

WHALE EXPLORATION

Use your imagination to take yourself on a virtual field trip with Ocean Connectors!



This is the boat we will be boarding today. It is called the Marietta. It is 90 feet long. This is one of the many boats in the [Flagship](#) fleet.

Let's go over some important rules to keep us safe on boats:

1. No running
2. Be respectful of guests
3. Always hold onto the handrails



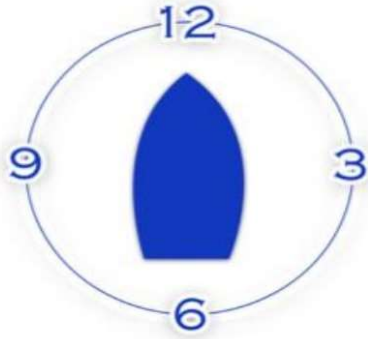
Our trip begins! We sit in the middle of the boat, on the top deck. We'll have a great view of all sides.

To our left is Broadway Pier. The glass and lights really showcase the beauty of the building and it can be rented out as an event space.



Look up at the wheelhouse, where the Captain will steer the boat.

The right side of the boat is called the starboard side. The left side is called port. The front of the boat is called the bow, and the back of the boat is called the stern.



We use the boat like the face of a clock so we know where to look to spot the whales. The front is 12 o'clock, the right side is 3 o'clock, the back is 6 o'clock, and left side is 9 o'clock.

Photo Credit:
Mauiwhalewatchtours.com



As we pull away from the dock, notice this Heermann's gull perched on the railing of our boat.

You can recognize a Heermann's gull by its bright red beak. The Heermann's gull is the only North American gull that nests south of the US and migrates north during the winter.



Today we'll be learning from many experts, including the Flagship Captain and Crew. Listen up as they share fascinating information over the speaker.



We're passing the USS Midway Museum! This museum gives the public a view of life as a sailor for the US Navy. Explore exhibits such as the flight deck, aircraft gallery, the remembrance gallery, and more.



Look behind you! As we are departing the dock, you can see a great view of downtown San Diego.

Many different ships come into San Diego Bay, including cargo, military, and cruise ships. We'll get to see some of these ships today.

Did you know San Diego is the 8th largest city in the US?



While we are heading out of San Diego Bay, we will stay seated, get used to the movement of the boat, and learn about some of San Diego Bay's history.



We may get a chance to see a variety of cool military ships, other boats, and aircraft.

This is a destroyer class warship from the US Navy and has a pad for helicopters to land on the back!



On some days, we see a submarine like this one.

San Diego is home to 5 submarines, located at Naval Base Point Loma.



Look, there's a coast guard helicopter called a Jayhawk.

The Coast Guard Air Station in San Diego has 3 of these amazing helicopters.

The Coast Guard is a branch of the US armed forces responsible for enforcement of maritime law and for the protection of life and property at sea. They perform many rescues of ships in distress.



Now we are passing the FLIP research vessel. This is not an ordinary ship – it’s a 355 foot oceanography research platform. FLIP can be towed out to sea in its horizontal position and then “flipped” 90 degrees by filling chambers with water. When it flips, 300 feet of its length are under water!

Photo Credit: Gcaptain.com



What is that over there?

We can see a couple of sea lions taking a nap on a green buoy! The buoys are used to mark the edge of the channel as we enter the open ocean.

Be on the lookout for more sea lions on our trip today.



Look at this large sailboat passing by.

The boat we are on has an engine and uses power to move, but traditional sailing is done only using the power of the wind to push the sails.



We need a few volunteers! We are simulating a gray whale jumping out of the ocean. This is called “breaching”.

Other whale behaviors we may get to witness today include snorkeling, which is when the whale swims slowly just under the surface of the water, and spyhopping, which is when the whale pokes its head up out of the water to take a look around.



We will pass around a variety of educational materials today so that you can learn as much as possible about the species of whales and dolphins that live off our coast.



