California Content Standards
For Waves, Wetlands and Watersheds, by Chapter

3rd GRADE	Activity 3.1: Wetlands at Work	Activity 3.2: Marsh Munchers	Activity 3.3: The Perfect Beak
Science Content Standards **3. Life Sciences** Adaptations in physical structure or behavior may improve an organism's chance for survival. As a basis for understanding this concept:			
3.a. Students know plants and animals have structures that serve different functions in growth, survival, and reproduction		X	X
3.b. Students know examples of diverse life forms in different environments, such as oceans, deserts, tundra, forests, grasslands, and wetlands.	X	X	
3.c. Students know living things cause changes in the environment in which they live: some of these changes are detrimental to the organisms or other organisms, and some are beneficial.	X	X	
3.d. Students know when the environment changes some plants and animals survive and reproduce; others die or move to new locations.	X	X	X
Mathematics Content Standards			
Number Sense 2.1. Find the sum or difference of two whole numbers between 0 and 10,000		X (Extension #1)	
Number Sense 2.4 Solve simple problems involving multiplication of multi-digit numbers by one-digit numbers (3,671 x 3 =__).		X (Extension #1)	

Number Sense 3.2. Add and subtract simple fractions (e.g., determine that 1/8 + 3/8 is same as 1/2).	X (Extension #2)		
English-Language Arts Content Standards			
Writing 1.1. Create a single paragraph: a. Develop a topic sentence. b. Include simple supporting facts and details.	X (Extension #4)		
Writing 2.2. Write descriptions that use concrete sensory details to present and support unified impressions of people, places, things, or experiences.	X (Extension #4)		
Reading Comprehension 2.7. Follow simple multiple-step written instructions (e.g., how to assemble a product or play a board game).		X (Standard addressed if game instructions are distributed to students.)	
History-Social Science Content Standards **3.1.** Students describe the physical and human geography and use maps, tables, graphs, photographs, and charts to organize information about people, places, and environments in a spatial context.			
3.1.1. Identify geographical features in their local region (e.g., deserts, mountains, valleys, hills, coastal areas, oceans, lakes).	X (Extension #3)		
3.1.2. Trace the ways in which people have used the resources of the local region and modified the physical environment (e.g., a dam constructed upstream changed a river or coastline).	X		

4th GRADE	Activity 4.1: Moving Mountains to the Sea	Activity 4.2: No Ordinary Sandy Beach	Activity 4.3: Beach in a Pan
Science Content Standards **4. Earth Sciences** The properties of rocks and minerals reflect the processes that formed them. As a basis for understanding this concept:			
4.a. Students know how to differentiate among igneous, sedimentary, and metamorphic rocks by referring to their properties and method of formation (the rock cycle).		X	
4.b. Students know to identify common rock-forming minerals and ore minerals by using a table of diagnostic properties.		X	
Science Content Standards **5. Earth Sciences** Waves, wind, water and ice shape and reshape Earth's land surface. As a basis for understanding this concept:			
5.a. Students know some changes in the earth are due to slow processes, such as erosion, and some changes are due to rapid processes, such as landslides, volcanic eruptions, and earthquakes.	X	X	X
5.c. Students know moving water erodes landforms, reshaping the land by taking it away from some places and depositing it as pebbles, sand, silt, and mud in other places (weathering, transport, and deposition).	X	X	X
Mathematics Content Standards			
Measurement and Geometry **3.5.** Know the definitions of a right angle, an acute angle, and an obtuse angle. Understand that 90°, 180°, 270°, and 360° are			X

associated, respectively, with 1/4, 1/2, 3/4, and full turns.			
English-Language Arts Content Standards			
Reading 1.1. Read narrative and expository text aloud with grade-appropriate fluency and accuracy and with appropriate pacing, intonation, and expression.	X (Applies to 4.1b if story is read aloud by students)		
Listening and Speaking 1.1. Ask thoughtful questions and respond to relevant questions with appropriate elaboration in oral settings.			X
Listening and Speaking 1.2. Summarize major ideas and supporting evidence presented in spoken messages and formal presentations.			X
History-Social Science Content Standards **4.1.** Students demonstrate an understanding of the physical and human geographic features that define places and regions in California.			
4.1.1. Explain and use the coordinate grid system of latitude and longitude to determine the absolute locations of places in California and on Earth.		X (Extension #3)	
4.1.4. Identify the locations of the Pacific Ocean, rivers, valleys, and mountain passes and explain their effects on the growth of towns.	X		

