

## Lyon Arboretum School Programs

“Lessons are best learned when children can explore and discover directly the interrelationships of the world around them.”

### Field Trips

Our Children’s programs are designed with not only the child in mind, but the teacher as well!

**Our fieldtrips are aligned with Hawai`i Content and Performance Standards for grades K through 6**, making the task of organizing an educational excursion easier and relevant to the educator’s needs.

Children arrive full of wonder and excitement and leave with fond memories of this magical rainforest where science comes to life! **Experiential learning through our hands-on activities is something that resonates with the children, and their ability to learn and retain knowledge is reinforced by the memorable activities they experience.** As a living classroom, living museum, and science laboratory, the Arboretum allows Hawai`i’s children to immerse themselves in the wonders of nature.

**\*Several field trips are supported with classroom resource kits and curriculum materials.**

#### **Preschool Plants!** (Preschoolers ages 3 — 5)

This tour includes a walk through the herb garden and spice hill area, where children will encounter some familiar plants. Children will be encouraged to smell the distinct fragrances of the garden, to experience the textured leaves and bark, go on a color hunt, a leaf search and plant seeds to take home.

#### **Discover Plants!** (Grades K-1, Partners for Growing Science Unit)

Students discover the parts of a plant and develop an understanding of plants as living organisms. With hands-on activities, rich literature connections, and scientific observation, children explore the ways plants are alike and different. At Lyon we will classify leaves, compare, describe and measure roots and stems. Each child will plant a seedling to take home. Aligned with the National and Hawaii State Science Standards.

**Interdependence: Life in a Hawaiian Forest\*** (Grades 2 - 4, Partners for Growing Science Unit)

Students explore relationships between plants and animals in a Hawaiian forest community. At the Arboretum we will observe animal-plant interactions on a rainforest hike, hunt for insects, explore several plant defenses, and each child will plant a seedling to take home. Aligned with the National and Hawaii State Science Standards.

**Art in Nature's Garden: Science, Literature and Art** (Grades 2 - 4)

Using the elements of design and the language of the arts, students are introduced to some exciting new ways to learn about, enjoy and appreciate the wonders of our tropical environment. Spark your student's interest in nature with student photography, haiku, and collage. We will provide the film and cameras for your student's photography. Your class can create haiku, short stories and watercolor paintings inspired by their experiences at the Arboretum.

**Saving Hawaii's Endangered Plants** (Grades 5 - 7, Partners for Growing Science Unit)

Students are introduced to the biological sciences and plant reproduction by looking at a common problem in Hawaiian ecosystems: what happens when a pollinator has gone extinct? Learn some of the strategies and methods scientists are using to protect and propagate endangered plants. Students will collect and study pollen, observe pollinators in action and study and hike through the arboretum collections of endangered plants. This unit supports many cross-curriculum activities. Aligned with the National and Hawaii State Science Standards.

**Hawaiian Cultural Plants** (Grades 2 and up)

On this field trip we will focus on plants utilized by the Polynesians for food, clothing, shelter and tools. Using the Beatrice Krauss Ethnobotanical Garden, students will get a chance to experience these culturally important plants. This field trip provides enrichment experiences for students currently in Hawaiian studies

**Rainforests Field Trip** (Grades K and up)

Take your class on a hike in the rainforest. Let them experience first-hand the canopy layers, the diversity of life and the myriad plants and animals living in our own tropical rainforest. We will look at plant adaptations, discuss the issues of deforestation, introduced and invasive species and go on a rainforest scavenger hunt. This field trip can be adapted to fit grades K-8.

**Ka Wai Ola: Mānoa Watershed Field Trip** (Grade 4)

Learn about the importance of water and the water cycle. Study Hawaiian cultural understandings of water. Plant kalo and other Hawaiian food plants. Learn about island formation and erosional processes. Conduct a biotic and abiotic survey of streamlife in and around `Aihualama Stream. Count and identify bird species. Catch crayfish and fish in the stream. Learn about human impact and historical uses of the land and water in Manoa valley. Aligned to Hawai'i Content and Performance Standards.

