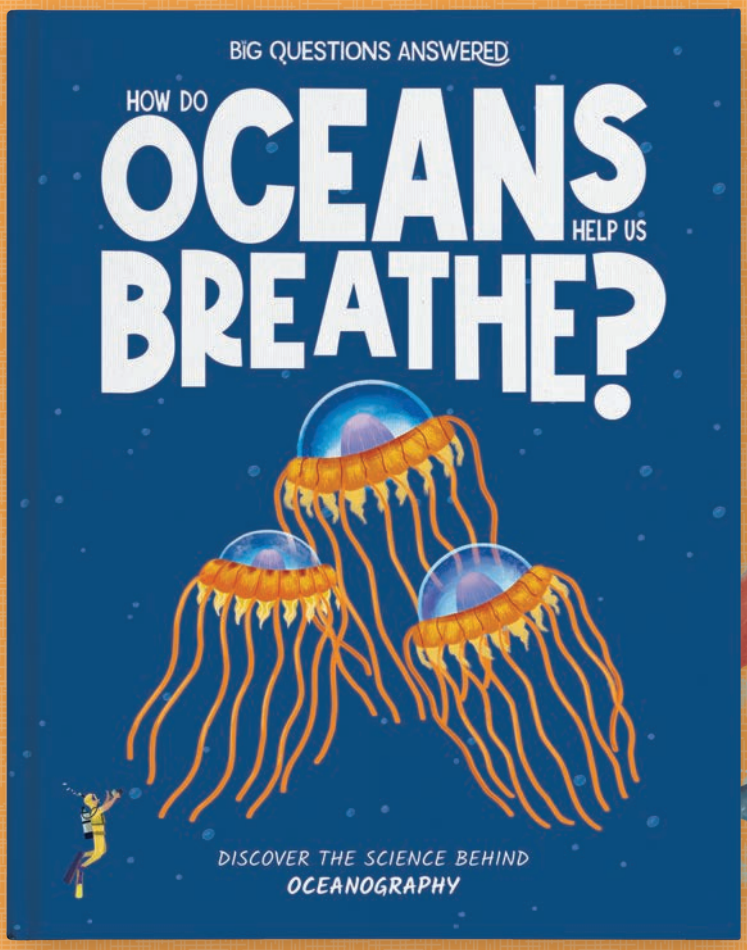
BIG QUESTIONS ANSWERED

TEACHERS' & PARENTS' RESOURCES

Full of thought-provoking questions and fascinating extra information to accompany this book!



CONTENTS:

INTRODUCTION

NOTES FOR TEACHERS, HOME EDUCATORS AND PARENTS

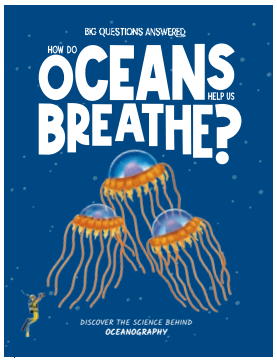
Inspire children's natural curiosity, improve literacy, and have fun learning about different sciences with The Big Questions Answered. Each book in the series is accompanied by a selection of fantastic, **FREE** downloadable resources.

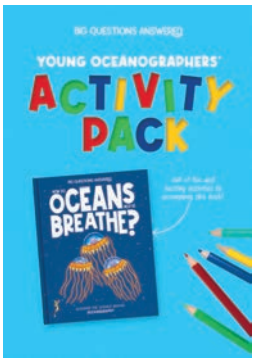
Our **Teachers' and Parents' Resources** booklets are full of ideas for discussions, extra facts, and links to hands-on activities – all great ways to help children explore each field of science and the key topics surrounding them.

Our **Young Scientists' Activity Packs** are a real bonus. They're full of soft-learning, fun activities, all subtly linked to the field of science, that will encourage independent learning. Visit the 'Kids' Zone' to find out more.

Don't forget, on the website you can also download our **'Meet the Scientist' pages** – there's one to accompany each book – and sign up to our newsletter to follow what's coming up next for The Big Questions Answered. Download all these and more at: **www.thebigquestionsanswered.com**

How Do Oceans Help Us Breathe? book





Young Oceanographers' Activity Pack

KEY CURRICULUM TOPICS

The resources related to *'How Do Oceans Help Us Breathe?'* tie in with key curriculum topics, including:

- Animals, including humans
- Creative writing and literacy
- Human and physical geography
- Living things and their habitats
- Working scientifically
- Plants

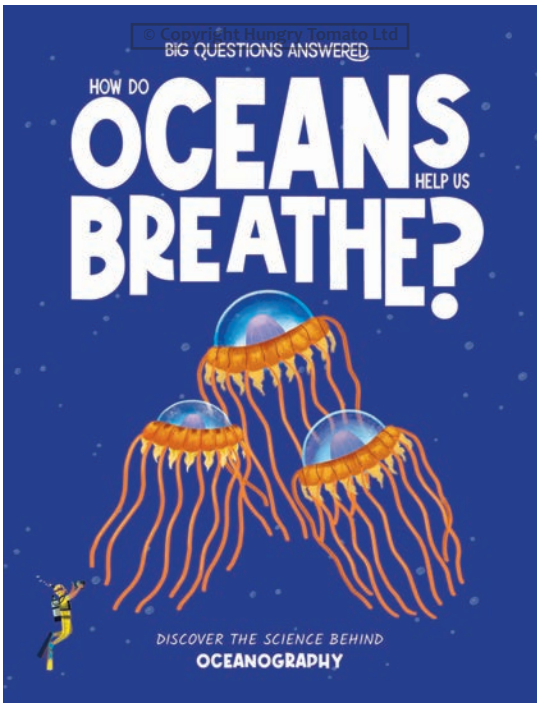
The most relevant topics are indicated throughout this guide.

