**PLANT ID ACTIVITY**

30-45 minute activity

Grades 5--8

Groups of 2-3 students

This activity introduces the basics of plant identification. Using scientific observation, students learn botanical terms and develop their observational skills. Students will become familiar with the process of keying out leaf characteristics to narrow plants down to families, then finer details help determine plant species. Student will research their plant and conclude whether it is native, non-native, or invasive.

**Learning Outcomes:**

Detailed observations (text and illustration) of plants

Learn plant parts and basic botanical terms.

Leaf characteristics can determine family.

Difference between native, non-native, and invasive plants.

Learn how to use Hawaii-Pacific Weed Risk Assessment.

**Materials:**

Printable Materials

1. Plant ID Activity Overview & Instructions
2. Answer Key for Activity (for facilitator)
3. Activity Sheet
4. Leaf Characteristics Key
5. Family ID Key
6. Plant ID Key
7. Printable Plant Specimen Numbers

Additional Materials

1. Field Guides (or you can use online searches if field guides aren’t available).
2. Ruler
3. Pencils
4. Tablet or laptop
5. Plant Specimens

Either take them in the field or provide plants; if providing plants, have at least 8 types. Plants used in this activity are common along roadside and trailside, and native plants that can be purchased:

Castor Bean (Ricinus communis)

White Shrimp Plant (Justicia betonica)

Coral berry (Rivinia humilis)

African Tulip sapling (Spathodea campanulata)

Ohai (Sesbania tomentosa)

Milo (Thespesia populnea)

Aheahea, Aweoweo (Chenopodium oahuense)

Clidemia (Clidemia hirta)

Use the **Plant Numbers for Specimens** to label your mystery plants prior to activity.

**Part 1: Introduce Activity**

1. Go over the key terms (leaf margin, leaf arrangement, habit, and venation). Discuss the observation skills needed when trying to ID a mystery plant (details, size, shape, color, leaf structure and arrangement).
2. Share some field guides with students. Familiarize them with types of information included in the guides: photos/drawing, information about the leaves, flowers, and fruits.

**Part 2: Observation**

Have students choose and observe 1 or 2 plants they are unfamiliar with, spend 7-10 minutes observing the plants with the ACTIVITY SHEET.

1. First, have students draw the plant; what’s the shape of it, bushy or sparse, etc.?
2. Second, have them draw a detailed sketch of a leaf. \*HINT…students may get their vein pattern wrong. Having them refer back to their drawing is helpful to see what it most resembles to the vein pattern key.

**Part 3:** **Leaf Characteristics**

1. Students will answer the following questions using the **LEAF ID KEY**:

What is the Leaf Shape?

What is the Leaf Type: Simple or Compound?

What is the Leaf Margin?

What is the Leaf Veination?

What is the Leaf Arrangement?

Notes Section if for them to note unique feature of the plant and/or leaves. Looking for hairs on leaves, stems, thorns, flowers, fruits, sap, smells, etc.

1. Using the Facilitator’s KEY FOR ACTIVITY, check the leaf characteristics to make sure they are correct, if not discuss with them the errors in either leaf characteristics or families they chose.

**Part 4: Family ID Key**

1. Once the students have completed their leaf identifications…use the **FAMILY ID KEY** to match their leaf characteristics to all matching possible families.
2. There will be more than one family possibility based on the leaf characteristics.
3. If there’s time, use the Facilitator’s KEY FOR ACTIVITY to make sure they have the family name as one of the possible families. If not, discuss their choices.

**Part 5: Plant ID Key**

1. Once students have narrowed down their possible families, give them the **PLANT ID KEY** to match their information on the activity sheet. Have them fill in the common name, Hawaiian name if applicable, and scientific name.
2. Use the Plant Pono website ([www.plantpono.org](http://www.plantpono.org)) to look up the HPWRA score and record it on the sheet.
3. If the plant is invasive, list alternative, healthy (pono) plants.
4. If the plant is not listed on the website, request a plant assessment be conducted. You can do this using the link on plant pono home page, or use this link: <http://plantpono.org/hpwra-request.php>
5. Use the field guides (if you have them), and have students write down some interesting notes about the plant.

**Discussion:**

1. Why do we use scientific names?
2. What are the important elements to include in an illustration?
3. What information would help to know about the plant that you were not given?
4. What are some interesting facts about your plant? When it was introduced, is it used for medicine, does it have an odor?
5. Why do some plants have hairs on them?

**Extensions**: *for longer activity (minimum additional 15-20 minutes)*

1. Have the students present their plant to the class.
2. List the differences and similarities between the plant description and the field guide.
3. After getting the HPWRA score, have students investigate the plant:
	1. What is its habitat?
	2. What is its distribution?
	3. If native, what is its Hawaiian name?
	4. IF native, what are its uses in the Hawaiian culture?
	5. If non-native, when was it introduced?
	6. If non-native, why or how was it introduced?
	7. If non-native, is it invasive?
	8. Why is it invasive? (lack of predators/environmental stressors, variety of habitat, grows quickly, rapid reproduction).
	9. If invasive, what are the impacts? (human health, environment, economy, quality of life).
4. If the plant is invasive, is it being controlled or managed?
5. If students are identifying plants on campus, they can extend this into a mapping project.

**On-Line Resources:**

* Honolulu Board of Water Supply Planting Guide, Suitable Climate Zones & Plant Habits for Oahu:

<http://www.boardofwatersupply.com/conservation/xeriscape/oahu-planting-guide>

* Smithsonian National Museum of Natural History, Pacific Island Biodiversity, Hawaii Plant Query:

<http://botany.si.edu/pacificislandbiodiversity/hawaiianflora/query2.cfm>

* Native Plants of Hawai‘i:

<http://nativeplants.hawaii.edu/index/>

* USDA, Hawai‘i State-listed Noxious Weeds:

<https://plants.usda.gov/java/noxious?rptType=State&statefips=15>

* Center for Agriculture and Biosciences International (CABI): Invasive Species:

<http://www.invasive-species.org/>

* Center for Agriculture and Biosciences International (CABI): Invasive Species Compendium:

<https://www.cabi.org/isc/search/?q=&types=7,19&sort=DateDesc>

* University of Hawai‘i at Mānoa, Dept. of Botany:

<http://www.botany.hawaii.edu/>

* O‘ahu Invasive Species Committee (OISC):

<http://www.oahuisc.org/>