





TURTLES AND DUGONGS

In this activity, your students will be looking at two of the main animals that live in the waters around Abu Dhabi: the dugong and the turtle. They'll find out more about these animals, where they live, the environment they live in, the threats they face and what is being done to help conserve them.

They'll also develop fundraising ideas to help support conservation efforts, and conduct a beach clean up to help remove some of the harmful waste we produce that's causing harm to the marine environment and the animals that live there.

IN THIS ACTIVITY YOU AND YOUR STUDENTS WILL:

- ▶ Learn about the marine environment around Abu Dhabi, and the threats facing it.
- ▶ Find out which animals are endangered and what your students can do to help.
- ▶ Develop fundraising ideas to raise money and awareness for marine conservation efforts locally.
- ▶ Organise a beach clean up, or join an existing one, to help remove litter from the coast and work out where it's come from.

OBJECTIVES

Carrying out this activity will help students learn about the threats facing marine life, focusing on the marine animals that live in the waters around Abu Dhabi as an example. They'll discover more about the life of dugongs and turtles, the threats that face them, and the conservation efforts that are being made to help save them.

Your students will also be encouraged to develop fundraising ideas to help support local marine conservation efforts. We would like them to think of inventive ways to raise money and awareness to help these endangered animals.

This resource also links directly to the Roots & Shoots UAE: Reuse and Recycle – Breaking the Plastic Bag Habit activity (goo.gl/BVTjU2).

WHAT DO I NEED TO MAKE IT WORK?

You do not need anything special for the first part of this activity (which can be done in the classroom), just an internet connection to carry out some background reading.

For the fundraising activity, you will need pens, paper and craft materials to produce your fundraising posters and to write your fundraising letters. Depending on what fundraising activity you and your class decide to do, you may also need cooking ingredients, or other resources.

For the beach clean up, you will need parental permission to take students out for the activity. You will also need bin bags, litter pick sticks, and strong and sturdy gloves (thick gardening gloves are suitable). If you plan to continue the beach clean up activity with a display, you'll need to be able to wash and dry some of the litter you've collected before displaying it. Because it's been in the sea, it may smell a little so we recommend displaying it in a well ventilated area. You'll also need paper, pens and/or a printer to produce display labels to go with it.

WHAT THINGS WILL MY STUDENTS CREATE?

- ▶ A fundraising plan, including resources to raise awareness of their campaign (which could include posters, and letters to potential donors such as parents and local businesses) and the actual fundraising activities themselves. Some good ideas include a bake sale, a craft sale, a trashion show or making and selling reusable bags.
- ▶ A beach clean up, with the option to create a display of some of the rubbish collected on the beach, labelled with the impact it can have on the environment.

THE SEA AROUND ABU DHABI

First things first! Let's find out about the seas around Abu Dhabi, the animals that live there and the environmental threats they face.

THE ARABIAN GULF

- If you have the chance to travel to the seaside with your students, or if your students have visited the sea, we suggest starting the session with a quick discussion on what the sea is like. Ask them to describe what they see, hear and smell. Talk about any animals they might have found or spotted, and what sort of things they like to do – like play in the sand, paddle, swim or look for 'treasure' on the beach.

The Arabian Gulf is an inland sea, surrounded on nearly all sides by land and connected to the Arabian Sea and Indian Ocean by the Strait of Hormuz, a narrow stretch of water just north of the UAE. Almost all of the UAE's coastline is on the Arabian Gulf. It's a pretty shallow sea, with an average depth of just 50 metres. Because of its shallowness, and the warm, tropical conditions, it's also more saline than most other seas, which means it has a higher concentration of salt dissolved in the water.

There are many different types of marine environment to be found in the Arabian Gulf. Three of the most important are coral reefs (goo.gl/r9K9jS), which are threatened globally by pollution, climate change and coral bleaching, seagrass beds (goo.gl/NNiepd) and mangrove forests (goo.gl/Ks6DN5). All of these provide habitats for a range of threatened and endangered plants and animals.

The seas around Abu Dhabi

Abu Dhabi has a coastline of around 700 km, and around 200 islands. There are two Marine Protected Areas which are hotspots for species conservation. The Environmental Atlas of Abu Dhabi (goo.gl/8rJ8LP), produced by the Environmental Agency Abu Dhabi, is a handy resource to use for this activity.

