



CITY AND COUNTY OF HONOLULU

COMMUNITY FORESTRY PROGRAM

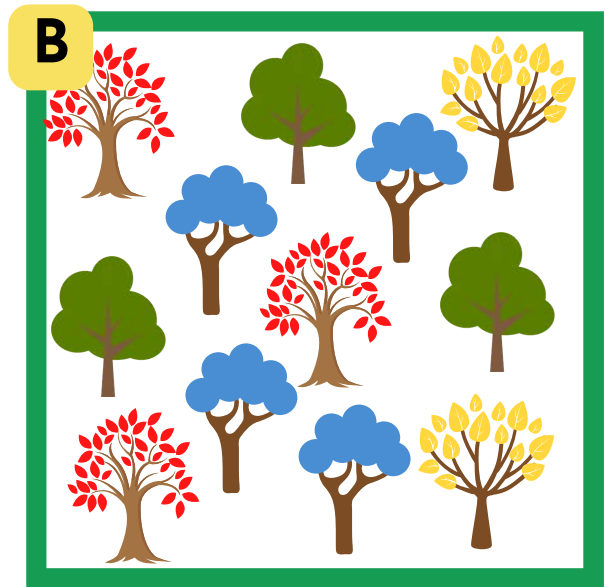
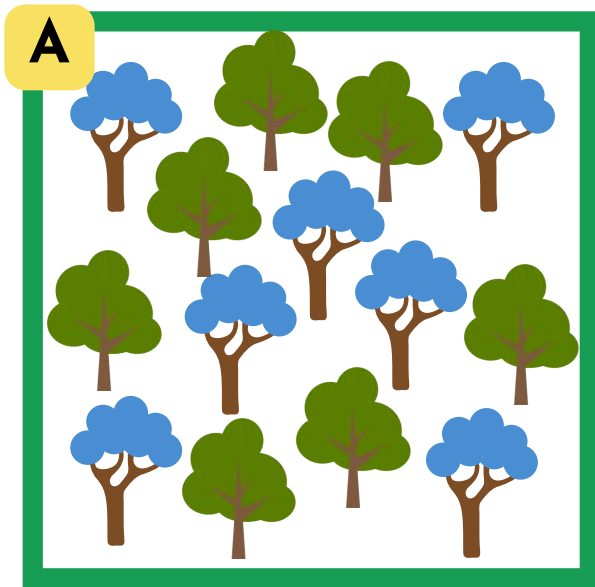
K-5 Educational Activities



Adapted and revised by Jakob Timmins and Amber Weiss

Learning Biodiversity

Biodiversity is simply the variety of life in a particular habitat or ecosystem. Having strong biodiversity is extremely important to an ecosystem! Start by counting the trees below:



Forest A has _____ individual trees
Forest A has _____ different tree species

Forest B has _____ individual trees
Forest B has _____ different tree species

Calculate biodiversity:

1. Using the values found above, divide the number of different species by the number of individuals in a population.
2. This number will be between 0 and 1. Closer to 1 means higher diversity.

The tree diversity of Forest A is _____. The tree diversity of Forest B is _____.

Why does biodiversity matter? An invasive Blue-Tree-Eating Beetle comes to the forests and kills all the blue trees. What forest lost the most trees? What forest now has more trees?

Now, do it yourself

Go outside and determine the tree biodiversity in an area by counting the number of trees and the number of different kinds. Write it below:

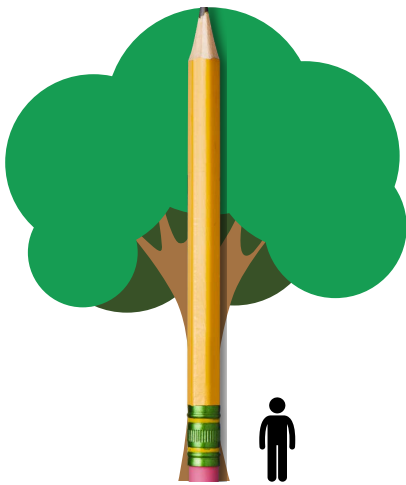
Number of trees: _____ Number of species: _____ Diversity: _____

How Tall is that Tree?

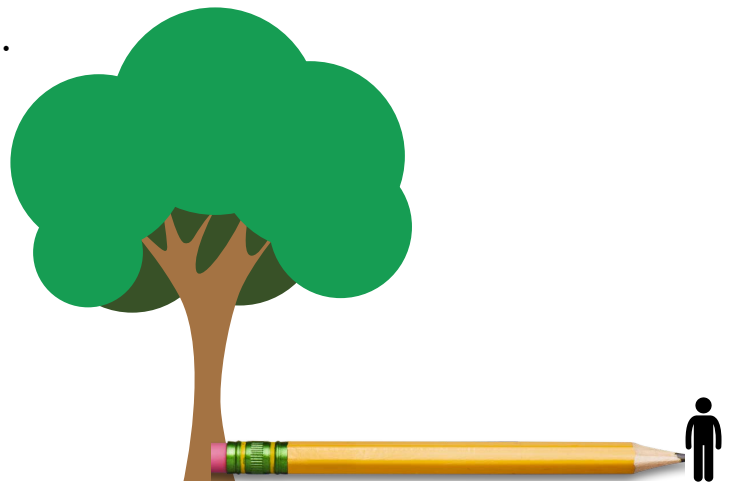
You can estimate the height of a tree using just a pencil, measuring tape, and a friend!

