

Amigos de Bolsa Chica's FLOW Field Trip Scheduling



Theme	Topics and Concepts	NGSS*	
		Middle	High
1. Comparing and contrasting organisms of the plankton community	Cell structure; Single-celled vs. multicellular organisms; examination of plankton anatomical structures, shapes and their evolutionary history, morphological traits and natural selection; Community, populations and ecosystems; Variation and distribution of traits as a result of genetic and environmental factors	LS1-1 LS4-2 LS4-6	LS3-2 LS4-2 LS4-5
2. Phytoplankton and Zooplankton: exploring energy sources, trophic levels and ecological relationships	Primary production; photosynthesis; autotrophs vs. heterotrophs and mixotrophs; Co-evolution; Predation; Symbiosis; Cycling of matter and energy flow in ecosystems; Community, populations and ecosystems; Biodiversity	LS1-6 LS1-7 LS2-1 LS2-2 LS2-4	LS1-5 LS1-7 LS2-1 LS2-2 LS2-4 ESS2-7
3. Water quality, algal blooms and nutrient recycling in coastal ecosystems	Plankton growth as a response of nutrient uploads; Eutrophication: Cycling of matter and energy flow in ecosystems; Community, populations and ecosystems; Algal blooms: triggers and dynamics; Effects of seasons on plankton communities; Climate, currents, upwelling and other local factors that influence plankton growth; Point and non-point source water pollution; Overfishing; Environmental impacts of human activities; Biodiversity	LS1-5 LS1-6 LS2-3 LS2-4 LS2-5 LS3-2 ESS1-1 ESS2-6 ESS3-3	LS1-5 LS2-4 LS2-6 LS2-7 LS4-2 LS4-5 LS4-6 ESS2-7 ESS3-3 ESS3-4
4. Plankton, marine sediments, petroleum and the carbon cycle	Plankton and the carbon cycle; Origin and formation of crude oil; Greenhouse effect; Global Climate Change; Biogenous marine sediments; Environmental impacts of human activities; Biodiversity; Global climate feedbacks; Geoengineering; Co-evolution of life and earth systems; Global environmental problems	ESS2-1 ESS3-3 ESS3-4 ESS3-5	LS2-5 LS2-7 ESS2-2 ESS2-4 ESS2-6 ESS2-7 ESS3-1 ESS3-6 ETS1

LS = Life Sciences; ESS = Earth and Space Sciences; ETS = Engineering Design

*The Next Generation Science Standards (NGSS) as presented by the National Research Council (<http://www.nextgenscience.org/>) that relate to each theme.