



NATIONAL MARINE AQUARIUM

Activity Pack Cubs and Brownies



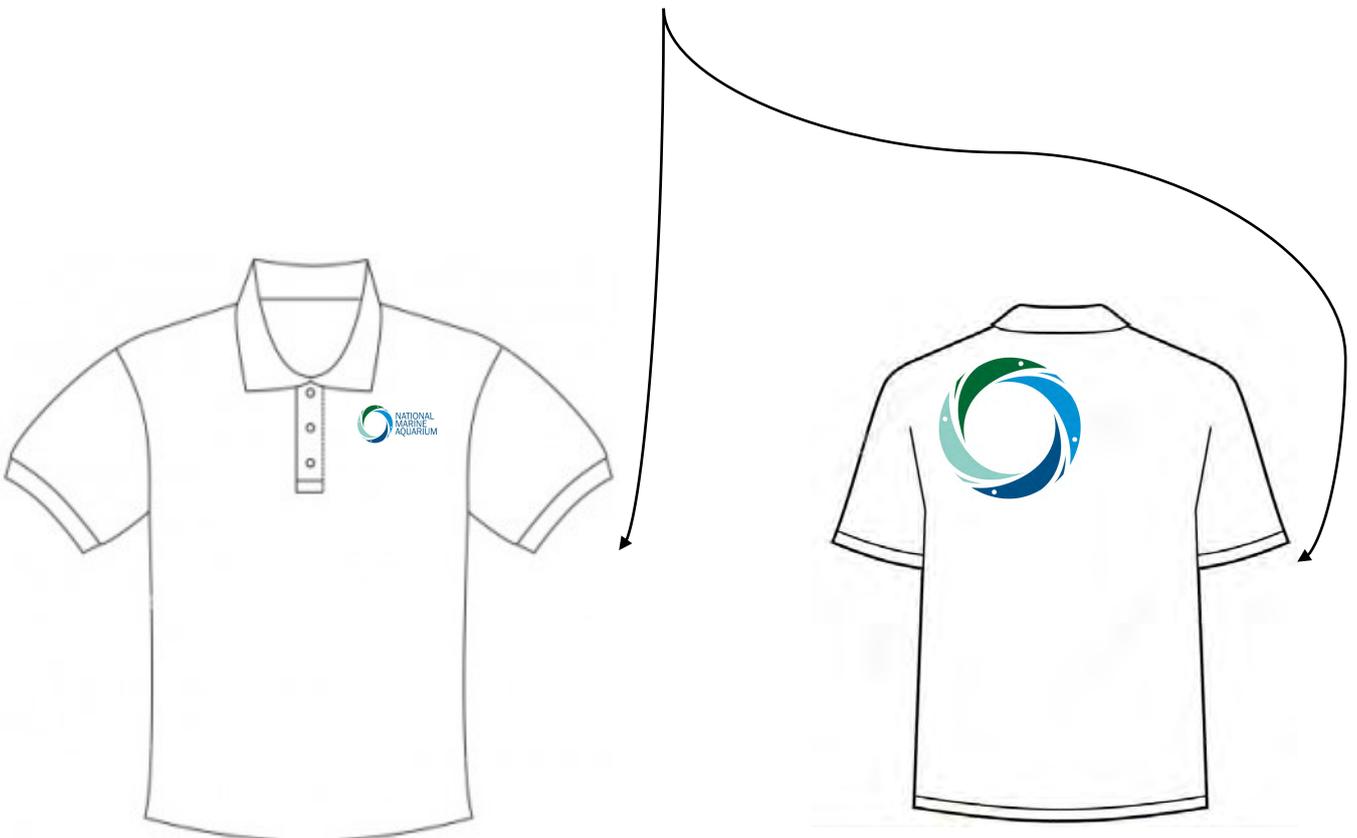
This activity booklet will help cubs to gain their Environmental Conservation Activity Badge and brownies to achieve their Environment, Friends to Animals and Science Investigator Badge.

Check out the back page for ideas you can try out to gain your other badges too!

Welcome to the National Marine Aquarium!

Use your Activity Pack as you explore the aquarium today and learn all about our amazing animals! The pack is split into the four zones of the aquarium: **Plymouth Sound**, **British Coasts**, **Atlantic Ocean** and **Blue Planet**. Fun challenges are in the blue bubbles!