HOW DO OCEANS HELP US BREATHE?

This book explores the extraordinary world of oceanography by uncovering how our oceans are crucial for keeping us alive. As well as covering key facts about each ocean layer, this book explores the amazing animals and plants that live there, and the incredible ways that our oceans help the overall health of our planet.

PRE-READING QUESTIONS

Engage in discussion about the general topic of oceanography with the suggested questions below.



- **What do you already know about our oceans?**
- **What words come to mind when you think about oceans?**
- **How do you think our oceans might help us breathe?**

OUR MASSIVE OCEANS: SCENE 1

The material for this scene can be linked to curriculum topics, including:
animals, including humans; living things and their habitats;
human and physical geography.

Introduce children to how big our oceans really are, what animals might live there, and how there are huge areas of our oceans that we still know very little about.

DISCUSSION PROMPTS

- **What do you know about the ocean? Can you name any animals that live in the ocean?**

- **What do you think it would be like to explore the undiscovered parts of the ocean?**
Encourage children to discuss what they might discover in the unexplored parts of the ocean, and how they might feel about exploring unknown waters, such as excited, shocked, scared, and so on.

- **How do you think oceans play an important role in our health and survival?**
Engage children in a discussion about how oceans might be able to help humans.

ACTIVITY

Corresponding activity on page 3 of the activity pack: 'Looking Out to Sea' is a creative drawing activity where children are encouraged to draw what animals they might spot if they looked out to sea.

OUR MASSIVE OCEANS: SCENE 1

RELEVANT INFORMATION

Keywords that you may want to pull out and explain have been put into bold.

ALL ABOUT OCEANS

Oceans are huge areas of salty water. They make up a large part of our planet!

Although oceans are technically all part of the same **saltwater**, oceanographers separate the world's oceans into five different sections. These include:

- The Pacific Ocean
- The Atlantic Ocean
- The Indian Ocean
- The Southern Ocean
- The Arctic Ocean

The Pacific Ocean is the largest, and the Arctic Ocean is the smallest.

OCEANS VS SEAS

Lots of people get confused about what the difference between an ocean and a **sea** is! Both words are often used to mean the same thing, which makes it more confusing too.

Here's an explanation of what the difference between the two are:

SEAS are much smaller than **OCEANS**, and are defined as an area of salty water near land.

A **SEA** is found in the space between land and an **OCEAN**.

If you are looking from land out at salty water, you are looking at a **SEA**.

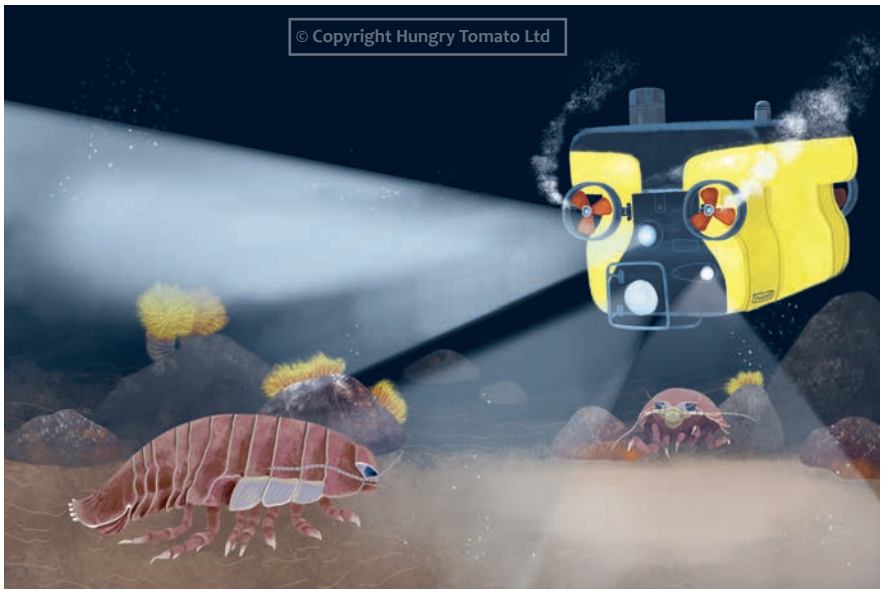
If you go much further away from land and are surrounded by salty water, that is an **OCEAN**.

For example, the **Red Sea** is a type of sea that is near Africa and Asia, but also next to the **Indian Ocean**.

THE BOTTOM OF THE OCEAN: SCENE 2

The material for this scene can be linked to curriculum topics, including:
animals, including humans; living things and their habitats;
human and physical geography; working scientifically.

Introduce children to the trenches, the lowest part of our oceans. Explore what it is like down there, and how, despite the darkness, life exists!



DISCUSSION PROMPTS

- **What are the ocean trenches?**
Information overleaf

- **Why might robotic underwater vehicles explore ocean trenches?**
Information overleaf

- **What type of undiscovered animals do you think might live in the trenches?**

Engage children in a discussion about the mysteries of the bottom of the ocean, and what animals might be able to live there.

ACTIVITY

Corresponding activity on page 4 of the activity pack: 'Diving Deep' is a creative drawing activity where children are encouraged to draw what undiscovered animals might be living at the bottom of the ocean.

THE BOTTOM OF THE OCEAN: SCENE 2

RELEVANT INFORMATION

Keywords that you may want to pull out and explain have been put into bold.

THE TRENCHES

Trenches are deep valleys underwater that are found at the bottom of the ocean.

Ocean trenches are often created when **tectonic plates** move against each other, in particular when one tectonic plate ends up underneath another plate.

These deep ocean trenches can be found between 7,300 metres to 11,000 metres (24,000 to 36,000 feet) below the surface.