Lyon Arboretum School Programs Alignment with  
Table of Hawai'i Content and Performance Standards (HCPS III)

	HCPS III
<b>Preschool Plants! (Preschoolers ages 3-5)</b>	*The Hawai'i Content and Performance Standards do not apply to this age group; however the field trip activities do support the Hawaii Preschool Content Standards, approved by the School Readiness Task Force. The Hawai'i Preschool Standards were developed based on Hawaii research on perceptions of readiness, review of national subject area standards and early childhood standards from other states.
<b>Plants and Me (Kindergarten)</b>	<p><u>Science</u></p> <p><b>Benchmark SC.K.1.1</b> Use the senses to make observations  <b>Benchmark SC.K.1.2</b> Ask questions about the world around them  <b>Benchmark SC.K.1.3</b> Collect data about living and non-living things  <b>Benchmark SC.K.2.1</b> Identify different types of technologies at home, in the classroom, and/or in the world  <b>Benchmark SC.K.4.1</b> Identify differences between living and non-living things  <b>Benchmark SC.K.6.1</b> Classify objects by their attributes (e.g., physical properties, materials of which they are made)</p> <p><u>Social Science</u></p> <p><b>Benchmark SS.K.8.1</b> Explain people's basic needs and how they fulfill them</p> <p><u>Career and Technical Education</u></p> <p><b>Benchmark CTE.K.2.2</b> Identify various workers and their jobs in the community</p>
<b>Discover Plants (1<sup>st</sup> grade)</b>	<p><u>Language Arts</u></p> <p><b>Benchmark LA.1.2.1</b> Explain how a title page, illustrations, and key words can convey information  <b>Benchmark LA.1.2.2</b> Make and confirm predictions about what will happen next or what will be learned from a text by previewing key words and illustrations  <b>Benchmark LA.1.2.4</b> Restate important information or ideas from a variety of texts  <b>Benchmark LA.1.3.1</b> Identify the basic story elements of character and setting  <b>Benchmark LA.1.3.2</b> Relate personal experiences to what was read  <b>Benchmark LA.1.4.1</b> Write in a variety of grade-appropriate formats for a variety of purposes and audiences, such as: non-fiction formats that explain or give basic information about familiar topics; reflections on learning  <b>Benchmark LA.1.6.5</b> Use basic listening skills to focus attention on speaker and respond to a message</p> <p><u>Science</u></p> <p><b>Benchmark SC.1.1.1</b> Collect, record, and organize data using simple tools, equipment, and techniques safely  <b>Benchmark SC.1.2.2</b> Describe a variety of changes that occur in nature  <b>Benchmark SC.1.3.1</b> Identify the requirements of plants and animals to survive (e.g., food, air, light, water)</p>