SEAGRASS BEDS IN ABU DHABI

Imagine a beautiful green meadow of grass, with long green blades swishing back and forth in the wind. Now imagine the same thing under glistening, clear water. This is what seagrass beds (goo.gl/NNiepd) are.

The term 'seagrass' can refer to any of about 58 different species of plant, all adapted to live in the salty



Image of seagrass in Florida, USA

water of the sea. These plants still need the sun to fuel photosynthesis, to generate the energy they need to live. This means they need to be in water shallow enough that sunlight still reaches to the sea floor. This is called the 'photic zone'.

Seagrass is useful for animals in many ways. Firstly, it's a source of food for animals like dugongs, fish, sea urchins and turtles. Secondly, it can provide shelter for many animals, with the long strands of grass providing a hiding

place for smaller animals, like baby fish, which helps protect them from larger predators that might eat them.

Coral reefs

The warm seas around Abu Dhabi are ideal conditions for coral reefs, and many have formed along the



Brain coral forming, Abu Dhabi - copyright Shankar S via Flickr

Hayl, Delma, Makasseb, Al Yasat (also a Marine Protected Area), Baraka and Sir Bani Yas.

coastline there. Corals are tiny animals that build a hard exoskeleton around themselves for protection. Over hundreds of years these build up into beautiful, varied structure. Many other plants and animals live in coral reefs, and they are commonly thought of as biodiversity hotspots – areas where large numbers of different species of plants and animals can be found.

Some of the most well-known reefs around Abu Dhabi are: Ras Ghanada, Al Saadiyat, Al Dabeya, Al

However, climate change is having an effect with the warming waters causing the reefs to decline and die.

The Environment Agency Abu Dhabi has set up monitoring stations (goo.gl/FETRVC) in many of the main coral reefs to monitor the situation, and do what they can to help.

There are some stunning images of the fish to be found in the coral reefs around Abu Dhabi in the 'Jewels of the UAE' section of the Arkive.org website (goo.gl/0YUewz).

Mangroves

Mangroves (goo.gl/Ks6DN5) are made up of a range of different trees and shrubs that are able to cope with salty sea water on coastlines. The plants produce big complex twisting systems of roots which trap dirt and sediment and provide homes for a huge range of different species of plants and animals.

Mangroves are also important for protecting coastlines from erosion. They form a barrier that stops waves washing away shorelines.



Mangrove forest via Wikipedia

Large areas of mangrove, nearly 35%, were lost in the last 40 years due to deforestation – they were cut down. However, efforts have been made in the last 20 years to help conserve remaining areas and even replant areas that were cut down, and extend mangrove forests further. Located along the eastern ring road, the Eastern Mangrove Lagoon is the closest mangrove forest to the Abu Dhabi City. This unique ecological hotspot is now the protected Eastern Mangrove Lagoon National Park, having

been named as one of the first of five national parks identified in Plan Abu Dhabi 2030 (goo.gl/2A3GFX).

WHAT ANIMALS LIVE IN THE SEAS

AROUND ABU DHABI?

With such rich environments, there is a wealth of biodiversity to be found in the waters around Abu Dhabi. We're going to focus most of our attention on dugongs and turtles, as they are some of the most endangered animals in the region.

ALL ABOUT DUGONGS

These gentle, friendly looking marine mammals are the only fully aquatic herbivorous mammal, which means they eat only plants and live their whole life in the water. Because of this, they're also known as the Sea Cow.

They are a soft grey/brown colour, with bristly muzzle (which looks a little like a walrus) and paddle-like front



A Dugong near Marsa Alam (Egypt) by Julien Willem via Wikipedia

limbs which they use to swim through the water, pushed along by a fluked tail like a whale or dolphin. Dugongs do have tusks, but they are mostly hidden beneath their skin. They're only visible on mature males.

Dugongs can grow up to 4 metres in length, and can live up to 70 years old. Because dugongs are mammals, they give birth to live babies. Dugong mothers suckle their babies, or calves, providing milk for them and looking after them for up to 18 months.