5th GRADE	**Activity 5.1: A Drop in the Bucket**	**Activity 5.2: Alice in Waterland**	**Activity 5.3: Branching Out**
Science Content Standards **3. Earth Sciences** Water on Earth moves between the oceans and land through the processes of evaporation and condensation. As a basis for understanding this concept:			
3.a. Students know most of Earth's water is present as salt water	X		X

in the oceans, which cover most of Earth's surface.			
3.d. Students know the amount of fresh water located in rivers, lakes, underground sources, and glaciers is limited and that its availability can be extended by recycling and decreasing the use of water.	X	X	X
3.e. Students know the origin of the water used by their local communities.	X	X	X
Mathematics Content Standards			
Number Sense 1.1. Estimate, round, and manipulate very large (e.g., millions) and very small (e.g., thousandths) numbers.	X		
Number Sense 1.2. Interpret percents as a part of a hundred; find decimal and percent equivalents for common fractions and explain why they represent the same value; compute a given percent of a whole number.	X		
Statistics, Data Analysis, and Probability 1.2. Organize and display single-variable data in appropriate graphs and representations (e.g., histogram, circle graphs) and explain which types of graphs are appropriate for various data sets.		X	

6th GRADE	**Activity 6.1: Beaches—Here Today, Gone Tomorrow?**	**Activity 6.2: Shifting Sands**	**Activity 6.3: Rollin' Down the Sand Highway**
Science Content Standards **2. Earth Sciences** Topography is reshaped by weathering of rock and soil and by the transportation and deposition of sediment. As the basis for understanding this concept:			
2.a. Students know water running downhill is the dominant process in shaping the	X	X	X

landscape, including California's landscape.			
2.c. Students know beaches are dynamic systems in which the sand is supplied by rivers and moved along the coast by the action of waves.	X	X	X
Mathematics Content Standards			
Number Sense 1.2. Interpret and use ratios in different contexts (e.g., batting averages, miles per hour) to show the relative sizes of two quantities, using appropriate notations (*a*/*b*, *a* to *b*, *a*:*b*).			X
Algebra and Functions 2.0. Students analyze and use tables, graphs, and rules to solve problems involving rates and proportions.			X
Algebra and Functions 2.2. Demonstrate an understanding that *rate* is a measure of one quantity per unit value of another quantity.			X
Algebra and Functions 2.3. Solve problems involving rates, average speed, distance, and time.			X

7th GRADE	**Activity 7.1: What's So Special About Native Species?**	**Activity 7.2: Adapted for Survival?**	**Activity 7.3: Survivor: California**
Science Content Standards **3. Evolution** Biological evolution accounts for the diversity of species developed through gradual processes over many generations. As a basis for understanding this concept:			
3.a. Students know both genetic variation and environmental factors are causes of evolution and diversity of organisms.	X	X	X
3.b. Students know the reasoning used by Charles Darwin in making his conclusion that natural selection is the mechanism of evolution.			X

3.d. Students know how to construct a simple branching diagram to classify living groups of organisms by shared derived characteristics, and expand the diagram to include fossil organisms.			X
3.e. Students know extinction of a species occurs when the environment changes and adaptive characteristics of a species are insufficient for its survival.	X	X	X
English-Language Arts Content Standards			
Writing 2.3. Write research reports: a. Pose relevant and tightly drawn questions about the topic. b. Convey clear and accurate perspectives on the subject. c. Include evidence compiled through the formal research process (e.g., use of a card catalog, *Reader's Guide to Periodical Literature*, a computer catalog, magazines, newspapers, dictionaries). d. Document reference sources by means of footnotes and a bibliography.	X		

8th GRADE	**Activity 8.1: Keep Your Head Above Water**	**Activity 8.2: You Are What You Eat**	**Activity 8.3: The Edge of the Wedge**
Science Content Standards **8. Density and Buoyancy** All objects experience a buoyant force when immersed in a fluid. As a basis for understanding this concept:			
8.a. Students know density is mass per unit volume.	X		X

8.b. Students know how to calculate the density of substances (regular and irregular solids and liquids) from measurements of mass and volume.	X		
8.c. 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.	X	X	
8.d. Students know how to predict whether an object will float or sink.	X	X	X

