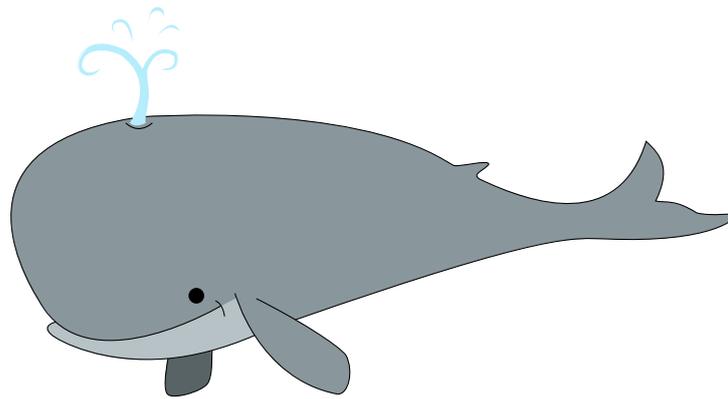


The Whale Diploma

activity pack

It's time to
become a
Whale expert!



Whales in danger!

Whales are really special animals, with lots of wonderful species living in the world's oceans and seas. For hundreds of years, they have captured the imagination of people in many countries and have inspired poets, artists, musicians and others.

But, sadly, they face a number of threats that make their survival difficult. Many species of whale were hunted close to extinction by the whaling industry, and other man-made hazards put them further at risk. Whales need clean and quiet oceans, enough to eat, protected areas and people who care.



So what is a Whale Diploma?

A Whale Diploma is an award for children. It shows that the participant has a good knowledge of whales, and certifies that he / she has been actively involved in the protection of whales. We think this is worth honouring.

How are Whale Diplomas awarded?

It's simple and it's fun! To receive a Whale Diploma, children need to correctly answer all the questions in our Whale Quiz and then carry out an activity that will help whale and dolphin conservation – we'll provide lots of ideas to help!

1. Part 1 of the diploma is the Whale Quiz, found on pages 2 and 3. Photocopy enough copies for the children (you might like them to work individually or in groups) along with the whale fact sheets (pages 6-9) which will help them answer the questions.
2. Answers are provided for you on page 4 and 5. You may like to mark them all yourself or ask the children to swap their quizzes with one another and mark their classmate's.
3. Part 2 is the Whale Activity. You'll find a number of ideas on page 10 but let your imagination run! If you have any questions or need advice please don't hesitate to contact WDC - we're happy to help.
4. Once you've completed both parts, fill in and return the form on page 11 by post, or email the contact below providing the same details that are requested on the form. In return you'll receive an award certificate to mark your achievement!

Contact

Please don't hesitate to contact us if you have any additional questions or are in need of advice. We look forward to hearing about any related activities and are always happy to help where we can by providing information and materials for you to distribute.

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Whale Diploma
WDC (UK)
38 St Paul Street
Chippenham
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email: education@whales.org

**Education Dept.
Whale Diploma
WDC (NA)
7 Nelson Street
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MA 02360**

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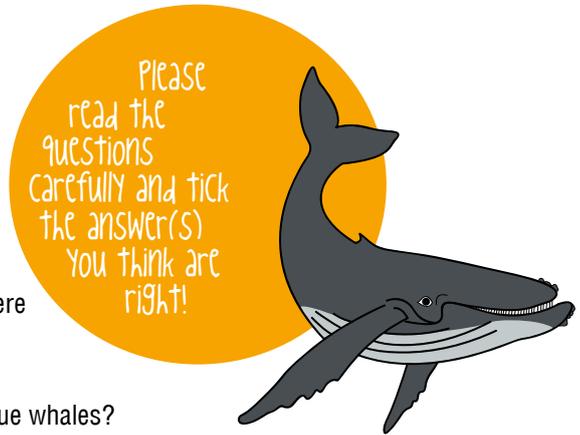
Whale Diploma Part 1: the Whale Quiz

1. Species diversity

Worldwide, whales come in all sorts of shapes, colours, sizes and habitat where they live. Now you can check what you have learned about whales:

(don't forget there may be more than one correct answer!)

Can you name one thing that makes the sperm whale look very different to blue whales?



a) The sperm whale has a big square head



b) The sperm whale is twice as big as the blue whale



c) The sperm whale doesn't have a blowhole



d) The sperm whale has black baleen plates



2. Communication

How do whales communicate with each other? (Clue – more than one answer is correct!)

a) With groans, grunts, clicks and whistles



b) Talking through their mouths



c) Using body language



d) By using facial expressions



3. Threats

Humans are the cause of many threats that whales face. Can you name a threat that troubles a number of different whale species around the world?

a) Dying of thirst due to climate change



b) Being hit by ships



c) Being hunted by people



d) Because they are confused by underwater noise, such as from boats



4. Bycatch

Tens of thousands of cetaceans (whales, dolphins and porpoises) get trapped and die in fishing gear every year all over the world. This issue is known as bycatch. Why is getting caught in an underwater line or net such a problem for whales and dolphins?