Start by following the steps below:

2.



3.



1. Get a friend to stand at the base of the tree you want to measure.

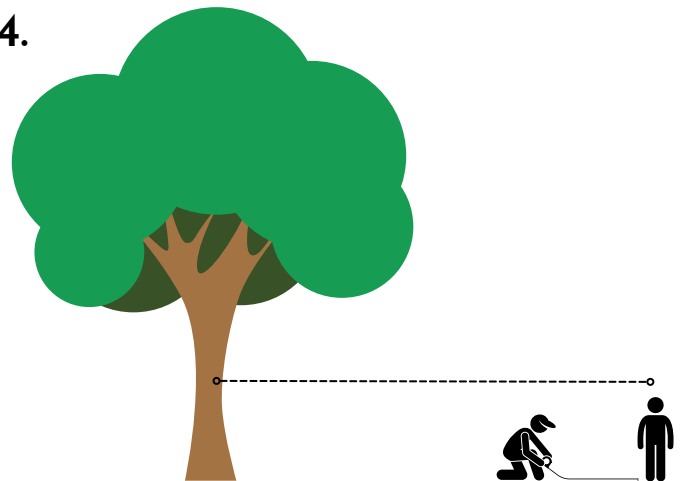
2. Back away from the tree holding the pencil out in front of you. Make sure the eraser is level with the base of the tree. Stop when the tip of the pencil is in line with the highest point of the tree.

3. Keeping the eraser at the tree base, turn the pencil horizontal to the right.

4. Keeping the pencil still, have your friend walk to the right until they are in line with the pencil tip and tell them to stop.

5. Measure the distance between where your friend is standing and the base of the tree. This is the height of the tree!

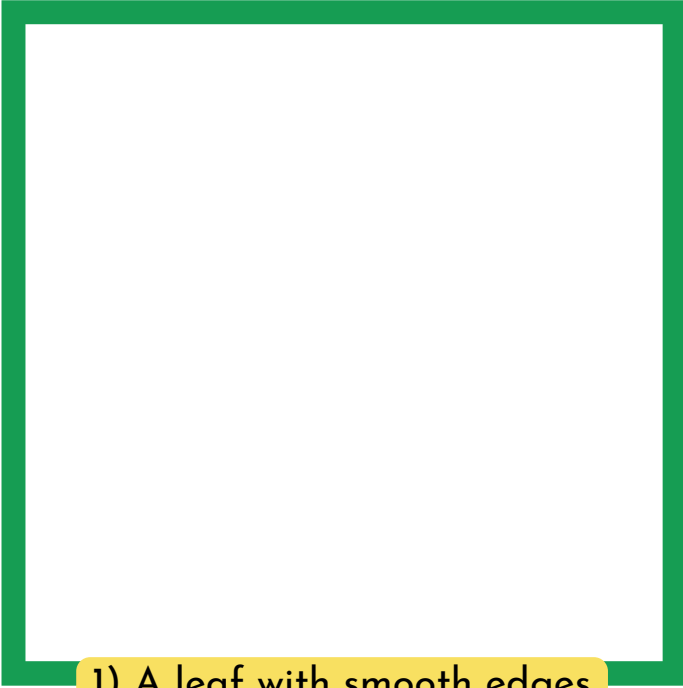
4.



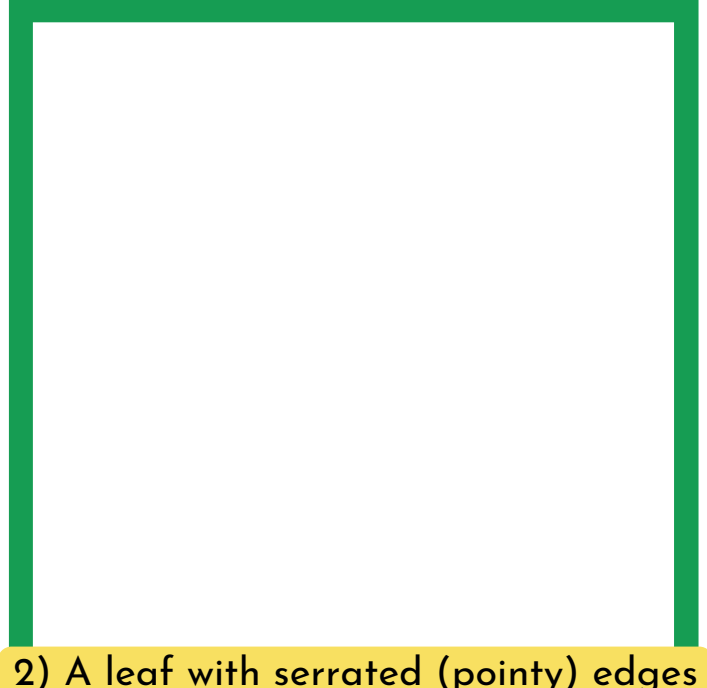
Your tree's height is:

Leaf Collection

Find the following leaves and tape or draw them in the boxes below.



