UBC Botanical Garden

Educational Resource For Teachers

Apple Diversity Hybrid Workshop K-7 and 8-12

2026

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SCHOOLS PROGRAM
UBC BOTANICAL GARDEN

RESOURCE OVERVIEW

Hybrid Workshop
Grades K-7, 8-12 – Science
Geiza Lellis
June 2026

Apple Diversity
k-12 Hybrid Workshop

Overview

Biodiversity refers to the variety of life on Earth- from genes and species to ecosystems. It is essential for the health of our planet, providing resilience against environmental changes, supporting food systems, and enriching cultural and ecological connections. According to the Global Biodiversity Framework:

"*Biodiversity is fundamental to human well-being, a healthy planet, and economic prosperity for all people, including for living well in balance and in harmony with Mother Earth. We depend on it for food, medicine, energy, clean air and water, security from natural disasters as well as recreation and cultural inspiration, and it supports all systems of life on Earth.*"

One engaging way to introduce biodiversity to students is through the lens of apple diversity. Apples come in many shapes, colors, flavors, and sizes, and each variety has its own story—some are cultivated for taste, others for resilience to pests or climate, and some are native to specific regions. Students will learn about apples grown in BC as well as the significance of our native apple the Pacific Crabapple, *Malus fusca.* Through online workshops and hands-on activities, students will deepen their understanding of food plants and their significance to Indigenous Peoples in BC and the importance of conserving plant genetic diversity.

Core Competencies

Communication
Connecting and engaging with others
- I can listen, contribute, develop understanding and relationships.

Focusing on intent and purpose
- I can communicate with intention and purpose to influence, entertain, teach, inspire, and help us make sense of the world and our experiences.

Curricular Competencies

Sstudents will be able to:
Questioning and predicting
- Demonstrate curiosity and a sense of wonder about the world
- Observe objects and events in familiar contexts
- Ask questions about familiar objects and events
- Make simple predictions about familiar objects and events

Acquiring and presenting information

- I can receive and present information from a variety of sources, including people, print materials, and media.
- I can interpret information.
- I can present using feature media and technology.

Creative Thinking

Evaluating and developing

- I can reflect in order to decide which idea to develop.
- I can consider whether their idea would ultimately support the well-being of self, community, and the land.

Analyzing and critiquing

- I can make judgments or assessments and draw conclusions.
- I can critique through engagement in formal tasks.

Designing and developing

- I can think critically about developing ideas.
- I can work with a clear purpose and consider the potential uses or audiences of my work.

Social Responsibility

- Contributing to the community and caring for the environment
- Students develop an awareness of and take responsibility for their social, physical, and natural environments by working independently and collaboratively for the benefit of others, communities, and the environment.

Planning and conducting

- Safely manipulate materials to test ideas and predictions

Processing and analyzing data and information

- Experience and interpret the local environment
- Sort and classify data and information using drawings, pictographs and provided tables
- Compare observations with predictions through discussion
- Identify simple patterns and connections

Evaluating

- Compare observations with those of others
- Consider some environmental consequences of their actions

Applying and innovating

- Take part in caring for self, family, classroom, and school through personal approaches,
- Transfer and apply learning to new situations,
- Generate and introduce new or refined ideas when problem-solving.

Communicating

- Communicate observations and ideas using oral or written language, drawing, or role-play.

Big Ideas

- Plants and animals have observable features (k)
- Living things have features and behaviours that help them survive in their environment (1)
- Living things have life cycles adapted to their environment (2)
- Living things are diverse, can be grouped, and interact in their ecosystems (3)
- All living things sense and respond to their environment (4)
- Complex global problems require international cooperation to make difficult choices for the future (6)
- Evolution by natural selection provides an explanation for the diversity and survival of living things (7)
- Life processes are performed at the cellular level (8)
- Complex roles and relationships contribute to diversity of ecosystems (11)
- Sustainable land use is essential to meet the needs of a growing population (12)

Objectives

- Experience and interpret the local environment through apples trees
- Demonstrate curiosity and a sense of wonder about apple diversity
- Make exploratory observations using their senses
- Express and reflect on personal experiences of place

Content

- Basic needs of plants
- Names of local plants Plant life cycled
- Biodiversity in the local environment
- Plant cells
- Plants sensing and responding to light, touch, gravity, etc (annual seasons)
- Sustainability of systems
- First Peoples knowledge and other traditional ecological knowledge in sustaining biodiversity
- Resource stewardship
- The nature of sustainable practices around BC's resources

Cross-curricular + Trans-disciplinary Connections and Critical Questions

Responsibilities to the environment, biodiversity and conservation, social studies, technology integration.