They move slowly and gracefully through the water, and like to live in shallow coastal water in tropical regions. They love seagrass beds, grazing and feeding as they swim. Because they are mammals, they can't breathe underwater, and instead have to return regularly to the surface for air.

The Arabian Gulf is home to the world's second largest population of dugongs (the largest population lives off the coast of Northern Australia). There are thought to be around 5,300 dugongs living in the Arabian Gulf (goo.gl/thbvuz), with 75% of those living off the coast of Abu Dhabi.

Environmental threats to dugongs

Sadly, there are many threats to dugongs, and they are classified as vulnerable on the IUCN (International Union for the Conservation of Nature) Red List (goo.gl/7pQyRX). They used to be hunted extensively for their skin, meat and oil. Because they have a long lifespan and reproduce slowly (with mothers only giving birth to one calf at a time) these threats can have a big impact on the wild population, and it can take a very long time for the population to recover.

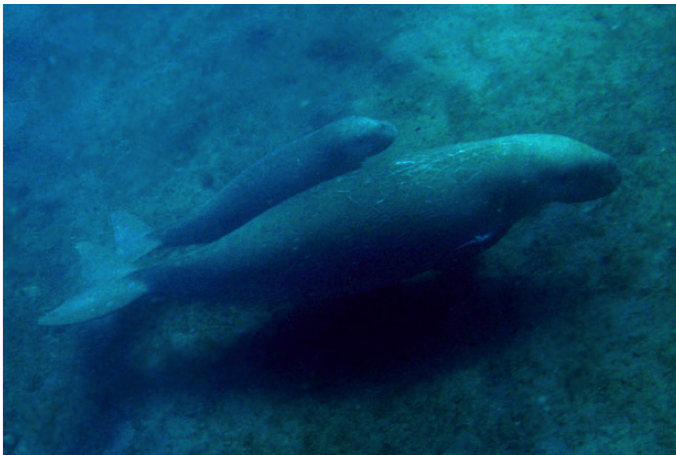
One of the biggest threats to the dugong today is fishing nets. Dugongs can get tangled in the nets and can drown, as they can only hold their breath for 12 minutes. This is called 'by-catch' – when animals other than the ones fishermen were looking to catch also get caught. The second main threat is habitat loss; with the seagrass beds they live in easily damaged by human activities such as pollution, trawling and dredging.

What's being done to save dugongs?

Monitoring the population is an important part of helping to conserve the dugongs of Abu Dhabi. Conservationists need to know how many there are and where they live so they can concentrate their efforts there. The Environment Agency Abu Dhabi (goo.gl/nM6T5G) monitor the populations using a variety of techniques. They tag dugongs so they can monitor where they travel, they take aerial images, and they look at the condition of the environment they live in. The EAD have also launched an awareness campaign (goo.gl/CFzoq8), to encourage people to become interested in dugongs and what can be done to help them.

As discussed above, one of the biggest reasons dugongs in Abu Dhabi die is through drowning, due to being caught in fishing nets. Abu Dhabi have banned the use of certain types of nets like drift nets in an effort to help prevent these deaths. Abu Dhabi has also passed laws to prevent dugongs being intentionally hunted for their meat, skin or tusks.

Another effort that is working well is the establishment of Marine Protected Areas. These are large areas of ocean in which activities like fishing and dredging are limited or banned. This means they are a safe area



Dugong mother and child, copyright Nick Hobgood

for many animals to live in. The two marine protected areas (goo.gl/7ac5lk) in the water around Abu Dhabi (Marawah [goo.gl/z2ZLD7] and Al Yasat) are over 6,500km², and by monitoring the movement of tagged dugongs, researchers know that they tend to stay safely within the protected zones – good news for dugongs!

Fascinating dugong facts:

- ▶ Did you know that dugong calves sometimes hitch a ride on their mother's back?

- ▶ Did you know that dugongs are related to elephants?
- ▶ Did you know that dugongs are also closely related to manatees, but where manatees can cope with fresh water and rivers, dugongs are adapted to the salty sea.

You can find some beautiful images and videos of dugongs on ArKive.org (goo.gl/Rn7Nc4), on National Geographic (goo.gl/JzbQ6Q), and on the BBC (goo.gl/rC79rG). Wikipedia (goo.gl/B4RcrP) also has lots of information on their global population and lifestyle.