If you need any help around the aquarium today, please ask a Host for help. We are happy to talk to you about any of the animals, answer any questions or just point you towards the café! The Hosts are wearing polo shirts that look like this.





Plymouth Sound

Start your journey with a rockpool ramble! All these animals are right outside in rockpools and shallow waters along the British coastline.

See if you can complete the following three challenges.
Tick them off once you're done!

1. Find our mermaids purses. Can you discover what species they are from?	
2. Can you see the eyes of a starfish? Ask a Host if you get stuck!	
3. Find an edible crab. Can you find out why it has this unusual name?	

All the animals in the middle tank are well ADAPTED to living in rock pools. This means that they have many physical traits which help them to survive in their habitat. The way they behave helps them to stay safe too!

Can you write the rock pool animal next to the adaptation?

I have tube feet to stop me from getting washed away by the tide! What am I?

Answer: _____.

I am covered in a layer of slime so my gills stay moist! This means I can breathe out of water for many hours.

Answer: _____.

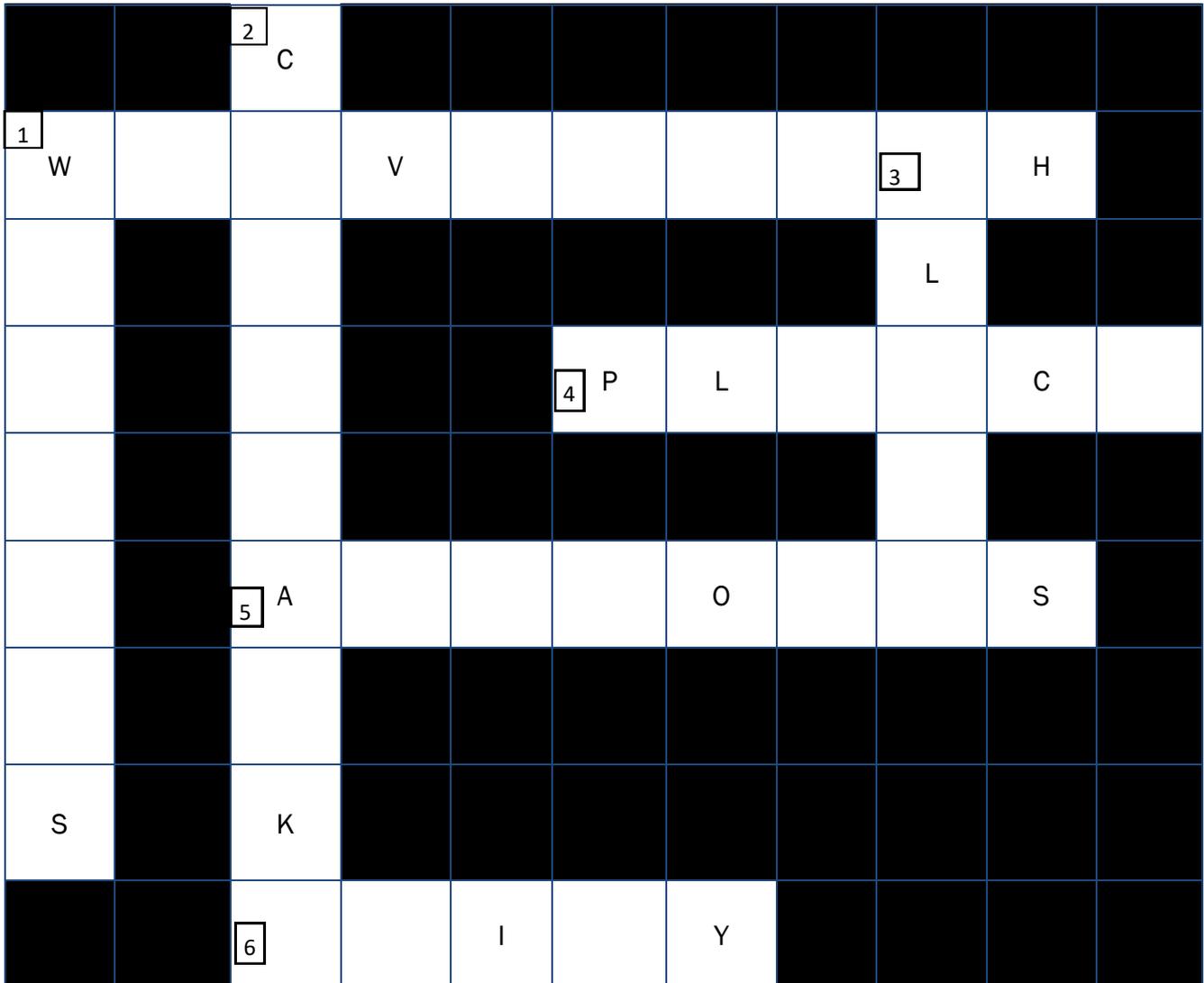
I have an EXOSKELETON, a tough outer shell which acts like a suit of armour!