The deepest trench in the world is called the **Mariana Trench**, and is located in the Pacific Ocean. The deepest part of this trench is called the **Challenger Deep**.

DEEP OCEAN EXPLORATION

Oceanographers really want to know what lies at the bottom of the ocean!

Because it's so tricky for humans to safely reach the trenches themselves, oceanographers often use **robotic underwater vehicles,** which are controlled remotely from a surface vessel, to help them understand more about the ocean floor.

Robotic underwater vehicles can do lots of things while they are deep in the trenches. For example, they can:

- Collect **specimens** and **data** about unknown areas of the ocean,
- Take photographs of any new discoveries,
- Track the depths and shapes of each trench.

Oceanographers still know very little about our oceans. More than 80% has not been discovered or even seen by humans!

THE ABYSS: SCENE 3

The material for this scene can be linked to curriculum topics, including:
animals, including humans; living things and their habitats;
human and physical geography.

Introduce children to the abyss, the ocean layer above the trenches. Discover the unusual creatures that live there that help other animals thrive, including humans!

DISCUSSION PROMPTS

- **What is the abyss?**
Information overleaf

- **Do you recognise any of the animals in this scene?**
Engage children in a discussion about the different animals they are able to spot in the scene, as well as any animals they are not sure of.

- **What are giant tube worms and why are they important?**
Information overleaf

ACTIVITY

Corresponding activity on page 5 of the activity pack: 'Exploring the Abyss' is a word search activity that encourages children to search for ocean-related words in the scramble of letters.

THE ABYSS: SCENE 3

RELEVANT INFORMATION

Keywords that you may want to pull out and explain have been put into bold.

THE ABYSS

The **abyss** can be found above ocean trenches.

The water in the abyss hardly moves, and no light can reach this layer of the ocean.

Despite the darkness, there are still all kinds of life that can be found there!

Some animals that live in the abyss include sea snails, sea spiders and giant tube worms.

The abyss can be found between 3,000 metres to 6,500 metres (9,842 to 21,325 feet) below the ocean's surface.

GIANT TUBE WORMS

Giant tube worms live in a very **extreme environment**, and have **adapted** in amazing ways to allow them to survive.

They live in large groups, and are often found near **hydrothermal vents**, which is where super-hot water flows up from deep inside the Earth and escapes into the ocean.

Unlike most animals, giant tube worms don't eat! **Bacteria** that lives inside their bodies create energy to keep them alive.

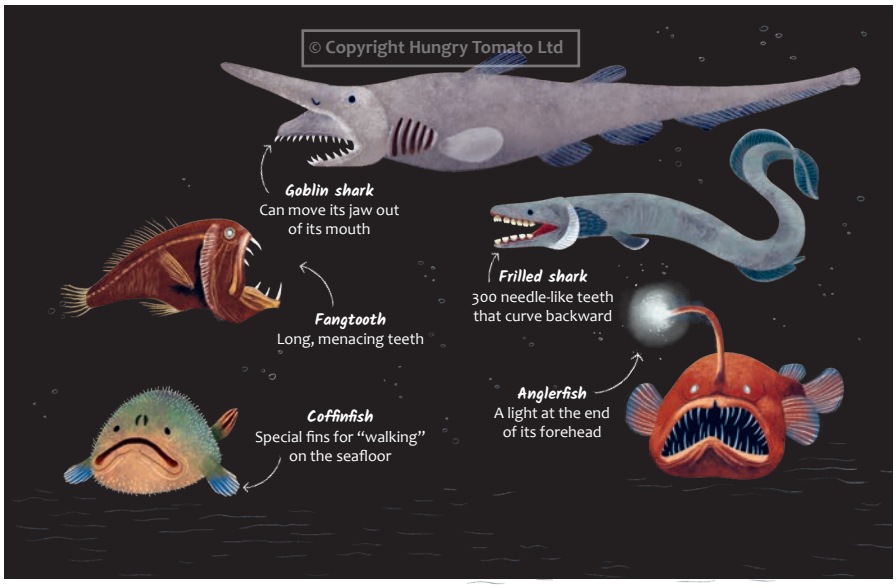
Giant tube worms have bright red **gills** that can **retract** into their skin if **predators**, such as crabs, are nearby.

They are the fastest-growing marine **invertebrate**. They can grow around 48cm (33 inches) in one year!

CREEPY DEEP SEA CREATURES: SCENE 4

The material for this scene can be linked to curriculum topics, including:
animals, including humans; living things and their habitats;
human and physical geography.

Introduce children to the creepy creatures found in the abyss. Explore the unique ways they have adapted to survive in this deep ocean layer.



DISCUSSION PROMPTS

- **Do you recognise any of these creepy creatures?**
Information overleaf

- **What is your favourite creature in this scene and why?**
Engage children in a fun discussion about their favourite creature and what features it has that make it their favourite.

- **Do you think there are more creepy creatures to be found in the abyss?**
Engage in a fun discussion about the different types of creatures that could be living there but remain undiscovered, and what they might look like.

ACTIVITY

Corresponding activity on page 6 of the activity pack: 'Creepy Creatures of the Deep' is a fill in the blanks activity where children are encouraged to complete the animal-related sentences by adding the correct key words from the list provided.

CREEPY DEEP SEA CREATURES: SCENE 4

RELEVANT INFORMATION

Keywords that you may want to pull out and explain have been put into bold.

GOBLIN SHARK

A goblin shark is a type of big fish that lives in the abyss. It lives in the oceans nearby the coasts of **continents**, such as Africa and Europe.

The goblin shark is able to move its jaws out of its mouth to catch **prey**, thanks to stretchy skin inside its mouth.

FANGTOOTH

A fangtooth is a deep-ocean fish that has the largest teeth-to-body ratio of any fish in the ocean. Their teeth start off small but grow longer as they become adults.

