

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



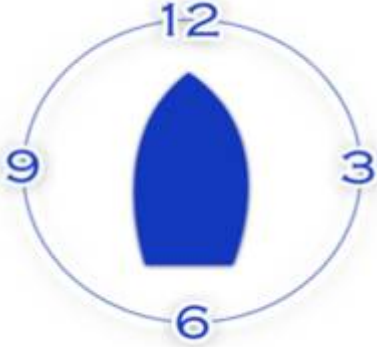


Our trip begins! We sit in the middle of the boat, on the top deck. This is where the boat is the sturdiest. We'll also have a great view of all sides!

To our left is Broadway Pier.



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.

	<p>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.</p> <p>Photo Credit: Mauiwhalewatchtours.com</p>
	<p>As we pull away from the dock, notice this Heermann's gull perched on the railing of our boat.</p> <p>You can recognize a Heermann's gull by its bright red beak.</p>
	<p>Today we'll be learning from an expert naturalist guide and volunteers from the Birch Aquarium at Scripps! Listen up as they share fascinating information over the speaker.</p> <p>You can go visit the Birch Aquarium in La Jolla with your family to learn more about the ocean!</p>



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

Did you know San Diego is the 8th largest city in the U.S.?



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 Navy warship has a pad for helicopters to land on the back!



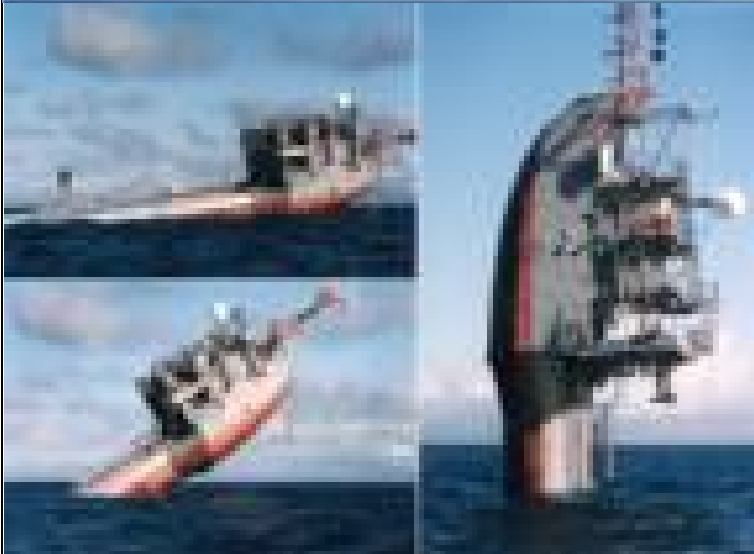
On some days, we see a submarine like this one!

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.



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 sea lion taking a nap on a red 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.



Our next demonstration shows us the length of gray whales. The different markers on this rope represent their size at different life stages, and the total length of this rope represents a full-sized adult gray whale.



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.



Experts from Birch Aquarium are standing by to help us learn more about whales and dolphins.

Write down a question you have about any ocean animal.



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.



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

It was built in 1855 by the U.S. 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.



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.

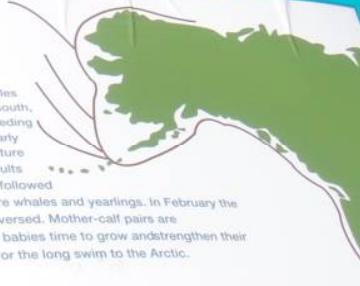
We often see common dolphins, pacific white-sided dolphins, bottlenose dolphins, gray whales, fin whales, and humpback whales.



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.

	<p>Adult gray whales can grow up to 50 feet long. That's a little bigger than a school bus!</p>
	<p>Here we can see the blowhole! See how there are 2 holes? Draw this in your journal.</p> <p>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.</p> <p>Photo Credit: Rachel Tuck</p>
	<p>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.</p>

<p>MIGRATION</p> <p>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.</p> <p>Migration Cycle</p> <ul style="list-style-type: none">• June–September Arctic feeding grounds• October–February Southward migration• January–February Mexican lagoons <p>Migration Parade</p> <p>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.</p> 	<p>Let's take another look at the educational signs.</p> <p>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.</p>
  <p>© Francois Collier / www.arkive.com</p>	<p>After giving birth in shallow lagoons of Mexico, mother gray whales migrate back to the Arctic with their babies swimming right next to them.</p> <p>Baby whales are called calves.</p>
  <p>© F. Davidson / Terra Nova Institute</p>	<p>Wow, there goes a fin whale! These are very fast whales, and they are the second largest (after the blue whale).</p> <p>We can see its "dorsal" fin. The dorsal fin is the fin on top of a whale's body.</p>



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 swimming 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.

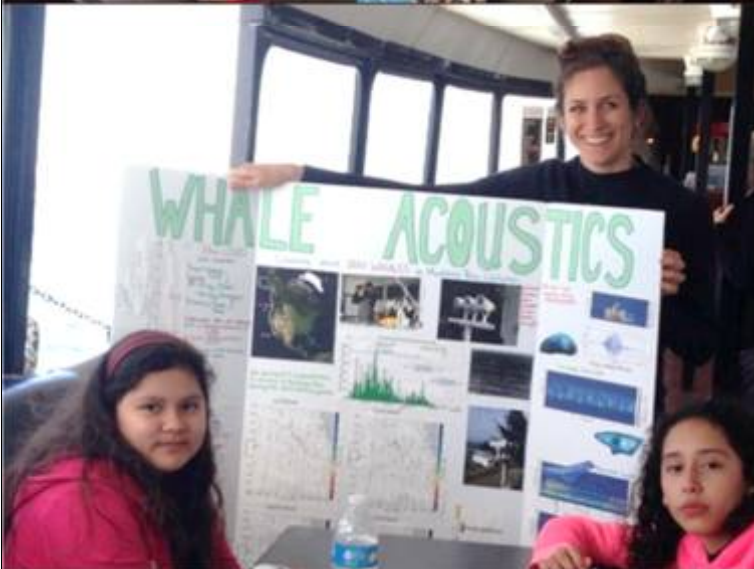
Photo Credit: Sergio Aguilar



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.

What kinds of things from your lunch can be recycled?

What kinds of things from your lunch could go into compost?



Whales use different sounds to communicate, including whistles and clicks.

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".



As we head back upstairs, let's look at some "biofacts" up close! Biofacts are natural artifacts. Volunteers from Birch Aquarium are here to teach us more.

Here is 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.



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.



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 barnacles. They secrete a sticky substance that acts like cement to help them stick onto whatever object they can get ahold of. Barnacles feed through feather-like appendages 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.



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!



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.



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!

 <p>The image contains two logos. On the left is the logo for the Unified Port of San Diego, featuring a stylized map of California in red, orange, and blue above the text "Unified Port of San Diego". On the right is the logo for Flagship Cruises & Events, featuring a flag on a pole above the text "FLAGSHIP" in a large serif font, with "CRUISES & EVENTS" in a smaller font below it.</p>	<p>Our partners at the Port of San Diego and Flagship Cruises & Events are essential to helping provide this field trip for you!</p>
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