Answer: _____.



Plymouth Sound

Go round the corner and travel down the ramp, looking at our fantastic whale and dolphin models as you go! Why not stop off to enjoy a quick crossword along the way?



Across

- 1 . Be careful when you are paddling. These fish have a painful sting!
- 4 . This flatfish has orange spots and loves to hide in the sand.
- 5 . Plumose _____ are colourful animals with stinging tentacles.
- 6 . These starfish are covered in tiny protective spines. Look out for them in our wave tank!

Down

- 1 . You might like to wear these when you go rock pooling so that your feet don't get wet!
- 2 . Small spotted _____ lay shark eggs called mermaids purses. Check them out in our shark nursery!
- 3 . As limpets move across the rocks they leave a trail of _____. This helps them to find their way back to their home scar.



Plymouth Sound

Imagine you've just had a fun day out at the beach with your friends. You've done some rock pooling and are full from the barbecue, so it's time to head home! But what about all the rubbish? If you leave it, it will be swept out to sea and pollute the ocean.

Can you sort the rubbish that can be recycled?

Draw a line from the item to the correct bin.



Cardboard and paper

General Waste



Metal



Plastic

Food Waste



There are some plastic carrier bags and bread bags leftover. There are even some used batteries from your portable fan! Rather than just throwing them in the general waste, there are places you can take them on the way home. BATTERY and PLASTIC BAG recycling bins can now be found at most local supermarkets. A much better place for them to end up than in a landfill!

Did you know?

8 million tonnes of plastic waste enters the ocean every year. This is the weight of 8 MILLION GREAT WHITE SHARKS! Animals are consuming the plastic and the toxic chemicals it contains.

LET'S WORK TOGETHER TO STOP THIS HAPPENING!



British Coasts

Staying in our local waters but moving a little deeper, we are now looking at animals that live in SUPER SEAGRASS!

See if you can complete the following two challenges. Tick them off once you're done!

1. Pipefish CAMOUFLAGE by swishing their tails as if they were a blade of seagrass! How many pipefish can you see?	
2. Super seagrass is home to many animals, but sadly it is under threat. Can you find any reasons why?	

Carry on down to our EDDYSTONE tank. All of these wonderful animals can be found around the British coasts!

Can you unscramble the letters to guess the fish? Use the species identification signs to help you!

OOCUCK SSAWRE

Fun fact: With this fish species, they all start off as girls and are orange in colour. Some of the larger females will turn into boys and change to blue!

RTUOTB

Fun fact: Flatfish are also excellent at camouflage. They can change the colours and patterns of their scales to blend in with wherever they are!

Why do animals use camouflage?

- A: To mask their identity, location and movement.
- B: To help them sneak up on prey.
- C: To hide from predators.
- D: All of the above!



British Coasts

Why not take a seat at our Eddystone tank and try to find all the highlighted fishing themed words in the word search!

