



UBC
Botanical
Garden



Tours Activities 2026

School Program Coordinator

Geiza Lellis

Table of Contents:

Tours Activities 2026.....	1
UBCBG Tours Activities Framework.....	5
Schools Program Framework: alignment with BC Curriculum.....	9
K-12 School Tour Activities.....	11
The Cedar Tree and Friends Scavenger Hunt*	11
Description	11
Core themes/ Curriculum connections.....	11
Introduction	11
Learning Goals.....	13
Materials	14
Resources.....	14
Edible Berries Scavenger Hunt *	15
Description	15
Core themes/ Curriculum connections.....	15
Introduction	15
Learning Goals.....	17
Materials	18
Resources.....	18
Apple Tour- Orchard Walk*	19
Description	19
Core themes/ Curriculum connections.....	19
Introduction	19
Learning Goals.....	20
Materials	21
Resources.....	21
Flowers & Pollinators: a secret match! *	22
Description	22
Core themes/ Curriculum connections.....	22



Introduction	22
Learning Goals.....	24
Materials	25
Extension: Flower dissection and microscope observation	25

UBCBG Tours Activities Framework

UBC Botanical Garden Central Theme:

Across the globe, communities and biodiversity have affected and supported each other for thousands of years. We can take action to ensure they continue to thrive in the future.

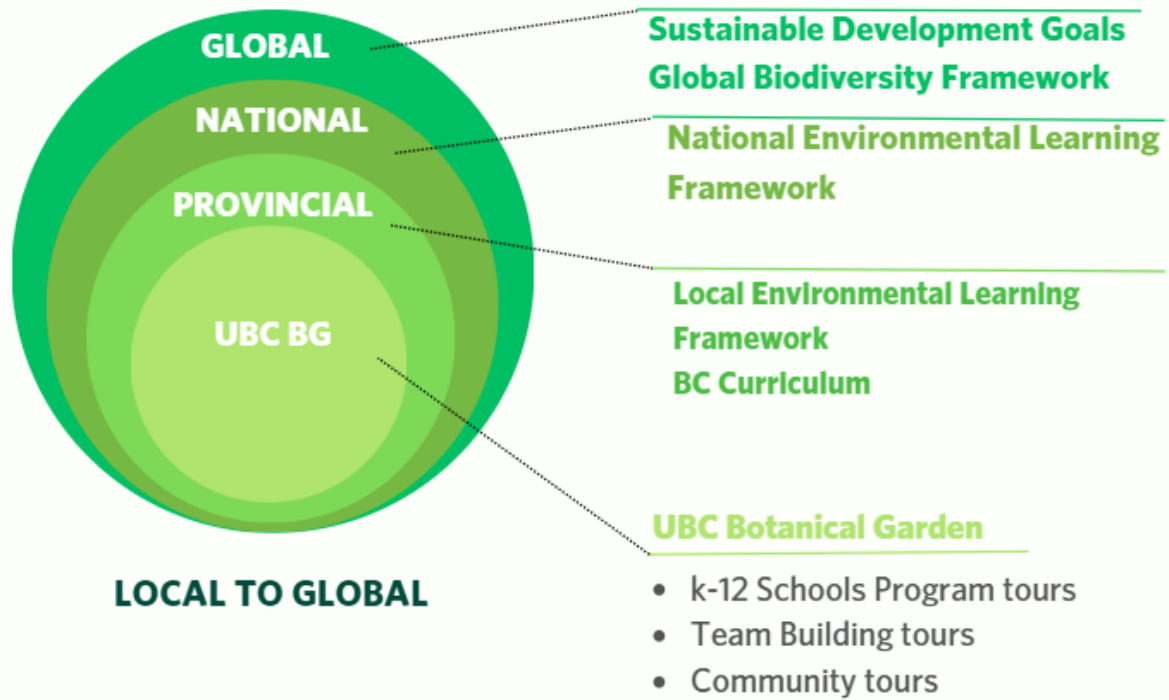
Overarching Themes and Stories:

- 1 - Past and Present History
- 2 - Biocultural Diversity in a Changing Climate
- 3 – Research, Education and Community Science

Concepts:

- 1** History/Time, Reconciliation, Role of Botanic Gardens, Conservation, Local Ecosystems
- 2** Biocultural Diversity, Conservation, Interconnectedness, Climate Change, Role of Botanic Gardens, Health and Wellbeing
- 3** Community Science, Land-based learning, Traditional Knowledge, Climate Mitigation and Adaptation Science

Local to Global Integrated Frameworks – Educational Tours UBCBG



Key Themes:


Biodiversity, Biocultural Diversity,
 People Stories,
 Indigenous and Western Knowledge,
 Plants,
 Climate and Conservation, Sustainability, Experiential Outdoor Learning,
 Inclusion and Equity,
 Wellbeing and Health

Curricular areas:

Science, Social Studies, Sustainability, Biodiversity, Environmental Learning

Duration:

Activities are intent to be about 20 min long as it is part of the 1 hour Guided Garden Tour experience.

