and exploring the important role that each and every oceanic creature plays in the survival of the world's oceans. Moreover, we will also utilise key scientific skills such as classifying, grouping and sorting living things based upon their species, adaptations, diet, characteristics or the oceanic zone that they inhabit, for example.

## ENGLISH

In English we will be completing a fiction and non-fiction piece of writing. Our fiction writing will be writing a finding tale, based upon Pie Corbett's story plots. This is where our main character goes on an exciting adventure and finds something particularly important or unusual. Our second piece of writing will be writing a persuasive argument which aims to convince the reader to adopt a particular stance or viewpoint. Both pieces of writing will be inspired by our work on the underwater world that lies beneath the ocean surface, alongside focusing on our grammar, punctuation, spelling and handwriting.

## MATHEMATICS

In Maths we will be continuing our Powermaths work on multiplication and division. After this, we will then be looking at measurement, in particular working out the area of shapes. Following this, we will focus our attention on fractions and decimals. Alongside our Powermaths work, we will be continuing learning and practicing our times tables.

## GEOGRAPHY

In Geography we will use maps, atlases and globes to identify the world's oceans and seas. In addition, we will focus our attention on the Great Barrier Reef by locating using maps, identifying significant land features, towns, islands and the different reefs themselves. We will also use a range of geographical source materials to find out about a number of environmental issues linked to the oceans,

## ART & DESIGN

In Art we will be supporting our work on oceanic layers by accurately sketching the different layers of the ocean. In addition, we will explore different tropical fish and coral found in the ocean, using our sketch books to draw examples, adding pattern and colour for effect.

## D&T

In D&T we will be looking at 2-D and 3-D designs of a range of real and imaginary deep sea creatures. We will sketch out different options, deciding which creature we would like to model in clay. We will then use a variety of tools to create a sculpture and add fine details.

## RE

For our RE Week we will be considering and exploring 'What is the Holy Trinity?', a pertinent question intrinsic to the Christian faith. We will look at the different aspects of the Holy Trinity, considering how they interlink and why it is so important to Christianity.

## PSHE

In PSHE we will be exploring our dreams and goals for the future, encouraging children to have confidence in themselves and their abilities, alongside having high aspirations for the future.

In Financial Education we will consider the important role that money plays in our lives and to broader society.

## COMPUTING

In Computing we will continue practicing for the Year 4 Multiplication Check through our Twinkl Go Multiplication Check Practice and TT Rockstars.

## MUSIC

In Music we will continue to appreciate and understand a wide range of high-quality recorded music drawn from different traditions and from great composers through our daily Morning Music sessions.

## PE

In PE we will be learning the rules of tag rugby and practicing the skills that we have learnt during tag rugby games. In addition, we will also be practicing our dance skills, focussing on learning and progressively improving our technique.

## FRENCH

In French we will continue to practice our French conversational skills, aiming to learn and practice having basic conversations in French, alongside exploring new French terminology to broaden our vocabulary.

## SMSC & VALUES

The values we will be covering are Friendship and Perseverance.

To develop our SMSC awareness we will continue to have assemblies that focus on our values and encourage children to reflect on their own beliefs and values.

# Blue Abyss

## Oceans and seas

Just over two thirds of the Earth's surface is covered with water. Most of this water is found in oceans. There are five oceans called the Atlantic, Pacific, Indian, Arctic and Southern Oceans. Each ocean has its own climate, depending on its location in the world. Seas are smaller than oceans and can be surrounded by land.

## Food chains

All living things need energy to survive. Food chains show where living things get their energy and how all species living in an environment depend on each other.

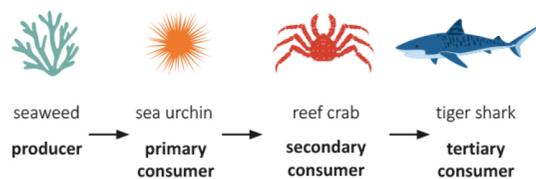
For example, if the producer in a food chain is in short supply, it will affect all the consumers in that food chain.

**Producers** are found at the beginning of a food chain. They are usually green plants. They use energy from the Sun to make their own food in a process called photosynthesis.

**Consumers** get energy from eating plants or animals.

**Prey** are animals that are eaten by other animals.

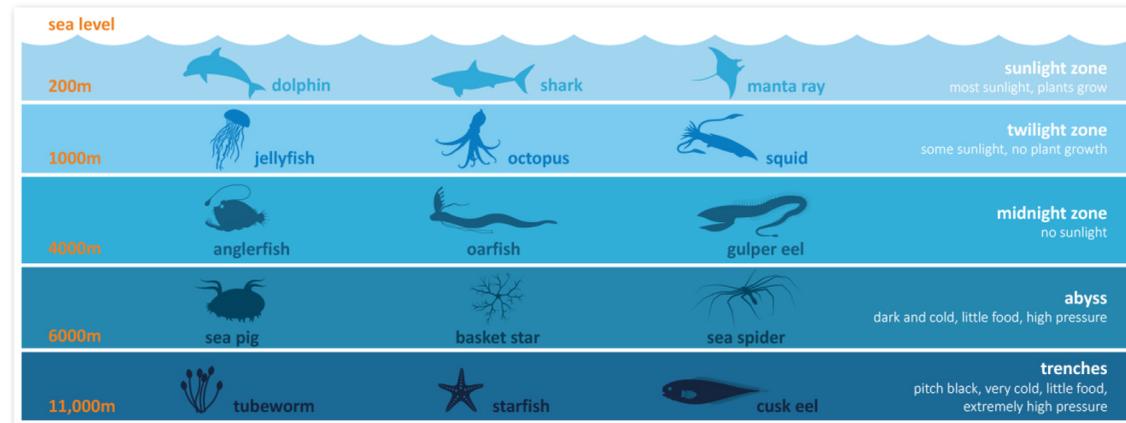
**Predators** are animals that hunt, kill and eat other animals to get their food.



