

YEAR A

THEME:
**Understanding
Our World**
TERM: Spring 2
EXPEDITION:
Oceans



EXPEDITION OVERVIEW:



This topic will draw inspiration from the oceans covering 70% of our world. We will be visiting the depths as we discover the creatures that live there and how these vary from ocean to ocean. As explorers, we will map a journey around the world as we travel each ocean using each stop to dive into new understanding and build links with our learning from the past. The pupils' expedition will culminate with a DT project that looks into the problems of plastic pollution and whether we can do more to protect our magnificent seas.

CULTURAL CAPITAL:

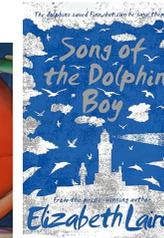
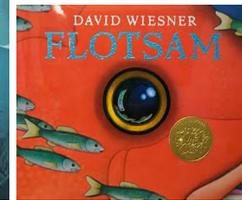
The experience will aim to obtain the views of local divers and marine biologists to help us understand how to protect our seas.

SUPPORTING TEXTS:

Flotsam by David Wiesner

Blue Planet 2 by [Leisa Stewart-Sharpe](#) and [Emily Dove](#)

Song of the Dolphin Boy by Elizabeth Laird



These are areas of understanding within our curriculum which are repeated during their Voyage through the school.

Key concepts:

boundaries (continents, localities, nations) cartography (atlases, directions, distance, Equator, latitude, longitude, maps, scale, symbols) change (adaptation, sustainability) climate (climate change, pollution, weather) interdependence (economy, trade) movement (migration, navigation, transport) physical geography (biomes, bodies of water) resources (energy, food supply, infrastructure) settlements (urban areas)

Skills:

Research, Describe, Observe

Recognise (Name, Identify, Locate)

Measure-Record-Present

Understand (Explain, Interpret, Compare and Contrast)

Conclude (Analyse, Opinion)

Make Judgements (Debate, Evaluate, Predict)

KNOWLEDGE AND ASSESSMENT:

Under the Sea

Difficulties
There is plenty of light at the surface, but below 200m it is almost completely dark. Water is heavy so going deep into the ocean is only possible using submarines. Temperatures also be very cold.

Near the Surface
The majority of animals and plants in the ocean live within 100m of the surface. The ocean has a vast array of marine life from fish, porpoises, plankton, seals, sharks and many more varieties of life.

Bottom of the Ocean
Due to the weight of the water and how dark it is, below 300m, there are some highly unusual fish and animals with shells. Minerals from underwater vents provide food for these creatures.

Threats to the Oceans

Climate Change
Oceans help to shape an area's climate. Ocean currents bring heat from the equator to various parts of the world and warm water from the tropics can evaporate and bring rain to dry land. Global warming is currently threatening to change these patterns.

Pollution
Plastic and rubbish is leaving land and ending up in the oceans. Sea-life is being found to have ingested vast quantities of plastic and it is becoming a serious environmental issue. Nuclear submarines have been left drifting in the Arctic Ocean and the Great Pacific garbage patch is a part of the ocean the size of Texas filled with rubbish which permanently remains there due to circulating currents.

Shipping
Ships carry many of goods that people buy across the oceans. The oil, coal and iron ore that are carried by giant tankers can cause problems such as oil spills or there can be a loss of cargo when things go wrong.

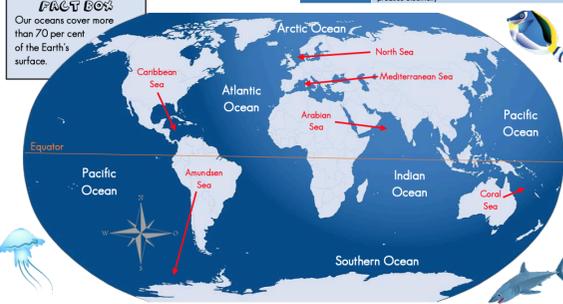
Over Fishing
Modern fishing techniques involve dragging long nets through the oceans to catch lots of fish. Much of the herring and cod around the Atlantic Ocean is being fished more than are breeding so stocks are low. Whaling around Antarctica means they are close to extinction.