<p>Audience, target groups, age: Children and Youth: k-12 Schools groups, and Camps Adults: Team Building, Teachers</p>	 <p>The diagram consists of three overlapping circles: 'Knowledge Activators' (left), 'Experience Enhancers' (middle), and 'Business Builders' (right). Below these circles is a dark green rounded rectangle labeled 'Garden Supporters'. The 'Experience Enhancers' circle overlaps with both 'Knowledge Activators' and 'Business Builders'.</p> <ul style="list-style-type: none"> Knowledge Activators: <ul style="list-style-type: none"> • UBC • Knowledge Holders and Research Experts • Public Garden Network • Government • Horticulture Training Program Experience Enhancers: <ul style="list-style-type: none"> • Tours and Field Trips • Local Community Groups Business Builders: <ul style="list-style-type: none"> • Garden Visitors • Revenue Generating Groups • Fundraising Events <p>Garden Supporters: UBC Members Donors Partners Staff Volunteers & FOGs Alumni</p>
<p>Established goals Facilitators are expected to:</p> <ul style="list-style-type: none"> • Provide joyful experiences, meaningful community engagement and accessible programming that cultivates a sense of connection to plants, nature, and biocultural diversity. • Scale up our programming and enhance learning spaces to foster impactful experiences that inspire ideas and empower actions for a resilient, sustainable and biodiverse world. • Promote science and policy connections across local to global networks to expand the Garden as a hub for public engagement and knowledge sharing. • Support sustainable communities and biocultural diversity conservation by fostering interdisciplinary solutions that include different knowledge systems, community-based approaches and learning tools <p>Guests will:</p> <ul style="list-style-type: none"> • Have nature-based experiences that can improve their cognitive, psychological, and physical health, and these benefits should be equitably available to everyone. • Engage in learning experiences that build on their own knowledge and cultural perspectives. • Feel empowered to make decisions that support a diverse biocultural world. • Feel respectful appreciation for Indigenous knowledge and stewardship. • Understand what <i>local</i> climate change impacts look like and how landscapes and biodiversity have been altered 	

ASSESSMENT EVIDENCE

Performance Task

Facilitators provide the activities during the tour considering the specific requirements of each activity such as target audience, age, duration, season, materials, group size, ratio, and space. Check if the group has photo consent forms for data recording purposes.

Evaluation

To Facilitators: tours and integrated activities must be evaluated with a SWOT once it is delivered.

To the Audience: provide the Feedback form survey at the last station of the tour, in a QR Code Card and printed paper to hand out if needed.

ACCESSIBILITY, INCLUSION, NEURODIVERSE LEARNERS

- **Universal Design for Learning:** integrated varied modalities (seeing, touching, listening); offer choices; slow looking; rest points; accessible routes.
- **Neurodiversity basics:** accept typical classroom behaviours (e.g., walking, verbal stimming) unless unsafe; take cues from teachers; avoid pathologizing; keep instructions short; build in quiet moments.
- **Cultural responsiveness:** pronounce names respectfully; support pronouns; invite students' funds-of-knowledge; use plain language and visuals.

RESOURCES

UBCBG Interpretative Plan 2026-2030
[BC Curriculum](#)
[BC Anti Racism: A Guide for Teachers](#)
[BC Environmental Learning Framework](#)
[National Environmental Learning Framework](#)
[United Nations Sustainable Development Goals](#)
[Global Biodiversity Framework](#)

Schools Program Framework: alignment with BC Curriculum

Interpretation UBC Botanical Garden Frameworks (Key Themes) and BC Curriculum

- **Past & Present History:** Musqueam stewardship; UBCBG as a living record, local ecosystems.
- **Biocultural Diversity in a Changing Climate:** biocultural diversity, biodiversity loss, ex-situ conservation, climate resilience, health and wellbeing.
- **Research, Education & Community Science:** Everyone can contribute to knowledge and stewardship (community science, land-based learning, adaptation science).

BC Curriculum Big Ideas, Local to Global Environmental learning supported:

Science	Diversity, Inclusion & Equity	Environmental Education
<ul style="list-style-type: none"> ✓ Grades K–3: senses, living things observable features, plant needs, basic needs of plants, life cycle, water cycle, responsibilities to the environment, curiosity & sense of wonder. ✓ Grades 4-5: Living things sense & respond (4); Biomes & climate (4); Natural resources & consequences (4–5); Earth materials change and can be used as natural resources (5); Sustainable practices; 	<ul style="list-style-type: none"> ✓ Integrate indigenous knowledge, culture and relationships with the land, environmental stewardship and best practices ✓ Build capacity for Intercultural understanding ✓ Diverse learning opportunities with visual, hands- on, experiential learning ✓ Accessibility and inclusion with subside and adapted ratios as needed ✓ Express and reflect on personal experiences of place. 	<ul style="list-style-type: none"> ✓ Indigenous and western Knowledge ✓ Hands-on learning ✓ Biocultural diversity ✓ Biodiversity loss ✓ Conservation ✓ Climate Change ✓ Environmental Stewardship

<p>First Peoples knowledge (5)</p> <p>✓ Grades 6–7: plants senses (seasons phenology), carbon cycle, biodiversity, climate change, biomes, sustainability, evolution-adaptations.</p>		
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K-12 School Tour Activities

The Cedar Tree and Friends Scavenger Hunt*

Description

This activity introduces the Western Red Cedar Tree (*Thuja plicata*) as a keystone native species of the Pacific Northwest playing an important biocultural role at BC Rainforest and to First Nations People. Participants are introduced to its ecological and cultural aspects and will identify some of its plant community.