- a) They can't get out of the way of sharks
- b) They can't breathe air underwater and so will suffocate
- c) They might get lost or disorientated
- d) They might get cold because they can't move about



5. Protecting whale (conservation)

Around the world many people and organisations like WDC are dedicated to the protection and conservation of whales, so that future generations can appreciate these intelligent and magical animals.

What can we do to help protect and take care of whales? (Clue - more than one answer is correct!)

- a) Use research to discover more about whales
- b) Build fences around their habitats to keep the threats out
- c) Talk to politicians and other important decision-makers
- d) Make sure as many people know about the problems by organising awareness raising events



Whale Diploma quiz – answers and notes

1. Species diversity (correct answer is ‘a’)

There are around 40 species of whales around the world, including the larger toothed whales, baleen whales and beaked whales. There can be much characteristic variation between them.

Sperm whales are the largest of the toothed whales. They have between 40-52 teeth in their long, narrow lower jaw. These are thick and conical, and can grow to 20cm/8inches long and weigh 1kg/2.2lbs each. They do not feed by filtering krill and fish through baleen plates. Blue, humpback and bowhead whales all have 2 blowholes set back on their heads, protected by a splashguard. The sperm whale has a single blowhole on the left side towards the front of it’s head. Although sperm whales are huge (up to 18m/59ft in length) they are not nearly as big as the blue whale, which can reach an amazing 33m/108ft!

2. Communication (correct answers are ‘a’ and ‘c’)

Whales live in a world dominated by sound, which travels better than light underwater. Although most whales have good vision, they can’t always rely on sight because waters can be dark and visibility deep in the sea is usually poor. So, vocal communication is very important to them. Although they don’t have vocal chords, whales can produce a range of calls which might include greeting and warning calls. The variety of noises they make include groans, whistles, clicks, croaks and grunts. They also use body language to signal to one another, including slapping the water with their pectoral fins or tails and breaching (jumping out of the water).

3. Threats (correct answers are ‘b’, ‘c’ and ‘d’)

Whales face a number of man-made threats including:

- **hunting (whaling)**
- **being caught in fishing gear (bycatch)**
- **prey-depletion (lack of food)**
- **pollution (both chemical, noise and litter)**
- **being hit by boats**
- **harassment/disturbance** e.g. being chased by people on jet skis or oil and gas drilling which creates extremely loud sounds under water. This is very disturbing to whales and dolphins who rely hugely on sound and may cause them to leave the area or even die.
- **habitat loss/depletion** may be a result of issues such as climate change making the area unsuitable for them, or more obviously caused by humans e.g. building marinas and other industrial development which can change habitats to such a extent that whales may no longer be able to survive there.

Although climate change is likely to negatively affect whales, they don’t need to drink water like we do. Fish, krill, squid and other whale food all contain water. Extra food gets converted into blubber (their layer of fat), which also contains water for the whale’s body to use when it needs. In addition, whales don’t actually need to take in so much fluid because, unlike us, they don’t lose water by sweating.



4. Bycatch (correct answer is 'b')

Whales are mammals. So, like all mammals, they have lungs with which to breathe air and cannot breathe underwater. At the surface of the water, a whale will open the blowhole(s) on top of its head to breathe through. But, if trapped underwater by a net, the blowhole(s) will remain shut and the whale will suffocate, or they may drown.

All whales have a thick layer of blubber (fat) to keep them warm. Some whales are hunted by orcas (also called killer whales), which are the largest dolphin species. Occasionally a whale can be seen with a shark bite scar, however it is not common for them to be attacked by sharks and therefore not considered a threat as such.

5. Protecting whales (correct answers are 'a', 'c' and 'd')

Campaigning is an important part of conservation, and a successful campaign is often made up of a number of elements. Research is vital to discover which whale species and populations may be under threat and what those threats are. Armed with this knowledge, we are in a better position to tackle issues and lobby for better conservation laws and regulations. Influencing governments to better protect whales obviously requires dialogue with relevant decision-makers, so a campaign will usually involve the lobbying of politicians and authorities. And public support for an issue no doubt helps to influence authority. So awareness raising activities such as the organisation of special events and other publicity are also vital.

