Lyon Arboretum  
English Language Tour

Values that we will highlight throughout the tour: Kuleana, Laulima, Mālama ʻĀina/Aloha ʻĀina, Maiau, Maʻemaʻe. In particular, we will highlight the relationships of kaikuaʻana and kaikaina (older sibling/younger sibling).

The Learning Inquiry:

We, as kanaka are almost always the kaikaina to plants, animals, and land. So, our kuleana is to mālama. Remind our haumāna that in different places the work to mālama looks different. So at Lyon Arboretum, we will ask the following thought-provoking questions:
   a. What are the specific things that we do as kanaka to mālama this place?
   b. When we are at the stations how do we mālama the birds, stream, and so on?
   c. How does what we do here connect to the health of the water flow and mālama wai?
   d. How do the moʻolelo of this place inform us how we might better observe and mālama the place?

Keep in mind that our hana (work/job) is to connect the values (listed above) to a deeper understanding of our kuleana to healthy ecosystems through caring for wai and ʻāina.

We will present the oli “Ka Wai a Kāne” to reinforce “place” and connections of all the elements in our natural, spiritual, and human world.

In addition, we will use the moʻolelo, Kahalaopuna, to guide our understanding of the living cycles of the place. Both the oli and moʻolelo will act as motivators to ask the students to examine more closely and come to know their place better.

Preparing Students:

1. Teachers prepare haumana to recite the oli “Ka Wai a Kāne.” Teacher and students to review and become familiar with oli (chant) Ka Wai a Kāne (words in trifold). Divide students into six teams and have each team study their verse (6 verses in the oli), create a picture, and share with class. Then hang all 6 pieces of artwork in order of the verses they represent and use that as a visual tool to help students understand and review oli.
2. Teacher should draw on the following helpful sites to help the students learn more about water sheds/water systems. Explore how and why water systems change over time and how that impacts flora/fauna, animals, and people.
3. Ask students to learn about where their water comes from and how they care for their water system in their home.
4. Teacher should search the internet to locate bird calls specific to Mānoa Valley. Present them to the students prior to visiting Lyon Arboretum. Ask students to think about the birds of their home place. What are they now? Were there other birds there before? What happened? (They can talk story with people in their community about this to learn more).
5. What connections do birds have to the health of the larger ecosystem?

Helpful online sites about water systems include:

Pacific Disaster Center: [http://www.pdc.org/iweb/drought_hawaii_water.jsp](http://www.pdc.org/iweb/drought_hawaii_water.jsp)


One good booklet is "Hawaii Streams, Na Kahawai o Hawaii" from the Hawaii Water Commission on Water Resource Mgmt (1993)

Hawai‘i Association of Watershed Partnerships (HAWP)  

**Water and the Law in Hawai‘i** by Lawrence Miike

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**Site Tour**

9:15am  
Arrival and walk up to Lyon Learning Center (backpacks stored & bathrooms)

9:30am  
Move directly to the lookout over the native plant garden and hand out Welina Mānoa: Lyon Arboretum learning portfolios.  
1. At the lookout, introduce the students to this place through the genealogy of Kahalaopuna (Inside the Welina Mānoa learning portfolio). We suggest having one student or the teacher or a Lyon guide (if you have one) read the genealogy of this place.
2. Begin with **Ka Wai a Kāne**. Before the oli is recited, talk through it and with the help of the Lyon guide identify the different sources of water you can spot from the lookout such as the kumuwai, clouds, ānuenue, streams, Akaaka waterfall, underground water sources and so on. Can also use the water systems drawing to help students visualize where our water comes from and its importance.

10:00am  
Move down to the hale. Arboretum staff welcome and brief history of place with early photos of place (what use to flourish in this area), impact of cattle and introduction of invasive insects and plants, and what the arboretum is doing today.
Student Activity: Practice “listening to the land” through observation and mālama ʻāina and mālama wai.

  a. Divide class into three groups.
  b. Depending on time, students will work/rotate to all three work/observation stations. If students cannot work at all the stations then they should spend some time at the end of their visit sharing what they learned at their station. The timing suggested below allows for 1-2 observation/work stations.
10:30am  Work at stations. There is a guide at each station that facilitates group observations and learning.

Group A: At Observation Station “Looking for evidence of birds.” Use binoculars and field books.
Group B: At Observation Station “Looking for invertebrates.” Use shovels and buckets, hands lens, and sweep nets.
Group C: At Observation Station “Stream restoration and cleaning.” Use scoop nets and buckets.

NOTE: Lyon Arboretum is a great place to engage in scientific inquiry! The space is large and many curricular activities have been developed for 4th/5th graders such as the three described above. We hope you have opportunities to engage in all three! However, we have focused the learning portfolio curriculum on Group A “Looking for evidence of Birds” and the connections of birds to the larger ecosystem. If you want to, go ahead and engage in all three learning groups. If you only want to focus on the Welina Mānoa learning portfolio, then we suggest you split the class into three groups and each group pick a different area within Lyon Arboretum to go through the bird curriculum we have created.

11:15  Walking back to the classroom talk with a partner from another group and compare your experiences.

11:30  Back in classroom as someone from each of the observation/work groups to describe what they learned.

12:00  Lunch, Clean-up, and Depart

**Field book activities to do after the tour:**
On the bus back to school, ask students to respond to the following questions in their field book (can be written and/or drawn expressions):

1. What was your favorite activity you participated in at the Lyon Arboretum? Write down what you remember learning and what you liked about the activity.

2. How can students like you, who live in Hawai‘i, do to mālama ‘āina in this place?

3. Why do you think some birds were found in some areas but not in others?

4. What do genealogy stories teach us about a place?

5. What connection might there be to the introduction of the mongoose and the decline of the pueo population?

6. How might the change in forest structure affect the ‘elepaio population?
7. What bird(s) were easier to find today? What do you think that tells us about the story of Lyon Arboretum here in Haukulu and ‘Aihualama?

8. Challenge Essay. Choose one of these questions to write about.

   a. Thank you for spending time with us at the Lyon Arboretum! You had a chance to observe a number of creatures and plants. List what you recall lives in this environment. Why do you think they live here? Can you think of what is NOT here and should be? As you answer your question talk about the native, endemic, indigenous, introduced, and invasive plants.

   b. (If you have been to the other Welina Mānoa Sites) You have now been to Waikīkī Aquarium, Ka Papa Lo‘i ‘O Kānewai, Mānoa Heritage Center, and Lyon Arboretum. WOW! At each place we showed you pictures of the place 100 years ago, 50 years ago, and today. How have humans altered the environment and what impact has that had? Talk about how we can mālama ʻāina.

   c. We have now told you the mo‘olelo, Kahalaopuna. In your own words, retell the mo‘olelo. Why is it important to know this story?

POST activities for teacher to engage with students:

1. Draw the water system using Ka Wai a Kāne.
2. Fill in the ahupua‘a map.
3. Learn more about Hawai‘i’s birds.
4. Explain what students can do to aloha ʻāina/mālama ʻāina so that ‘oiwi (plants, animals, and people) return to the land.
5. Learn the mo‘olelo/moʻokū‘auhau of where you live. What does this teach you about the health of the ecosystems in your area?