Audience/ Grades	K-12 *Adjust tone and guidance needed accordingly to the age group level
Garden Area	Asian Garden Wharton Glade or the Cedar Education Pod in the BC Rainforest Garden
Season/ Available	All year
Duration	20 min

Core themes/ Curriculum connections

Environmental stewardship, local ecosystems, biocultural diversity, and land-based learning.

BC Curriculum: senses, living things observable features, plants needs (k-3), biomes & climate (4-7).

Introduction

The Western Red Cedar Tree is a native keystone species of the Pacific Northwest Coast with its biocultural significance, ecologically and culturally, specially to First Nations People.

Ecological Role

Cedar's drooping branches do more than create shade. They intercept rainfall, helping slow down runoff and protect the forest floor from erosion. This gentle regulation of water supports stream health and keeps the surrounding soil stable and moist.

This cycle of life, death, and regeneration is part of what makes cedar forests so rich and diverse.

The Western Red Cedar is a natural sanctuary. Birds nest high in its branches. Owls and bats roost in the hollows of old trunks. Squirrels, raccoons, and insects take shelter in the deep

crevices of its bark. And when a cedar eventually falls, it doesn't stop giving—its decaying trunk becomes a **nurse log**, hosting mosses, fungi, **ferns**, and even new seedlings. It is frequent to serve the understory layer with berries such as the **Red Huckleberry**.

The Western Red Cedar is a keystone species in many forest ecosystems. It anchors the ecological web by nurturing life above and below the soil, stabilizing the land, regulating moisture, and storing carbon. Its presence signals a healthy, mature, and complex forest environment. It serves supporting other native plant communities, and it is often growing alongside Douglas-fir and **Western Hemlock**. One of cedar's most impressive roles is its ability to lock away carbon. These trees can live for centuries—some over a thousand years—and their wood resists rot long after they've fallen. This makes the Western Red Cedar a natural carbon bank, helping offset the impacts of climate change.

The Cultural Role- Indigenous Significance of Cedar Tree

For many Pacific Northwest Indigenous Peoples, including the Coast Salish, Tlingit, Haida, Tsimshian, and Kwakwaka'wakw, the Western Red Cedar is often referred to as the **"Tree of Life"**—a provider of shelter, tools, clothing, medicine, and spiritual connection. For thousands of years, coastal First Nations in British Columbia have the versatile wood in many aspects of their lives. Not only is cedar a key natural resource in the production of material goods, the tree also plays an integral role in the spiritual beliefs and ceremonial life of coastal First Nations. The cedar is harvested by coastal First Nations to create a variety of implements for daily use and ceremonial purposes. Almost every part of a cedar tree can be used, including the roots, the bark, the wood, and the withes (the smaller, more pliable sub-branches of a tree). While the process of harvesting cedar will inevitably cause some damage to the tree, harvesters use methods that ensure the survival of the tree as a species. It is traditional practice that before a tree is cut down, the woodcutters will say a prayer and express their gratitude to the tree's spirit. A harvester would choose a straight, young tree and de-bark only portions of the tree to ensure its survival. Starting with the base of the tree, cedar roots can be dried and braided to form cordage for hats and baskets. The Coast Salish used cedar root to create a unique type of coil basketry. With the right technique, a cedar basket can be made watertight and heatproof. As a result, cedar baskets are used as "pots and pans" for cooking and boiling water. Water is heated in baskets using hot rocks, and once it comes to a boil, foodstuffs can be added. Cedar wood is strong, lightweight, and straight-grained, so it is easy to split and carve, and made into totem poles, masks, and longhouses. Coastal First Nations, who depended on fish as the main staple of their diet, developed a wide array of fishing gear from cedar, including canoes, paddles, hooks, spears, and fishing floats. Once caught, fish were preserved in cedar smokehouses or dried on cedar racks. Food can be stored or served in bentwood boxes. Canoes were carved from large trunks, some capable of holding over 20 people. Totem poles and

longhouses were constructed from its wood. Bark was woven into clothing, ropes, and ceremonial regalia. Leaves and bark were used for medicinal teas, inhalants, and smudging. As a plant that has ensured the survival of people for thousands of years, cedar has become a powerful symbol of strength and revitalization. The deep respect for cedar is a rich tradition that spans thousands of years and continues to be culturally, spiritually, and economically important.

BOTANICAL PROFILE:

WESTERN RED CEDAR (*Thuja plicata*)

Classification

Family: Cupressaceae (Cypress family)

Genus: Thuja

Species: plicata

Common Names: Western Red Cedar, Giant Arborvitae, Pacific Red Cedar, Shinglewood

Scientific name: *Thuja plicata*

















Learning Goals

- Identify common native plants of BC, focusing on Western redcedar and its plant community
- Develop observational skills in an outdoor setting
- Foster connection with local biocultural diversity

Materials

Knowledge Cards set (2 sets per group –15 to 20 people):

[The Cedar Tree and Friends Scavenger Hunt \(2\).pdf](#)