P	F	T	T	H	C	A	T	C	H	P
R	O	R	S	R	I	N	R	O	J	U
F	O	O	E	S	H	O	A	L	T	T
S	L	E	E	Y	J	L	W	O	D	S
P	O	L	E	A	N	D	L	I	N	E
F	N	I	A	P	N	L	I	M	O	C
I	L	O	N	G	L	I	N	E	N	K
S	E	M	S	H	N	B	G	E	T	G
H	P	U	R	S	E	S	E	I	N	E



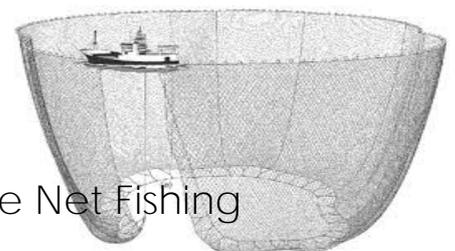
Longline Fishing

These really long floating lines have hooks hanging from them to catch fish. They can also catch other animals like dolphins and sharks.



Pole and Line Fishing

This fishing method allows you to only catch the fish you need and it doesn't damage habitats.



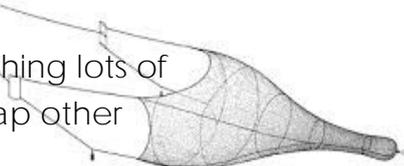
Purse Seine Net Fishing

This method uses two boats and a large net to encircle a shoal of fish. It closes at the bottom to prevent escape.



Trawling

Good for catching lots of fish but can trap other animals too!





British Coasts

When we use lots of water in our homes, dirty water can end up in the ocean around our coasts and pollute the sea. Luckily, there are lots of ways to reduce water waste in your home!

Can you draw a circle around TWO things you will try to do at home?

Top tips:

- When we take baths, we use almost twice as much water as when we have showers! Try to have short showers and save baths for the occasional treat.
- When we clean our teeth, it's easy to leave the water running as we brush. Try turning the tap off during brushing! If every family member did this twice a day, it would save lots of water.
- Only flush the toilet when you need to! If you need to discard tissues and paper towels, they can be put in the waste paper basket instead of the loo.
- When washing vegetables, collect the water and use it to water house hold plants!
- Feeling thirsty? Keep a pitcher of cold water in the fridge. This way, you don't have to keep the tap running to get cold water every time you need a drink.
- If there is a dishwasher in your house, it's a good idea to scrape your plate rather than rinse it before putting it into the machine. The dishwasher should always be full before turning it on!
- Tell your friends and family about all of these ideas!



Atlantic Ocean

As you walk through the jellyfish and down the stairs, you will find yourself in our Jawsome Exhibit! You will see loads of facts on the walls all about sharks and how they're well adapted to living in their ocean habitat.



Can you use the information to answer these questions?



1. Sharks and rays have a light, bendy skeleton made from _____

2. All rays and some sharks have holes above their eyes to help them breathe. These are called _____

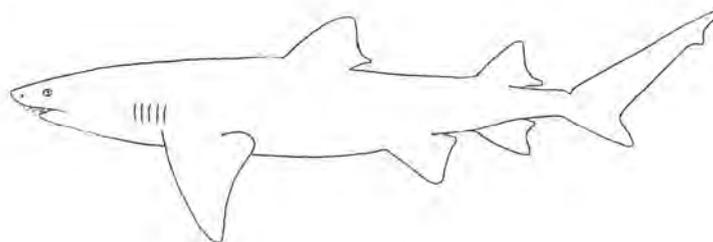
3. Sharks have an amazing sixth sense which allows them to sense electricity in the water! This is called _____

4. The largest shark in the world is the _____

5. There are no species of sharks known to eat plants! This means they are all _____

Did you know?

Sharks also have something called countershading. They are darker on top so fish swimming above won't see the shark against the dark ocean floor. Their tummies are much lighter, so animals below looking up won't be able to spot them against the bright ocean surface.



Can you colour in the shark so that it has counter shading?



Atlantic Ocean

If you go past the mermaid cave and up the stairs, you will see our jawsome sharks from the top of the tank!