Not only do they have sharp, menacing teeth, fangtooth fish also have long spikes on their head and along their body.

ANGLERFISH

Anglerfish are truly unusual creatures! Their **dorsal fin** has adapted over time to be long and glow with a soft light from the tip.

Anglerfish find prey by attracting them to come close to the light at the end of their dorsal fin. Prey become curious and end up swimming straight into the mouth of the anglerfish!

FRILLED SHARK

Frilled sharks are most famous for the fluffy appearance of their many teeth, which have adapted to curve backward to stop prey from escaping.

Frilled sharks dive at their prey like a snake, pouncing quickly to surprise them.
This impressive shark can swallow prey half of its own body size – whole!

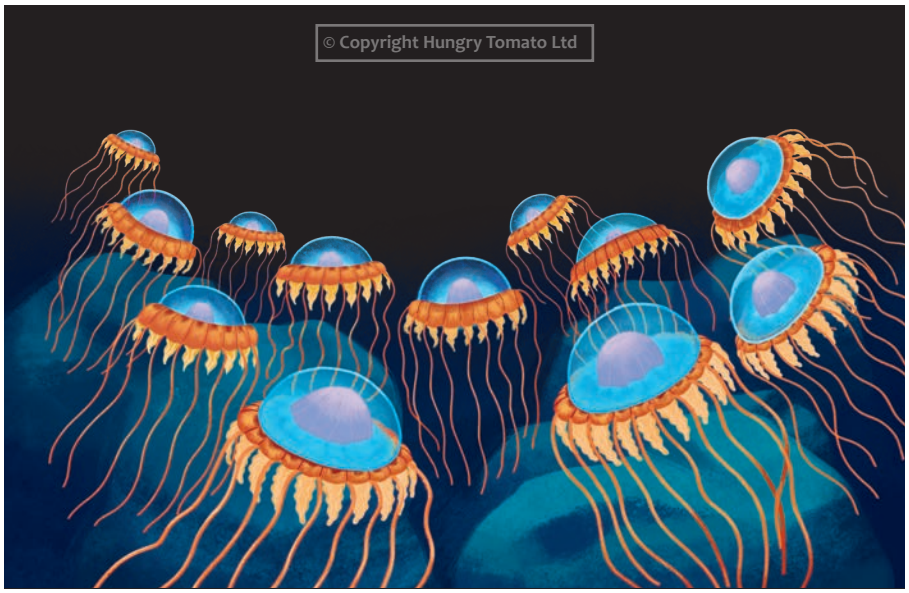
COFFINFISH

Coffinfish are not fast-moving creatures! Instead, they use their fins to walk along the bottom of the seafloor. This unusual behaviour was the first time scientists had discovered a fish moving in this way!

THE MIDNIGHT ZONE: SCENE 5

The material for this scene can be linked to curriculum topics, including:
animals, including humans; living things and their habitats;
human and physical geography.

Introduce children to the midnight zone. Discover what can be found at this layer of the ocean, and what makes this underwater environment so special.



DISCUSSION PROMPTS

- **What is the midnight zone?**
Information overleaf

- **What sort of animals do you think might live there?**
Encourage children to discuss the different type of animals that could survive at this level of the ocean.

- **How do you think the midnight zone helps support ocean life?**
Information overleaf

ACTIVITY

Corresponding activity on page 7 of the activity pack: 'Amazing Atolla Jellyfish' is a symmetry drawing activity where children are given an image split down the middle and have to draw the missing half.

THE MIDNIGHT ZONE: SCENE 5

RELEVANT INFORMATION

Keywords that you may want to pull out and explain have been put into bold.

THE MIDNIGHT ZONE

The midnight zone is a large, dark part of the ocean where no sunlight can reach.

This zone begins around 1,000 metres (3,300 feet) below the surface and goes down to around 4,000 metres (13,000 feet).

The water here is icy cold, and the **pressure** is so strong that only special sea creatures can live there.

Some animals found in the midnight zone have glowing bodies, such as the Atolla jellyfish, which help them find food or attract **mates**. Animals that can glow are known as **bioluminescent** life-forms.

SUPPORTING OCEAN LIFE

The midnight zone is the largest area of the ocean, and provides an important **habitable** base for many creatures that live there.

Even though the midnight zone is a tough place to live, it's an important part of the ocean's **ecosystem**.

The animals that live there play a role in the ocean's food chain, helping to keep the balance of life in the ocean.

Some creatures in the midnight zone even help **recycle nutrients** by breaking down dead plants and animals that sink from above.

This helps support life in other parts of the ocean too, making the midnight zone a very important part of the world ocean as a whole.

UNDERWATER VOLCANOES: SCENE 6

The material for this scene can be linked to curriculum topics, including:
living things and their habitats; human and physical geography.

Introduce children to seamounts and how oceanographers study them to learn more about our oceans as a whole. Discover how seamounts often come from underwater volcanoes, and how these volcanoes affected our planet over time.

DISCUSSION PROMPTS

- **What are seamounts?**
Information overleaf

- **What do you know about volcanoes already?**
Did you know that volcanoes could erupt underwater?
Encourage children to discuss what they already knew about volcanoes.

- **How do you think underwater volcanoes affect life on land?**
Information overleaf

ACTIVITY

Corresponding activity on page 8 of the activity pack: 'Words Lost Underwater' is a word scramble activity where children are encouraged to find the ocean-related words from the jumble of letters.

UNDERWATER VOLCANOES: SCENE 6

RELEVANT INFORMATION

Keywords that you may want to pull out and explain have been put into bold.

SEAMOUNTS

Seamounts are underwater **mountains** that rise up from the ocean floor, but don't quite reach the surface of the water.