<p> </p> <p>Common Name: Western Redcedar</p> <p>Scientific Name: <i>Thuja plicata</i></p> <ul style="list-style-type: none"> • Key identification features are red-brown stringy bark, scaly leaves, and rosebud-like cones. • Called "Tree of Life," this tree has long provided Coastal First Nations people with resources for baskets, canoes, homes, clothes, medicine, and more! 	<p> </p> <p>Common Name: Red Huckleberry</p> <p>Scientific Name: <i>Vaccinium parvifolium</i></p> <ul style="list-style-type: none"> • Often grow on nurse logs, or fallen trees that support new growth. • Many animals from humans to birds to bears eat the berries, spreading huckleberry seeds to they can grow. Take only what you need and leave the rest for our forest friends! 	  <p><small>Source: http://bcg.ubc.ca/botany/paths/</small></p>	  <p><small>Source: http://bcg.ubc.ca/qa/qa.html</small></p>
<p> </p> <p>Common Name: Western Hemlock</p> <p>Scientific Name: <i>Tsuga heterophylla</i></p> <ul style="list-style-type: none"> • Often grow on decaying wood in shaded forest areas (growing on and under Western redcedar!). • Needles are used for tea, and the resin (pitch) can be used for medicine. • Needles differ in length, hence the scientific name! Hetero = different, phylla = leaves. 	<p> </p> <p>Common Name: Sword Fern</p> <p>Scientific Name: <i>Polystichum munitum</i></p> <ul style="list-style-type: none"> • Often grow in damp, shaded forests with Western redcedar. • Have traditionally been used as a lining for cooking, food storage, and bedding. • Each leaflet is shaped like a sword and has orange sori underneath! 	<p><small>Source: http://bcg.ubc.ca/qa/qa.html</small></p>   <p><small>Source: http://bcg.ubc.ca/botany/paths/</small></p>	  <p><small>Source: http://bcg.ubc.ca/qa/qa.html</small></p>

Resources

[Western Red Cedar: A Keystone Species of the Pacific Northwest - Branches & Breath](#)

Pacific Northwest Plant Knowledge Cards

[Cedar | indigenousfoundations](#)

[Cedar Tree](#) story book online to play in the iPad as a class in the Pod

Edible Berries Scavenger Hunt *

Description

This activity is a significant biocultural experience connecting people to food plants through berries. Participants will engage in the importance of food diversity and its conservation, including native berries, and will have the opportunity to identify the edible berries in the Garden, and learn about their cultural aspects in BC and its significance to Indigenous People.

This activity helps inspire students in creating enthusiasm about wild foods (crop wild relatives), increasing their appreciation and interest for local native food, and enjoying spending time in nature. It also engages students in supporting local food conservation and propagation through projects or learning how to harvest wild food safely.

Audience/ Grades	K-12 *Adjust tone and guidance needed accordantly to the age group level
Garden Area	Garry Oak, Food Garden and BC Rainforest
Season/ Available	May to July
Duration	20 min

Core themes/ Curriculum connections

Environmental stewardship, local ecosystems, biocultural diversity, conservation, land-based learning.

BC Curriculum: living things observable features, responsibilities to the environment, curiosity & sense of wonder (k-3); Sustainable practices, First Peoples knowledge (5); biodiversity, biomes (3-6), sustainability (6- 7).

Introduction

Conservation and Plant Biodiversity importance

Food plant diversity is essential to current and future generations. Efforts in facilitating connections through people and plants support the understanding of their place, culture, and ecology, developing a sense of care for the environment and food systems. Facilitators introduce the importance of plant biodiversity and conservation and the topic of crop wild relative conservation.

Prompts examples:

“Today you are going to see many native berries in the Garden. Compare them with the ones you see in groceries stores.

Think about the importance of supporting wild crops relatives and wild native berries conservation.

Think about climate change and securing food for future generations.

How wild crop relatives can support food security?”

Facilitators guide the discussion highlighting how crucial it is to conserve and support food diversity by having resilient crops and food to future generations, as well as the cultural historical importance of wild foods to people. Explain the native wild berries in BC have been stewarded, by Indigenous people over hundreds of years, but still we consider the term wild crop relatives to the berries samples included in this activity.

Cultural importance

Why berries? They have a significant cultural importance in BC including their value for food, medicine, celebration, technology, and other uses. There are also a variety of native edible berries grown in BC.

Native berries have been growing on land for hundreds of years and are different from the berries that we see in grocery stores. Native wild berries are important to Coast Salish and Indigenous Peoples for many reasons including cultural significance. Indigenous People have stewarded the land since the time immemorial and have used their traditional knowledge on sustainable growing and harvesting practices. Berries are an example of wild food plants that Indigenous people have been managing and harvesting over time.

Canada is one of the largest producers of berries in the world such as blueberries and raspberries. They have significant importance economically and culturally integrated in daily diet and consume fresh or dried. Lowbush blueberries have been called a “superfruit” because of the variety of health benefits attributed to these small, blue fruits (due anthocyanins). Studies have shown that they are one of the richest sources of antioxidants of any fresh fruit or vegetable, which have been shown to support heart health and blood sugar regulation.

The UBC Botanical Garden efforts in wild berries conservation

Most of the edible berries in this activity are wild, or native to BC with the exception only to the Blueberry grown in the Food Garden. The UBC Botanical Garden has been a leader in developing new horticultural varieties of native species, including the Wild Strawberry and Evergreen Huckleberry.

Conserving the genetic variation within berries is critical. Conservation strategies include both *in situ* (species in their natural or semi-natural habitats) and *ex situ* (species found outside their natural habitats) approaches. One way to summarize the challenges and threats to berries is the acronym HIPPO, which stands for Habitat Loss, Invasive Species, Pollution, Human Population and Overharvesting. These interacting factors are also compounded by the impacts of climate change, which is increasing unpredictable weather events such as heat domes, cold snaps and floods, significantly impacting the health of plants and their pollinators. It is important that the relatives of commercially grown berries (and their genetics), known as crop wild relatives (CWR), are also protected to ensure food security, especially in a changing climate.