Although whales do have threats to face in their environment, capturing them for aquariums or putting them in sea pens (where they are effectively fenced off in a small area of the sea) is not the answer. They are highly intelligent animals, evolved to live in seas and deep oceans and travel vast distances. Many whales wouldn't be able to be captured alive due to their sheer size, however some of the smaller toothed whales are held in captivity (e.g. belugas in Europe, North America and Asia). Captive cetaceans (whales, dolphins and porpoises) live far shorter lives than wild ones, and although they are highly intelligent animals are kept in bare tanks without mental stimulation. In the wild they are extremely social and live in highly structured family groups. Capturing wild cetaceans is very stressful for the animals and separates them forever from their family. They can often then be transported around the world for breeding programmes.

Relocating animals in the wild, e.g. to get out of the way of building a large dam is also not appropriate. Threats that whales and dolphins face need to be tackled at its source and not move animals out of their habitat.

Whale Diploma quiz: fact-sheet 1

The blue whale – the largest animal to have ever lived!

What does the blue whale look like?

The blue whale is a huge animal with a long, streamlined shape. Whilst the average length of a blue whale is around 25m/82ft, lengths of more than a whopping 33m/108m have been recorded! Their colour is pale blue or grey with mottled, lighter blotches and a paler belly.

The head of a Blue Whale is very broad and up to a quarter of the total body length. A single ridge runs along the top of the head and ends in a very large splashguard in front of its two blowholes. The Blue Whale has 55 to 88 throat grooves which expand during feeding, allowing it to take in huge volumes of water, filter out the water then swallow the remaining fish or krill.



Photo: Andrew Sutton Eco2 Nice Images

Facinating facts

The blue whale is the largest animal to have ever existed on earth; it is larger than any of the giant dinosaurs were, and it feeds on some of the smallest creatures. It uses its 1m long baleen plates (comb-like bristles that hang from the upper jaws of most of the largest whales) to filter massive swarms of krill, a small shrimp-like creature, from the water column.

The biggest recorded blue whale was over 33m/108ft long (as long as Boeing 737 plane) with an estimated weight of 144 tonnes/159 tons (almost the same as 2,000 men!). The tongue alone of a blue whale can weigh as much as an elephant and an entire football team of 11 people could stand on it! The heart of a blue whale is about the size of a VW Beetle car. The aorta, a major blood vessel for the heart, is big enough for a human child to crawl through.

Blue whales are pregnant for almost 2 years! The newborn calf is about 7.5m/24ft long and weighs nearly as much as 100 men! A baby blue whale drinks about 225 litres/59 US gallons per day (about enough to fill a bath) of its mother's fat-laden milk (it is 40-50% fat and about the consistency of cottage cheese). Blue whales reach maturity at 10-15 years.

Blue Whales are also the loudest creatures on Earth! Their call reaches levels up to 188 decibels and can be heard hundreds of miles away. The blue whale is louder than a jet, which reaches 140 decibels. Sounds over 120-130 decibels are painful to human ears.

Threats

These ocean giants were hunted close to extinction by the whaling industry. They were aggressively targeted by whalers as they are slow movers and due to their huge size they were a particularly valuable prize. Today their populations still remain greatly depleted.

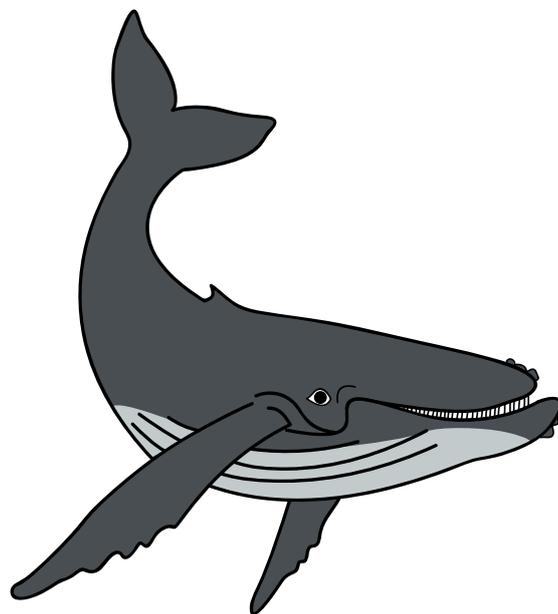
They are mainly threatened by ship strikes (being accidentally hit by boats), noise and chemical pollution. They are classed as endangered worldwide, with some populations such as the Antarctic blue whale considered critically endangered.

Whale Diploma quiz: fact-sheet 2

The humpback whale – a beautiful singer!