More dugong resources:

- ▶ Environment Agency Abu Dhabi – Powerpoint: Status and conservation of dugongs in the United Arab Emirates goo.gl/0MMrfY
- ▶ How Abu Dhabi is saving the dugong goo.gl/Z3xJzB
- ▶ UAE Interact – Dugong goo.gl/haiAeQ

ALL ABOUT TURTLES

Beautiful, elegant, but critically endangered, marine turtles are certainly one of the treasures of the seas around Abu Dhabi.



Hawksbill turtle by Hanne & Jens Eriksens. Photo provided courtesy of the Environment Agency of Abu Dhabi archives.



Hawksbill Turtle "Eretmochelys imbricata 01" by B.navez - Own work (own photographic work). Licensed under CC BY-SA 3.0 via Commons - https://commons.wikimedia.org/wiki/File:Eretmochelys_imbricata_01.jpg#/media/File:Eretmochelys_imbricata_01.jpg

There are 2 species of marine turtle in the waters around Abu Dhabi (out of 7 species worldwide), the Hawksbill Turtle, listed as critically endangered on the IUCN Red List (goo.gl/SK6Toi) and the Green Turtle, listed as endangered.

Hawksbill turtles live on or around coral reefs, and their preferred food is the sponges that grow on the reefs, though they also eat jellyfish, small shellfish, algae and fish. They themselves are preyed on by large fish, sharks and also, sadly humans. They mate twice a year, and then the females will clamber onto a beach, dig a nest and lay a clutch of eggs. There can be up to 140 eggs in each nest, although exactly how many of these hatch is very dependent on the conditions the nest is exposed to during incubation.

Hawksbill turtles travel huge distances in their lifetime, and their lives are still mysterious and unknown. They reach maturity after 20 years, and can live a long time. Because they take a very long time to reach maturity, Hawksbill turtles are very susceptible to anything that could affect their population, and take a long time to recover.



Green Sea Turtle by Roy Niswanger via Flickr

Green turtles are similar to Hawksbill turtles in looks, but have some differences. They are named green, not for the colour of their shell, but for the colour of their skin. Adult green turtles are herbivorous, unlike Hawksbill turtles, eating only seagrasses and algae. Green turtles also like to climb ashore to sunbathe, so they're one of the few species of marine turtle that leave the water other than just to lay eggs. Green turtles mate every two to four years, and lay their eggs on nesting beaches like Hawksbill turtles, with between 100 and 200 eggs per clutch.



"Hawksbill Hatchling" by Fins - File:HawksbillHatchling.jpg. Licensed under Public Domain via Commons - <https://commons.wikimedia.org/wiki/File:HawksbillHatchling.jpg#/media/File:HawksbillHatchling.jpg>

One of the most amazing things you can see in Abu Dhabi is the Hawksbill Turtle nesting sites on Saadiyat Island. Every year, hundreds of little hatchling turtles emerge from the sand and make their way down to the water. It's a dangerous time for the baby turtles, with many predators trying to catch and eat them, including sea birds. With these problems and the dangers that they face should they reach the water it's estimated that only 1 in 1,000 turtle hatchlings reach adulthood (goo.gl/eUcl10). .

Another amazing fact about turtles is that their gender – whether they are a male or female – is determined by the temperature the eggs stay at while in the nest. Warmer temperatures mean the eggs will hatch as female turtles, cooler temperatures produce males. A safe, stable population needs similar numbers of male and female turtles to survive.

Environmental threats to turtles



A turtle trapped in a 'ghost net' an abandoned fishing net

There are a number of threats to Hawksbill turtles. Firstly, marine litter and pollution such as plastic, fishing lines, nets and other debris can cause death and injury in several ways. The turtles can become tangled in the plastic and drown. They can also mistake floating plastic bags as jellyfish, one of their food sources. If they eat the plastic it can block the turtle's insides, causing it to die.

Secondly, turtles are very susceptible to impacts of humans because they lay their eggs on beaches. As human populations grow, there are

fewer untouched, safe beaches for turtles to lay their eggs, which can be damaged and destroyed when people walk over them.

