

MARE Kelp Forest Curricula Grade 4

Synopsis and Key Concepts	CA State Standards Correlation:
<p><i>RED FISH ROUNDUP</i></p> <ul style="list-style-type: none"> • Some fish hide from, predators at depth by using camouflage color. • The white light that comes from the sun is actually a mixture of the seven different colors seen in a rainbow. • A rainbow forms when white light passes through water droplets in the sky or through a glass prism or is bent when entering or leaving water. • Each color of light travels at a slightly different speed and contains a different amount of energy. • The ocean acts as a filter and allows only certain colors to pass through to the deep, while it absorbs other colors in the top few meters. • Different kinds of seaweeds (red, brown or green) grow at different depths in the ocean because they use specific colors of light for photosynthesis. 	<p>Reinforces Grade Three Physical Science Standards Energy and matter have multiple forms and can be changed from one form to another, 1a. energy comes from the Sun to earth in the form of light, d. energy can be carried from one place to another by waves, such as water waves and sound waves.</p> <p>Light has a source and travels in a direction, 2a. sunlight can be blocked to create shadows, b. light is reflected from mirrors and other surfaces, c. the color of light striking an object affects the way the object is seen.</p>
<p><i>FISH FORMATION</i></p> <ul style="list-style-type: none"> • Different kinds of fishes have many similarities since all are adapted to be survivors in a water habitat. 	<p>Reinforces Grade Three Life Science Standards Adaptations in physical structure or behavior may improve an organism’s chance for survival 3a. plants and animals have structures that serve different functions in growth, survival, and reproduction.</p>
<p><i>IT TAKES ALL KINDS</i></p> <ul style="list-style-type: none"> • Fish come in a great variety of forms, colors, and shapes and these adaptations can be used to predict their habitat and lifestyle. • Adaptations are features or behaviors that can improve an organisms chance for survival. 	<p>3. Life Sciences: Living organisms depend on one another and on their environment for survival, b. in any particular environment, some kinds of plants and animals survive well, some survive less well, and some cannot survive at all.</p>

	<p>Reinforces Grade Three Life Science Standards Adaptations in physical structure or behavior may improve an organism’s chance for survival 3a. plants and animals have structures that serve different functions in growth, survival, and reproduction.</p> <p>6. Invest. And Expert.: Scientific progress is made by asking meaningful questions and conducting careful investigations. a. differentiate observation from inference and know scientists’ explanations come partly from what they observe and partly from how they interpret their observations, c. formulate and justify predictions based on cause-and-effect relationships</p>
<p><i>SEA OTTER JEOPARDY</i></p> <ul style="list-style-type: none"> • Adaptations are features or behaviors that can improve an organisms chance for survival. • Sea otters have many adaptations that help them be successful in their kelp forest habitat. • Cooperation, encouraging others, taking careful notes and using other available information posted around the room helps to insure that everyone is successful in learning new information. 	<p>2. Life Sciences: All organisms need energy and matter to live and grow, a. plants [and plant-like organisms] are the primary source of matter and energy entering most food chains, b. producers and consumers are related in food chains and food webs and may compete with each other for resources in a ecosystem.</p> <p>Reinforces Grade Three Life Science Standards Adaptations in physical structure or behavior may improve an organism’s chance for survival 3a. plants and animals have structures that serve different functions in growth, survival, and reproduction.</p>

<p><i>SEAWEED SMORGASBORD</i></p> <ul style="list-style-type: none"> • Seaweeds are plant-like organisms that have no roots, stems, leaves, flowers or adaptations necessary for living on land. • Adaptations are features or behaviors that can improve an organisms chance for survival. • Seaweeds have many adaptations to live in a watery environment including strong holdfasts, rubbery stipes, blades and spores. • People around the world depend on seaweed for many important everyday uses. 	<p>2. Life Sciences: All organisms need energy and matter to live and grow, a. plants [and plant-like organisms] are the primary source of matter and energy entering most food chains, b. producers and consumers are related in food chains and food webs and may compete with each other for resources in a ecosystem.</p> <p>3. Living organisms depend on one another and on their environment for survival, b. in any particular environment, some kinds of plants and animals survive well, some survive less well, and some cannot survive at all, c. many plants depend on animals for pollination and seed dispersal, [seaweeds depend on water dispersal] and animals depend on plants [and seaweeds] for food and shelter.</p>
<p><i>BUILD A KELP FOREST</i></p> <ul style="list-style-type: none"> • Kelp Forests are home to many different kinds of organisms that interact with one another as predators, prey or competitors. • Kelp forests are habitats that change over time as they are affected by weather, predators and human impact. 	<p>2. Life Sciences: All organisms need energy and matter to live and grow, a. plants [and plant-like organisms] are the primary source of matter and energy entering most food chains, b. producers and consumers are related in food chains and food webs and may compete with each other for resources in a ecosystem, c. decomposers, including fungi, insects, and microorganisms, recycle matter from dead plants and animals.</p> <p>3. Living organisms depend on one another and on their environment for survival, a. ecosystems can be characterized by their living and nonliving</p>

components, b. in any particular environment, some kinds of plants and animals survive well, some survive less well, and some cannot survive at all, c. many plants depend on animals for pollination and seed dispersal, [seaweeds depend on water dispersal] and animals depend on plants [and seaweeds] for food and shelter.

6. Invest. And Expert.:
Scientific progress is made by asking meaningful questions and conducting careful investigations. a. differentiate observation from inference and know scientists' explanations come partly from what they observe and partly from how they interpret their observations, b. measure and estimate the weight, length, or volume of objects, c. formulate and justify predictions based on cause-and-effect relationships