Example of a food chain in the Great Barrier Reef

## Ocean layers

The ocean has five different layers: the sunlight zone, the twilight zone, the midnight zone, the abyss and the trenches. As the depth increases, the temperature and light levels fall, and the pressure rises making it a difficult place to live. Oceans are home to hundreds of thousands of marine species, each specially adapted to live at specific depths.



## Bioluminescence

Some marine animals have chemicals in their cells that make light or bacteria that live on them and produce light. This is called bioluminescence. Bioluminescence can be used as defence, camouflage, to attract prey or to see in the dark. The most common colours of bioluminescence are blue, green and red.



Jellyfish displaying bioluminescence

## Great Barrier Reef

Corals are marine invertebrates that live in large groups called colonies. Some species produce a hard exoskeleton that forms into a coral reef. The Great Barrier Reef, on the north-eastern coast of Australia, is the longest and largest coral reef in the world, with over 600 types of coral. Corals are at risk of being destroyed by climate change, pollution and consumers.



Tropical fish in a coral reef

## Timeline of Jacques Cousteau

Jacques Cousteau was an explorer, television presenter and inventor. His television shows and films showed people what was in the ocean for the first time.

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|----------------|--|
| <b>1910</b>    | Born on 11th June in Saint-André-de-Cubzac, France.  |
| <b>1930</b>    | Joins the French Naval Academy.  |
| <b>1936</b>    | Goes underwater swimming with goggles and begins exploring the sea.  |
| <b>1942</b>    | Makes his first underwater film, <i>Sixty Feet Down</i> .  |
| <b>1943</b>    | Develops an underwater breathing apparatus, the aqua-lung, with engineer Émile Gagnan.                               |
| <b>1945</b>    | Begins working for the Undersea Research Group, funded by the French Navy.   |
| <b>1947</b>    | Sets the world record for freediving.  |
| <b>1950</b>    | Uses a ship called the <i>Calypso</i> for research, diving and filming.  |
| <b>1953</b>    | Co-authors the book, <i>The Silent World</i> , which tells the story of his undersea discoveries and adventures.     |
| <b>1956</b>    | Releases his first underwater colour film, <i>The Silent World</i> .   |
| <b>1959</b>    | Invents an experimental underwater vehicle.  |
| <b>1966–76</b> | Produces a television documentary, <i>The Undersea World of Jacques Cousteau</i> .                                   |
| <b>1985</b>    | Awarded the Presidential Medal of Freedom by the American president Ronald Reagan, for his contributions to science. |
| <b>1997</b>    | Dies on 25th June.   |

## Ocean exploration

### Diving

Ocean diving can be dated back to 4500 BC when people in the coastal areas of Greece and China dived for food. Cousteau's invention of the aqua-lung meant divers could take air with them, spending more time under the water and going deeper than ever before. Cousteau used the aqua-lung to explore and film the underwater world more freely.



Deep sea diver using an aqua-lung to breathe

### Submarines

In 1620, Cornelis Drebbel built the first submarine. He tested it in the River Thames up to depths of around 4.5m for up to three hours. Today, submarines are used for exploring the deep oceans. They are built to withstand the extreme pressure and have robotic arms to collect marine creatures and samples from the bottom of the ocean.

### Oceanography

Between 1872 and 1876, the Royal Navy ship HMS *Challenger* took part in a four-year expedition around the world. The crew collected information and carried out investigations into the world's oceans. The results were published in *The Challenger Report* and became the basis of modern oceanography.

## Glossary

- |                     |   |
|---------------------|---|
| <b>adapt</b>        | A change in an animal or plant that helps it to survive in its environment.                     |
| <b>camouflage</b>   | The way some animals are coloured or shaped to blend in with their natural surroundings.        |
| <b>climate</b>      | The weather conditions in a place over time.  |
| <b>conservation</b> | The protection of an animal or area from damage.  |
| <b>coral</b>        | Marine invertebrates that live in large colonies and produce a hard exoskeleton.                |
| <b>freediving</b>   | The sport of diving underwater without breathing equipment.                                     |
| <b>habitat</b>      | The natural environment where a plant or animal normally lives.                                 |
| <b>oceanography</b> | The scientific study of the oceans and everything in them.                                      |
| <b>organism</b>     | An individual animal, plant or microorganism.   |
| <b>pressure</b>     | A force that is produced when something presses or pushes against something else.               |
| <b>species</b>      | A group of animals or plants that share the same characteristics and can breed with each other. |
| <b>submarine</b>    | A ship that can travel underwater.  |