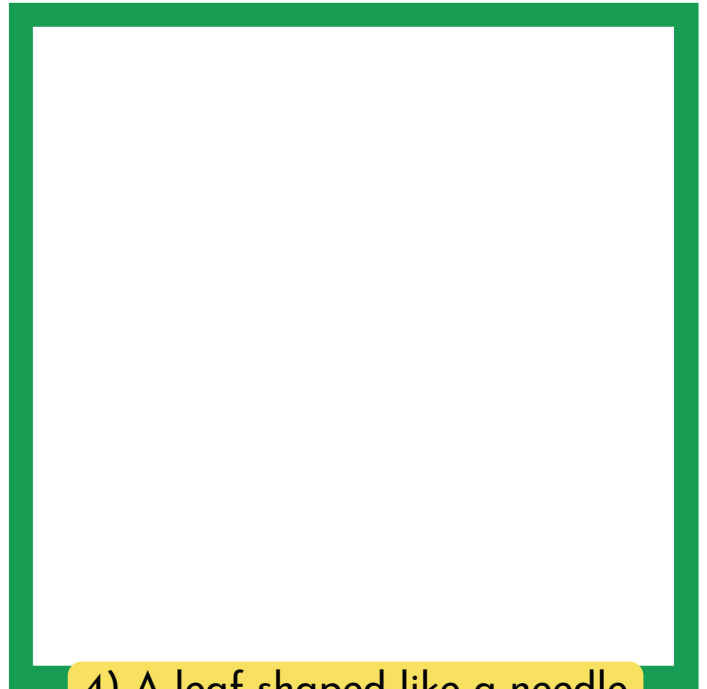
1) A leaf with smooth edges



2) A leaf with serrated (pointy) edges



3) A leaf with insect feeding holes



4) A leaf shaped like a needle

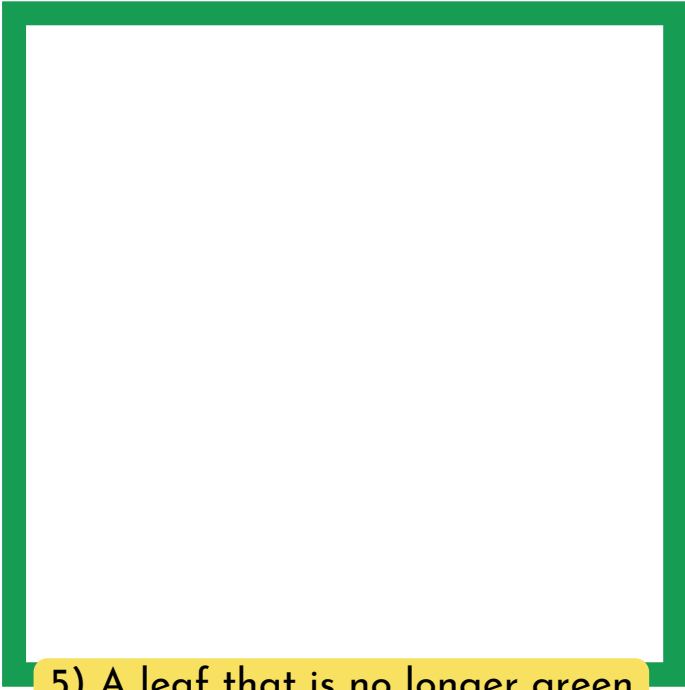


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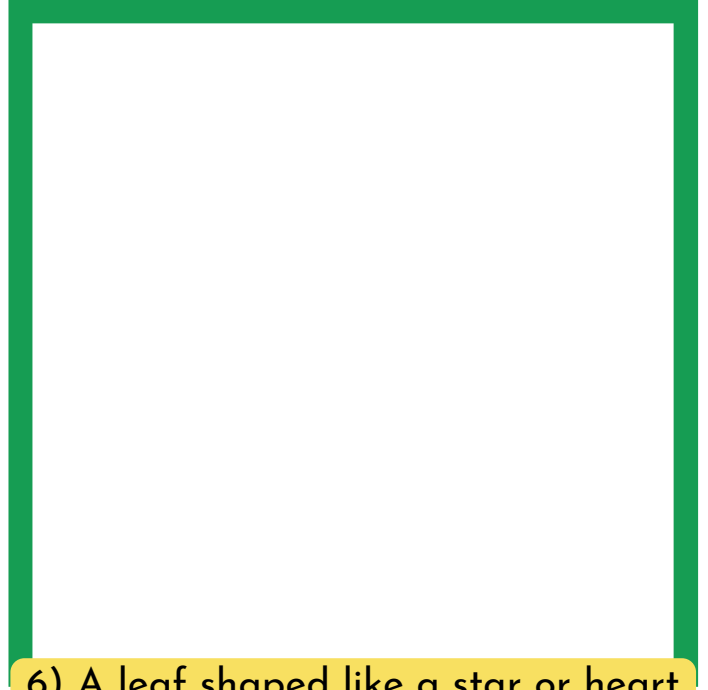
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Leaf Collection