	<p><b>Benchmark SC.1.4.1</b> Describe how living things have structures that help them to survive</p> <p><b>Benchmark SC.1.5.1</b> Identify ways in which the same kinds of plants and the same kinds of animals differ</p> <p><b>Benchmark SC.1.5.2</b> Describe the physical characteristics of living things that enable them to live in their environment</p> <p><u>Math</u></p> <p><b>Benchmark MA.K.11.1</b> Sort objects or people according to stated attributes</p> <p><u>Fine Arts</u></p> <p><b>Benchmark FA.1.1.5</b> Use familiar subjects and experiences to create original works of art</p>
<p><b>Interdependence</b> (2<sup>nd</sup> – 4<sup>th</sup> grade)</p>	<p><i>2<sup>nd</sup> grade</i></p> <p><u>Language Arts</u></p> <p><b>Benchmark LA.2.2.1</b> Use title, table of contents, and chapter headings to locate information in informational texts</p> <p><b>Benchmark LA.2.2.2</b> Make, confirm, and modify predictions about a text</p> <p><b>Benchmark LA.2.2.3</b> Use previous experience and prior knowledge to make connections with subjects and ideas encountered in texts</p> <p><b>Benchmark LA.2.3.1</b> Identify author's message or underlying theme in fiction</p> <p><b>Benchmark LA.2.5.1</b> Choose and maintain a focus in a single piece of writing</p> <p><b>Benchmark LA.2.5.2</b> Add details from personal experience to elaborate upon and amplify ideas</p> <p><b>Benchmark LA.2.5.4</b> Use specific nouns and adjectives to describe people, places, things, or events</p> <p><b>Benchmark LA.2.6.2</b> Give an oral presentation to share information with peers</p> <p><b>Benchmark LA.2.6.3</b> Express ideas through drama activities (e.g., role playing, skits, puppetry, choral reading, story telling)</p> <p><b>Benchmark LA.2.6.6</b> Adjust pacing, volume, and intonation appropriate to content and purpose</p> <p><u>Science</u></p> <p><b>Benchmark SC.2.1.1</b> Develop predictions based on observations</p> <p><b>Benchmark SC.2.1.2</b> Conduct a simple investigation using a systematic process safely to test a prediction</p> <p><b>Benchmark SC.2.3.1</b> Describe how animals depend on plants and animals</p> <p><b>Benchmark SC.2.4.1</b> Explain how plants and animals go through life cycles</p> <p><b>Benchmark SC.2.5.1</b> Identify distinct environments and the different kinds of organisms each environment supports</p> <p><u>Math</u></p> <p><b>Benchmark MA.2.3.1</b> Recall addition facts and their corresponding subtraction facts up to twenty</p> <p><b>Benchmark MA.2.3.2</b> Use a variety of strategies to solve problems involving addition and subtraction of two-digit numbers</p> <p><b>Benchmark MA.2.11.1</b> Pose questions, collect data, and display the data using a graph (e.g., bar graphs, pictographs)</p> <p><b>Benchmark MA.2.12.1</b> Interpret data displayed in a bar graph and describe how the important features of the data set are represented in a bar graph</p> <p><u>Fine Arts</u></p> <p><b>Benchmark FA.2.1.1</b> Use the element of space and the principles of repetition and variety, with a variety of art media</p> <p><b>Benchmark FA.2.3.2</b> Create simple costumes, scenery, and props</p> <p><i>3<sup>rd</sup> grade</i></p> <p><u>Language Arts</u></p> <p><b>Benchmark LA.3.2.1</b> Describe how the organizational structures of informational and literary texts reflect their different purposes</p> <p><b>Benchmark LA.3.2.2</b> Confirm or revise predictions after locating evidence in the text</p> <p><b>Benchmark LA.3.3.1</b> Explain main ideas or events that develop the author's message or underlying theme</p> <p><b>Benchmark LA.3.3.4</b> State and support a personal opinion about a text</p> <p><b>Benchmark LA.3.4.1</b> Write in a variety of grade-appropriate formats for a variety of purposes and audiences, such as: responses to literature, pieces to reflect on learning and to solve problems, poems with sensory details, short reports on content area topics</p> <p><b>Benchmark LA.3.5.2</b> Organize information by introducing it, elaborating on it, and drawing a conclusion about it</p> <p><b>Benchmark LA.3.5.1</b> Add details, descriptions, and information from different sources to elaborate meaning</p> <p><b>Benchmark LA.3.6.2</b> Give a planned speech to share information with peers</p>

**Benchmark LA.3.6.4** Clarify spoken messages by restating, questioning, or elaborating  
**Benchmark LA.3.6.5** Vary expression, level, pacing, and intonation according to content and purpose  
**Benchmark LA.3.7.1** Add concrete details and specific facts to support and develop ideas when speaking

Science

**Benchmark SC.3.1.1** Pose a question and develop a hypothesis based on observations  
**Benchmark SC.3.3.1** Describe how plants depend on animals  
**Benchmark SC.3.4.1** Compare distinct structures of living things that help them to survive  
**Benchmark SC.3.5.1** Describe the relationship between structure and function in organisms

Math

**Benchmark MA.3.3.2** Use a variety of strategies to solve problems involving addition and subtraction of two- and three-digit numbers  
**Benchmark MA.3.11.1** Pose questions, collect data using surveys, and organize the data into tables and graphs  
**Benchmark MA.3.11.2** Organize and represent data in more than one way (e.g., tallies, chart, tables, bar graphs, line plots, line graphs)  
**Benchmark MA.3.12.1** Interpret data (e.g., tallies, chart, tables, bar graphs, line plots) and state what the representation shows about the set of data  
**Benchmark MA.3.13.1** Answer questions based on data represented in graphs