Ecological and Botanical aspect of edibles berries

What is Berry?

A berry is a fruit whose seeds are encased in a soft, often tasty pulp. We define berries as the small, fleshy, edible fruits, usually sweet, and we are considering the **true berries** such as huckleberries, salal, and grapes, as well as **pomes**: serviceberry, and **aggregate fruits**: strawberries and raspberries. This activity is about identifying all the wild berries fruits that people commonly think of as berries, whether or not they are “true” berries, botanically speaking.

Berries are a diverse group, united by characteristics such as life history (most are shrubs or small trees). Cultural value and conservation strategies.

As berries are fleshy fruits, they count on the evolutionary advantage over dry fruits to have an edible pulp. The pulp attracts animals that consume the nutritious fruit, which helps to ensure that the seeds are widely dispersed (after passing through the animal’s digestive system) surrounded by natural fertilizer (animal poop).

Before you pick any wild berries:

Never experiment with wild food that you cannot positively identify; that is over-ripe, damaged, or collected from contaminated areas (urban pollution, microorganisms).

Warning: Some berries are toxic. Consuming poisonous berries can kill you. * Serviceberry warning: pits contain cyanide-like toxins, which are destroyed by cooking or drying.

*Thimbleberry and *Wild Strawberry warning: avoid eating wilted leaves, which can contain toxins.

Learning Goals

- Identify common edible native berries of BC and commercial berries

- Develop observational skills in outdoor setting
- Foster connection with local food biocultural diversity

Materials

Edible berries Scavenger hunt cards Bingo (4 cards per group of 15-20):

[Edible Berries Scavenger Hunt \(2\).pdf](#)

The image shows a scavenger hunt activity for edible berries. On the left, there are nine cards, each featuring a photograph of a different berry and its name: Red huckleberry, Raspberry, Salal, Salmonberry, Oregon grape, Blueberry, Thimbleberry, Wild strawberry, and Serviceberry. On the right, there is a table with nine rows, each corresponding to one of the berries. Each row contains the common name, scientific name, and a list of identifying characteristics. The table is as follows:

<p>Common Name: Red huckleberry</p> <p>Scientific Name: <i>Vaccinium parvifolium</i></p> <ul style="list-style-type: none"> • berries are leaf-undersided • berries occur near to leaf stems • shrub grows as high as a tree 	<p>Common Name: Raspberry</p> <p>Scientific Name: <i>Rubus</i> spp.</p> <ul style="list-style-type: none"> • berry is sweet, but seeds fresh • plant may have prickles or bristles • for the raspberry is an example of a compound berry, almost consists of a high number of smaller parts • compound berries are generally eaten 	<p>Common Name: Salal</p> <p>Scientific Name: <i>Gaultheria shallon</i></p> <ul style="list-style-type: none"> • berries are black, clustered 5-15 • berry terminates with clear elongated cell • berries are black and glossy • shrub grows several high from the base
<p>Common Name: Salmonberry</p> <p>Scientific Name: <i>Rubus spectabilis</i></p> <ul style="list-style-type: none"> • berries are black, clustered 1-3 • leaves are 3-part, waxy • stems are prickly at the base • shrub grows to twice a person's height 	<p>Common Name: Oregon Grape</p> <p>Scientific Name: <i>Berberis aquifolium</i></p> <ul style="list-style-type: none"> • berries are sour, clustered in clusters • leaf consists of 11 leaflets • leaflet is very shiny, has slight waxy sheen • shrub can grow taller than a person 	<p>Common Name: Blueberry</p> <p>Scientific Name: <i>Vaccinium</i> spp.</p> <ul style="list-style-type: none"> • berry has a sweet taste when available • berries can be dried for storage • berries can be dried to make jam and spread to dry on a cake • grows in both wooded and open forest areas
<p>Common Name: Thimbleberry*</p> <p>Scientific Name: <i>Rubus parviflorus</i></p> <ul style="list-style-type: none"> • berries are this, black, clustered 2-7 • leaves have 3-5 lobes • stems are round and hair prickles • shrub grows within arm's reach 	<p>Common Name: Wild Strawberry*</p> <p>Scientific Name: <i>Fragaria virginiana</i></p> <ul style="list-style-type: none"> • berries are sweet and sour, clustered 2-10 • seeds are visible on berry surface • leaves are 3-part, flat • seed heads on each leaflet to dry spreading seeds to other side leaf • high 	<p>Common Name: Service Berry*</p> <p>Scientific Name: <i>Amelanchier alba</i></p> <ul style="list-style-type: none"> • purple berry is mildly sweet to tart • rounded, flattened berries can be flattened, turned into cakes and dried over a low-temperature fire • plant is a shrub or small tree

*Warning: These medicinal plants will not be used for medicinal purposes. Thimbleberry, wild strawberry, and service berry plants contain potent toxins, which are potentially fatal if consumed in large quantities. Consuming poisonous berries can be fatal. *Serviceberry warning: plants contain potent toxins, which are potentially fatal if consumed in large quantities. Consuming poisonous berries can be fatal. *Thimbleberry and Wild Strawberry warning: avoid eating wild berries, which can contain toxins.