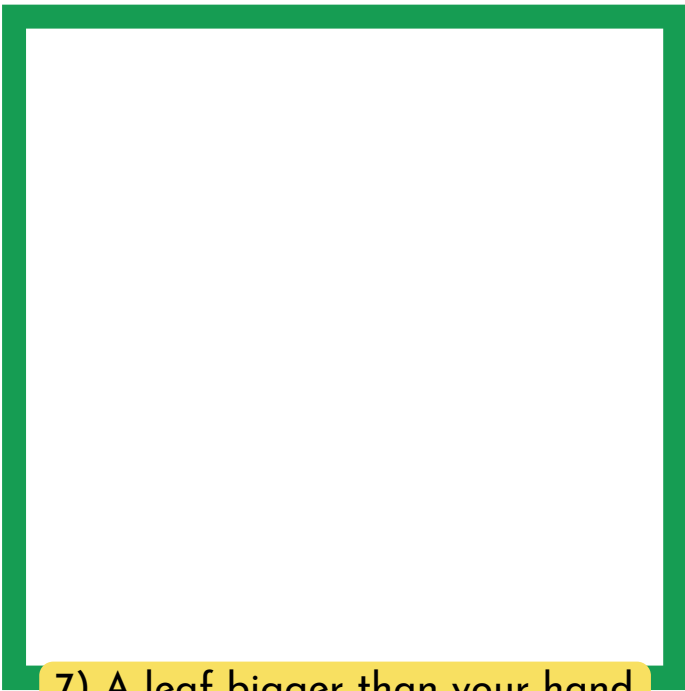
Find the following leaves and tape or draw them in the boxes below.



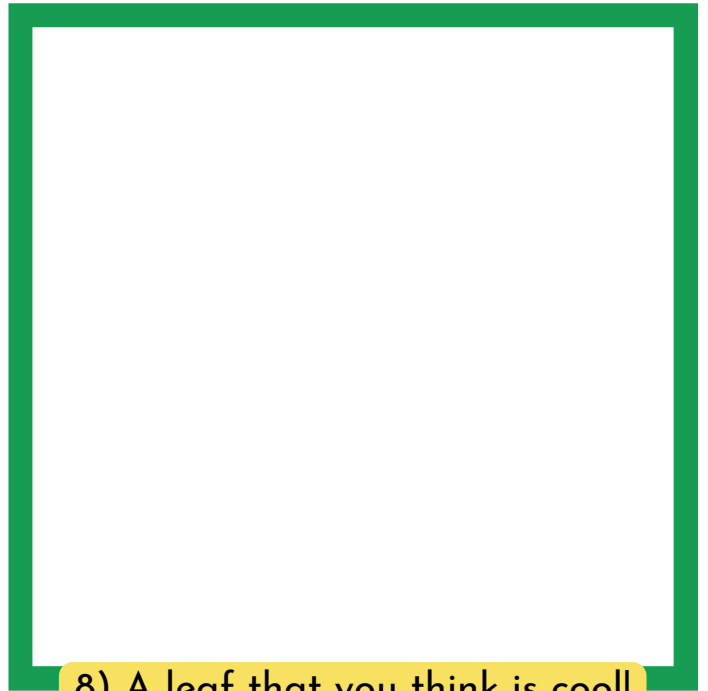
5) A leaf that is no longer green



6) A leaf shaped like a star or heart



7) A leaf bigger than your hand



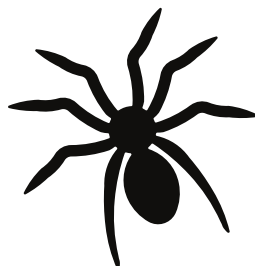
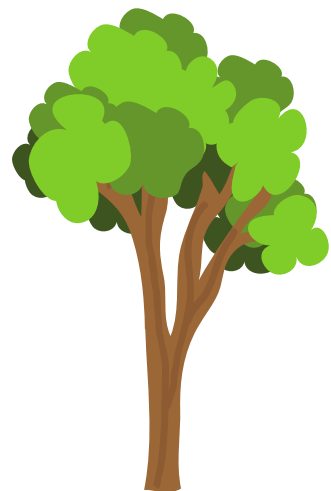
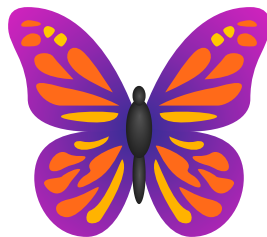
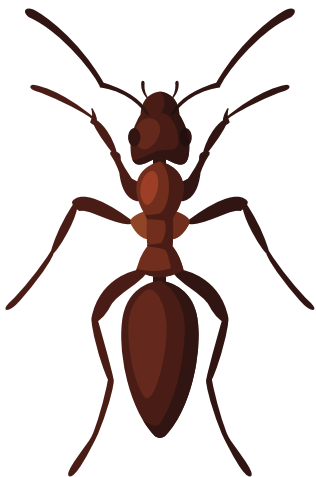
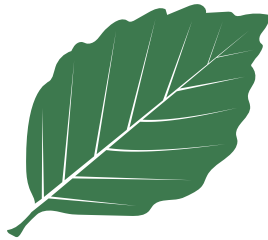
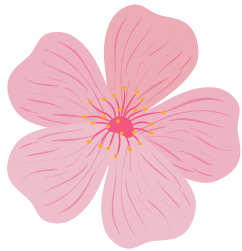
8) A leaf that you think is cool!



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Nature Scavenger Hunt

Circle each item as you spot it!



Riddles with Roots

Can you guess the trees?

Read the riddles, guess the trees and write them in.

I tend to live where it's cool and damp.
Break my seeds and light a lamp.
My light green leaves shimmer on a sunny day.
Shine my seeds and string a lei.
Who am I?



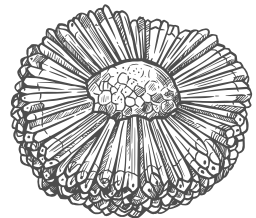
In Hawai'i, I am the tallest native tree.
Some of us can grow over 100 feet.
My blade like leaves are grayish green.
I can make the best canoes you've ever seen.
Who am I?