Community Action Chapter (All grades)	**Activity CA.1: Marine Debris: It's Everywhere**	**Activity CA.2: Searching Out Nonpoint Sources of Pollution**	**Activity CA.3: Clean Shorelines, Clean Oceans: Shoreline Cleanup**	**Activity CA.4: Preventing Pollution at the Source**
Science Content Standards				
3.LS.3.c Students know living things cause changes in the environment in which they live: some of these changes are detrimental to the organism or other organism, and some are beneficial.	●	●	●	
3.IE.5.c Use numerical data in describing and comparing objects, events, and measurements			●	
3.IE.5.d Predict the outcome of a simple investigation and compare the result with the prediction.			●	
3.IE.5.e Collect data in an investigation and analyze those data to			●	

develop a logical conclusion.				
4.IE.6.c Formulate and justify predictions based on cause-and-effect relationships.			When used in conjunction with 4th Grade chapter activities (see NOTE)	
4.IE.6.e Construct and interpret graphs from measurements.			When used in conjunction with 4th Grade chapter activities (see NOTE)	
4.IE.6.f Follow a set of written instructions for a scientific investigation.			When used in conjunction with 4th Grade chapter activities (see NOTE)	
5.IE.6.g Record data by using appropriate graphic representations (including charts, graphs, and labeled diagrams) and make inferences based on those data.			When used in conjunction with 5th Grade chapter activities (see NOTE)	
6.Resources.6.c Students know the natural origin of the materials used to make common objects			●	
6.IE.7.a Develop a hypothesis			●	
6.IE.7.c Construct appropriate graphs from data and develop qualitative statements about the relationships between variables.			●	
Biology/Life Sciences Ecology 6.b Students know how to analyze changes in an ecosystem resulting from changes in climate, human activity, introduction of nonnative species, or changes in population size.	●	●	●	●

High School Investigation and Experimentation 1.d Formulate explanations by using logic and evidence.			●	
High School Investigation and Experimentation 1.h Read and interpret topographic and geologic maps		Choose topographic maps for activity		
High School Investigation and Experimentation 1.m Investigate a science-based societal issue by researching the literature, analyzing data, and communicating the findings.				●
NOTES:	4th Grade Science: Use this activity to supplement and reinforce activities from the 4th grade chapter. Could marine debris reach the ocean in the same manner that Sandy does in "Sandy's Journey to the Sea?" Would marine debris act in a similar way to the sand in "Beach in a Pan?" Are there any plastic pieces in the sand samples examined in 4.2? 5th Grade Science: Use this activity to supplement and reinforce activities from the 5th grade chapter, particularly 5.2 and 5.3. (Addressing sources/destination	5th Grade Science: Use this activity to supplement and reinforce activities from the 5th grade chapter, particularly 5.2 and 5.3. (Addressing sources/destination of water supply, and the concept of watershed. Use a topographic map for CA2.) 7th Grade Science: Use this activity to supplement and reinforce activities from the 7th grade chapter, particularly 7.1. Are any special status species being impacted by non-point source pollution?	4th Grade Science: Use this activity to supplement and reinforce activities from the 4th grade chapter. Could marine debris reach the ocean in the same manner that Sandy does in "Sandy's Journey to the Sea?" Would marine debris act in a similar way to the sand in "Beach in a Pan?" Are there any plastic pieces in the sand samples examined in 4.2? Collect a small sample of sand during your beach cleanup for further examination in class. 5th Grade Science: Use this activity to supplement and	5th Grade Science: Use this activity to supplement and reinforce activities from the 5th grade chapter, particularly 5.2 and 5.3. (Addressing sources/destination of water supply, and the concept of watershed.) 7th Grade Science: Use this activity to supplement and reinforce activities from the 7th grade chapter, particularly 7.1. Will your solution help protect a particular species? 8th Grade Science: Use this activity to supplement and reinforce activity 8.2, addressing plastic debris buoyancy and how that impacts how

	of water supply, and the concept of watershed.) 7th Grade Science: Use this activity to supplement and reinforce activities from the 7th grade chapter, particularly 7.1. Are any special status species being impacted by marine debris? 8th Grade Science: Use this activity to supplement and reinforce activity 8.2, addressing plastic debris buoyancy and how that impacts the way debris affects different species.		reinforce activities from the 5th grade chapter, particularly 5.2 and 5.3. (Addressing sources/destination of water supply, and the concept of watershed.) 6th Grade Science: Use this activity to supplement and reinforce activities from the 6th grade chapter, addressing seasonal and current-driven movement of sand along the coast. How might marine debris act in a similar way to sand? What time of year might you expect to find the most debris on a beach? Combine a cleanup with a beach profiling activity (6.1). 7th Grade Science: Use this activity to supplement and reinforce activities from the 7th grade chapter, particularly 7.1. Are any special status species being impacted by marine debris? 8th Grade Science: Use this activity to supplement and reinforce activity 8.2, addressing plastic debris buoyancy and how that impacts how debris affects different species.	the debris affects different species. Will your solution help protect a particular species?