Source: Edible Berries of the Pacific Northwest: <http://northernbushcraft.com/berries/index.htm>

Resources

Blueberry. The Canadian Encyclopedia:

<https://www.thecanadianencyclopedia.ca/en/article/blueberry>

Edible Berries of the Pacif Northwest: <https://northernbushcraft.com/berries/index.htm>

Pacific Northwest Plant Knowledge Cards

Turner, N. J. Food Plants of Coastal First Peoples. Royal BC Museum Handbook

Cervenka, T. Wild Edible Berries of British Columbia. A Field Guide.

Migicovsky, Z., Amyotte, B., Ulrich, J., Smith, T. W., Turner, N. J., Pico, J., Ciotir, C., Sharifi, M., Meldrum, G., Stormes, B., & Moreau, T. (2022). Berries as a case study for crop wild relative conservation, use, and public engagement in Canada. *Plants People Planet*, 4(6), 558–578. <https://doi.org/10.1002/ppp3.10291>

Apple Tour- Orchard Walk*

Description

This tour activity introduces food plant biocultural diversity, and the topics crop wild relatives, ex-situ conservation, in situ conservation, species varieties, and highlights the local and native apple, enhancing the importance of these species culturally and ecologically to Canada.

Audience/ Grades	K-12 *Adjust tone and guidance needed accordingly to the age group level
Garden Area	Asian Garden, Gary Oak, Food Garden
Season/ Available	August, September, October
Duration	20 min

Core themes/ Curriculum connections

Introduction

UBC Botanical Garden is a living museum of plants with collections of a variety of apple trees. Aside from the culinary *Malus domestica* varieties grown in the Food Garden, and the native crabapple, *Malus fusca* (crop wild relative), there are several other *Malus* species in the Garden, all of them Asian crabapples. Those are the part of the Garden ex-situ collections, as listed below:

Malus asiatica (Chinese pearleaf crabapple), *Malus baccata* (Siberian crabapple), *Malus doumeri* (Southeast Asian crabapple), *Malus prattii* (Pratt's crabapple), *Malus rockii* (Himalayan crabapple), *Malus sieboldii* (Japanese crabapple) and *Malus yunnanensis* (Yunnan crabapple). With a diverse range of colours, flavours and uses, each apple variety tells a unique story—some are prized for their taste, others for their resilience to pests or difficult climates, or for their cultural heritage and significance to people.

Explore the fascinating world of apples the Garden collects (native crabapple and asian crabapples) and grows (culinary apples in the Food Garden/Espalier), learn about their features, cultural aspects, and understand the importance of food diversity, conservation and crop wild relatives.

Malus fusca #1

The Pacific crabapple (*Malus fusca*) holds deep biocultural importance for Indigenous Peoples. Traditionally used for food, medicine, and crafting tools, it was also a valuable item in trade and ceremonial practices. Indigenous stewardship of this species is evident in forest food garden traditions, where Pacific crabapple trees often serve as canopy layers.

Beyond cultural significance, Pacific crabapple trees possess important adaptive traits, including tolerance to flooding and resistance to disease.

Culinary apples at the Food Garden:

Malus domestica

The culinary apples in the Garden are mostly planted as espaliers; that is, trained to grow against a wall or fence—or to be a fence—to provide easier monitoring and management.

Malus domestica varieties (technically, *cultivars*) are normally grafted. Grafting is a kind of "surgery" where the upper, fruit-bearing part of the tree is physically connected to a specific rootstock. The rootstock is important because it has the ability to prevent the tree from growing too large. This makes it easier to pick the fruit and maintain the tree.

Malus domestica 'Blushing Susan' #2

Malus domestica 'Blushing Susan' is prized for its two-toned apples, green with a red blush, and their sweet and juicy flesh. It shows good resistance to diseases and has a compact shape.

Malus domestica 'Akmene' #3

Malus domestica 'Akmene' apples are sweet, tart, and have a pleasantly tangy flavor with a honeyed aftertaste. They are fine-grained, juicy and dense with a firm, chewy, and crunchy consistency.

Malus domestica 'Liberty' #4

Malus domestica 'Liberty' is highly resistant to diseases. The apples are red and yellow skin have a slightly tart flavour.

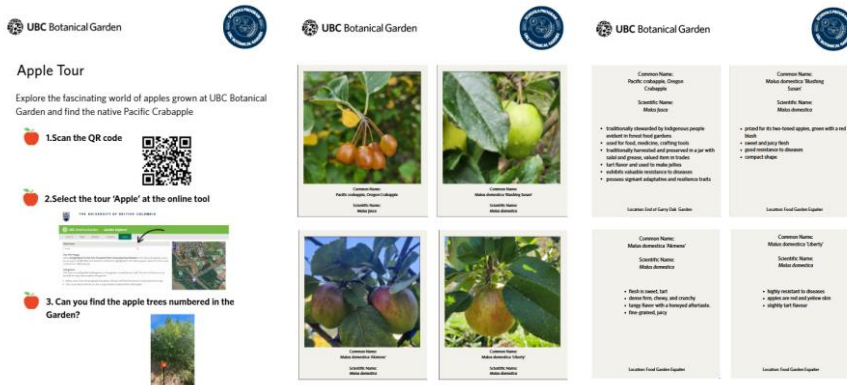
Learning Goals

- Recognize the importance of food diversity and its conservation and propagation
- Identify ex- situ and in- situ conservation collections in the Garden and culinary apples varieties grown in the Food Garden Espalier
- Develop observational skills in outdoor setting
- Foster connection with local food biocultural diversity




Materials







Apple tour cards (4 cards per group of 15-20) (as a scavenger hunt tour through Iris/ The Garden Explorer tool)

[Apple Tour Activity.pdf](#)



Apple Tour
Explore the fascinating world of apples grown at UBC Botanical Garden and find the native Pacific Crabapple

1. Scan the QR code 
2. Select the tour 'Apple' at the online tool 
3. Can you find the apple trees numbered in the Garden? 