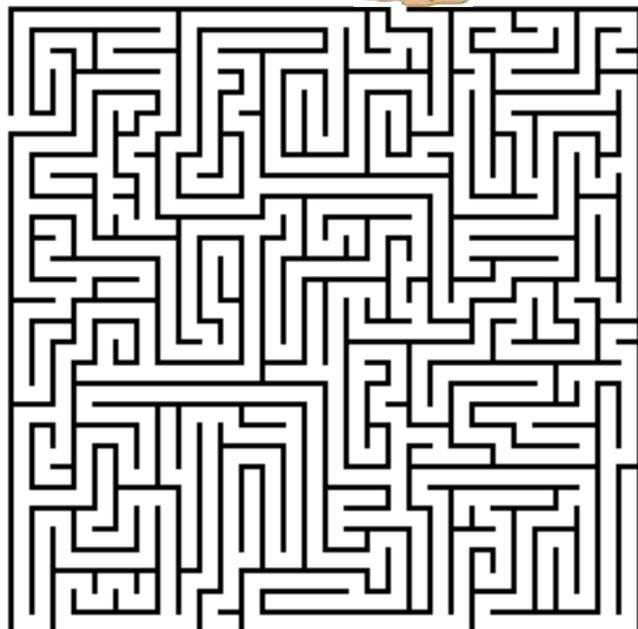
Sadly, many of our shark and ray species are on the IUCN Red list, which tells us which animals are most in need of our help. Sand tiger sharks are listed as **VULNERABLE** and Lemon Sharks **NEAR THREATENED**.

Some sharks and rays out in the Atlantic are **ENDANGERED**, such as the Great Hammerhead and Scalloped Hammerhead!



SO WHAT'S THE PROBLEM?

Sharks are often hunted for their fins and are also frequently caught accidentally by fishermen. This is known as bycatch. Unfortunately, plastics are also being consumed by smaller animals, entering the food chain and causing a build up of toxic chemicals in larger marine animals, such as sharks.



Can you help the shark escape the fishing boats and find the safety of the reef?



Atlantic Ocean

How can we help?

We can help sharks by:

- Avoiding shark products.
- Buying pole and line caught fish.
- Reducing, reusing and recycling plastics.

How is the National Marine Aquarium helping to protect sharks on the IUCN Red list?

As an independent conservation charity, we use money gained from ticket sales to fund conservation projects around the world. This means that you have helped to protect sharks just by visiting the aquarium today! Here are some examples of projects our grant money has funded over the past few years:

Project: Scalloped Hammerheads in Japan (London Zoo)

As hammerhead sharks often swim in groups, it is easy for fishermen to catch them. Thanks to this project, satellite transmitters were placed on the sea bed and sharks were tagged so that their routes could be mapped. This knowledge was then passed on to local fishermen so that they could avoid fishing in these areas.

Project: Sustainable Tourism as a Whale Shark Conservation tool (Marine Megafauna Foundation)

Around the coasts of Mozambique and Tanzania, many whale sharks gather in groups. Sadly, this means they can be easily targeted by fishermen. This project aimed to educate tourists and local people about the sharks and to raise awareness of how to help. They also taught people how to log any encounters so that their population could be monitored.