Fine Arts

**Benchmark FA.3.1.2** Use a variety of art and technology media to create an original work of art  
**Benchmark FA.3.1.3** Use observational skills in creating an original work of art  
**Benchmark FA.3.3.3** Use the elements of theatre to create a critique of a theatrical performance

**4<sup>th</sup> grade**

Language Arts

**Benchmark LA.4.3.1** Explain the problem or conflict in a story and how it is resolved  
**Benchmark LA.4.3.5** Analyze similarities and differences between the actions, motives, and appearance of a character in a narrative text and self or people in own life  
**Benchmark LA.4.4.1** Write in a variety of grade-appropriate formats for a variety of purposes and audiences, such as: poems that provide insight into why the topic is memorable, responses to literature, reports that focus on a central question and incorporate summaries from research, pieces to reflect on learning and to solve problems  
**Benchmark LA.4.5.1** Use appropriate facts and interesting details that develop the intended meaning and anticipate the needs of the audience  
**Benchmark LA.4.6.2** Give short, informal presentations to inform or persuade  
**Benchmark LA.4.6.9** Identify techniques used to convey messages in visual media  
**Benchmark LA.4.7.3** Organize a speech to emphasize important points and relate them to one another

Science

**Benchmark SC.4.1.1** Describe a testable hypothesis and an experimental procedure  
**Benchmark SC.4.3.1** Describe how an organism's behavior is determined by its environment  
**Benchmark SC.4.5.2** Describe the roles of various organisms in the same environment

Math

**Benchmark MA.4.9.2** Represent the relationship between quantities in a variety of forms (e.g., manipulatives, tables, pictures, symbols)  
**Benchmark MA.4.11.1** Pose questions, collect data using observations and experiments, and organize the data into tables or graphs  
**Benchmark MA.4.11.2** Label the parts of a graph (e.g., axes, scale, legend, title)  
**Benchmark MA.4.12.1** Compare related data sets (e.g., height of 4th grade boys vs. height of 4th grade girls) with an emphasis on how the data are distributed  
**Benchmark MA.4.13.1** Propose and justify conclusions/predictions based on data

Fine Arts

**Benchmark FA.4.1.2** Use a combination of visual and performing arts to create an original artwork  
**Benchmark FA.4.1.3** Use properties, personal response, and research to make informed judgments about artwork  
**Benchmark FA.4.3.1** Interpret a character's external motivations

**Art in  
Nature's  
Garden  
(2<sup>nd</sup> – 4<sup>th</sup>  
grade)**

**2<sup>nd</sup> grade**

Language Arts

- Benchmark LA.2.1.3** Apply syllabication and knowledge of word structure to recognize two- and three-syllable words
- Benchmark LA.2.2.2** Make, confirm, and modify predictions about a text
- Benchmark LA.2.2.3** Use previous experience and prior knowledge to make connections with subjects and ideas encountered in texts
- Benchmark LA.2.3.1** Identify author's message or underlying theme in fiction
- Benchmark LA.2.3.3** Identify basic characteristics of familiar genres (e.g., stories, poems, textbook)
- Benchmark LA.2.5.1** Choose and maintain a focus in a single piece of writing
- Benchmark LA.2.5.4** Use specific nouns and adjectives to describe people, places, things, or events
- Benchmark LA.2.6.6** Adjust pacing, volume, and intonation appropriate to content and purpose

Fine Arts

- Benchmark FA.2.1.1** Use the element of space and the principles of repetition and variety, with a variety of art media
- Benchmark FA.2.1.2** Use color to convey mood in works of art
- Benchmark FA.2.1.3** Describe different responses to the same work of art

**3<sup>rd</sup> grade**

Language Arts

- Benchmark LA.3.1.1** Use knowledge of sounds and letters to decode regular multi-syllabic words
- Benchmark LA.3.1.2** Use common word parts and structures to read new words
- Benchmark LA.3.1.5** Read grade-appropriate narrative and informational text aloud with fluency and accuracy
- Benchmark LA.3.2.2** Confirm or revise predictions after locating evidence in the text
- Benchmark LA.3.2.3** Identify the main idea or problem and solution in a text
- Benchmark LA.3.3.4** State and support a personal opinion about a text
- Benchmark LA.3.5.4** Use specific verbs and adverbs to describe people, places, things, or events
- Benchmark LA.3.6.5** Vary expression, level, pacing, and intonation according to content and purpose