OCEANS AND SEAS

Oceans
There are 5 main oceans on earth: Arctic, Atlantic, Pacific, Indian and Southern Oceans.

Seas
Around the oceans are areas of shallower water known as seas. Seas are still important habitats for fish and other animals. Humans have also utilised the resources in the sea by extracting oil, gas and minerals to use. The North Sea (between the UK and Scandinavia) has hundreds of oil and gas platforms and also a number of wind farms to help produce cleaner energy.

FACT BOES
Our oceans cover more than 70 per cent of the Earth's surface.



Key Vocabulary

minerals	salt, magnesium, gold, tin, titanium limestone and fresh water are extracted and used as natural resources
franch	depressions of the sea floor, narrow but very deep
ocean floor	also known as the seabed is the very bottom of the ocean
vent	a crack in the Earth's surface sending heat into the ocean
climate	long-term average weather of a particular area
equator	an imaginary line around the middle of a planet
global warming	long-term rise in the temperature of the Earth's climate
ocean currents	continuous, directed movement of sea water
tropics	region of the Earth surrounding the Equator
fish stocks	amount of fish left in a particular ocean
oil platform	large structure with facilities for well drilling to explore, extract, store, and process petroleum and natural gas
resort	accommodation for tourists which provides services
resources	naturally occurring resources can be renewable or non-renewable and are used in some way by humans
shore	the land along the edge of a sea, lake, or other large body of water
wind farm	group of wind turbines in the same location used to produce electricity

Headland Erosion

Cliffs
Cliffs are vertical for nearly vertical rock exposures caused by weather and sea erosion. It marks the end of the land where a sea or river begins. They can also be created in mountainous areas.

Arches
Arches are formed when weaker parts of the cliff are eroded over hundreds of years by water and forms a cave. Water finally breaks through the rock, leaving a large hole through which water can pass.

Stacks
Once an arch is formed, continuous erosion of the rocks by weather and the sea makes the arch so large that it collapses leaving tall stacks instead.

Stumps
Stumps are stacks which have been eroded further by the weather and the sea. Stacks eventually collapse to leave short stumps of rock, jutting out of the sea.

Sea Defences

Groynes
Groynes interrupt wave action and protect the beach from being washed away by longshore drift. Longshore drift is the wave action that slowly erodes the beach. They are wooded structures that last around 25 years.

Sea Walls
Sea walls aim to protect the coastline from flooding and erosion. They can be made from rocks, steel or other heavy materials but they can be very expensive to make and maintain. Gabions act in a similar way and are bundles of rocks inside a metal mesh.

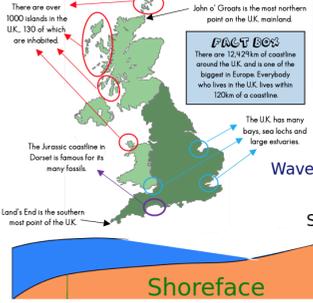
Other Features

Sheltered Bays
A wide inlet of sea where the land curves inwards. It connects a larger body of water such as an ocean or lake. A cove is a smaller type of bay with a narrow entrance.

Peninsulas
A peninsula is a piece of land almost entirely surrounded by water or sticking out into a body of water but is still connected to the mainland. It is therefore surrounded by water on three sides.

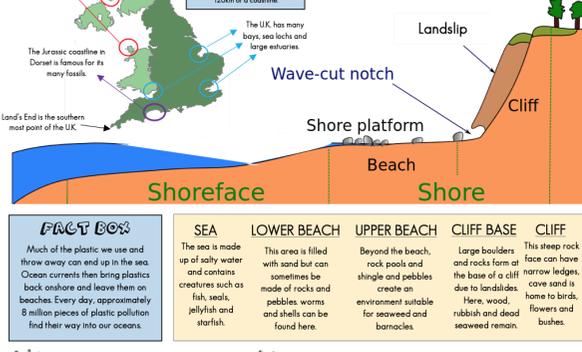
COASTS

The coastline is forever changing shape. Over hundreds of years, waves crash against headlands and cliffs, wearing away the land. These waves also build up sheltered bays and beaches. However, storms and rough seas can sometimes erode the land in just a few hours.