Where lava can flow,
my kind will grow.
My flowers can be yellow, orange,
or most commonly red.
With plenty of nectar, I keep
Hawaiian birds fed.
Who am I?



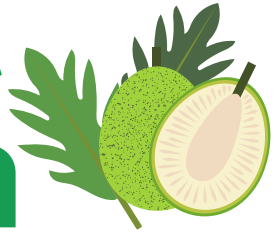
Find me near the coast.
Low elevation is what I like most.
With bright yellow fruits and leaf
made hats,
weave my leaves and also make
mats.
Who am I?



Koa Kukui Hala 'Ōhi'a

Challenge: Make your own tree riddle and share with your classmates.

Urban Forest Word Search



Circle words in the puzzle below

O	G	L	H	I	M	N	T	X
T	H	K	A	R	U	K	O	A
T	Q	I	U	M	O	K	I	S
K	K	G	A	I	N	C	U	O
F	A	N	A	E	X	W	T	K
J	G	T	U	N	O	C	O	C
O	M	U	Q	M	R	I	T	H
Y	L	X	Z	I	Z	G	R	A
U	S	Z	X	K	V	U	H	A

'Ulu
Kukui

Koa
'Ōhi'a

Coconut
Mango

Hau

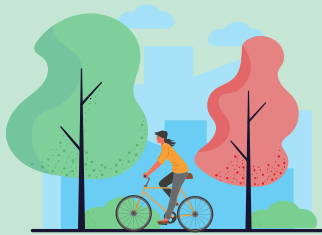


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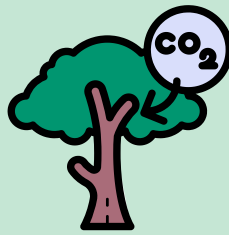
Did You Know?

Trees play a critical role in creating healthier, safer, and more connected communities.

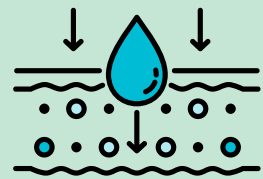
Read the facts about urban trees below:



Our urban forests create attractive living spaces while contributing to better overall health of the community.



Trees are natural air purifiers! As trees photosynthesize, they produce oxygen and take in carbon dioxide from the atmosphere.



Urban forests help improve water quality by absorbing stormwater runoff and encouraging percolation (filtration).



Buildings, roads, and other infrastructure absorb heat and cause heat islands. Urban forests help lower temperatures through shade.



The cooling effects from the urban tree canopy helps conserve (save) energy by reducing electricity usage.



Improving our urban forest is a community effort that builds connections to nature and helps combat (stop) climate change.

Can you think of any additional benefits? List them below:

Thank You, Trees

Trees are an important part of our world. Trees provide shade, remove pollutants from the air, and provide homes for animals.

Start by following the steps below:

1. Pick a tree and spend a few minutes observing it closely.
2. Now, write a thank you note to the tree for everything it does. For example, you may want to say thank you for the delicious fruit it grows every year, or for letting you climb on its branches.
3. Now, draw your tree!
4. Share your thank-you note and drawing with the class.

1.



2.



3.



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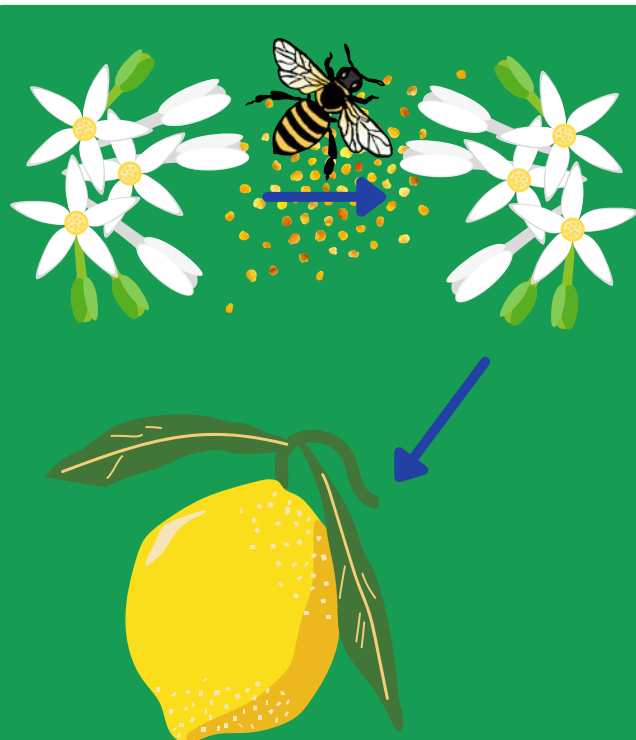
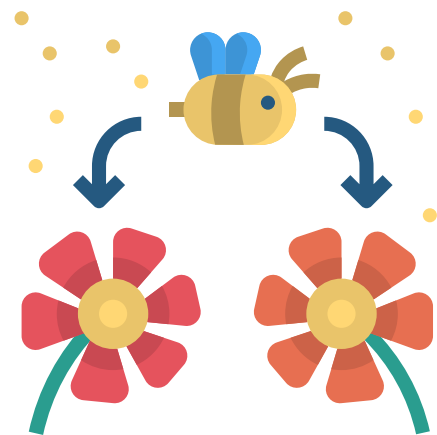
Flowers to Fruit

Pollination

- The first step in the flower-to-fruit process is pollination.
- Most fruit-bearing species are pollinated by insects, but birds, bats and wind can also assist in pollination.
- Some species, like peaches, are self-fertile, meaning that pollen from one flower on a specific tree can pollinate another flower on the same tree.
- Other species, like apples, require the presence of several varieties of fruit trees for successful cross-pollination

Activity

- Find trees and/or plants bearing flowers and fruit.
- Describe how flowers turn into fruit and explain how insects are involved.
- Ask students to observe the flowers and insects visiting the flowers.
- Identify the different parts of the plant(s). (Flower, leaf, fruit, seed etc)
- Have students harvest fruits, collect seeds, and gather flower petals.
- Create a collage to take back to school.

