| HCPS Content Standards/Benchmarks | HCPS Performance Indicators |
|---|---|
| Science: Organisms and Development—Unity and Diversity:<br>• Explain how different organisms need specific environmental conditions in order to survive.<br>• Explain the relationship between structure and function in living things. | • Identify environmental needs of different organisms.<br>• Describe the structure and function in living things. |
| Science: Organisms and Development—Interdependence<br>• Illustrate and explain the relationships among producers, consumers, and decomposers in a food web. | • Give examples of organisms responding to a changing environment. |
| Science: Organisms and Development—Cycle of Matter and Energy Flow<br>• Give examples where organisms are reproducing, growing, dying and decaying. | • Give examples where organisms are reproducing, growing, dying, and decaying. |

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| **HCPS Content Standards/Benchmarks** | **HCPS Performance Indicators** |
|---|---|
| Science: Using Unifying Concepts and Themes<br><br>CHANGE<br>• Identify patterns of change in things using data and evidence.<br>MODEL<br>• Use geometric figures, number sequences, graphs, diagrams, sketches, number lines, maps, or stories to represent corresponding features of objects, events, and processes in the real world. Identify ways in which the representations do not match their original counterparts. | CHANGE<br>• Identify patterns of change in things using data and evidence.<br>MODEL<br>• Use geometric figures, number sequences, graphs, diagrams, sketches, number lines, maps, or stories to represent corresponding features of objects, events, and processes in the real world. |

Other Standards Addressed in the Unit
Language Arts: Oral Communication - Rhetoric:

- Adapt messages appropriate to audience, purpose, and situation
- Support ideas with research information as well as personal experience and knowledge.
- Organizes ideas to give clarity to messages
- Use language that is clear and understood by the listener(s)
- Use delivery appropriate to audience and situation.

## Unit at a Glance

| Content Standards | OP Lessons & Telecasts | Essential Questions | Key Concepts | Assessment |
|---|---|---|---|---|
| Science:<br><br>Unity and Diversity | OP Activity: **Dispersal Bingo**<br><br>Exploring the Islands (ETI) Program: **Wind, Waves, Wings** | How did the ancestors of native plants and animals reach the isolated Hawaiian Islands?<br><br>What characteristics enabled colonizing species to cross the Pacific Ocean and reach Hawai‘i? | Due to the extreme geographic isolation of Hawai‘i, relatively few plants and animals were able to reach and successfully colonize the islands.<br><br>Successful colonizing species had characteristics such as small size, resistance to temperature extremes, or the ability to fly, swim or float long distances. | Classify seeds according to their potential mode of dispersal and identify characteristics or structures that enable that type of dispersal.<br><br>Write a summary of how plants and animals reached the Hawaiian Islands. Include examples of characteristics that helped and hindered dispersal. |
| Science:<br><br>Unity and Diversity<br><br>Interdependence<br><br>Using Unifying Concepts and Themes: MODEL | OP Activity: **Incredible Invertebrates**<br><br>ETI Program: **Forest Treasures** | How do a plant or animal’s features and behaviors contribute to its survival in a particular habitat?<br><br>Why does Hawai‘i have so many unique plant and animal species? | Descendents of successful plant and animal colonists adapted to the many habitats in the various zones of the Hawaiian Islands.<br><br>The high number of endemic species in Hawai‘i is due to the islands’ isolation both from afar and each island from its neighbors. Mountains, tradewinds, and volcanoes create environments of great diversity. | Design an incredible plant or animal that is adapted to a zone in the Hawaiian Islands. (Use drawing or model.)<br>Write a summary that describes the environmental needs, adaptations to its environment; and how the organism could respond or adapt to a change in its environment.<br>Present the model or drawing to the class and explain adaptations (structures and function). |

| Content Standards | OP Lessons & Telecasts | Essential Questions | Key Concepts | Assessment |
|---|---|---|---|---|
| Science:<br><br>Unity and Diversity<br><br>Cycle of Matter and Energy Flow | OP Activity: **The Stream Team**<br><br>ETI Program: **The Hawaiian Stream Scene** | What environmental conditions do stream organisms need in order to survive?<br><br>How are the life cycles of native stream animals dependent upon the sea and the stream? | Native Hawaiian stream animals are adapted to various environmental conditions in their habitats.<br><br>Many native Hawaiian stream animals spend the early part of their life cycle as larvae in the ocean, and then return to a stream where they mature and reproduce. | Draw a native stream animal and identify the function of one body structure that helps it adapt to the stream environment.<br><br>Illustrate the life cycle of the stream animal and write a description of the environmental needs in its different habitats. |

