

## Save The Bay Main Lessons Description and Correlation to State Science Standards

Here is a list of Save The Bay’s most important lessons. A canoeing program typically includes 2-4 lessons, plus additional games, activities, or discussions not included here. Note: virtually all programs include lessons number 1 (any version) and 2.

Lesson number	W (on water), L (on land), WL (either)	Lesson name and description	Topics	California State Science Standards by Grade							Interdisciplinary	
				5	6	7	8	High school Earth sciences	High school biology	High school chemistry		
1	W	<b><u>SF Bay Wildlife Investigation</u></b> <i>Exploring the wetland by canoe—observing and identifying living things.</i>	Getting to know the wetland. How to identify living things (plants, invertebrates, birds) using field guides.									x may include drawing, poetry, journaling
1.1		We can emphasize the following standards-correlated topics: <i>-food webs/food chains</i>	How are the living things you have found connected in a food web?		5a, 5b							
1.2		<i>-trophic levels, niches</i>	Who are the producers, consumers, predators, and decomposers in a wetland?		5c							
1.3		<i>-resources</i>	For a particular creature, what resources does it need? Who is it competing with?		5e							
1.4		<i>-ABC's of a wetland</i>	Abiotic, biotic, and cultural factors in the wetland ecosystems; how have humans impacted the wetland?		5e							
1.5		<i>-adaptations</i>	How are living things adapted to living a tidal wetland?			3a, 3e			6g	1.5		
1.6		<i>-biodiversity</i>	What biodiversity exists in a wetland?						6a, 6b, 8b			
2	WL	<b><u>Sense of Place</u></b> <i>Students are guided through a sensory exploration of the wetland.</i>	Use all your senses to discover what is around you.									x may include drawing, poetry

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3	WL	<b>Ways to Save The Bay</b> <i>Students use creative ways to describe actions they can take that will save the Bay. Great at the end of the day as a closing activity.</i>	Making the connections between human behavior and the health of San Francisco Bay.									x may include skits, writing
4	WL	<b>Web of Life</b> <i>Using laminated cards, students get a preview of what they might see and find ecological connections among the living and nonliving things in a wetland ecosystem.</i>	What lives in the wetland ecosystem? How is everything connected? How do humans affect the ecosystem?		5a 5b 5e							
5	WL	<b>Water quality testing: phosphates</b> <i>Using a test kit, students test for phosphates in the Bay.</i>	Are there excess nutrients in San Francisco Bay? How did they get there? What are the repercussions?	1h 6f	5a 5b 5d 7a 7b	7a	6b		6b, 6e			
6	WL	<b>Water quality testing: pH</b> <i>Using an indicator, students test the pH of the water in S.F. Bay.</i>	What does pH mean? What is the pH of water in SF Bay? How do humans affect pH of waterways? How can we protect the Bay?	6f	7a 7b	7a	5e		6b	5d		
7	WL	<b>Salinity of S.F. Bay</b> <i>Students test the salinity of the water in their current location.</i>	What is the salinity of the water at our site? How does salinity vary during the year and by location? How do humans affect salinity? Why is it important? How do organisms deal with changing salinity?	1i, 6f	7a 7b	7a		4d				
8	WL	<b>Water quality testing: Dissolved Oxygen</b> <i>Using a kit, students test for the level of dissolved oxygen in the water.</i>	Is there enough oxygen in the water for fish and other living things to survive? What causes oxygen depletion?	2f 6f	5a 5e 7a 7b	7a			1f, 6b, 6d			

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9	L	<b>Mapping Questions</b> <i>Students look at maps, answer questions, and present to the whole group.</i>	What is a watershed? How large is the watershed of San Francisco Bay? What is an estuary? Where are we right now? What has happened to our wetlands?	3e						6b		x public speaking
9.1	L	<b>Water use in CA</b> <i>Students look at a map of California that shows how water is used in the state, answer questions, then present to the group.</i>	Who gets the water? How and where is water diverted? How does diverting water impact ecosystems?	3d 3e					8c			x public speaking
10	W	<b>Ohlone Way</b> <i>Students listen to a vivid description of the rich biodiversity of San Francisco Bay in the past as described in <u>The Ohlone Way</u>.</i>	What was San Francisco Bay like before the arrival of Europeans? What does it mean to be extinct?			3e				6b		
11	WL	<b>Timeline Cards</b> <i>Students make a “human timeline” showing the history of San Francisco Bay. (May include support of additional poster.)</i>	The Bay through time. Includes geological history as well as human history. Climate change.		1c 1f	4a		5c		6b		
12	WL	<b>Check Out that Bird</b> <i>Students embark on a self-guided discovery of birds in the wetland.</i>	Look closely at birds. For what environments are they adapted?			3a						x drawing
13	WL	<b>Trash Clean-up</b> <i>Students find and clean up trash in the wetland and reflect on how it affects living things.</i>	The impact of plastic trash on wildlife. Recycling. Stewardship.		5e							x service learning
13.1	L	<b>Trash Activities</b> <i>Biodegradability timeline, recycling relay, trash stories</i>	How long does it take a plastic bottle to biodegrade? The impact of plastic trash on wildlife. Trash in a watershed. Recycling. Cycles of matter. Stewardship.		5e					6b		x physical activity, creative writing

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14	L	<b>Pickleweed Tag and other games</b> <i>Students play cooperative games to learn about the wetland.</i>	Enacting ecosystem processes and human impacts on the wetlands.		5c 5e						6b		x physical activity
15	L	<b>Pass The Water</b> <i>In teams, students try to transport a liter of water from its source to its destination using their hands.</i>	How water moves through a watershed. Water as a finite resource and the importance of conserving.	3d									x cooperation
16	L	<b>Bird Beak Buffet</b> <i>With specialized “beaks,” students try their luck at finding different kinds of foods.</i>	How bird beaks show adaptations to particular food sources and allow different species to coexist.		5e	3a, 3e							
17	WL	<b>Where’d the Water Go?</b> <i>The group uses a bottle to represent all the water on earth, then sees how much is available for drinking.</i>	Water as a finite resource. The importance of conserving water.	3a, 3d					8c				
18	W	<b>Watershed scavenger hunt</b> <i>Students explore the wetlands with questions that help them focus on the watershed.</i>	Watersheds and estuaries. Human impacts. Tides. The wetland ecosystem.										
19	WL	<b>“What Are These Birds Doing?”—An Inquiry Project</b> <i>Students collect data on the behavior of one particular bird for a fixed period of time, then make inferences about how that species of bird spends its time.</i>	Bird behavior. Quantitative data. Observation	6f, 6g	7b	7a							Fractions to percents, sampling
20	WL	<b>Postcards from the Past</b> <i>Students draw pictures on postcards that represent moments from the geologic past.</i>	Forces that shape the bay: geology, erosion, human impacts. Geologic time.		1a, 1f, 2a	4a, 4e, 4f		5c					Drawing
A	L	<b>Solar Microscopes</b> <i>(Not available for most programs.) Using solar microscopes, Students examine small marine plankton.</i>	How to use a microscope. Details to notice when identifying living things. Adaptations. Types of plankton and invertebrates.		7b	3a 6d 7a							

