

GRADE LEVEL	CA SCIENCE STANDARD	HOW OUR WHALE WATCH FIELDTRIP CONTRIBUTES TO THE STANDARD
Kindergarten	Physical Science 1a: Students know objects can be described in terms of their physical properties (e.g. color, size, shape, weight, texture, floating, sinking)	Students will learn about the physical properties of marine life as they see them on the trip. Prep and follow-up activities offered on website will supplement this as well.
	Life Science 2: Different types of plants and animals inhabit the earth, 2c: Students know how to identify major structures of common plants and animals	Students will be able to identify several different marine animals and their original features (blow hole, fins, flippers, ear flaps) as pointed out during the trip and prep/follow-up activities offered on website.
	Earth Science 3a: Students know characteristics of oceans	Students will be introduced to the concept of the Pacific Ocean and that some of the species only live in this ocean.
	Investigation and Experimentation 4a-e: Students will be able to observe common objects using five senses, describe properties of common objects, describe position of objects using a point of reference, compare and sort objects by one physical attribute, communicate observations orally and through drawings	Students will be able to locate and describe what is observed on the boat and from the boat. Students will be able to demonstrate these skills both orally and with the prep/follow-up activities offered on the website.
First	Life Science 2a-d: Students know different plants and animals inhabit different environments and have features that help them survive in these environments, Students know that plants and animals need water, food and light, Students know animals eat plants or other animals for food, Students know how to infer what animals eat by the shapes of their teeth.	Students will be able to identify several different marine animals and their original features (blow hole, fins, flippers, ear flaps) as pointed out during the trip and prep/follow-up activities offered on website, students will learn about the different diets of the marine mammals and what purpose baleen serves as a replace for actual teeth.
	Investigation and Experimentation 4a-e: Students will be able to draw pictures that portray features of what is being described, record observations and data with pictures, numbers or written statements, describe the relative position of objects by using two reference points, and make new observations when discrepancies exist between two descriptions of the same object or phenomenon	Students will be able to locate and describe what is observed on the boat and from the boat. Students will be able to demonstrate these skills both orally and with the prep/follow-up activities offered on the website.
Second	Physical Science 1: The motion of objects can be observed and measured	Students will learn about the migration patterns of some of the species off of the California coast and will be able to monitor their movement during the course of the whale watch trip.

	Life Science 2a: Students know that organisms reproduce offspring of their own kind and that the offspring resemble their parents and one another, 2d: Students know there is a variation among individuals of one kind within a population.	During the course of the whale watch trip students may see babies of the species being observed. Students will learn about the gray whale birthing grounds in Baja California. Students will learn about the markings on certain species of marine mammals and how these become identifiers of individuals within the species.
	Earth Science 3d: Students know that fossils provide evidence about the plants and animals that lived long ago and scientists learn about the past history of Earth by studying fossils	Students may have the opportunity to see blue whales, the largest animal on earth, and hear about the prehistoric ancestors of some of the other ocean inhabitants.
	Investigation and Experimentation 4c: Compare and sort common objects according to two or more physical attributes, 4e: construct bar graphs to record data using appropriately labeled axes, 4g: follow oral instructions for scientific investigation	Students will be able to describe what is observed from the boat. Students will learn the differences between whale species (baleen vs. toothed/# of blowholes). Students will be able to demonstrate these skills both orally and with the prep/follow-up activities offered on the website.
Third	Life Science 3a: Students know plants and animals have structures that serve different functions in growth, survival and reproduction, 3b: Students know examples of diverse life forms in different environments, 3d: Students know when the environment changes some plants and animals survive and reproduce and others die out or move to new locations	Students will learn about the various features of different whale species (blowholes, blubber, half-brain sleeping, etc.), students will learn about the many different species of marine life off of the California coast and how they may be different from marine mammals of other areas (arctic polar bears) and students will learn about the migration, endangerment and extinction of species of whales.
	Investigation and Experimentation 5: Students will be able to develop their own questions and perform investigations, 5e: collect data in an investigation and analyze those data to develop a logical conclusion.	Students will have the opportunity to ask questions about what they see or about information given on their trip. Prep/follow-up activities from the website will allow further investigation and the opportunity to demonstrate what they have learned.
Fourth	Life Science 2b: Students know producers and consumers are related in food chains and food webs and may compete with each other for resources in an ecosystem	Students will learn about whale diets including the Orca's "Ambush Alley" during gray whale migration
	Life Science 3b: Students know that in any particular environment some kinds of plants and animals survive well, some survive less well and some not at all.	Students will learn the difference between marine mammals that may be seen and those in other areas (Arctic polar bears) and will also understand the reasons for whale migrations.
	Earth Science 5c: Students know that water erodes landforms, reshaping the land	Students will learn that the gray whales use our coastline as a navigation tool during their migration between Alaska and Baja California.

	Investigation and Experimentation 6e: Construct and interpret graphs from measurements, 6f: follow a set of written instructions for a scientific investigation	Using activities from the website, students will be able to perform scientific investigations
Fifth	Life Science 2: Students know that plants and animals have structures for respiration, digestion, waste disposal and transport of materials	Students will learn about the difference in blowholes between baleen and toothed whales, students will learn that because of their krill intake, blue whale poop is red.
	Earth Science 3a: Students know most of Earth's water is present as salt water in the oceans which cover most of the Earth's surface	Students will learn that the Pacific Ocean is the largest ocean
	Investigation and Experimentation 6a: Students will classify objects in accordance with appropriate criteria, 6g: record data by using appropriate graphic representations	Students will learn how to classify the different types of whales based on multiple criteria, students will be able to utilize activities from website to record data
Sixth	Ecology 5a: Students know that energy is transferred between organisms, starting with sunlight	The animal diet is discussed during the course of the whale watch trip, relaying the transfer of energy throughout the food chain.
	Investigation and Experimentation 7c: Construct appropriate graphs from data and develop qualitative statements about the relationships between variables.	Students will be able to record data from their sightings and utilize activities from website to perform investigation.
Seventh	Investigation and Experimentation 7a: Can select and use appropriate tools (binoculars) to collect data, 7d: Construct labeled diagrams to communicate scientific knowledge	Students may have the opportunity to use binoculars to look for marine life while on the whale watch, students will have the opportunity to use the pre-trip packet and follow-up activities to communicate scientific knowledge
Eighth	Density and Buoyancy 8: All objects experience a buoyant force when immersed in a fluid, 8b: Students know how to calculate the density of substances from measurements of mass and volume, 8c: Students know the buoyant force on an object in a fluid is an upward force equal to the weight of the fluid the object has displaced	There is opportunity, while on board the whale watch vessel, to discuss buoyancy and the impact density has on displacement of water.
Ninth through Twelfth	Physics: Waves 4: Waves have characteristic properties that do not depend on the type of wave	Students will have the opportunity to view waves in the ocean and understand their creation process, students will also have the opportunity to discover sound waves that travel through water during echolocation.

Energy in the Earth System 6b: Students know the effects of climate of proximity to large bodies of water and cold or warm ocean currents.

Students will understand how the currents effect not only the climate, but the marine species found off of our coast.