Blue Planet

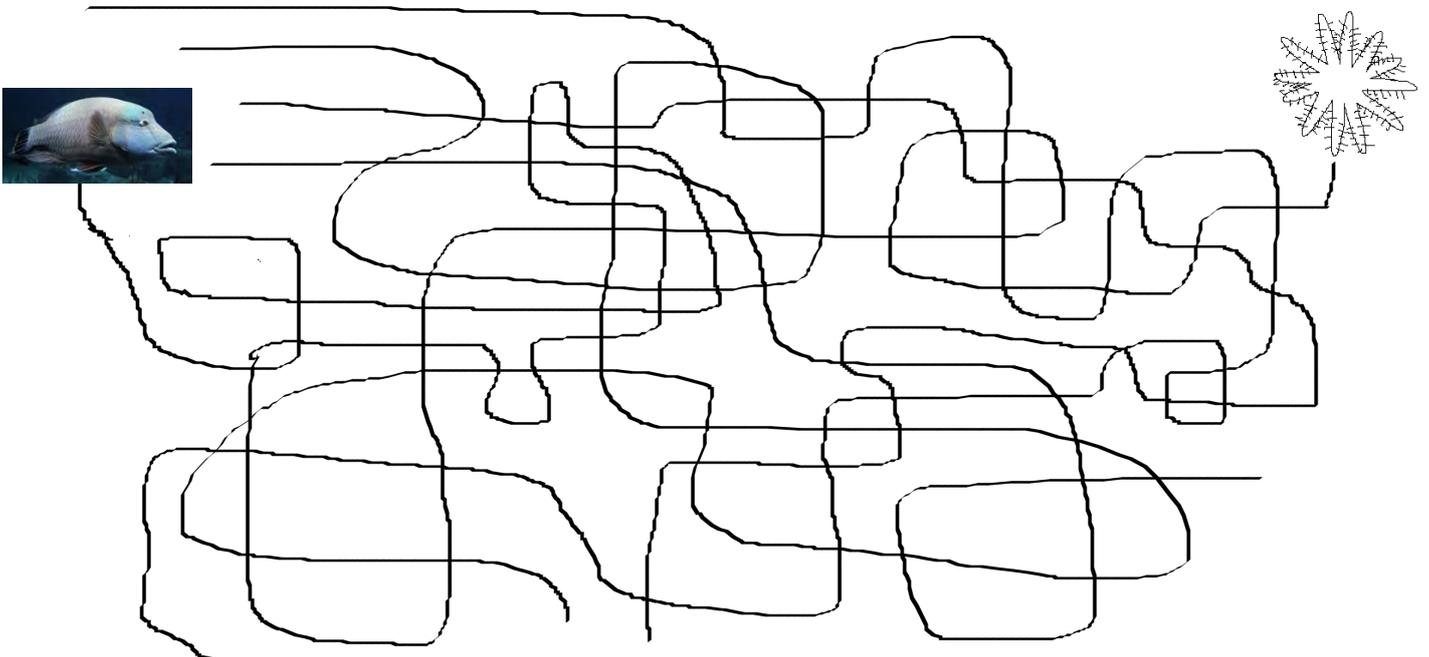
Continue on your journey to our Blue Planet area! Our beautiful oceans contain so much life, from tiny plankton to huge whales. This life comes in all different shapes, sizes, colours and patterns.

Check out our Giant Pacific Octopus! Use the information to find out one of their awesome defence mechanism!	
See if you can find some characters from Finding Nemo! What species of fish is Dory?	

Fish in **coral reefs** tend to be colourful so that they can blend in with their surroundings! All of them have a role to play in their colourful habitat. Humphead Wrasse are really important as they are one of the only predators of Crown of Thorns starfish! These starfish love to eat coral. By eating them, Humphead Wrasse are helping to keep their habitat safe.

Coral reefs are ridges of coral that grow in warm, shallow water. Coral is found in many different colours!

Can you help this Humphead Wrasse find the crown of thorns starfish before it gobbles up the coral?