Take a look at all the different types of whales. The blue whale, near the top, is the biggest of all animals. Look at how small the orca is in comparison! Orcas are actually a type of dolphin.

Did you know the orca is a natural predator of young gray whales? Orcas work in groups to hunt whales, seals, and fish.



We can use this tuning fork to simulate a whale's hearing and how sound travels through the bones in our skull even when our ears can't hear it! Whales have excellent hearing and use sound to communicate, locate food, and navigate. Sounds made by whales include clicks, whistles, and calls.

Scientists study how whales communicate and use echolocation, and they also study how other underwater noises such as sonar and explosives can affect the whales. This subject is called "whale acoustics."



If you look closely, you can see the Point Loma Lighthouse below Cabrillo National Monument! This is the very tip of San Diego Bay, and as soon as we pass it we will be entering the open ocean, where we can start to spot whales.

Cabrillo National Monument is a great place to visit with your family to go tide pooling and to learn about the history of Southern California.



The original Point Loma Lighthouse is way up on top of the hill.

It was built in 1855 by the US government after California was designated a state.



How do we look for the whales? The first thing we will see is a mist shooting up into the air as the whale comes up to the surface to breathe. This is called their “blow”.

Whales usually take 3-5 breaths before taking a deeper dive. Binoculars might help you spot a whale’s blow.



When gray whales blow, the mist is shaped like a heart because gray whales have two blowholes. Their blow can shoot 15 feet up into the air!



Off the coast of San Diego, we can see a variety of different whales and dolphins.

We often see common dolphins, bottlenose dolphins, gray whales, fin whales, humpback whales, and Pacific white-sided dolphins like this one.



Whale, 2 o'clock! We've spotted our first gray whale! You can tell it is a gray whale because it lacks a fin on its back and has gray markings on its body.

The Captain will slow down the boat and let the whale pass by while we take a look.



Adult gray whales can grow up to 50 feet long. That's a little bigger than a school bus.



Here we can see the blowhole. See how there are 2 holes? Draw this in your journal.

Can you see the white spots and bumps? Those are barnacles and whale lice. They are harmless crustaceans that live on the whale's body.

Photo Credit: Rachel Tuck



Baby gray whales are darker in color and have fewer barnacles and whale lice on their bodies. This is because whales are not born with these things, but pick them up in the water as they get older.

Photo Credit: Rachel Tuck

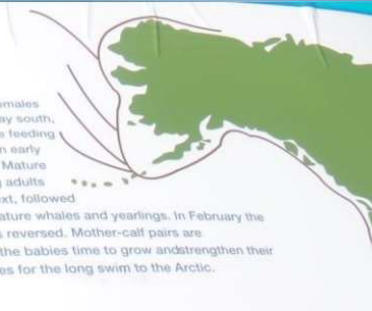
MIGRATION

Gray whales make one of the longest known migrations of any mammal, swimming 5,000 to 7,000 miles each way between summer feeding grounds in cold arctic waters and winter calving lagoons in Baja California, Mexico.

Migration Cycle

- June–September Arctic feeding grounds
- October–February Southward migration
- January–February Mexican lagoons

Migration Parade
Pregnant females lead the way south, leaving the feeding grounds in early October. Mature breeding adults leave next, followed by immature whales and yearlings. In February the order is reversed. Mother-calf pairs are giving the babies time to grow and strengthen their muscles for the long swim to the Arctic.



Let's take another look at the educational signs.

Gray whales migrate 6,000 miles from the Arctic down to Mexico, and then back! It's one of the longest known migrations of any mammal.



After giving birth in shallow lagoons of Mexico, mother gray whales migrate back to the Arctic with their babies swimming right next to them.

Baby whales are called calves.



Wow, there goes a fin whale! These are very fast whales, and they are the second largest (after the blue whale).

We can see its "dorsal" fin. The dorsal fin is the fin on top of a whale's body.



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When whales go down for a deeper dive, they thrust their bodies forward, and you may see their tail come up into the air. A whale's tail is called a "fluke".