 <p>Common Name: Pacific crabapple, Oregon Crabapple</p> <p>Scientific Name: Malus baccata</p> <ul style="list-style-type: none"> Historically consumed by Indigenous people and used in food gardens. Used for food, medicine, crafting tools Individuals harvested and preserved in a jar with salt and grease, valued then in trade. Leafy stems used as a natural dye. Wildlife readily consumes its berries. Provides important adaptation and resilience traits. <p>Location: East of Gary Oak Garden</p>	 <p>Common Name: Malus baccata</p> <p>Scientific Name: Malus baccata</p> <ul style="list-style-type: none"> prized for its tree-lined apples, green with a red blush sweet and juicy flesh good resistance to diseases compact shape <p>Location: Food Garden Explorer</p>
 <p>Common Name: Pacific crabapple, Oregon Crabapple</p> <p>Scientific Name: Malus baccata</p>	 <p>Common Name: Malus domestica 'Honeycrisp'</p> <p>Scientific Name: Malus domestica</p> <ul style="list-style-type: none"> Rich in iron, zinc Great for cooking and roasting Long stems with a knobby appearance. Very green, juicy <p>Location: Food Garden Explorer</p>
 <p>Common Name: Malus domestica 'Liberty'</p> <p>Scientific Name: Malus domestica</p>	 <p>Common Name: Malus domestica 'Liberty'</p> <p>Scientific Name: Malus domestica</p> <ul style="list-style-type: none"> Highly resistant to diseases Apples are red and yellow skin Slightly tart flavor <p>Location: Food Garden Explorer</p>

Resources

Turner, N. J. Food Plants of Coastal First Peoples. Royal BC Museum Handbook

Cervenka, T. Wild Edible Berries of British Columbia. A Field Guide.

Flowers & Pollinators: a secret match! *

Description

Audience/ Grades	K-12 *Adjust tone and guidance needed accordantly to the age group level
Garden Area	Asian Garden, Garry Oak, Food Garden
Season/ Available	March to August
Duration	20 min

Core themes/ Curriculum connections

Environmental: Local ecosystems, biocultural diversity, conservation, land-based learning.

BC Curriculum: living things observable features, responsibilities to the environment, curiosity & sense of wonder (k-3); biodiversity (3-6), sustainability, adaptation (6- 7).

Introduction

The relationship between plants and pollinators is mutualistic. In other words, it is a cooperative friendship. Plants are unable to move to reproduce and thus require a vector (friend) to transfer pollen. 85-95% of angiosperms (flowering-plants) attract pollinators to transfer pollen for them by offering a sugary reward, nectar and pollen which are rich source of protein and fats for many pollinators. The pollinators that drink the nectar will then likely passively (or in the case of bees and a few others actively) collect pollen before moving on to another flower to drink more nectar

Pollen, Pollinators and Pollination:

Pollen is the male gametophyte ('sperm'). Pollination is the transfer of pollen between flowers of the same species (same individual = 'selfing', different individual = 'crossing'), which allows for the reproduction of plants. Any animal that collects pollen either actively or passively can be considered a pollinator.

Pollinators are keystone species in maintaining and supporting the health of biodiversity in almost all terrestrial ecosystems. Without successful pollination most plant species are unable to reproduce and set seed. This in turn means that over time plants would die out. Furthermore, pollination is required for plants to produce fruit which many animals like birds eat. As well these plants are important shelter. Without bees and other pollinators many of the world's species would go extinct.

Pollinators are declining by deforestation and pesticides use. You can support pollinators and food security planting a diversity of native flowers of food plants. Plants with overlapping

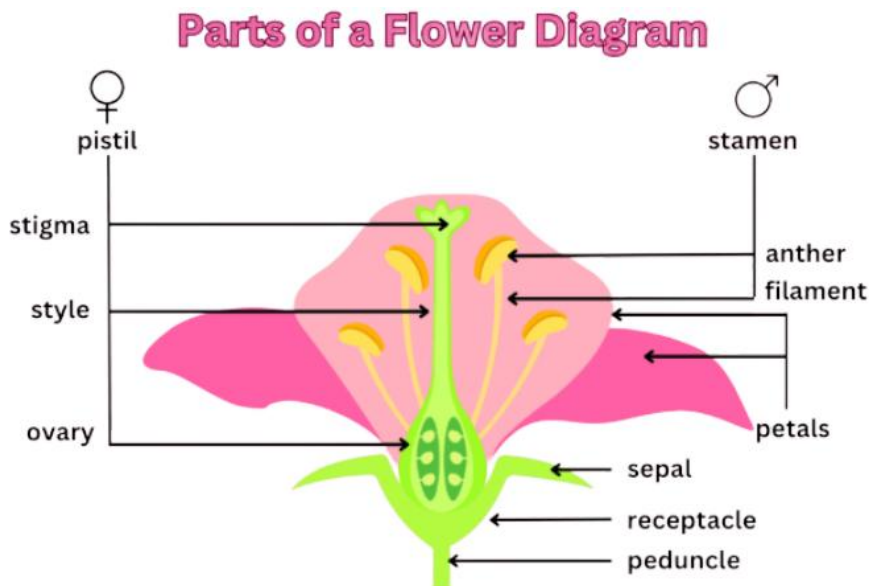
bloom periods starting in early April and continuing until September/October is essential for helping save bees and other pollinators. You can also provide habitat such as exposed, loose and sandy soils or bee hotels. Also stopping all use of pesticides.