These mountains can be really tall; sometimes they are even taller than the highest mountains on land!

Seamounts are usually formed by **volcanic activity**, where hot **magma** from inside the Earth pushes up through the ocean floor.

ORIGINS OF LIFE IN THE OCEAN

Even though they're underwater, seamounts are very important for ocean life:

- They create special **habitable** places where different kinds of sea creatures can live, stay safe from larger **predators**, and find food.
- The **currents** around seamounts bring up **nutrients** from the deep ocean, making these areas full of life.
- Fish, corals, and other marine animals gather around seamounts, creating thriving underwater communities.

Seamounts are not only important for ocean life today, but some scientists also believe they might hold clues to how life on Earth began.

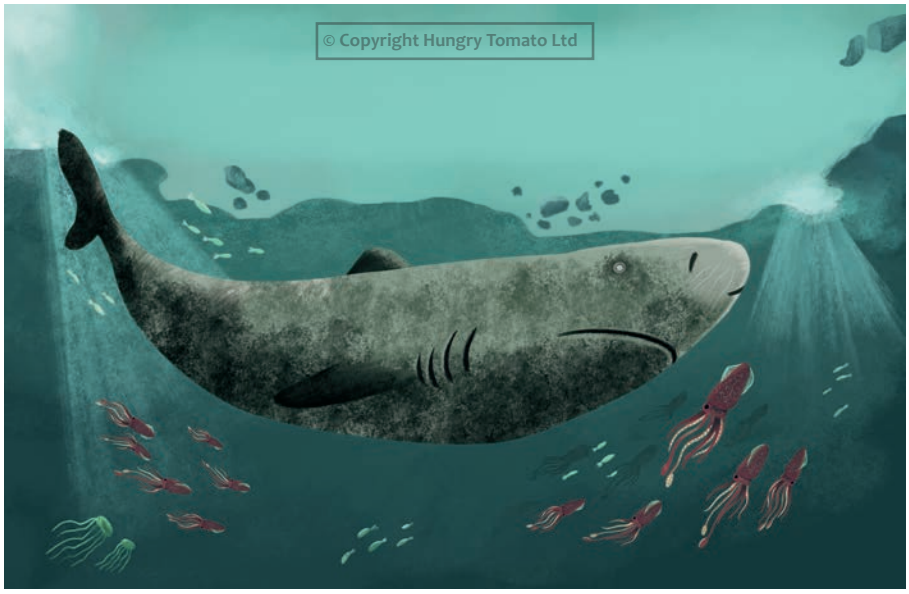
Near where seamounts are found, there are **hydrothermal vents**, where hot water full of **minerals** flows out from the Earth.

Some scientists think that these vents, found on or near seamounts, could have been where the very first tiny living things on Earth came from!

THE GREENLAND SHARK: SCENE 7

The material for this scene can be linked to curriculum topics, including:
animals, including humans; living things and their habitats;
human and physical geography.

Introduce children to a mysterious creature, the Greenland shark. Discover amazing facts about this unique animal that lives and thrives in the midnight zone.



DISCUSSION PROMPTS

- **What are Greenland sharks and why are they so special?**
Information overleaf

- **Why do you think it might be tricky to spot Greenland sharks?**
Encourage children to discuss why scientists may have struggled to find Greenland sharks, such as because of where they lives, their unusual habits, the different depths at which they hunt, and so on.

- **How do Greenland sharks look compared to other sharks? What similarities and differences do they have?**
Information overleaf

ACTIVITY

Corresponding activity on page 9 of the activity pack: 'Greenland Shark Explorer' is a spot the difference activity where children must spot the 8 differences between the two scenes of the Greenland shark.

THE GREENLAND SHARK: SCENE 7

RELEVANT INFORMATION

Keywords that you may want to pull out and explain have been put into bold.

ALL ABOUT THE GREENLAND SHARK

Greenland sharks are large, mysterious animals that live in the cold, deep waters of the North Atlantic Ocean, especially around Iceland and Greenland.

They are one of the biggest shark **species**, growing up to 7 metres (24 feet) long, but are known for moving very slowly through the water.

Greenland sharks are special because they are some of the longest-living animals on Earth.

Scientists believe they can live for hundreds of years, with some suggesting they might live for more than 400 years! This means there could be some Greenland sharks alive today that were alive during the Great Fire of London in 1666.

Greenland sharks are also impressive because of their ability to survive in extreme conditions.

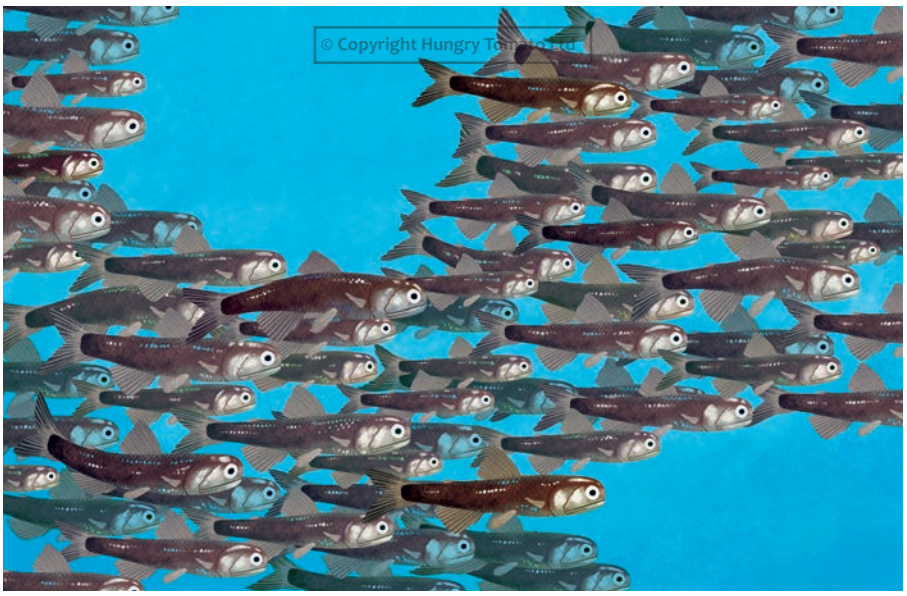
They can live in waters that are just above freezing, and they swim at great depths where there is very little light. Despite their slow movement, they are powerful hunters, feeding on fish, squid, and seals.