When you see a fluke, it means the whale is probably going down for a deeper dive and might not come up again for around 15 to 20 minutes.



Dolphins love to play in the waves created by our boat! That's called the "wake" of the boat. Look at them jumping and splashing right below us!

How many dolphins do you think travel together in a single pod? Write down your guess and research the answer at home.



There are many different types of dolphins. These ones jumping next to our boat are called common dolphins. You can recognize them because of the yellowish-white patches on their sides.

Some dolphins can jump as high as 25 feet in the air!

How many dolphins do you count? Write down your answer.



There are some pilot whales up ahead!

Like orcas, pilot whales are actually dolphins, and they are almost as big as orcas, measuring up to 20 feet.



This really is a special day, because an enormous blue whale just swam by!

They are highly endangered and rare to see, but they are known to migrate past San Diego. This is a first for everyone on board.

Photo Credit: Sergio Aguilar



As we're heading back to shore, there's another cool animal, a brown pelican.

Pelicans plunge head first into the water to scoop up fish in their bill. Then they tilt their heads down to drain the water out of the pouch, then toss their head back to swallow the fish whole.



How lucky are we! There's a humpback whale breaching right outside the bay.

Humpback whales tend to do a lot of breaching. Remember, breaching is when a whale jumps out of the water.

Photo Credit: Sergio Aguilar



Whale watching is a long activity. We'll take a break for lunch and head to the middle deck of the boat. We'll keep learning while we eat as we look at "biofacts"! Biofacts are natural artifacts.



As we sit down to lunch, we'll pass around a sample of baleen. It looks a little bit like a broom! Baleen is what some whales, including gray whales, have instead of teeth. Baleen acts as a filter for the whales to trap their food.

It is made out of keratin, which is also what our fingernails are made out of. Feel your fingernails.



This student is holding a sample of barnacles, which we'll learn more about in just a moment.

As we finish lunch, what kinds of things from your lunch can be recycled? What kinds of things from your lunch could go into compost?



These little animals are called amphipods. Draw one in your journal and write down the following sentence.

Amphipods are a main food source for gray whales, especially while they are in the Arctic.



This is krill, which is another favorite food of baleen whales. Krill are similar to shrimp. How much krill do you think a blue whale can eat in one day?

A blue whale can eat around 10,000 to 15,000 pounds of food in a day. There are about 450 krill in 1 pound...so that's over 4 million krill each day!



Scientists use magnifying glasses to get a closer look at really small things.

One of your classmates is looking closely at a sample of whale lice.

Whale lice and barnacles live on gray whale skin.



These are whale lice. Whale lice are a type of crustacean that feeds on the whale's dead skin. Don't worry, it doesn't harm the whale in any way!



These are barnacles. They release a sticky substance that acts like cement to help them stick onto whatever object they can get ahold of. Barnacles feed through feather-like body parts that filter microscopic organisms from the water. When the tide goes out, or a whale goes up to the surface, the barnacle closes to trap moisture inside.



Don't forget to keep looking around as we return to San Diego Bay. Something is coming up on this side of the boat.

What do you think it is?



Look at all those sea lions lying on the bait docks!

We can also see lots of birds. The black ones are diving birds called cormorants and the white birds are snowy egrets. Both love to eat fish.



How can you tell if this is a sea lion or a seal? We have both in San Diego!

Sea lions have external ears, meaning they stick out from their body and we can see them. Do you see them here? Seals have internal ears that we can't see on the outside.

Sea lions also move better on land because they have larger front flippers.



We made it back to the harbor. We must say a big thank you to the Captain and Crew of the Marietta for helping us have a fun and safe voyage.

Did you know you can come back and go whale watching again with Flagship? Whale watching season is December through April each year!



Our partners at Flagship Cruises & Events are essential to helping provide this field trip for you! We are so grateful for their many years of support.

Photos taken by Anna Mar unless otherwise credited