Honeybees are **not native** to North America. There are over 500 native bee species of bees in British Columbia. This includes bumble bees, sweat bees, mining bees, leaf cutter bees, cellophane bees, yellow-faced bees and mason bees and many more.

Flowers:

Different species of flowers have different traits and adaptations to attract different pollinators. Flower colour for example, Bees are attracted to blue, purple, and ultraviolet colors while butterflies prefer red, yellow and pink flowers (although they always seem to break the rules). Different patterns on the flowers act as a visual cue to land, and sometimes are in ultraviolet, and thus are invisible to the human eye. The shape of flowers also dictates which pollinators can visit. Flat, open flowering invite all types of pollinators, whereas other long tube shape flowers can only be visited by those with long tongues such as hummingbirds and butterflies. Finally, some flowers have special mechanisms to attract certain pollinators. For example, some flowers are buzz pollinated by bumble bees, which requires the bees to vibrate at certain frequency to release pollen – like a lock and key.

The flower anatomy, parts of the flowers, where the pollination happen



Petal: Petals attracts pollinators by its color, shape and patterns.

Pistil: The pistil is the female reproductive part of the flower and consists of the **stigma, style, and ovary**. The stigma serves to receive pollen and sits on top of a stalk known as the style. The

stigma can be a variety of shapes and is often sticky to ensure that the pollen does not blow away. The style is attached to the ovary, which houses the potential seeds known as ovules. When a pollen grain lands on the stigma, the grain begins to grow a tube down through the style until it reaches the ovary. The two sperm then emerge and both fertilize a single ovule, forming the embryo and its food source. The ovary then ripens to form a fruit to protect its developing seeds and aid in their eventual dispersal.

Stamen: The male reproductive part of the flower and it consists of a long stalk, the **filament**, with a two-lobed anther at the tip. The **anther** consists of four saclike structures (microsporangia) that produce **pollen** for pollination.

Sepal: primarily serve to enclose and protect the unopened flower bud. The sepals on a flower are collectively referred to as the calyx.

Observation Opportunities in the Garden:

Rhododendron and Magnolias at Asian Garden

Reproductive structural flowers adaptations:

Many species of plants have developed mechanisms that prevent self-pollination. Some—e.g., Kiwi Vine—have become **dioecious**; that is, some plants produce only “male” (staminate) flowers, with the rest producing only “female” (pistillate or ovule-producing) ones.

In species in which staminate and pistillate flowers are found on the same individual (monoecious plants) and in those with hermaphroditic flowers (flowers possessing both stamens and pistils), a common way of preventing self-fertilization is to have the pollen shed either before or after the period during which the stigmas on the same plant are receptive, a situation known as **dichogamy**.

Prompts examples:

“What can you notice about the flowers, its parts and inside the flower?”

“What type of pollinators do you think would be a great match to this particular flower?”

“Have you noticed any insets or animals around this flower?”

Learning Goals

- Recognize the importance of pollinators to support biodiversity and plant propagation.
- Identify plants features, parts of the flower and potential pollinators.
- Develop observational skills in an outdoor setting.

Materials

Show and Tell info Cards:

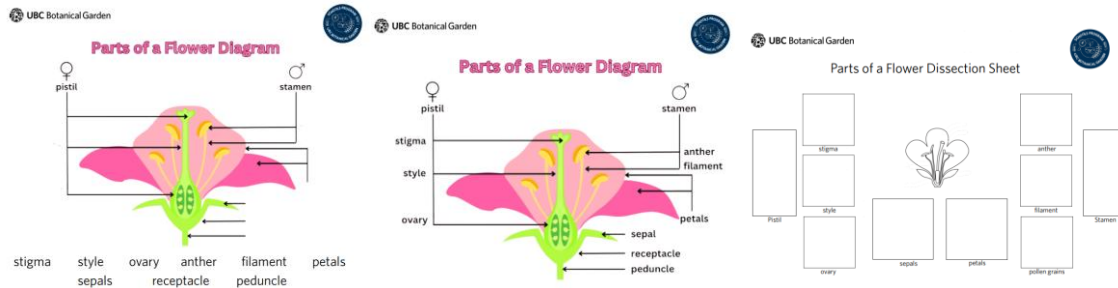
Native BC Flowers and Bees

[Native BC Flowers and Bees .pdf](#)



Parts of a flower

[Parts of a Flower–Parties d'une fleur.pdf](#)



Hand Lenses for each participant

Extension: Flower dissection and microscope observation

This activity allows students to unfold the secrets of a flower and understand each part's role in the plant reproductions and why pollinators facilitate the process of caring for the pollen. Why are flowers so important and plants spend so much energy producing them!

Attention: Facilitators will collect the flowers for the group (6 flowers per class).

Materials: Paper roll, Microscope, dissection set, petri dish, worksheet cards.