Thirdly, pollution and global warming is changing the marine environment, causing coral bleaching (goo.gl/a3DEHt) where coral reefs die due to warmer water temperatures and the loss of seagrass beds. This means fewer areas where the turtles can live, breed and find food. Climate change is also raising sea levels around the world. This can lead to beaches becoming narrower, which less space for turtles to lay their eggs. Warming temperatures are also a threat because it can affect how many males and females are hatched. Warmer temperatures mean more females and fewer males, and the worst case scenario would be that clutches of eggs hatch as all female. With no males to fertilise the eggs and create the next generation, whole populations would die out rapidly.

There's another unusual type of pollution that can threaten baby turtles – light pollution. When the turtle eggs hatch, the baby turtles make their way to the sea, drawn by the light of the moon on the water. However, as people are now living closer to the sea, the lights from houses and street light can confuse the turtles and make them travel inland instead, where they may get eaten by predators or die of dehydration.

Optional: Students from Al Muna school learned to ‘move like a Hawksbill turtle’ (goo.gl/votqkv) as part of an amazing trip to the Park Hyatt on Saadiyat Island. They were met by a marine biologist who told them all about Hawksbill turtles, and what they can do to help conserve them. If you can take your class on a trip like this, we highly recommend it!

What’s being done to save the turtles?

One of the main conservation groups working to save the marine turtle is the Marine Turtle Conservation Project (goo.gl/3BP3F7), launched by the Emirates Wildlife Society (EWS) and the World Wide Fund for Nature (WWF). They have several goals;

- ▶ Raise awareness of turtle conservation needs
- ▶ Use satellite tracking to monitor turtle migration
- ▶ Discover the areas where the turtles feed
- ▶ Share the information they find with authorities to develop a regional turtle conservation plan; and
- ▶ Ensure these regional plans match up to international turtle and marine conservation plans

Satellite tracking, where tagging devices are fixed to the turtles, allows scientists to find out where the turtles go to. Once they’ve identified the areas that are most important to the turtles – for example, where they feed or where they go to eat, those areas can then be protected, which in turn helps the turtles. This is already happening on Saadiyat island, where the turtle nesting sites are protected. Although you can visit the area, raised walkways make sure that the eggs are protected.

What can you do? The Marine Turtle Conservation Project has several schemes running, including an ‘adopt a turtle’ (goo.gl/XD10Rh) pack, and a way of generating funding from local hotels by asking guests to pay an additional small fee in donation.

Reducing the amount of plastic waste that ends up in the ocean would make a big difference to all the animals that live there, and beach clean ups are one way of removing some of the waste that’s already there.

Laws protecting turtles can help prevent people intentionally catching them or collecting their eggs for food or decoration. Education and awareness is important here too, so that people understand why these animals are threatened, why they should be saved and what they can do to help. This can have impacts like encouraging fishing vessels not to just dump broken nets into the sea, and developing special fishing nets that have places where turtles can escape from if they get caught.

Fascinating turtle facts:

- ▶ Did you know that researchers still don’t know how long Hawksbill Turtles live for, although new tracking technology may help answer the question in the future.
- ▶ Both Hawksbill and Green turtles grow to a large size, with Hawksbill reaching 1.14m and Green turtles reaching 1.5m.
- ▶ The longest recorded migration for a Green Turtle (goo.gl/4fV0v0) is a whopping 3979km from the Chagos Islands in the Indian Ocean to the coast of Somalia in East Africa.
- ▶ Green turtles can hold their breath for up to 5 hours!
- ▶ Did you know that turtles can cry? But it’s not for the same reason as people. The ‘tears’ are the turtles’ way of ridding their body of excess salt consumed at sea.

More turtle resources:

- ▶ Marine Turtle Conservation Project – Gulf Turtles goo.gl/rFEB1C
- ▶ Information on what to do during nesting season on Saadiyat goo.gl/mCjQCw
- ▶ See Turtles – a marine turtle conservation website goo.gl/WHiO3K
- ▶ National Geographic: Hawksbill Turtles goo.gl/GlVF61
- ▶ National Geographic: Green Turtles goo.gl/7QGM15
- ▶ Videos of Hawksbill Turtles on Arkive.org goo.gl/DgJSyk
- ▶ Image and videos of Green Turtles on Arkive.org goo.gl/WHXzXr

ACTIVITY 1 – RAISE FUNDS (AND AWARENESS) FOR A CONSERVATION CHARITY.