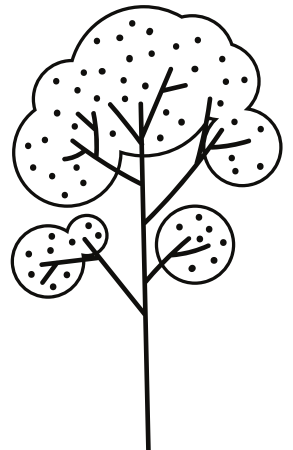
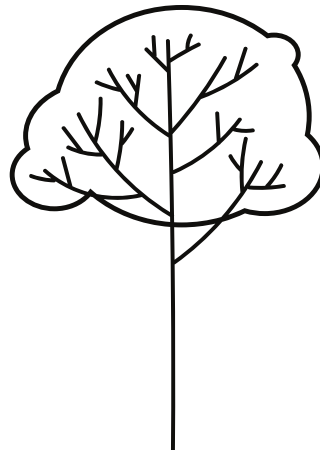
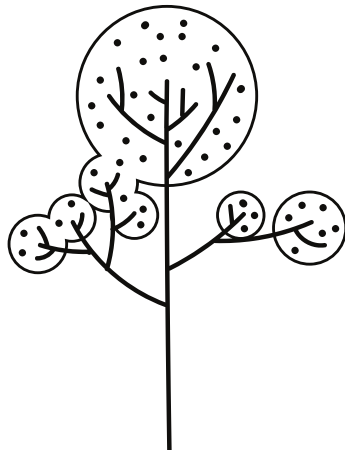
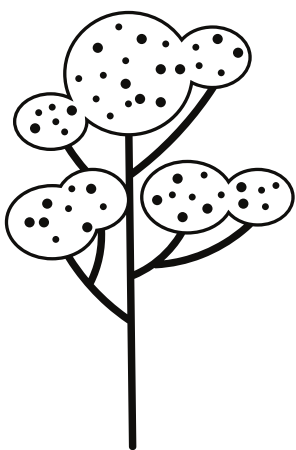


- During this activity, students will:
- Use the five senses to explore and investigate the natural world
- Identify basic structures for plants
- Describe and sort objects by their color, shape, texture, feel, size, weight, and position.
-

Parts of a Plant

For this activity, a parent/adult will need to help to collect different plant parts.

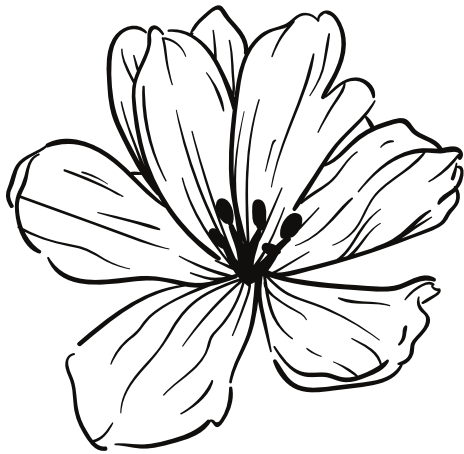
1. Set aside plant material.
2. Cut or break plants apart with students.
3. Have students match the different plant parts with each picture/box.



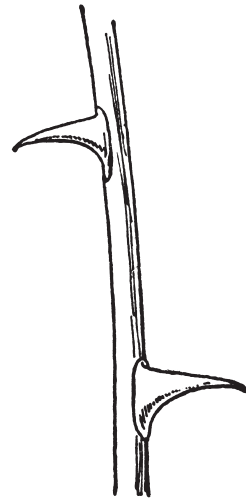
Parts of a Plant

Sort and match each plant part!

Flower



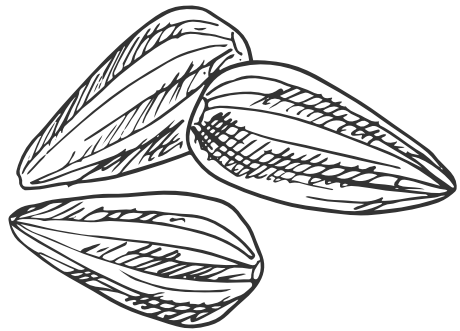
Stem



Leaf



Seed



Trees as Habitat

Trees provide a habitat for a host of plants and animals.

1. Observe a tree. Look for any plants and animals.

Tip: Look for clues such as chewed leaves and holes in the bark.

2. List all of the living things you find on each part of the tree. If you can't identify it, draw it!

Trunk

Branch

Leaf



The 'Ulu Tree

This plant is native to New Guinea, the Maluku Islands, and the Philippines. It was spread though out Oceania during the Austronesian expansion and was brought to Hawai'i by Polynesian voyagers as a canoe plant centuries ago.