Key Vocabulary

abrasion	scraping or wearing away, often caused by stones
undercut	wave-cut notch / wears away the bottom of a cliff
mudflats	a stretch of muddy land left uncovered at low tide
shingle	a mass of small rounded pebbles on a seashore
headland	narrow piece of land sticking out into the sea
erosion	the wearing away of rock and land by frost, rivers, waves, wind and ice
cave	chamber on the side of a cliff worn by erosion
sand dune	a hill of loose sand built up by wind along a beach
beach	waves leave sand on land and it is smoothed by waves - can also be made of pebbles or rocks
landslip	collapse of a mass of earth or rock from a cliff
tidal	the rising and falling of the sea, usually twice in each day at a particular place, due to the attraction of the moon and sun



NEW VOCABULARY:

Retrieval vocab: body of water, cliff, lake, location, ocean, river, sea, transport **condensation, evaporation**, water cycle, precipitation, surface runoff, beach, climate, equator, tropics

New vocab: coastline, dock, erode, harbour, high tide, lighthouse, low tide, orbit, seawater, minerals, seabed, vent, global warming. ocean currents, fish stocks, resources, shore

LEARNING:

KS2 Geography

Locational knowledge

- Name and locate the UK's surrounding seas.
- Develop contextual knowledge of the location of globally significant marine places including their defining physical and human characteristics.

	Lessons											
	1	2	3	4	5	6	7	8	9	10	11	12
Name and locate the UK's surrounding seas.	✓											
Develop contextual knowledge of the location of globally significant marine places including their defining physical and human characteristics.					✓							

Locational knowledge

- Identify the position and significance of latitude including the Equator, the Tropics of Cancer and Capricorn, and the Arctic and Antarctic Circles.
- Understand geographical similarities and differences through studying the human geography of a small area of the UK.
- Understand geographical similarities and differences through the study of physical geography of a region of the United Kingdom, a region in a European country, and a region within North America.

1 2 3 4 5 6 7 8 9 10 11 12

✓

✓

✓

Human and physical geography

- Describe and understand key aspects of human geography, including: types of settlement and land use, economic activity including trade links, and the distribution of natural resources including energy, food, minerals and water.
- Use basic geographical vocabulary to refer to key physical and human features, e.g. beach, cliff, coast, sea, ocean, river, port, harbour.
- Describe and understand key aspects of the water cycle.
- Describe and understand key aspects of climate zones.

✓

✓

✓

✓

Geographical skills

- Students work geographically by using maps and atlases to locate and describe features studied.
- Students work geographically by handling and processing data.

✓

✓

✓

Geography Key Questions

What is an ocean? Definition of an ocean (An ocean is a huge body of salt water) Identifying the 5 oceans on a map Ordering the oceans in size

Where are the world's oceans? Features of a map Different types of maps Location of each ocean by identifying the surrounding continents Difference between an ocean and a sea Identifying the different types of seas (enclosed by land or between ocean and land)

How deep is the ocean? 5 layers of the ocean (sunlight, twilight, midnight, abyss, trench) What bioluminescence is Bioluminescent animals Identifying 3-4 facts about each layer

Why are our oceans important? Ocean covers 70% of our earth Importance of the ocean- habitat to animals; oxygen; food; medicine; weather pattern; transportation

What lives in the ocean? What a habitat is- pupils will learn about 4 habitats (coral reef, oyster reef, kelp forest, open ocean) What a mammal is, examples of marine mammals What a mollusc is, examples of molluscs What a crustacean is, example of crustaceans What fish are, what gills are, examples of fish

How are the oceans different around the world? Identify the differences in temperature at two places Observe the differences in the appearance of the sea (ice) Explore the different types of life in the sea in each ocean.

Why are the oceans under threat? Identify ocean is under threat from human activity Explore different habitats that are at risk - coral What is the impact of activity on ocean life

How are people protecting the oceans? Exploring the role of NGOs in protecting the oceans Case study of sea turtles and how people are protecting them in Indonesia

How can we protect our oceans? Plastic in the ocean How plastic got into the ocean How to reduce plastic waste and what actions pupils can take

Campaigning to protect the oceans What action could the government take to save the oceans Explore three different policies that would protect the oceans