The more money we can raise, the more funds there will be to support essential conservation work!

DECIDE ON A FUNDRAISING ACTIVITY

Fundraising isn't just a great way of helping to conserve the environment, it's also brilliant fun! With your students, discuss ideas for fundraising activities. There are hundreds of ideas you can choose from. Some of them include;

- ▶ A bake sale – students bring in homemade cakes, buns and sweets and sell them to teachers, other students and parents to raise money.
- ▶ Wear your own clothes to school day – everyone makes a donation to the charity in return for being able to wear their own clothes rather than their uniforms.
- ▶ If your students already wear their own clothes, how about a themed clothing day? Everyone could come in wearing blue or green colours.
- ▶ A trashion show, made up of items like plastic bags that might otherwise be thrown away. Our Roots & Shoots activity 'How to run a trashion show' (goo.gl/KiEPKt) has all the information you need.
- ▶ A craft sale – students can create simple crafts to be sold to other students, teachers, and parents. There are some great craft sale ideas on Pinterest (goo.gl/t0eJ21) and there are some great ideas on the Homemade Ideas (goo.gl/DyD05E) website.



Students in the US holding a bake sale to raise money for charity. Image via Flickr

- ▶ Sponsored silence, or other sponsored event – how about a sponsored turtle walk!
- ▶ A sponsored animal olympics is a great way to get the whole school involved. Set up different races, based on different animals; for example, a turtle walk, a camel race, a frog long jump. Students can enter in classes or teams. It's fun to take part in, and also fun to watch!
- ▶ Combine several ideas into a school fete, where you can have a cake sale, animal olympics, crafts and lots of other events going on. Parents and friends can come, and the more people that get involved, the more money you can raise!

If you can coordinate with the rest of the school or youth group, or join up with other groups then even better!

You'll also need to choose where you want your money to go. To help local wildlife, it's a good idea to choose a local charity where the money will go directly to local conservation efforts. Some good ideas include;

- ▶ Emirates Wildlife Society goo.gl/BJP8M3 – donations should be co-ordinated through:
Simone Lawrence
Development Director
Emirates Wildlife Society – WWF
Email: slawrence@ewswwf.ae
- ▶ Marine Turtle Conservation Project goo.gl/fGu7B0

You can also choose to donate to an international conservation charity. Some good suggestions include;

- ▶ Oceana goo.gl/cIDYBI
- ▶ SeaWeb goo.gl/Y1pSW5
- ▶ Whale and Dolphin Conservation goo.gl/c55SCJ

PUBLICITY AND AWARENESS

To make sure you and your group make the most of your fundraising efforts, you should try and spread the word. You can do this within the school, outside the school to parents and if you have time you can even try and get funding support from local businesses (more on this below).

Posters are a great way of spreading the word internally. With your class, decide on the key information that should be included. We suggest where, when and what the fundraising activity will be, a little about why you are raising money, and information on or the logo of the charity you are fundraising for.

You can either design and print out posters for your class to colour in, or encourage them to design and make their own. Then, depending on the activity, you can put them up around the school, or if you are having a fete, then put them up in the local area – local noticeboards and businesses may be happy to display them for you.

School website, Facebook and Twitter – if your school has any of these, you can set up a special page to let people know about your event. Discuss as a class the information you want to put up, and what kind of images you think would be important to include. Do you want to focus on images of the fundraising you will be doing, or of the animals you are fundraising for? You may also want to include the Facebook page or Twitter handle of the charity you are fundraising for as they may spread the word of your efforts themselves.

Set up a donation account – there are lots of online fundraising sites where people can make their donations easily. If you do set one up, it's a great idea to spread the word about this, especially if you are going to be spreading word of the event online using websites, Facebook or Twitter.

LOCAL BUSINESS SUPPORT

If you want to step your fundraising efforts up a notch, you can try writing to local businesses to see if they would support you by making a donation. A personal letter or email is the best way to do this. It can also be a great classroom activity that will get your students familiar with how to write formal letters, particularly older students.