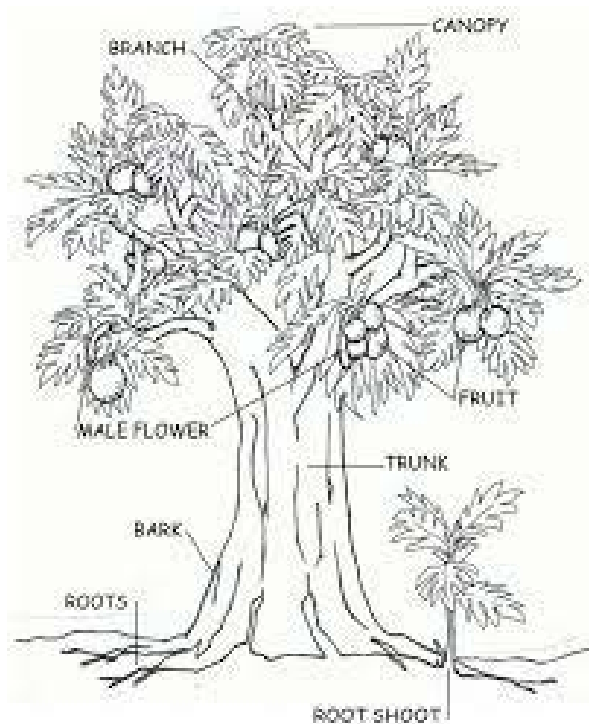
Legend Of Kū

During a famine, the Hawaiian god transformed himself into the 'ulu tree in order to feed his family. Today it is often planted when a child is born to ensure a lifetime of nourishment.

Did you know?

The commonly cultivated Hawaiian variety is seedless. This means that 'ulu has to be propagated thorough vegetation which makes clones of the parent plant.

The Propagation Process



The most common ways to propagate 'ulu is by root shoots or root cuttings.

Root shoots are new 'ulu trees that grow from the root system of the mother. They should be detached when the shoot is at least 0.3 m tall.

Root cuttings can be collected from healthy roots that are 1.5 to 6 cm in diameter. it is best to collect the roots after the fruiting season when the carbohydrates stored in the roots are the highest.

Source: NTBG , Breadfruit Institute



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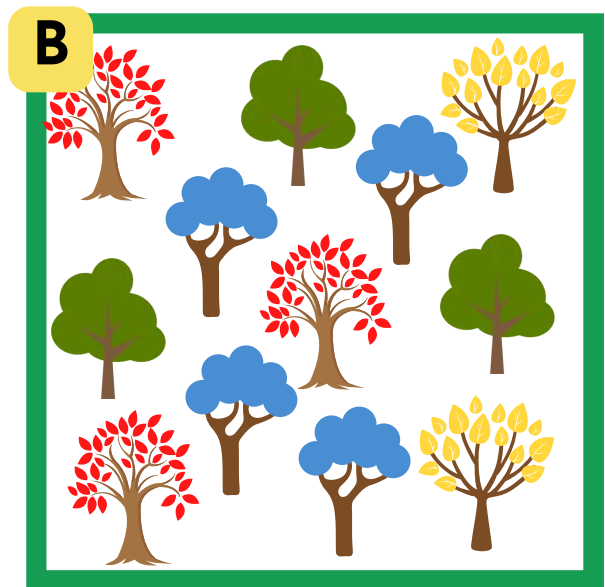
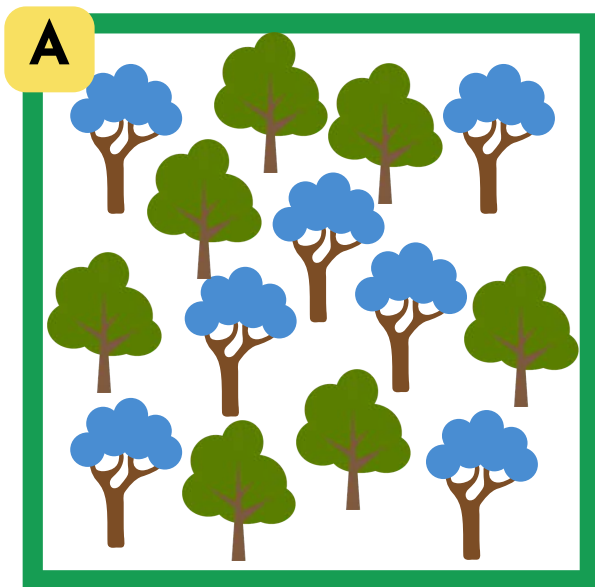
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Answer Keys



Learning Biodiversity

Biodiversity is simply the variety of life in a particular habitat or ecosystem. Having strong biodiversity is extremely important to an ecosystem! Start by counting the trees below:



Forest A has 14 individual trees

Forest B has 12 individual trees

Forest A has 2 different tree species

Forest B has 4 different tree species

Calculate biodiversity:

1. Using the values found above, divide the number of different species by the number of individuals in a population.
2. This number will be between 0 and 1. Closer to 1 means higher diversity.

The tree diversity of Forest A is 0.14 . The tree diversity of Forest B is 0.33 .

Why does biodiversity matter? An invasive Blue-Tree-Eating Beetle comes to the forests and kills all the blue trees. What forest lost the most trees? What forest now has more trees?