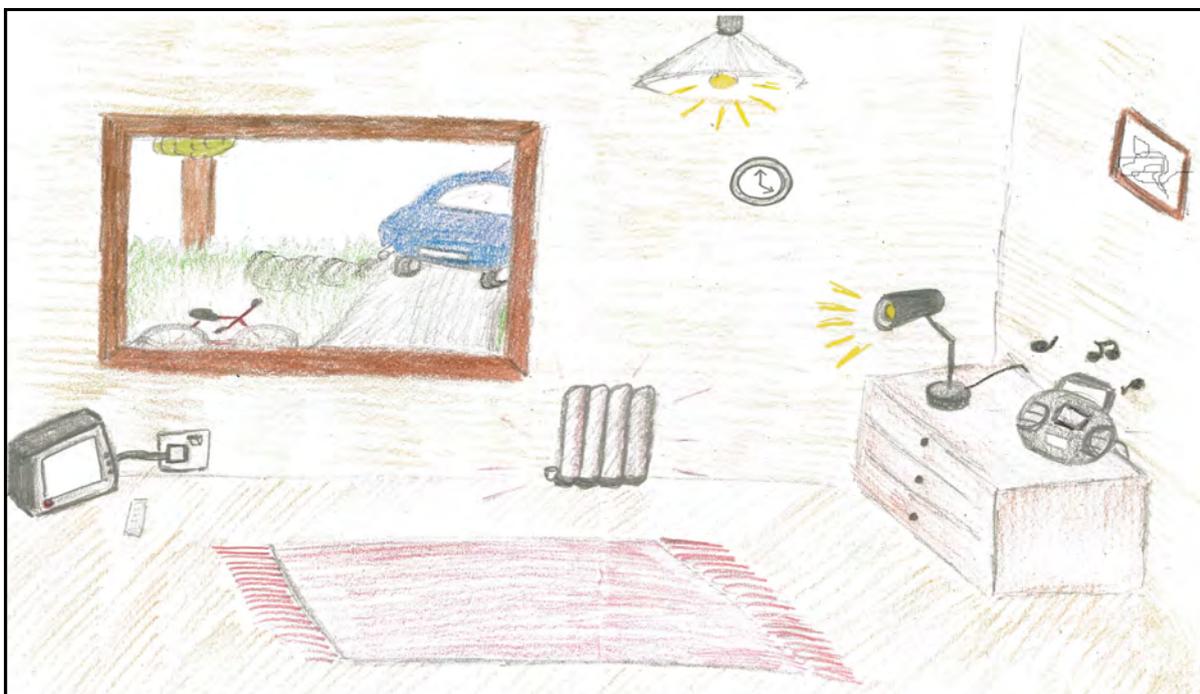
Blue Planet

Head on down to our Great Barrier Reef tank and see if you can spot our Humphead Wrasse named Cooper! Sadly, Humphead Wrasse are **ENDANGERED**. This is partly due to their coral reef habitat being at risk from global warming! There is lots of evidence to suggest that humans are partly to blame.

Can you number the following statements so that they are in order? The First one has been done for you!

- Warm oceans stress out corals! When corals are stressed, they expel the plants that live inside them.
- Humans burn fossil fuels such as coal, oil and gas. This provides us with electricity and fuel for transport.
- Carbon Dioxide traps heat from the sun and warms the planet.
- Warm oceans stress out corals! When corals are stressed, they expel the plants that live inside them. This is called coral bleaching.
- This releases lots of CARBON DIOXIDE in to the atmosphere.
- These plants are important, as they provide the coral with food. They also give corals their colour.

Luckily, there are lots of changes we can make in every day life to help prevent global warming! Look at the following drawing. Henry has just left to drive to the local shop. Can you circle some mistakes he has made?





Blue Planet

What advice would you give to Henry? Let's give him some tips!



- _____
- _____
- _____

But how else can we help to prevent global warming and save animals just like Cooper? As time goes on, renewable energy is becoming a more popular way of providing us with power.

Let's have a look at the pros and cons!

Type of energy	Pros	Cons
Non renewable (coal, oil natural gas)	<ul style="list-style-type: none">• Cheap and easy to use.• Only a small amount of energy is needed to generate power.	<ul style="list-style-type: none">• They will eventually run out.• Non renewable sources when burnt can release harmful greenhouse gases into the atmosphere, which can add to global warming.
Renewable (sun, wind, water))	<ul style="list-style-type: none">• Sources never run out.• Renewable energy has low carbon emissions and is environmentally friendly.• Creates job opportunities in this line of work• Can be cheaper in the long run.	<ul style="list-style-type: none">• Can be expensive initially.• You can't use energy from the sun during the night.• You can't use energy from the wind on calm days.• Building dams across rivers for hydroelectric power disrupts wildlife.• Geothermal energy can bring toxic gases from the earth towards the surface.

Thank you for your visit!

Here are some fun ideas on how to gain your Cub and Brownie badges during and after your visit to the aquarium...

Cubs

Photographer Activity Badge:

- Take pictures of our animals as you walk round! Think about lighting, positioning and setting. You could even experiment with coloured/black and white photos (just make sure the flash is off!)

Artist Activity Badge:

- If you took photos at the aquarium, why not make a display to show your friends and family?
- If you're feeling particularly creative, you could use our animals as inspiration to create and design your own character for a story!

Entertainer Activity Badge:

- Why not write a story with your character as the star? Tell your story to an audience!

Brownies

Environment Badge:

- Keep a record of how much energy and water you use at home. See if you can reduce how much you use by following the top tips in this booklet!

Friends to Animals Badge:

- Make a poster or information pack on an animal which is listed on the IUCN Red list! You could even make a quiz or game about the animal. How are humans to blame and what can we do to help?
- Create a scrap book about your visit, focusing on an animal you are interested in.
- If you're feeling creative, create some drawings based on the patterns and colours you saw on our beautiful fish!