**Culminating Activity**

Students participate in a *Ho'ololi* (*lit.* change) activity where they apply principles of dispersal, adaptation and interdependence to determine habitation and survival of a hypothetical new species on a pristine island environment.
Part 1: Individual students will "create" an organism to inhabit a pristine island and:

- Explain dispersal method to this new island.
- Select vegetation zone most conducive to organism's survival.
- Describe the physical environment (abiotic), inhabitants (biotic), and possible predators.
- Draw, label and describe 3–5 parts of a new organism to inhabit the island, considering structure, form, and function of the organism's anatomy.

Part 2: Student groups (by selected environments) will discuss and study each organism's ability to adapt and interact, and collaboratively determine which organisms might survive a thousand years later.
Scenario: One thousand years have passed….

- Draw, label, and describe 2–3 parts of the organism's adaptations for survival.
- Explain how organism will use its environment for shelter, food/water, and life cycle.
- Explain organisms defense system(s), if any. (If none, explain why.)

All students will present their new organisms in their selected environments. Students will work collaboratively in zonation groups. Each group will revisit the inhabited island and answer the question, "**Will your organisms be able to survive with the other endemic inhabitants? Explain your reasoning**." Each group will decide on a presentation mode and the culminating activity will be a presentation sharing.

**Rubric for Culminating Activity**

| **Performance Indicators Plants & Animals Unit Culminating Activity** | **Meets Standards** | **Standards Not Yet Met** | **I noticed…** |
|---|---|---|---|
| **Science—Unity and Diversity:**<br>Student:<br>✓ Identifies environmental needs of different organisms. | Writing:<br>- identifies a vegetation zone conducive for survival;<br><br>- describes the physical environment and its native inhabitants; and<br><br>- explains how the new organism uses the environment for shelter, food/ water in different stages of its life cycle. | Writing identifies and describes only some of the content.<br><br>Explanation of how the organism uses the new environment is incomplete. | |
| ✓ Describes the structure and function in living things. | Drawing of organism identifies 3–5 parts and labels their structure and function.<br><br>Writing accurately describes adaptations for survival. | Drawing only partially identifies structures and functions.<br><br>Writing partially describes adaptations for survival. | |
| **Science: Interdependence**<br>Student:<br>✓ Gives examples of organisms responding to a changing environment.<br><br>**Science: Using Unifying Concepts and Themes - CHANGE**<br>✓ Identify patterns of change in things using data and evidence. | Writing:<br>-provides evidence of changes (adaptations) necessary for survival;<br><br>-discusses how the organism utilizes the topography and natural resources;<br><br>- makes predictions about possible predators in this environment; and<br><br>- infers and justifies the organism's defense mechanisms. | Writing only partially provides evidence and discussions required. | |

| **Other Standards—Language Arts** | | | |
|---|---|---|---|
| **Oral Communication - Rhetoric**<br>Student:<br>✓ Gives an oral presentation to inform about a topic of interest to self and others.<br><br>✓ Uses language that conveys his/her message and is understood by the listener(s).<br><br>✓ Organizes ideas to give clarity and coherence to his/her message or point. | Oral presentation:<br>- gives necessary information to answer driving question;<br><br>- uses appropriate vocabulary to convey understanding of dispersal, adaptation, and interdependence; and<br><br>- gives ideas in sequential order (e.g., dispersal, adaptation, interdependence). | Oral presentation does not fully provide information to answer driving question.<br><br>Presentation does not adequately use appropriate vocabulary to convey understanding.<br><br>Ideas are not fully presented in sequential order. | |
| ✓ Participates actively in a group to exchange ideas, explore issues, solve a problem, or complete a task. | Presentation demonstrates collaborative work within the group as a contributing team member to answer the driving question. | Evidence of successful collaborative work is not demonstrated. | |