Equity and Diversity

This workshop engages diverse learners by providing visual and interactive activities via online synchronous, visual slides presentations, and interactive educational applications quizzes. In addition, provided hands-on activities give students opportunities to experiential learning in the school ground or community.

First Peoples' Principles of Learning

Local First Peoples uses of plants
First Peoples knowledge of sustainable practices.

LESSON PLAN

Online/ Live Lesson
Grades K-7, 8-12 – Science
Geiza Lellis
June 2026

Apple Diversity
Diversity tastes good!

Materials:

Slide presentation
Link for online session
Projector in the school classroom
Teacher's phone for Mentiminter quizzes

Duration:

One session of 50 minutes streamed on September 22nd, 2026.

Introduction + Minds On

Apples come in many shapes, colors, flavors, and sizes, and each variety has its own story—some are cultivated for taste, others for resilience to pests or climate, and some are native to specific regions. Students will learn about apples diversity global to local, and about the cultural and heritage significance of our native apple the Pacific Crabapple, *Malus fusca.*

Topics covered though apples:
Apple diversity (types, distribution, cultural, health and ecological importance), apple parts, basic needs to grow an apple tree, apple tree life cycle, apples trees responses to the annual seasons, apple tree relevant pollinators, cultural and ecological importance of native apples trees, effects of climate change on apple trees, efficacy of sustainable practices with apples orchards.

Guiding Questions:

1. How important is apple diversity?
2. How does apple diversity help you understand the importance of biodiversity in the ecosystem?
3. What is the cultural significance of the native Pacific Crabapple to First Peoples?
4. How can you support apple (trees) propagation and diversity?

Lesson k-7

Task description and time management

Time	Topic	Task Description
10 min	Welcome + Land Acknowledgement + Who we are+ Team Introduction	Welcome to the UBC Botanical Garden Schools Programs! To begin, we would like to acknowledge that the land on which the UBC Botanical Garden is located belongs to the traditional, ancestral, and unceded territory of the xwməθkwəy̓əm (Musqueam) People We are excited to celebrate apple diversity, share stories and experience nature, and culture through apples! Let us introduce ourselves: team uses apple shirts, share their names and apple nicknames
5 min	Greetings (animation)	With shared screen, give a chance to participants to introduce themselves (enter at zoom chat at same time once ring the bell)
5 min	Inquiry question (animation)	If you were to eat all types of local apples provided in our Apple Fest per day, how many days it would take you to eat them all? (give time for the participants to answer the quiz) R: It would take you over 52 days to try them all!
8	Apple diversity 	Explore there are many different types of apples distributed everywhere in the world. Show Map of distribution; What is your favorite apple? Quiz some names, types, colors of apples; Explore the local apples in the Apple Fest and share the map with origin; Did you know there is a wild native apple from BC? Explore the Pacific Crabapple /Malus fusca sharing pictures and importance for First Nation People/ Play the Pacific Crabapple name in Musqueaum language (fruit)
5	Apple parts	How do you eat apples? Share quiz and nutrition facts. When you bite or cut an apple what parts do you see? Explain the parts of the apple.
7	Apple trees	How does an apple grow? Explain the apple tree life cycle, pollination, responses to seasons
5	Quiz	Mentimeter fun facts about apples QR Code
5	Final thoughts	Activities bundle overview and activities contest to win Guided Tour + TreeWalk admissions for the classroom*