Now, do it yourself

Go outside and determine the tree biodiversity in an area by counting the number of trees and the number of different kinds. Write it below:

Number of trees: _____ Number of species: _____ Diversity: _____

Riddles with Roots

Answer Key

I tend to live where it's cool and damp.
Break my seeds and light a lamp.
My light green leaves shimmer on a sunny day.
Shine my seeds and string a lei.
Who am I?



Kukui

In Hawai'i, I am the tallest native tree.
Some of us can grow over 100 feet.
My blade like leaves are grayish green.
I can make the best canoes you've ever seen.
Who am I?



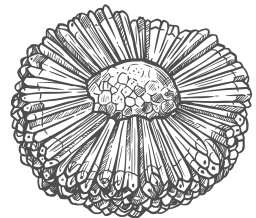
Koa

Where lava can flow,
my kind will grow.
My flowers can be yellow, orange,
or most commonly red.
With plenty of nectar, I keep
Hawaiian birds fed
Who am I?



'Ōhi'a

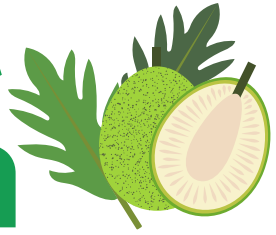
Find me near the coast.
Low elevation is what I like most.
With bright yellow fruits and leaf
made hats,
weave my leaves and also make
mats.
Who am I?



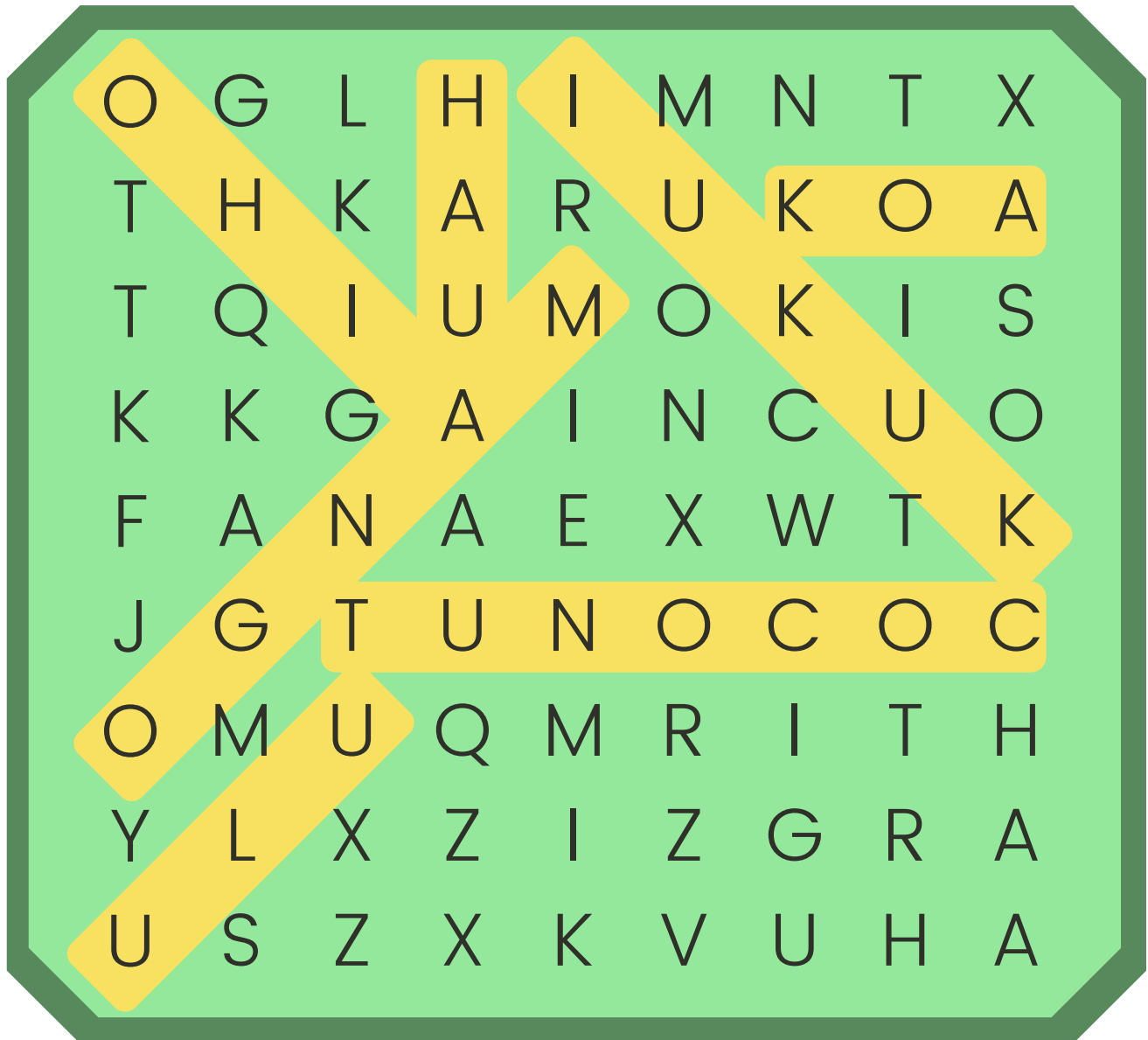
Hala

Challenge: Make your own tree riddle and share with your classmates.

Urban Forest Word Search



Answer Key



'Ulu
Kukui

Koa
'Ōhi'a

Coconut
Mango

Hau



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