Fine Arts

- Benchmark FA.3.1.1** Use the elements and principles of art and design, including, value (i.e., tints and shades, analogous colors), line, rhythm, movement, proportion, and balance
- Benchmark FA.3.1.3** Use observational skills in creating an original work of art

**4<sup>th</sup> grade**

Language Arts

- Benchmark LA.4.1.1** Use new grade-appropriate vocabulary, including homophones and homographs, learned through reading and word study, including root words, affixes, and word origins
- Benchmark LA.4.4.1** Write in a variety of grade-appropriate formats for a variety of purposes and audiences, such as: poems that provide insight into why the topic is memorable
- Benchmark LA.4.4.6** Write legibly and fluently in print or cursive
- Benchmark LA.4.5.1** Use appropriate facts and interesting details that develop the intended meaning and anticipate the needs of the audience
- Benchmark LA.4.6.5** Vary expression, pacing, pitch, and intonation according to content and purpose

Fine Arts

- Benchmark FA.4.1.1** Use the elements and principles of art and design, such as emphasis, proportion, complementary colors, positive and negative space, and depth, to communicate an idea or mood
- Benchmark FA.4.1.2** Use a combination of visual and performing arts to create an original artwork

**Ka Wai  
Ola  
(4<sup>th</sup> grade)**

Language Arts

- Benchmark LA.4.2.1** Describe how common graphic structures (e.g., typeface, headings, illustrations) organize information in texts
- Benchmark LA.4.2.2** Use organizational patterns (e.g., sequential, cause and effect) to access and understand information
- Benchmark LA.4.2.5** Summarize main points found in informational texts
- Benchmark LA.4.3.1** Explain the problem or conflict in a story and how it is resolved