Greenland sharks have even been found to eat polar bears! This shows just how far they travel between ocean layers to reach their prey, even to the surface!

THE TWILIGHT ZONE: SCENE 8

The material for this scene can be linked to curriculum topics, including:
animals, including humans; living things and their habitats;
human and physical geography.

Introduce children to the twilight zone. Explore the animals that live there, such as lantern fish, and how they play an important role in helping us to breathe.



DISCUSSION PROMPTS

- **What is the twilight zone?**
  Information overleaf

- **How do you think lantern fish help us to breathe?**
  Information overleaf

- **How else do you think the twilight zone helps out nature?**
  Information overleaf

ACTIVITY

Corresponding activity on page 10 of the activity pack: 'Look Out for Lantern Fish' is an odd one out activity where children must spot the lantern fish that's swimming in the wrong direction.

THE TWILIGHT ZONE: SCENE 8

RELEVANT INFORMATION

Keywords that you may want to pull out and explain have been put into bold.

THE TWILIGHT ZONE

The twilight zone of the ocean is a mysterious and dimly lit area that lies between 200 to 1,000 metres (650 and 3,300 feet) below the surface.

In this zone, there's just enough light for it to feel like there is a constant sunset-style glow, but not enough for plants to grow there.

Because it's darker and colder than the waters above, the twilight zone is home to **unique** creatures that have **adapted** to survive in low light, such as lantern fish and giant squid.

The twilight zone is special because it's a crucial part of the ocean's **ecosystem**. Many fish and other sea creatures move up to the surface to feed at night and then return to the twilight zone during the day to hide from **predators**.

This daily movement is the largest **migration** of animals on Earth!

THE CARBON CYCLE

Carbon is an invisible gas that is essential for life on Earth. The twilight zone plays an important role in the **carbon cycle**, helping to store carbon deep in the ocean and keeping it out of the **atmosphere**.

As large quantities of fish, such as lantern fish, swim from the midnight zone up to the surface, they play a crucial role in the carbon cycle of the oceans.

The carbon cycle involves pulling carbon from the ocean's surface and taking it deep down into the water. This ensures there are only healthy levels of carbon in the atmosphere, which helps keep the air we breathe clean. This also helps towards the issue of rapid **climate change.**

THE DISCOVERY OF THE GIANT SQUID: SCENE 9

The material for this scene can be linked to curriculum topics, including:
animals, including humans; living things and their habitats;
human and physical geography.

Introduce children to one of the biggest discoveries in the twilight zone – the giant squid! Explore what makes this massive animal so unique.

DISCUSSION PROMPTS

- **What is a giant squid? And just how big is it?**
Information overleaf

- **What type of animals eat giant squids?**
Information overleaf

- **Who do you think would win in a battle between a giant squid and a sperm whale?**
Engage children in a fun discussion about who would be the winner in a fight between a giant squid and a sperm whale, and why.

ACTIVITY

Corresponding activity on page 11 of the activity pack: 'Giant Squid Jumble' is a line maze activity where children must help the underwater vehicle reach the depths where the giant squid lurks.

THE DISCOVERY OF THE GIANT SQUID: SCENE 9

RELEVANT INFORMATION

Keywords that you may want to pull out and explain have been put into bold.

ALL ABOUT THE GIANT SQUID

A giant squid is a massive and mysterious sea creature that lives deep in the ocean.

These squid can grow over 12 metres (40 feet) long, making them one of the largest **invertebrates** on Earth.

They have long **tentacles** with powerful **suckers** that they use to catch **prey**, as well as large eyes, some of the biggest in the animal world, which help them see in the dark depths where they live.

Giant squid are rarely seen by humans because they live so deep in the ocean, but scientists have learned about them from the ones that wash up on shore and from videos taken by **robotic underwater vehicles** in the twilight zone.

SPERM WHALES AND GIANT SQUID

Even though they are so big, giant squid still have **predators**!

The main animal that eats giant squid is the sperm whale.

Sperm whales are enormous whales that dive deep into the ocean to hunt for food, including giant squid.

The battles between sperm whales and giant squid are legendary, with evidence of these encounters found in the form of discarded **squid beaks** and scars on the whales.

