GRADE 5 SCIENCE UNIT
NATIVE PLANTS & INVASIVE SPECIES IN HAWAI'I
Science Plant Unit

Parts of a Plant
Day 1 - Roots and Stems
   Pg. A10-A13 - Read, discuss, vocabulary
   Draw and label root and stem in tablet.

Day 2 - Experiment: Putting Roots Down
   Pg. A8-A9

Day 3 - Leaves and Flowers
   Pg. A14-A17 - Read, discuss, vocabulary
   Draw and label leaf and flower in tablet.

Plant Cells
Day 4 - The Plant Cell
   Pg. A24 - Discuss parts of a cell and vocabulary.
   Draw and label a plant cell.
   Discuss proper use of the microscope.

Day 5 - Experiment: Observing Plant Cells with a Microscope
   Using an onion, draw what they see in the microscope. Label the parts of the cell in their drawing.

Day 6 - The Story Tree Rings Tell
   Pg. A25-A26 Read and discuss
   Worksheet - What Do Plant Cells look like?

Day 7 - Chapter 1 Test
Clermontia oblongifolia
Campanulaceae
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UNIT THEME: Invasion of Alien Species

Essential Question: What is the impact of alien species on Hawai’i environment in Puna?

Science Content Standards

Domain II: What We Know About the World Around Us

#3- “Malama I Ka ‘Aina”
Students make decisions needed to sustain life on Earth now and for the future generations by considering the limited resources and fragile environmental conditions.

Benchmark
Conservation of Resources – examine and explain why there is a need to conserve natural resources.

#4- Unity and Diversity
Students examine the unity and diversity of organisms and how they can be compared scientifically.

Benchmark
Explain how different organisms need specific environmental conditions in order to survive.
Explain the relationship between structure and function in living things.

#5- Interdependence
Students describe, analyze, and give examples of how organisms are dependent on one another and their environments.

Benchmark
Identify how plants and animals depend on each other, in the exchange of oxygen, carbon dioxide, and nutrients.
Explain how organisms respond to constantly changing environment.
Language Arts Content Standards

Writing

#1 - Range
Write using various forms to communicate for a variety of purposes and audiences.

Benchmark
Write to communication information, express opinions, and influence others.

#4 - Rhetoric
Use rhetorical devices to craft writing appropriate to audience and purpose.

Benchmark
Conveys meaning, provides important information, makes a point, fulfills a purpose.

#5 - Attitudes and Engagement
Demonstrate confidence as writers, and find value and satisfaction in writing and sharing writing with others.

Benchmark
Write readily for a variety of purposes on a range of topics.
Activities

Day 1
Building Background Knowledge/Assessing Prior Knowledge
(large group)

*Literature: "Beyond 'Ohi'a Valley Adventures in a Hawaiian Rainforest"
   by: Lisa Matumoto

   (Main Idea: Present problems that threaten Hawai'i's endangered species.)

*KWL chart - What you Know, what you Want to know and what you Learned

-Teacher will ask the following questions.
  What do you know about Native Hawaiian plants?

-Teacher will write Student responses on KWL chart.

-After first column of chart is complete, students will pose questions on what they want to know now.

-Teacher will write students questions on KWL chart.

Day 2
Discussion and Introduction to Hawai'i's Native plants (large group)

*Pretest - Hawaiian Native plants
   Teacher will give the student a pretest on Native Hawaiian plants to assess how much student already know about the kinds of native plants Hawaii has.

*Vocabulary word cards
   Teacher will have the following vocabulary words written on sentence strips. Using the Pretest that the students took on Hawai'i's Native Plants, students will make corrections and take notes in their science tablets.
native - arrived to an area without assistance from people.

introduced - brought into an area by people.