	<p><b>Benchmark LA.4.3.2</b> Explain how a theme is used across various genres and texts</p> <p><b>Benchmark LA.4.3.5</b> Analyze similarities and differences between the actions, motives, and appearance of a character in a narrative text and self or people in own life</p> <p><u>Science</u></p> <p><b>Benchmark SC.4.1.1</b> Describe a testable hypothesis and an experimental procedure</p> <p><b>Benchmark SC.4.1.2</b> Differentiate between an observation and an inference</p> <p><b>Benchmark SC.4.2.1</b> Describe how the use of technology (farming) has influenced the economy, demography, and environment of Hawaii</p> <p><b>Benchmark SC.4.3.1</b> Explain how simple food chains and food webs can be traced back to plants</p> <p><b>Benchmark SC.4.3.2</b> Describe how an organism's behavior is determined by its environment</p> <p><b>Benchmark SC.4.5.2</b> Describe the roles of various organisms in the same environment</p> <p><b>Benchmark SC.4.5.3</b> Describe how different organisms need specific environmental conditions to survive</p> <p><b>Benchmark SC.4.8.1</b> Describe how slow processes sometimes shape and reshape the surface of the Earth</p> <p><b>Benchmark SC.4.8.2</b> Describe how fast processes (e.g., volcanoes, earthquakes) sometimes shape and reshape the surface of the Earth</p> <p><u>Social Studies</u></p> <p><b>Benchmark SS.4.1.1</b> Describe both change and continuity of aspects of Hawaiian culture (including religion, land use, and social systems)</p> <p><b>Benchmark SS.4.6.2</b> Describe how individuals or groups deal with conflict, cooperation, and interdependence within the ahupua'a</p> <p><b>Benchmark SS.4.7.3</b> Analyze the consequences of human modification of the physical environment in Hawaii using geographic representations (including lo'i kalo and loko i'a)</p> <p><u>Fine Arts</u></p> <p><b>Benchmark FA.4.3.1</b> Interpret a character's external motivations</p> <p><b>Benchmark FA.4.3.2</b> Use the voice to express emotion</p> <p><u>Math</u></p> <p><b>Benchmark MA.4.11.1</b> Pose questions, collect data using observations and experiments, and organize the data into tables or graphs</p> <p><b>Benchmark MA.4.11.2</b> Label the parts of a graph (e.g., axes, scale, legend, title)</p> <p><b>Benchmark MA.4.13.1</b> Propose and justify conclusions/predictions based on data</p>
<p><b>Plant Reproduction (5<sup>th</sup> – 6<sup>th</sup> grade)</b></p>	<p><i>5<sup>th</sup> grade</i></p> <p><u>Language Arts</u></p> <p><b>Benchmark LA.5.1.1</b> Use new grade-appropriate vocabulary learned through reading print and online resources and word study, including meanings of roots, affixes, word origins</p> <p><b>Benchmark LA.5.1.2</b> Use a variety of grade-appropriate print and online resources to research a topic</p> <p><b>Benchmark LA.5.2.1</b> Use organizational patterns (e.g., compare and contrast, proposition and support) to access information</p> <p><b>Benchmark LA.5.2.2</b> Make inferences and draw conclusions about grade-appropriate texts</p> <p><b>Benchmark LA.5.3.1</b> Cite specific information or ideas in the text that support and develop the author's message or theme</p> <p><b>Benchmark LA.5.4.1</b> Write in a variety of grade-appropriate formats for a variety of purposes and audiences, such as: responses to literature, notes summarizing what they have read or heard, pieces to reflect on learning and to solve problems.</p> <p><b>Benchmark LA.5.5.1</b> Use information from appropriate sources: self, peers, and a variety of grade-appropriate sources</p> <p><b>Benchmark LA.5.5.2</b> Use significant details and relevant information to develop meaning</p> <p><b>Benchmark LA.5.6.1</b> Use speaking and listening skills to fill a prescribed role in group activities</p> <p><b>Benchmark LA.5.6.2</b> Give informal presentations or reports to inform</p> <p><b>Benchmark LA.5.7.1</b> Combine ideas from prior knowledge, input from others, and text resources to elaborate on and support ideas</p> <p><u>Science</u></p> <p><b>Benchmark SC.5.1.1</b> Identify the variables in scientific investigations and recognize the importance of controlling variables in scientific experiments</p> <p><b>Benchmark SC.5.1.2</b> Formulate and defend conclusions based on evidence</p> <p><b>Benchmark SC.5.2.1</b> Use models and/or simulations to represent and investigate features of objects, events, and processes in the real world</p> <p><u>Fine Arts</u></p>

**Benchmark FA.5.1.3** Analyze, using evidence, the characteristics of representational and/or non-representational art

Math

**Benchmark MA.5.6.2** Identify three-dimensional objects that have rotational symmetry and locate the rotational axis

**6<sup>th</sup> grade**

Language Arts

**Benchmark LA.6.1.1** Use grade-appropriate vocabulary, including content area vocabulary, learned through reading and word study, including structural analysis of word parts

**Benchmark LA.6.1.2** Use grade-appropriate online and print sources to research a topic

**Benchmark LA.6.2.2** Use knowledge of organizational structures (e.g., logical, classification) to construct meaning from texts

**Benchmark LA.6.2.3** Draw and support conclusions about information or ideas in a text

**Benchmark LA.6.4.1** Write in a variety of grade-appropriate formats for a variety of purposes and audiences, such as: responses to literature, pieces to reflect on learning and to solve problems

**Benchmark LA.6.5.1** Select appropriate details, examples, reasons, and/or facts to support an insight, message, or thesis

**Benchmark LA.6.6.1** Explain how appropriate participation affects the productivity of group activities

**Benchmark LA.6.7.1** Use relevant evidence and examples to support content

Science

**Benchmark SC.6.1.1** Formulate a testable hypothesis that can be answered through a controlled experiment

**Benchmark SC.6.1.2** Use appropriate tools, equipment, and techniques safely to collect, display, and analyze data

**Benchmark SC.6.3.1** Describe how matter and energy are transferred within and among living systems and their physical environment

Fine Arts

**N/A**

Math

**Benchmark MA.6.6.1** Use line symmetry and rotational symmetry to describe classifications of shapes