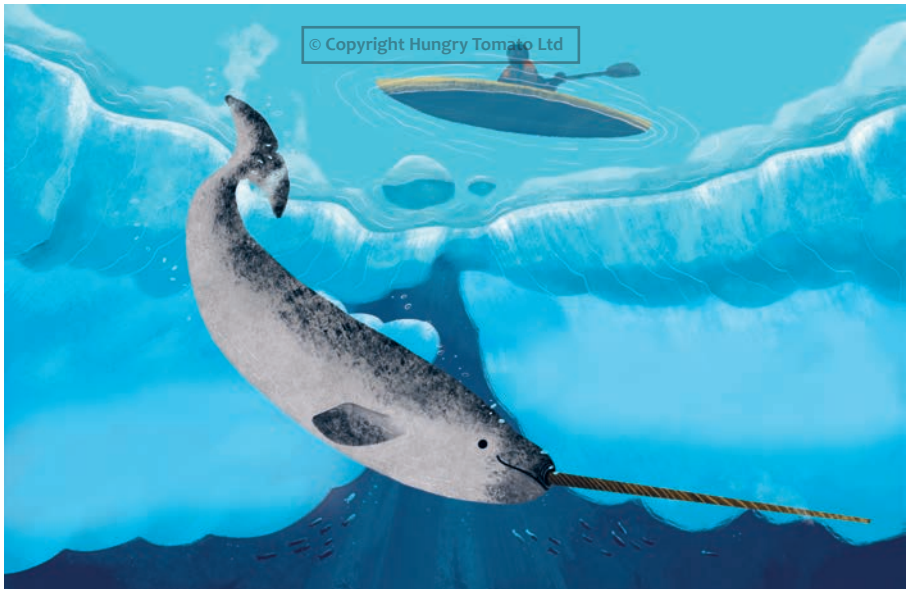
Other large deep-sea creatures, like some **species** of sharks, might also prey on giant squid, but sperm whales are their most well-known predator.

Although giant squid can put up a good fight against a sperm whale, the whale is most likely to win!

THE SUNLIGHT ZONE: SCENE 10

The material for this scene can be linked to curriculum topics, including:
animals, including humans; living things and their habitats;
human and physical geography; creative writing and literacy.

Introduce children to the sunlight zone, the top layer of the ocean. Discover more about this part of the ocean, and focus on the incredible animals that live there.



DISCUSSION PROMPTS

- **What is the sunlight zone?**
  Information overleaf

- **What is so special about narwhals?**
  Information overleaf

- **What other animals do you think live near the surface of the ocean?**
  Engage children in a fun discussion about what animals they might find in the sunlight zone now they know more about this ocean layer, such as whales, dolphins, turtles, and so on.

ACTIVITY

Corresponding activity on page 12 of the activity pack: 'A Day in the Arctic' is a creative writing activity where children are encouraged to imagine they are on a polar exploration in the Arctic and write a diary entry about their day there.

THE SUNLIGHT ZONE: SCENE 10

RELEVANT INFORMATION

Keywords that you may want to pull out and explain have been put into bold.

THE SUNLIGHT ZONE

The sunlight zone is the top layer of the ocean, where sunlight reaches.

The sunlight zone begins at the surface of the water, and goes down to around 200 metres (650 feet) below the surface.

This zone is bright and warm, making it the most active part of the ocean.

It's where most marine life we know of is found, including fish, coral reefs, and plants like **algae** that need the sunlight to grow.

Thanks to the sunlight, this zone is full of life, and is where many animals come to feed and thrive, including animals from lower ocean layers!

NARWHALS

Narwhals, nicknamed the 'unicorns of the sea', are special types of whale that live in the sunlight zone of the Arctic.

What makes narwhals so **unique** is their long, spiral tusk. Although it's not really a tusk at all – it's a tooth! This extended tooth can grow up to 3 metres (10 feet) long.

This tusk is usually found on males and is thought to be used to impress females for **mating** or to sense the **environment** around them.

Narwhals are also special because they are well **adapted** to life in icy waters, diving deep to hunt for their **prey**, such as fish and squid, before returning to the sunlight zone to breathe and be with their **pod**.

THE GREAT BARRIER REEF: SCENE 11

The material for this scene can be linked to curriculum topics, including:
animals, including humans; living things and their habitats;
human and physical geography; plants.

Introduce children to the biggest coral reef in the world, the Great Barrier Reef. Explore how this incredible ecosystem helps our oceans, and helps us on land too!

DISCUSSION PROMPTS

- **What is a coral reef?**
Information overleaf

- **What is so special about the Great Barrier Reef?**
Information overleaf

- **Do you recognise any of the animals or plants in this scene? If so, can you name them?**
Encourage children to pick out any plants and/or animals that they are familiar with in this spread, and name them, such as fish, coral, turtle, starfish, and so on.

ACTIVITY

Corresponding activity on page 13 of the activity pack: 'Reaching the Reef' is a maze activity where children must help the lost turtle get back home to the Great Barrier Reef.

THE GREAT BARRIER REEF: SCENE 11

RELEVANT INFORMATION

Keywords that you may want to pull out and explain have been put into bold.

CORAL REEFS

A coral reef is an underwater **habitat** made up of tiny coral animals called **polyps** that live in warm, shallow ocean waters.

These polyps create hard shapes that build up over time to form large, vibrant structures. When we think of coral reefs, this is what we imagine!

Coral reefs provide homes and food for many types of marine life, such as fish, sea turtles, and starfish.

They are very diverse and important **ecosystems**, for our oceans and for our planet, because they support a wide variety of **species** and help protect coastlines from **eroding**.

THE GREAT BARRIER REEF

The Great Barrier Reef is the largest and most famous coral reef system in the world.

It stretches over 2,300 kilometres (1,400 miles) along the coast of Australia and is made up of more than 2,900 individual reefs and 900 islands.

It is home to thousands of species of marine life and is a popular place for scientists and tourists who want to explore the vibrant underwater world.

The reef is not only a natural wonder but also a vital part of the ocean's ecosystem, making it essential to protect and maintain.

THE IMPORTANCE OF SEAWEED: SCENE 12

The material for this scene can be linked to curriculum topics, including:
animals, including humans; living things and their habitats;
human and physical geography; plants.

Introduce children to the importance of seaweed. Delve into what makes this type of algae so special and how different types of seaweed are helping us to breathe.

DISCUSSION PROMPTS

- **What is seaweed?**
Information overleaf

- **When you think of seaweed, what words come to mind?**
Encourage children to come up with words they might associate with seaweed, such as ocean, green, slimy, and so on.

