

Look Who Lives in the Ocean!

SCIENCE STANDARDS

“When one tugs at a single thing in nature, he finds it attached to the rest of the world” —John Muir

Inquiry Process

- Formulate relevant questions about the properties of objects, organisms and events of the environment using observations and prior knowledge.
- Locate information (e.g. book, article, website) related to an investigation.
- Select appropriate resources for background information related to a question for use in the design of a controlled investigation.
- Organize data using the following methods with appropriate labels: bar graphs, pictographs, tally charts.
- Develop new questions and prediction based upon the data collected in the investigation.
- Choose an appropriate graphic representation for collected data: bar graph, line graph, Venn Diagram, model.
- Write clear, step-by-step instructions for following procedures (without the use of personal pronouns).

History and Nature of Science

- Identify how diverse people and/or cultures, past and present have made important contributions to scientific innovations (e.g. John Muir, naturalist).
- Describe how, in a system (e.g. terrarium, house) with many components, the components usually influence one another.
- Explain why a system may not work if a component is defective or missing.
- Explain the cycle by which new scientific knowledge generates new scientific inquiry.

Science in Personal and Social Perspectives

- Describe the beneficial and harmful impacts of natural events and human activities in the environment (e.g. forest fires, flooding, pesticides).
- Evaluate the consequences of environmental occurrences that happen either rapidly (e.g. fire, flood, tornado) or over a long period of time (e.g. drought, melting ice caps, the greenhouse effect, erosion)
- Propose a solution, resource or product that addresses a specific human, animal or habitat need.
- Evaluate the possible strengths and weaknesses of that proposed solution, resource or product.
- Analyze the risk factors associated with natural, human-induced and/or biological including: waste disposal of industrial chemicals, greenhouse gases.

Life Science

- Distinguish living thing from non-living things.
- Identify structures that serve different functions (e.g. sensory, defense, locomotion).
- Classify animals by identifiable group characteristics: vertebrates (mammals, birds, fish, reptile, amphibians), invertebrates (insects, arachnids).
- Relate the following structure of living organisms to their functions: respiration (gills, lungs, spiracles), digestion (stomach, intestines), circulation (heart, veins, arteries, capillaries), locomotion (muscles, skeleton, exoskeleton).
- Describe the life cycles of various insects (and arachnids).
- Describe the life cycles of various mammals.
- Identify that plants and animals need the following to grow and survive: food, water, air and space.
- Compare the habitats (e.g. desert, forest, prairie, water, underground) in which plants and animals live.
- Describe how plants and animals within a habitat are dependent on each other.
- Describe how environmental factors (e.g. soil composition, range of temperature, quantity and quality of light or water) in the ecosystem may affect a member organism’s ability to grow, reproduce and thrive.

- Describe how the following environmental conditions affect the quality of life: water, climate, population density, smog.
- Compare food chains in a specific ecosystem with their corresponding food web.
- Explain how organisms obtain and use resources to develop and thrive in: niches, predatory/prey relationships.
- Create a model of the interactions of living organisms within an ecosystem.
- Recognize that successful characteristics of populations are inherited traits that are favorable in a particular environment.
- Analyze the following behavioral cycles of organisms: hibernation, migration, dormancy (plants).

Earth and Space Science

- Identify ways to conserve natural resources (e.g. reduce, reuse, recycle, find alternatives).
- Describe ways humans use Earth materials (e.g. fuels building materials, growing food).
- Differentiate between weather and climate as they relate to the southwestern United States.

“The love for all living creatures is the most noble attribute of man” —Charles Darwin