



# BENEATH THE WAVES KNOWLEDGE ORGANISER

YEAR 4—SUMMER TERM 2

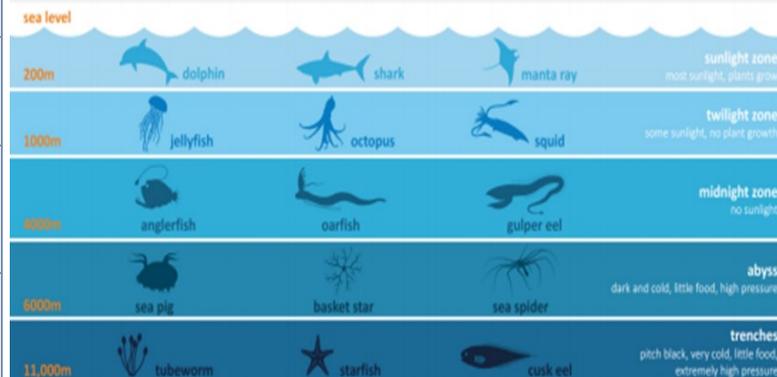


Word	Definition
Adapt	A change in an animal or plant that helps it to survive in its environment
Camouflage	The way some animals are coloured or shaped to blend in with their natural surroundings.
Climate	The weather conditions in a place over time
Conservation	The protection of an animal or area from damage
Coral	Marine invertebrates that live in large colonies and produce a hard exoskeleton.
Freediving	The sport of diving underwater without breathing equipment.
Habitat	The natural environment where a plant or animal normally lives.
Oceanography	The scientific study of the oceans and everything in them.
Organism	An individual animal, plant or microorganism.
Pressure	A force that is produced when something presses or pushes against something else.
Species	A group of animals or plants that share the same characteristics and can breed with each other.
submarine	A ship that can travel underwater



## Oceans and seas

Just over two thirds of the Earth's surface is covered with water. Most of this water is found in the world's oceans. There are 5 oceans in the world; 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

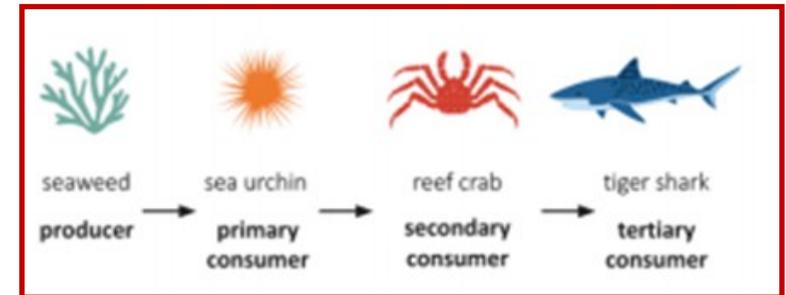
All living things need energy to survive. Food chains show where living things get their energy and how all species living in an environment depend on each other. For example, if the producer in a food chain is in short supply, it will affect all the consumers in that food chain.

**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.



## Oceans layers

The ocean has 5 different layers; sunlight zone, twilight zone, midnight zone, the abyss and the trenches. As the depth of the ocean increases, the temperature and light levels fall and the pressure rises making it a difficult place to live. Oceans are home to thousands of marine species that have adapted to live at the different depths.



# BENEATH THE WAVES KNOWLEDGE ORGANISER

YEAR 4—SUMMER TERM 2



## Ocean Exploration

### Diving

Ocean diving can be dated back to 4500BC 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 water and going deeper than ever before.

Cousteau used the aqua-lung to explore and film the underwater world more freely.

### 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 to withstand the extreme pressure and have robotic arms to collect marine creatures and samples from the bottom of the oceans.

### 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 became the basis of modern oceanography.

## 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.



## The Great Barrier Reef

The Great Barrier Reef is the world's largest and longest coral reef system stretching to 2,300 kilometres in length. This amazing natural reef is located off the north eastern coast of Australia. It is the world's biggest single structure made by living organisms and can be seen from outer space.



The reef supports a wide diversity of life and is home to over 600 types of coral. In 1981, it was selected as a World Heritage Site and is considered to be one of the seven natural wonders of the world. Sadly, the coral are at risk of being destroyed by climate change, pollution and consumers.

## Timeline of Jacques Cousteau

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