- **How does seaweed help our environment?**
Information overleaf

ACTIVITY

Corresponding activity on page 14 of the activity pack: 'Create Your Own Seaweed Home' is a creative drawing activity where children are encouraged to create their own seaweed home and include all their favourite underwater animals.

THE IMPORTANCE OF SEAWEED: SCENE 12

RELEVANT INFORMATION

Keywords that you may want to pull out and explain have been put into bold.

WHAT ACTUALLY IS SEAWEED?

You might know what seaweed looks like, but do you know what it actually is?

Seaweed is a type of plant-like marine **algae** that grows in the ocean.

Unlike plants on land, seaweed doesn't have roots, stems, or leaves. Instead, it has structures called holdfasts that anchor it to rocks or the ocean floor, and long, leafy parts that float in the water.

Seaweed comes in many colours and sizes, from small, green strands to large, brown kelp forests.

THE IMPORTANCE OF SEAWEED

Seaweed can help **environments** in lots of different and important ways.
Some of these include:

- Seaweed produces **oxygen** through **photosynthesis**, which is vital for marine life and helps to bring oxygen into the atmosphere. Oxygen is essential for humans and animals, as it forms the air we breathe.

- Seaweed acts as a **habitat** for many sea creatures, providing food and shelter for fish, crabs, and lots of other animals.

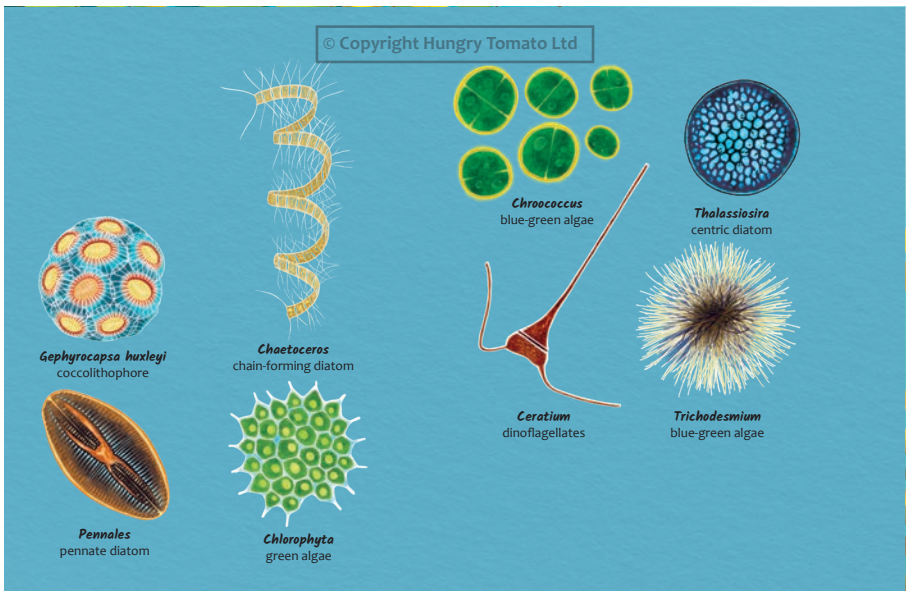
- Seaweed helps protect coastlines by reducing the impact of waves, which can slow down **erosion** and keep beaches from washing away.

- Seaweed takes in extra **nutrients** from the water, which helps keep the ocean clean and balanced with everything it needs to thrive.

ALL TYPES OF PHYTOPLANKTON: SCENE 13

The material for this scene can be linked to curriculum topics, including:
animals, including humans; living things and their habitats;
human and physical geography; plants.

Introduce children to the fascinating world of phytoplankton. Discover the amazing things that phytoplankton do for our oceans, and how these tiny organisms have such a big impact on our planet!



DISCUSSION PROMPTS

- **What is phytoplankton?**
  Information overleaf

- **Pyhtoplankton all look very different and come in lots of funky shapes. Do you have a favourite type of phytoplankton?**
  Encourage children to discuss their favourite type of phytoplankton.

- **What is so special about phytoplankton?**
  Information overleaf

ACTIVITY

Corresponding activity on page 15 of the activity pack: 'All About Our Oceans' is a fun and engaging activity where children must decide if the statements are true or false.

ALL TYPES OF PHYTOPLANKTON: SCENE 13

RELEVANT INFORMATION

Keywords that you may want to pull out and explain have been put into bold.

ALL ABOUT PHYTOPLANKTON

Phytoplankton are **microscopic**, plant-like **organisms** that float near the surface of the ocean, where they can capture sunlight.

They are so small that they can't be seen by the naked eye, so scientists must use **microscopes** to study them.

As you can tell from the scene, they come in all sorts of shapes and sizes.

Phytoplankton are a key part of the ocean's ecosystem.

Despite their size, phytoplankton are incredibly important because of their place as the foundation of the marine **food web.**

Phytoplankton perform **photosynthesis**, converting lots of **carbon dioxide** and water into **oxygen** and **nutrients**.

This process not only produces a significant amount of the Earth's oxygen, as we've learnt from this book, but it also provides food for a wide variety of marine creatures – from teeny tiny zooplankton to very large whales!

By creating oxygen and supporting marine life, phytoplankton play a vital role in maintaining the health of the ocean and the planet.

They also help regulate the **climate** by absorbing carbon dioxide, which in turn helps to reduce the damaging impact of **global warming**.

POST-READING QUESTIONS

Engage in discussion about the journey taken throughout the book and the facts that were uncovered.

- **Were you surprised to learn that oceans help us breathe?**
- **Did anything else in the book surprise you?**
- **What's the coolest thing you've learnt from this book?**

ACTIVITY

Corresponding activity on page 16 of the activity pack: 'Write Your Own Oceanography Story' is a creative writing activity which encourages children to write a story about oceanography, using three key prompt words.

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