There are many formal letter templates available online and also on Google Docs and MS Word. You will need to create a contact list of local businesses, ideally with a contact name.

First ask your students to discuss as a class what information should be included in the letter, and what kind of language should be used. Then set each student the task of writing a letter. This makes a great homework task, and can be done by hand or on a computer. The resulting letter can be sent via post or as an email. To extend the activity, you could display any responses you get in a display in the classroom.

CELEBRATE YOUR FUNDRAISING SUCCESS!

Make sure you chart how successful your fundraising efforts have been, and spread the word. You can do this in several ways including:

- ▶ A visual representation of how much money you've collected for the charity.
- ▶ A letter to local press about your fundraising efforts and how successful they were.
- ▶ An image of your class with a sign showing how much money they've raised to be spread on social media.
- ▶ And of course you should tell us all about it on www.rootsnshoots.ae and we'll share your story on our website!

ACTIVITY 2 - BEACH CLEAN

One way of making the marine environment safer for the animals that live there, and more pleasant for everyone, is to remove the litter that's already there. Beach clean ups are a simple way you can do this.

WHAT YOU WILL NEED

Firstly, you'll need to make sure the beach you are going to is safe. Avoid beaches that are turtle nesting spots, and any that have dangerous tides or drops. You may need parental permission to take the children to the beach for the day. You'll also need enough adults to supervise the group, and some basic equipment. Strong rubbish bags and gardening gloves will allow your students to collect the rubbish while keeping their hands protected. Your students should also wear comfortable shoes, and clothes they don't mind getting a little dirty.

You'll also need to complete a health and safety form before you go, and brief the students. Things to be aware of include not picking up litter without their gloves, avoiding broken glass or anything that could cut them, and ensuring they wash their hands as soon as they have completed the beach clean up and before eating.

LEAN THE BEACH!

Divide your class into small groups of 4 or 5 students. One student should hold the rubbish bag, while the other students pick up the rubbish. You can either give students their own area of the beach to clean, or set them off in a line from one end to the other – depending on how big the beach is!



Students in Indonesia conducting a beach clean. Image by Shenghung Lin via Flickr.

Operation Ozone by Volunteer in UAE ([goo.gl/bHpbC6](#)) runs beach cleaning events, and various other beaches have their own so you might find it easier to keep an eye out for when they are happening and join in with one of these.

Make sure you take a picture of your students and the pile of marine waste they have collected afterwards to celebrate! The rubbish should then be disposed of carefully and correctly. Contact Tadweer, the Centre for Waste Management (goo.gl/oJfZBR), for advice on this.

Optional: Monitor what types of rubbish are found using a simple tally chart, so you can discuss this in the classroom afterwards. Record what the rubbish is (plastic bags, plastic bottles, metal, fishing nets) and where you think it has come from.

Optional: Marine litter display – Collect some key examples of marine litter and put them together into a display in your school. We suggest choosing examples that illustrate specific points. For example, plastic bottles or plastic bags show how waste from the home can end up in the ocean. Abandoned fishing nets and lines are a by product of the fishing industry, and marine animals can get tangled in these and drown. Next to each item, put a label that explains where the waste has come from and what impact it has on wildlife, and a picture of the animal it can harm. You should thoroughly wash any items you use for the display.

OTHER LINKED ROOTS & SHOOTS RESOURCES

Because plastic in the ocean can have such a terrible effect on marine life, and turtles in particular, you'll also find our 'Reuse and Recycle: Breaking the bag habit' (goo.gl/30bT2W) a great resource to use. It talks about how plastics persist in the environment, and has a great activity where your students can make reusable bags – which could be used to fundraise as part of a craft sale!

TELL US HOW YOU GOT ON!

When your work is finished, we'd love to see what you did! If you already have an account you can upload a story with images to Roots & Shoots UAE (www.rootnsnshoots.ae) and write a story or create an online gallery on the website. If you don't already have an account then just send us an email to MrH@rootnsnshoots.ae and we can set you up!

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As well as the website at www.rootnsnshoots.ae you can also find us on Facebook at www.facebook.com/RootsnShoots.ae or on Twitter as [@JaneGoodallUAE](https://twitter.com/JaneGoodallUAE)

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