Lesson 8-12

Task description and time management

Time	Topic	Task Description
10 min	Welcome + Land Acknowledgement + Who we are+ Team Introduction	Welcome to the UBC Botanical Garden Schools Programs! To begin, we would like to acknowledge that the land on which the UBC Botanical Garden is located belongs to the traditional, ancestral, and unceded territory of the xwməθkwəy̓əm (Musqueam) People We are excited to celebrate apple diversity, share stories and experience nature, and culture through apples!
5 min	Greetings	With shared screen, give a chance to participants to introduce themselves (schools, locations)
5 min	Inquiry question	If you were to eat all types of local apples provided in our Apple Fest per day, how many days it would take you to eat them all? (give time for the participants to answer the quiz) R: It would take you over 52 days to try them all!
8	Apple diversity 	Explore there are many different types of apples distributed everywhere in the world. Show Map of distribution; What is your favorite apple? Quiz some names, types, colors of apples; Explore the local apples in the Apple Fest and share the map with origin; Did you know there is a wild native apple from BC? Explore thePacific Crabapple /Malus fusca sharing pictures and importance for Indigenous people/ Play the Pacific Crabapple name in Musqueaum language (fruit)
5	Apple & Nutrition	Explore apple fruit anatomical aspects, and cultural importance in North America. Quiz of nutrition facts. Explore the Canadian Nutrient File and use the search tool for raw apple types: compare
7	Apple trees, Conservation & Sustainability	How does an apple tree grow? Explain the apple tree life cycle, pollination, responses to seasons What are some challenges growing an apple tree? Share diseases/ pests/ (flyer shared by Adriana) Climate interactions and climate change effects (importance of native crab apple

		interactions/resilience/ hybrid cross pollination/ pollinators encounter affect / earlier flower phenology) Learn best practices of apple orchard from UBC Botanical Garden example – 3 min video with the Food Garden Horticulturist -Linda (Espalier tree photo) Native Food Forest Indigenous Stewardship (forest photo) (Espalier, food forest – Indigenous Stewardship)
5	Quiz	Mentimeter fun facts about apples
5	Final thoughts	Activities bundle overview and activities contest to win Guided Tour + TreeWalk admissions for the classroom*

Debrief + Consolidation

Thinking about everything you have learned at this workshop, share how your learning experience sparked your interest and/or contribution to sustainability and conservation.

Resources

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ACTIVITIES BUNDLE OVERVIEW

Date	September 7th to October 9th, 2026
Hands on activities resources	**Self-Guided:** Teachers download and choose the activities The activities offered are part of the K-12 Apple Diversity Hybrid Workshop and serve as its nature-based, hands-on component. Teachers select activities that align with their grade level and available resources. These activities are led by the teachers, either on school grounds or within the local community.

Activities Bundle 1: Apple Explorer

- **Activity 1 (k-12):** Apple dissection- Observation & Identification
- **Activity 2 (8- 12):** Experiment: Apple under a microscope

Resources and Materials

Activity 1: Apple dissection- Observation & Identification

- 10 Apples
- 10 (student scalpel or knife, peeler)
- Magnifying hand lenses
- 10 Worksheet and labels kit

Activity 2: Apple under a microscope

- Microscope
- Apple slice
- Slide
- Coverslip
- Scalpel
- Forceps

Objectives:

- Identify structural parts of an apple
- Execute an apple dissection
- Observe the fruit cells and parts under a microscope

Guiding Questions:

How do different features of apple trees help them meet their basic needs?

• Pipette dropper • Paper towel • A glass with water	

Activities Bundle 2: Apple Ambassador

- **Activity 3 (k-12):** Orchard Walk – a virtual toolkit apple tour at the Botanical Garden
- **Activity 4 (k-12):** Apple ID BioBlitz (iNaturalist apple ID project looking for apple trees anywhere within Metro Vancouver)

Resources and Materials	Objectives:
Activities 3, 4: Online data entering (access to a PC), use mobile phone for the app iNaturalist, online explorers tool.	• Nature observation and inquiry about apple trees, plant propagation • Identify plant species, apple trees • Analyse data, record and report • Participate in the scientific community contributing to mapping and identifying apple trees in Metro Vancouver area **Guiding Questions:** • How does apple diversity help you understand the importance of biodiversity in the ecosystem? • How can you support apple (trees) propagation and diversity?