MARE Sandy Beach Curricula
Grade 2

Synopsis and Key Concepts	CA State Standards Correlation:
BEACH BUCKET SCAVENGER HUNT In this activity students are introduced to the vastness of our planet's ocean and to the characteristics of one type of shoreline we call a beach. They work in small cooperative groups to explore a simulated sandy beach in a plastic tub that is littered with beach drift and debris. Through a sorting activity, they discover that biotic objects found on the sandy beach can be grouped into those that represent evidence of plant live, evidence of animal life and evidence of humans. They discover the differences between abiotic and biotic objects. • *Objects found on the sandy beach can be grouped into: evidence of plant life, evidence of animal life, evidence of humans, and non-living material.* • *Sand is made up of tiny bits of everything that is found on the beach.*	**4. Investigation and Experimentation:** a. make predictions based on observed patterns and not random guessing, b. measure length with appropriate tools and express those measurements in standard metric system units, c. compare and sort common objects according to two or more physical attributes, d. write or draw descriptions of a sequence of steps, events, and observations, f. use magnifiers or microscopes to observe and draw descriptions of small objects or small features of objects, g. follow oral instructions for a scientific investigation.
SAND ON STAGE Students use hand lenses or microscopes to compare the color, size and shape of several sand samples. They then use rock and mineral kits and magnets and perform tests to guess about the origin and composition of "their" sample. They record their findings on a student sheet and then draw a sequence of pictures of how the sand they examined might have been formed and what the beach looked like where it was collected. • *Sand grains can be made of animals, plants, rocks or minerals.* • *Sand grains come in many different shapes, sizes, and colors.* • *Differences between sand grains can be clues about where the sand came from and how it got to the beach.*	**3. Earth Sciences:** Earth is made of materials that have distinct properties a. how to compare the physical properties of different kinds of rocks and that rock is composed of different types of minerals. b. smaller rocks come from the breakage and weathering of larger rocks, c. soil (sand) is made partly from weathered rock and partly from organic materials, and that soils (sands) differ in their color, texture, capacity to retain water, and ability to support the growth of many kinds of plants, e. rock, water, plants and soil provide many resources, including food,

	fuel, and building materials, that humans use. **4. Investigation and Experimentation:** a. make predictions based on observed patterns and not random guessing, b. measure length with appropriate tools and express those measurements in standard metric system units, c. compare and sort common objects according to two or more physical attributes, d. write or draw descriptions of a sequence of steps, events, and observations, f. use magnifiers or microscopes to observe and draw descriptions of small objects or small features of objects, g. follow oral instructions for a scientific investigation. **1. Physical Sciences:** f. magnets can be used to make some objects move without being touched.
HERMIT CRABS IN THE CLASSROOM Students construct temporary homes for visiting hermit crabs. They become student scientists while making guided observations, and biological illustrators while sketching their crabs. Students then help create a permanent home for the hermit crabs and learn about the care of these animals. • A habitat is a home and has everything an animal needs to survive. • Each kind of animal has its own very special needs for food, water, air and shelter. • If we want to keep a hermit crab happy and healthy in the classroom, we need to learn about how it lives in its real sandy beach habitat.	**4. Investigation and Experimentation:** a. make predictions based on observed patterns and not random guessing, b. measure length with appropriate tools and express those measurements in standard metric system units, c. compare and sort common objects according to two or more physical attributes, d. write or draw descriptions of a sequence of steps, events, and observations, f. use magnifiers or microscopes to observe and draw descriptions of small objects or small features of objects, g. follow oral instructions for a scientific investigation.

SHELL SORTING Students explore shell collections and shell reference books and then work with a partner to answer a series of guided questions about shelled animals including what they want to know about shells and the animals that make them. They then work in cooperative groups to creatively decide how to sort a basket of shells into categories related to each other in some way. Each student in the group then picks one of the categories to illustrate and name. Students from each group have the opportunity to visit each other's shell museum and guess what criteria the groups based their categories on. This session ends with more specific information about the shelled organisms, including how scientists classify them. • *Shells come in many different shapes because each is made by a different kind of animal.* • *Scientists sort animals into groups based on features of the animal they can observe.* • *Related organisms may not look exactly alike, but they have many features in common.*	**2. Life Sciences: Plants and animals have predictable life cycles** a. organisms reproduce offspring of their own kind and the offspring resemble their parents and one another, c. many characteristics of an organism are inherited from the parents, and some characteristics are caused or influenced by the environment, d. there is variation among individuals of one kind within a population. **4. Investigation and Experimentation:** a. make predictions based on observed patterns and not random guessing, b. measure length with appropriate tools and express those measurements in standard metric system units, c. compare and sort common objects according to two or more physical attributes, d. write or draw descriptions of a sequence of steps, events, and observations, f. use magnifiers or microscopes to observe and draw descriptions of small objects or small features of objects, g. follow oral instructions for a scientific investigation.
EARS TO YOU Students work cooperatively to teach each other about the adaptations that seals and sea lions have for living in the ocean, and about the differences between seals and sea lions. Then students participate in a game show to check for understanding. • *Seals and sea lions are mammals that have special ways of surviving in the ocean.* • *Seals and sea lions have many things in common, but they are not exactly the same.*	**Reinforces Grade 1 Life Sciences:** 2. Plants and animals meet their needs in different ways. a. different plants and animals inhabit different kinds of environments and have external features that help them thrive in different kinds of places. b. both plants and animals need water, animals need food and plants need light.

	c. animals eat plants or other animals for food.
BUILD A SANDY BEACH This activity transforms your classroom into a sandy beach habitat as the students construct three-dimensional, magnified models of organisms that live below the sand as well as models of the living and dead organisms that make up the beach wrack washed ashore by the waves. Student presentations and two games Who am I? and Twenty Questions reinforce growing student knowledge about sandy beach organisms, their interactions and their habitat. • *Sandy beaches- and the beach wrack that washes ashore on them-provide homes to many kinds of organisms.* • *Most of the animals living at the sandy beach are hidden from view under the sand to escape the pounding surf and hungry birds.*	**Reinforces Grade 1 Life Science Standards:** 2. Plants and animals meet their needs in different ways. a. different plants and animals inhabit different kinds of environments and have external features that help them thrive in different kinds of places. b. both plants and animals need water, animals need food and plants need light. c. animals eat plants or other animals for food and may also use plants or even other animals for shelter. **Introduction to Grade 3 Life Science Standards:** 3. Adaptations in physical structure or behavior may improve an organism's chance for survival. a. plants and animals have structures that serve different functions in growth, survival, and reproduction. b. diverse life forms exist in different environments, such as oceans, deserts, tundra, forests, grasslands and wetlands.

Overview
Physical Science 1f *[Activity 2]*
Life Science 2a, c, d *[Activity 4]*
Earth Science 3a, b, c, e *[Activity 2]*
Invest. & Exper. 4a, b, c, d, f, g *[Activities 1, 2, 3, 4]*
Reinforces Grade 1 Life Science 2a, b, c *[Activities 5, 6]*
Introduction to Grade 3 Life Science 3a, b *[Activity 6]*