LEARN TO LOVE NATURE

HIGH SEAS EDUCATOR GUIDE

INSTRUCTIONS

1. Direct students to watch the Our Planet High Seas episode on YouTube.

   OR discuss the Earth's pole habitats on a class call, and show the High Seas biome tour on ourplanet.com to fuel a class discussion on the characteristics and importance of ice ecosystems to people, the wildlife and the planet. Tips for using videos to prompt constructive discussions can be found in the *Our Planet Their Future Educator's Guide (PDF).*

2. Direct students to watch 'How to Save Our High Seas', on ourplanet.com, narrated by Sir David Attenborough.

3. Direct students to spend some time visiting the High Seas biome on our explorable globe. Students should then use the information in the video above and collected from the interactive globe to complete the questions and tasks below. Suggested answers are included in this version.

Use the explorable globe to help you find the answers to the following questions.

1. Why do plankton blooms form and why are they important?

- Plankton blooms are a result of currents forcing nutrients from the ocean depths to the shallows.
- They bring life to the High Seas, providing food for whales and other ocean mammals.

2. Read 'A Circular System' and watch the 'Circle of Life' clip on the explorable globe. Draw a diagram below and label it to demonstrate how the circular system of plankton and whales help to recycle precious nutrients.

Any diagram that clearly shows the following points:

- Plankton is food for both krill and fish. Therefore, they are also food for whales.
- Whales feed at depth but defecate at the surface.
- This means whales recycle nutrients to the sunlit surface where plankton can bloom.
- Plankton absorb carbon dioxide from the atmosphere and pump oxygen back into the air.

3. List some of the reasons why populations of these ocean species are plummeting:

Sharks	**Bluefin Tuna**
• Large-scale fishing . 90% reduction in shark populations since large-scale fishing began, accidentally caught through the use of nets and longline fishing gear. • Hunted for their meat. Shark-fin soup is popular in many Asian countries.	• "Millionaires fish" hunted for their highly prized meat, often used in high-end sushi restaurants. One tuna can fetch >$3000000. • It takes ~15 years for the tuna to reach sexual maturity, therefore many are caught before being able to reproduce. The population can consequently not sustain itself.

4. Click 'See more' and watch 'Return of the Whales' on chapter 5 of the high seas explorable globe. Then, fill in the blanks in the paragraph below:

Centuries of whaling meant whales were on the brink of extinction **40** years ago. International cooperation has led to a resurgence in populations.
Southern Blue Whale numbers are increasing by **8** percent a year, Grey Whales have recovered to **pre-whaling numbers** and humpbacks are expected to be back to full strength by **2050**. This is good for climate change as whale **poo** helps fertilise the ocean's surface layer, providing food and increasing the abundance of **Phytoplankton**.

5. How could someone purchase fish for consumption in a way that helps to protect our high seas?

Opt for fish from sustainable stocks and look for a seafood guide or a trusted certification label.

Use the How to Save Our High Seas video to help you find the answers to the following questions.

6. a) What ocean plant can help in the fight against climate change
b) to what extent can they help?

a) Phytoplankton
b) They create as much oxygen as all the forests and grasslands combined whilst also removing vast quantities of carbon dioxide.

7. Whales perform two crucial functions that help create plankton blooms, what are these?

- Mixing nutrient dense, plankton filled, deep waters with sunlit surface waters
- Defecating in surface waters which provides nutrients for the plankton to grow

8. What two things do we need to control better if we are to protect the high seas?

- What we put in and what we take out.

9. Fishing on the high seas is expensive and only amounts to 1/10 of the catch obtained in coastal waters, with this in mind, how may we decrease the incentive to fish here?

- By removing subsidies that enable profits to be made by fishing on the high seas.
- Through the creation of sanctuaries, currently only 1% of the high seas are protected.

10. By 2050 there could be a greater weight of plastics in the ocean than fish. **a) Explain how plastics may end up in the stomach of a whale** **b) What major way can we prevent waste from reaching the oceans?**
a) Bio-accumulation. Fragmented plastic is ingested by plankton, working up the food chain until it is ingested by predators. b) We will eliminate waste. By purchasing products that do not need to be binned. Creating products that are designed to last, repaired easily, recycled or upgraded.
11. The United Nations are negotiating a treaty to protect all life in the high seas. What evidence is there of similar treaties working in the past? *Use information from across the explorable high seas globe to help you.*
• Treaty to halt commercial whaling (1986 whaling ban) • 30 years after it was signed more humpback whales seen off the coast of South African than in a century. • 12,000 humpbacks in 1990, over 100,000 today. • Southern blue whales increasing by 8% a year • Grey whales have recovered to pre-whaling numbers.

LINKS TO SUSTAINABLE DEVELOPMENT GOALS

Goal 14: Conserve and sustainably use the oceans, seas and marine resources

https://www.un.org/ sustainabledevelopment/oceans/

Ensuring a healthy and productive future for our oceans also contributes to other SDG goals, including the following:

GOAL 1: No Poverty

GOAL 2: Zero Hunger

GOAL 3: Good Health and Well-being

GOAL 8: Decent Work and Economic Growth

GOAL 12: Responsible Consumption and Production

GOAL 13: Climate Action

DISCUSSION PROMPTS

Can you describe the ocean that you have just seen? What does it look like? What surprised you most?