What does a humpback whale look like?

Humpback whales are black or dark grey and can be distinguished by their large size (up to 19m/62ft), knobby head and 5m/16ft long flippers which often have white on them (the longest forelimb of any animal). The bumps found on the head are called tubercles, and each one contains a single hair follicle, which may be used in a sensory capacity, much like a cat's whiskers. The tail-flukes are distinctive compared with any other whale species; the black and white markings and scalloped edges are as unique as a human fingerprint. The wavy edged flukes are raised during dives, enabling researchers to use photo-identification and keep track of individual whales from year to year.



Humpback whales are amazing acrobats

The humpback whale is renowned for being one of the most energetic of the large whales with its spectacular breaching (leaping out of the water, often landing back on its side with a splash), tail-slapping (also known as 'lobtailing') and flipper-slapping, often several times in a row. They also regularly spyhop (raise their head above the water's surface to look around).

Humpbacks like to sing!

Male humpbacks sing the longest, most complex songs in the animal kingdom (only males have been recorded singing). Songs consist of a complex series of whistles, squeals, grunts and deep sonorous calls divided into 'verses' and sung in a specific order, which may last for as long as half an hour. They sing the complex songs only in warm waters (where they breed), perhaps used for mating purposes. In cold waters (where they feed), they make rougher sounds, scrapes and groans, perhaps used for locating large masses of krill (the tiny crustaceans that they eat).

Going fishing...

Humpback whales have unusual feeding behaviour - they sometimes herd their prey or create a kind of fishing net by exhaling air in a spiral of bubbles. Fish cluster tightly inside these bubble nets allowing the whale to swim through with its mouth open and eat them.

Humpback Whales under threat

More than 100,000 humpbacks were killed by whalers for their oil, meat and whalebone (used in corsets) in the past. Although some populations seem to be recovering, today's population is just a fraction of its original size. Unfortunately some humpbacks are still killed today by whaling.

Whale Diploma quiz: fact-sheet 3

The sperm whale – the deepest diver!

Biggest brain!

The sperm whale's huge square head, which is up to a third of its overall body length, houses the heaviest brain in the animal kingdom - up to 9kg/20lbs. The head also consists of a cavity large enough to park a car inside that contains a yellowish wax called spermaceti, thought to help in buoyancy control when diving and act as an acoustic lens for echolocation (listening back to echoes of clicks it has emitted). Towards the front of their head on the left side is a single blow hole. Sperm whales are the largest of the toothed whales (up to 18m/59ft in length) and have between 40-52 teeth in their long, narrow lower jaw.



Photo: Andrew Sutton/Eco2NiceImages

Deep sea diver

Sperm whales are champion divers. Adults can stay underwater for almost two hours and dive to depths of 2,000 metres (over a mile deep), maybe more! They are thought to dive deeper than any other mammal in the world.

It's hard to understand just how deep 2000m/1 mile under the sea is, but try to imagine the Eiffel Tower in Paris – now picture seven of them going down into the ocean and it's like diving down the length of all seven. The Statue of Liberty in America (ground level to tip of torch) is 93m/305ft so it would be like diving the depth of 21 of these statues on top of each other going down into the sea! Humans definitely couldn't do that - the water pressure would squash us.

Sperm whales eat giant squid, which can live very deep in the ocean, so they have to dive down into the deepest parts of the sea to catch the squid. No one is quite sure how they make such deep dives. Some sperm whales have scars on their bodies caused by giant squid tentacles during fights. There are stories of deadly battles between these two massive animals, and sperm whales have even been seen with suction cup-shaped wounds and remnants of giant squid in their stomachs.

Moby Dick

Herman Melville's book Moby Dick is based on a true story about a giant white sperm whale that attacked the whaling ship 'Essex'. The fearsome reputation perpetuated by Melville was based on male sperm whales' ability to fiercely defend themselves from attacks by early whalers, occasionally resulting in the destruction of the whaling ships.

Threats

This species has been drastically affected by commercial whaling in the past. Sperm whales are still threatened by hunting - principally by Japan. Sperm whales are also at risk from human disturbance, chemical and noise pollution and entanglement in fishing nets.

Whale Diploma quiz: fact-sheet 4

The bowhead whale – at home in the Arctic

What does a bowhead whale look like?

The term bowhead refers to the whale's highly curved mouth, which resembles the shape of an archer's bow. The head is approximately one third of the total body length and has two blowholes. The bowhead whale has a big, round smooth body, no dorsal fin (the fin on a whales' back) and has no callosities (areas of rough skin or horny growths on the head of a whale). It is predominantly black with a distinctive white chin marked with a string of black spots. Bowhead whales have wide, paddle-shaped flippers and broad tapered tail flukes measuring up to 6m/20ft in length.



