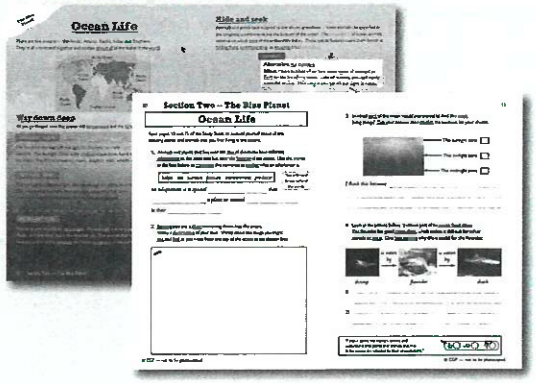
Ocean Life

Study Book (pages 10-11)



Activity Book (pages 10-11)

National Curriculum Aims

- Be able to describe the location of the world's oceans and identify their key physical characteristics.
- Describe and understand key aspects of climate zones and biomes.

Introduction

The oceans cover about 70% of the Earth's surface. This topic introduces pupils to the idea that the organisms living in different zones (depths) of the oceans have special adaptations that help them to survive there.

Charles Darwin published his theory of evolution in 1859. It states says that individuals with features that help them survive in their environment are likely to live longer and have more offspring. They pass on these features to their offspring. So over time, more individuals will end up with features that make them well-adapted to their environment. Adaptation and evolution are covered in the Year 6 content of the Key Stage 2 science syllabus.

Start this topic by asking pupils what challenges they think ocean creatures might face in their habitat. Examples of things to contend with include light levels, temperature, finding food and escaping predators.

Answers to Activity Book Questions

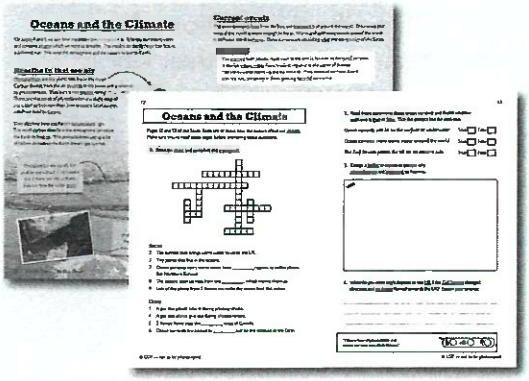
1. *An adaptation is a special* feature *that* helps *a plant or animal* survive *in their* environment.
2. Any appropriate answer. Pupils should draw on information from the Study Book. Answer should include that it would get darker and colder the deeper they went down. Pupils may also include descriptions of the different types of plants and animals they would see in the upper, middle and lower parts of the ocean.
3. Pupils should have ticked: The sunlight zone. E.g. *I think this because* the sunlight zone gets more warmth and light from the Sun than the other zones, so more species of animals and plants can live in it.
4. E.g. to make it easier for the flounder to sneak up on its prey without being seen / to make it easier for the flounder to hide from predators .

Extra Activities

- Ask pupils to imagine they are on a diving trip going down into the twilight zone of the ocean. On the trip, they discover a sea creature that has never been seen before. Get them to think about what the creature might be like (e.g. what size it is, what colour it is, what it might eat). Ask pupils to name their creature and to draw a picture of it, labelling any features it has that make it well adapted to its environment.
- Get pupils to pick a sea creature to research. Ask them to find out what adaptations their chosen creature has that help it survive in its environment. Examples of creatures that they could research include: dolphins, moon jellyfish, puffer fish, common squid, sea turtles, seahorses, blue whales and limpets.
- Divide the class into pairs and give them pictures of some sea life — for example, cards showing seaweed (or phytoplankton), krill, clam, squid, herring, shark and seal. Challenge pupils to choose some of the pictures and arrange them into a food chain. Ask them to give reasons why they have arrived at their answer. Pupils could then combine their food chains with those created by other pairs to make a food web.

Oceans and the Climate

Study Book (pages 12-13)



Activity Book (pages 12-13)

National Curriculum Aims

- Describe and understand key aspects of physical geography, including climate zones and biomes.

Introduction

The oceans have a huge effect on the world's climate. Oceans absorb heat energy from the sun. Ocean currents then redistribute this heat energy around the world, carrying warmer water towards the polar regions and colder water toward the equator. The oceans also take in a lot of carbon dioxide, partly by simply dissolving it and partly due to marine plants taking it in to use for photosynthesis. This keeps large amounts of carbon dioxide (a greenhouse gas) out of the atmosphere, so it helps to combat global warming.

Answers to Activity Book Questions

1. Across: 2 Gulf Stream, 3 phytoplankton, 7 tropical, 8 Sun, 9 green
   Down: 1 carbon dioxide, 4 oxygen, 5 east, 6 wind
2. True — True — False
3. Any appropriate answer. Pupils should draw on information from the Study Book. Points they could include are that phytoplankton take up carbon dioxide, release oxygen and help to maintain the Earth's temperature.
4. E.g. the UK might start to have very cold winters, because without the Gulf Stream there wouldn't be as much warm air blowing over the UK.

Extra Activities

- Search online for a video clip telling the story of the 28 000 rubber ducks that fell overboard from a ship going from Hong Kong to the USA in 1992. Show the video to the class, then give each pupil a printed copy of a world map with the site of the duck spill marked. Show them a list of places and dates that some of the ducks washed up — you could include southern Alaska in 1992, northern Japan in 1995, eastern Australia in 1996, south-east Canada in 2001, western Scotland in 2003 and north-west France in 2007. Get them to plot these on their maps. Ask the class what they think this information could tell us about our oceans — answers could discuss where ocean currents flow, how fast they travel and how long plastic waste lasts in the oceans.
- Many types of phytoplankton are single celled organisms with interesting shapes. Search online for images of phytoplankton (diatoms are a good type to search for). Show pupils some of the images you have found and point out how many different shapes there are. Ask pupils to create a picture of one of the phytoplankton, using any appropriate materials (felt-tip pens, paint, felt, glue, string etc.). The pictures can be used to make a class display.