Allow children to convey their sense of wonder at these underwater places that they will probably never have seen. To create a relaxed group setting, give children time to talk together in pairs, before sharing their thoughts with the whole group.

Which is your favourite sea creature and why? What does the sea give us?

The sea gives us food, but it also provides us with water activities and beaches to play on. Millions of people depend on the sea to earn their living. Even if we don't live near the sea, it plays a big part in our lives.

Why do we need our oceans?

They provide us with food, they supply us with clean air to breathe, they soak up dangerous carbon dioxide in the earth's atmosphere and they help to regulate our climate.

What do you think is harming high seas and the wildlife that live there? Over-fishing, mining, shipping, pollution How can we look after the seas?

It is important to help children understand that we can all do something about the challenges that our planet faces. Reducing our carbon footprint and saving energy, is a small step that can make a big difference. We can also make sure we eat fish with an MSC label, keep beaches clean, use less plastic, and support organisations that are working to protect the seas.

Imagine it is 2030 (10 years time). What do you hope oceans would be like? What would you want to be different about how we treat them?

Lots of fish, big variety of different marine creatures, clean, areas with no fishing (MPAs), lots of fish being caught to eat – but enough left behind to keep the population healthy.

Why are Marine Protected Areas (MPAs) important?

MPAs provide safe areas where animals and plants are protected so that the oceans can be replenished.

What do you think could be done to make things better?

International treaties on use of the high seas, including protected areas (MPAs).

EXTENSION ACTIVITY IDEAS

KS2-3

Activity Idea	Subjects
Work collaboratively to create a sea mural.	**Art** **Geography**
Design a poster or storyboard a TV campaign aimed at persuading people to buy responsibly sourced seafood.	**Art** **Literacy** **Citizenship**
In groups, make a board game based on the environmental issues faced by the coastal seas.	**Art & Design** **Literacy** **Geography**
We are still discovering new species in the deep sea. Research real recent discoveries. Imagine and draw a creature that you might discover. What are its characteristics and why has it evolved in that way? Remember to give it a name!	**Art** **Science**
Imagine you are World Leaders, and work together to come up with an agreement about how you will work together to look after the oceans. Remember – you still want to be able to benefit from the sea, but you need to ensure that those benefits are still available in the years to come. When you have come up with your treaty, hold a press conference to answer questions from other groups.	**Citizenship** **Geography** **Drama**

KS3-4

Activity Idea	Subjects
High Seas Species Research Project Research the animals that live in our open oceans. For each species you research, create a fact file. Aim to research at least 4 species. You should try to include the following in each fact-file: • **Name of species** • **Image of species –** This can be drawn, printed or copied and pasted. • **Endangered status –** Use the IUCN website to help you • **Habitat –** Include a map and highlight the regions where this species can be found. • **Adaptations to habitat –** Label your image of the species to show how it is adapted to live in the oceans it does • **Diet –** Draw a food chain showing how the species fits into a high seas ecosystem • **Migration –** Does this species migrate? Where, when and why? • **Threats to populations** – Include both natural and human inflicted threats	**Biology** **Geography**

Stuck? Take a look at our WWF species fact sheets here to give you an idea of what yours could look like!	
Open Oceans – Descriptive writing Imagine you have been hired by WWF to produce some creative content for a campaign on saving our high seas. Your task is to use descriptive writing to bring the beauty and the fragility of our oceans to life. Use sensory descriptors (sight, smell, sound, touch, taste) to produce **two** pieces of descriptive writing. a) One passage should describe a healthy ocean, one that is thriving, biodiverse and plentiful. b) Your second passage should describe the stark reality of how our oceans might look if we do nothing to protect them from plastic pollution and over-fishing. **Hint:** Stuck for ideas? Why not find two contrasting images of a healthy ocean vs plastic pollution to get you started.	**English**
Design Brief Enough plastic to fill a garbage truck enters Earth's oceans every minute, damaging precious marine life. The volume of ocean plastic is expected to triple within a decade. By 2050, the plastic in the ocean could outweigh the fish. **Task 1: Design alternative packaging solutions for commonly used single-use plastics. What sustainable materials or solutions could be used for coffee cups/straws/plastic bottles/clingfilm/plastic sachets/ crisp packets?** You can draw your design on paper with a pencil and rule, or electronically if you wish. Remember to label it clearly and in detail. **Task 2: How can we remove the need for plastics in our day to day lives? What initiatives could companies and stores introduce that would reduce the need for plastics? For example, stores aimed to reduce the amount of plastic bags being used by customers by introducing a charge. Can you design a similar initiative that could impact our plastic waste?** **Hint:** Stuck on where to begin? Carry out some research, what initiatives are already out there? How could companies and consumers work together to reduce plastic useage.	**Design Technology** **Chemistry**
World Leaders Task Imagine you are World Leaders and work together with friends or family members to come up with an agreement about how you will work together to look after the oceans. Remember – you still want to be able to benefit from the sea, but you need to ensure that those benefits are still available in the years to come. **When you have come up with your treaty, hold a press conference to answer questions from other groups.**	**Drama** **English Language**