Polynesian introduced - brought by Pacific Islanders prior to Western contact.

naturalized - introduced species which have since established self-sustaining populations.

endangered - a species which is in danger of extinction throughout all or a significant portion of its range.

threatened - a species which is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

Day 3 – 7
Introduction – Research Project on a native Hawaiian plant (partner-independent)

*Native plant posters
'āhia
maile
'ilima
'olapa
pulikawe
palapalai
'ulei
'akala
koa
silversword

-Students will work with a partner or independently on a research project on one of the native plants.
- Students will be given a 9"x18" poster paper to display the following information about the native plant they are studying.
  Description (physical features, environment it grows in, etc.), uses, threats and diseases, personal comments and a picture of the plant.
- Students will share research projects.
- Projects will be displayed in classrooms, campus bulletin boards and/or special events board.

Day 8
Instruction- What Makes Up a Forest (large group)

- Teacher discusses the three layers of the forest (canopy, sub-canopy, ground covering).
  Using students' research projects on native plants, discuss which plant would be in the canopy, sub-canopy or ground cover).
- Discuss how each layer is important to each other.
- Emphasize the threats mentioned to these plants. Discuss how seeds travel, human threats, and ungulates.

Day 9
*Guest Speakers: Someone from the DLNR invasive species department. (We had Nelson Ho last year, but he has moved on to other things).
* Leila Kealoha - Kua O Ka La Charter School
* Rachel Goo - UHHC
* Mark Hauanio - Leilani Estates Association-Miconia Chrm.
* Kuhea Paracuelles - National Parks
* Laura Brezinsky/Beth Barwise - Kuʻohiʻalaka Native Forest
Day 10-13
Alien Species Informational Paper - Writing Assignment
(Independent Work)

*Review guest speaker's informational presentation.
*Go over informational alien species fact sheets and Geological map of the Puna area.
*Have Ss write an informational paper on alien species.
   Pre-write/Draft
   Edit/Revise
   Publish
   Share

Day 14-18
Rainforest Posters (Individual work)
* Ss will design a rainforest poster labeling the different plants, animals, and insects in each layer of their rainforest.
* Ss will create a slogan to help save our Hawaiian rainforests.
* Posters will be televised on PTV (school tv) as a feature presentation in April to celebrate Earth Day.
* Posters will be on display at Pahoa Elementary Ho'olaule'a/PTSA meeting.
* Posters will also be displayed at various businesses in the Pahoa community.

Day 19-20
Closure/Wrap Up (large group)

*KWL chart
   -Teacher will write students responses on what they learned about Native Hawaiian plants and alien species in Hawai'i.

*Final Test
   -Ss will take a test on vocabulary words, native plants and alien species.
Field Trips:

*Ku’ohi’alaka Native Forest Community Service
and native species identification project.
- Laura Brezinsky and Rachel Goo

Students will have the opportunity to walk into a native forest
and participate in a plant identification project with Rachel Goo.
Rachel has provided us with a wealth of information on native
plants found in the Ku’ohi’alaka forest. The students will learn
about the various plants, hear local legends about the plants, and
learn about the plant’s unique medicinal uses.

Students will then hear from Laura Brezinsky and how the forest
came to be in its present state. Students will also have an
opportunity to do community service at this site. Activities include
collecting seed/seedlings, transplanting, and weed control.

Kua O Ka La Charter School (Keahialaka/Pohoiki)
- Leila Kealoha-teacher at charter school.
Students will have an opportunity to visit this unique charter
school and take a walk in their native plant trail. Leila will provide
the students with history of the area and talk to them about the
importance of preserving various sites in Pohoiki. The school
ground has a rich history and students will learn to appreciate the
information that lies in their own backyard. Activities include
lessons on fishponds, makahiki sites, religious artifacts and
socializing with the students of Kua O Ka La.
**Assessments**

**Students will be evaluated on completion of Native plant Research Project.**

**Students will be assessed on informational paragraph written on Miconia.**

**Students will be evaluated on design and creativity of rainforest posters and slogans.**

**Students will be observed for participation during whole class discussions and activities in the classroom and on field trip.**

**Students will be evaluated on participation and responses on KWL chart.**

**Students will be evaluated on final test given on unit.**