Blubber and baleen champion!

The Bowhead whale, which lives exclusively in the Arctic, has the thickest blubber of all whales and dolphins to enable it to survive in these cold waters. Its blubber can reach a whopping 70cm/28inches in thickness. When they need to come to the surface to breathe, they are capable of breaking through ice up to at least 60cm/24inches thick to make a breathing hole. These whales also have the longest baleen – the comb-like structures hanging down from their upper jaws used as a sieve to filter food from the sea-water. Each side of the jaw contains 250 – 350 baleen plates which can reach up to 5m/16ft in length – taller than a double-decker bus!

Age

In the wild cetaceans (whales, dolphins and porpoises) live for a long time - generally the larger species living longest. Bowhead whales spend their lives in cold Arctic waters. They may be the world's oldest mammals and are the longest lived of all whales – possibly over 200 years!

Threats

This species was hunted close to extinction in the middle of the 20th century and currently only five stocks (distinct populations) are recognised. Bowhead whales are still targeted in some areas by native subsistence hunts. Thus whaling is still a threat to this species, as well as habitat loss, entanglement in fishing nets, chemical and noise pollution, being hit by boats and climate change.

Whale Diploma Part 2: Whale Activity

Knowing about whales is fantastic but, in order to best protect them, action is also needed!

Below are just a few ideas for children's activities that they could undertake with your help and be awarded with their diploma:

Whale Swim

How about organising a sponsored swim (or other sponsored activity) and get sponsored by family and friends for every length you manage. WDC's events team have many ideas and can provide you with sponsorship forms and information.

Poster Display

On your own, or with a group of friends, why not create a range of posters that you can display in your school hall/classroom or maybe at a club meeting you go to (such as Brownies or Cubs). You could show the different species of whales there are, where they live and what threats they face. Let people know how they can help!

Artwork Auction

In your art class at school, perhaps you can create some whale artwork – paintings, models, mosaics etc. Then hold a fun auction to raise awareness and a few funds!

Whale Concert

If you belong to a school orchestra or band, why not give a charit concert in aid of whales and charge an entrance fee to be donated to whale protection projects. Or, if you like drama, put on a whale play instead!

Raffle or Sale

Run a raffle - maybe asking friends and family if they can donate goodies (books, toys, biscuits and chocolates etc.) for you to use as prizes. Or you could organise a cake or 'healthy eating' sale at school break time!

Litter Pick-up

Organise a beach, park or school litter pick-up. Perhaps get sponsored for every piece of litter you dispose of properly!

What happens to any money you raise?

Any money you send will be put to good use helping to fund whale protection projects. For example our humpback project in the United States works toward protecting whales from being hit by boats and getting entangled in fishing gear. More than 50% of the humpbacks in the Gulf of Maine bear scars from entanglement in fishing gear and WDC is currently conducting a boat strike scar study to learn the risk these animals face from boats and ships in the area. WDC works with fishermen, shippers and government agencies to reduce these, and other threats to whales. WDC also promotes responsible whale watching through WhaleSENSE.org and maintains a catalogue of more than 2000 individually identified humpback whales, as part of a long term research project which is vital in monitoring the size and health of the population.

Any funds should be sent to...

Whale Diploma
WDC (UK)
38 St Paul Street
Chippenham
SN15 1LJ

Whale Diploma
WDC (NA)
7 Nelson Street
Plymouth
MA 02360



Please include the response form found on the following page.

Whale Diploma response form

To claim your award certificate, please print off, complete and return this form to the address at the bottom of the page (or fax to 01249 449501).

Full contact name of teacher or parent:

Position (if applicable):

Address:

Postcode/Zipcode:

Email address:

Number of children that took part :

Age of children (please provide dates of birth if possible*):

Dolphin Activity (please include DATE, LOCATION, ACTIVITY DESCRIPTION and ANY RESULTS - number of visitors to your event, donations collected, feedback received for example):

* If you have been working with a class of children, their ages are enough.

PLEASE SEND ANY IMAGES OF YOUR EVENT - WE MAY USE THEM IN OUR PUBLICATIONS OR WEBSITE.
PLEASE NOTE THAT WE REQUIRE WRITTEN PERMISSION AND A PARENT/GUARDIAN'S SIGNATURE TO USE ANY PHOTOS OF CHILDREN.

WHALE AND
DOLPHIN
CONSERVATION



Please tick a box if you would like to receive further information from WDC.

by post or email