Board/Authority Authorized Course
Alternative Learning Program
Horticulture 10

School District/Independent School Authority Name: Vernon School District	**School District/Independent School Authority Number (e.g. SD43, Authority #432):** SD#22
Developed by: Ashley Headington	**Date Developed:** June, 1 2021
Superintendent Approval Date (for School Districts only): June 16, 2021	**Superintendent Signature (for School Districts only):** On course form
Board/Authority Approval Date: June 16, 2021	**Board/Authority Chair Signature:** On course form
Course Name: Horticulture	**Grade Level of Course:** 10
Number of Course Credits: 4	**Number of Hours of Instruction:** 120

Board/Authority Prerequisite(s): None

Special Training, Facilities or Equipment Required: Instructor with knowledge and experience in gardening, botany, and horticulture, access to natural habitats, field trips to nurseries and gardens, access and use of an exterior area, shed for storage, greenhouse area, and garden tools.

Course Synopsis: Gardening and landscaping practices have a significant impact on the environment. The emphasis of this course is based on adopting and refining the principles of 'stainable gardening' and will provide an introductory hands-on learning experience for students interested in developing skills in the field of horticulture. Students will gain knowledge and skills in greenhouse operation as well as garden development and maintenance. Students will visit and observe natural habitats and learn to skillfully recreate nature's beauty in domestic landscapes. This environmentally responsible gardening course aims to provide hands-on learning opportunities for students. Core units for this course include basic botany, soil characteristics, plant identification and the recognition of hazards relative to this area of study. Additional units include plant propagation, aboriginal sustainable approaches, exploring our foods systems, vegetable gardening techniques and job opportunities in horticulture.

Goals and Rationale:

The purpose of the Horticulture 1O course is to introduce young people to plants, gardening, and landscaping. The course will prepare students for possible careers in horticulture, horticulture therapy, garden and landscape design, environmental studies, and forest industry programs. Students participating in this class will gain appreciation for the benefits of working outdoors, developing and maintaining green areas on school grounds, and the value of natural environments to both wildlife and the surrounding community.

Indigenous Worldviews and Perspectives:
Apply First Peoples perspectives and, other ways of knowing, and local knowledge as sources of information
Learning involves patience and time
Learning is holistic, reflexive, experiential, and relational (focused on connectedness, on reciprocal relationships, and a sense of place)
Including as much experiential learning as possible
Providing choice and flexibility in activities so that different aspects of the whole self can be attended to
Use of humor
Providing multiple access points for all learners in learning activities so that everyone can access opportunities for learning

BIG IDEAS

Plants are living organisms that have specific requirements for growth and development	Soil is composed of several fundamental components and each affects plant development in specific ways	Plant propagation can be achieved through a variety of techniques, each with its own benefits and drawbacks	Many traditional indigenous worldviews are tied to agricultural practices	Exposure to gardening and soil increases mental health and wellness

Learning Standards

Curricular Competencies	Content
Students are expected to do the following:	***Students are expected to know the following:***
Questioning and Predicting Demonstrates a sustained intellectual curiosity about a scientific topic or problem of personal interest. Make observations aimed at identifying their own questions, including increasingly complex ones, about the natural world. Formulate multiple hypotheses and predict multiple outcomes **Planning and Conducting** Collaboratively and individually plan, select and use appropriate investigation methods, including field work and lab experiments, to collect reliable date (qualitative and quantitative. Assess risks and address ethical, cultural, and/or environmental issues associated with their proposed, methods and those of others Select and use appropriate equipment, including digital technologies, to systematically and accurately collect and record data. Ensure that safety and ethical guidelines are followed in their investigations **Processing and Analyzing data and information** Experience and interpret the local environment Apply First People perspectives and knowledge, other ways of knowing, and local knowledge as sources of information Analyze cause and effect relationships Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. **Evaluating** Evaluate their methods and experimental conditions, including identifying sources of error or uncertainty, confounding variables, and possible alternative explanations and conclusions Exercise a healthy, informed skepticism and use scientific knowledge and findings to form their own investigations and to evaluate claims in secondary sources Consider social, ethical, and environmental implications of the findings from their own and other investigations **Applying and innovating** Contribute care for self, others, community, and world through individual or collaborative approaches Transfer and apply learning to new situations Contribute to finding solutions to problems at a local level through inquiry. **Communicating** Formulate mental models to describe a phenomenon Express and reflect on a variety of experiences, perspectives and worldviews through place (i.e. any environment, locally, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity. The connection between people and place is foundational to First Peoples Perspective.	**SEEDLINGS** Seedling development The role of heat and light Lighting techniques Handling seedlings Potting on Nutrient requirements **SOIL** Soil elements Amend soil with organic matter Relationship between soil, air, and moisture Effective hydration **LIGHT** Color Intensity Direction Phototropism Forced blooming **PLANTING** Planting from seed Transplanting Watering techniques Site location **BASIC VEGETABLE GARDEN CARE** Macronutrients Micronutrients Crop specific needs Crop rotation Greenhouse environment control Spacing and thinning Local aboriginal harvesting **SAFETY RECOGNIZING HAZARDS** Handling and caring for gardening tools Hazards related to nutrients **CAREER OPPORTUNITIES IN HORTICULTURE** Career opportunities related to the field of horticulture

Big Ideas – Elaborations
Plant Growth and Development: The successful growth and development of plants is dependent upon a wide variety of interrelated internal and external factors such as the internal structure of the plant itself and external environmental elements. Healthy plant growth requires a balance between these basic elements. By manipulating these factors, we can also affect growth patterns. **Plant Propagation: Plants can be produced and reproduced through various techniques including seed growth, division, and grafting.** Each technique has certain benefits and drawbacks that make one technique more appropriate for certain types of plant production. **Soil Composition:** Soil is typically the basic medium in which plants propagate, grow and develop. Soil is composed of relatively few elements. Each element, or combination of elements, can have either a beneficial or unhealthy impact on how a plant grows. We can manipulate those elements to improve overall growth and development. **Aboriginal Harvest Practices:** Aboriginal communities have an ancient understanding of the relationship between plants and the larger ecosystem. Local communities harvest, process and develop a variety of plants for both consumption as well as ceremonial and medicinal purposes.

Curricular Competencies – Elaborations	
Questioning and Predicting Sample questions to support inquiry with students What factors are required to begin germination? Why do some plants thrive in certain locations and not others? How do different soils affect hydration? How can we determine if plants see different colors? What are the benefits of growing your own food?	**Planning and Conducting** Sample questions to support inquiry with students How would you gather data to determine a good location for developing a vegetable garden? What tools are needed to facilitate faster germination? How would you design an experiment to measure the roll of light in seedling growth? What criteria are required to select appropriate soil conditions for different plants?
Processing and Analyzing Data and Information Sample questions to support inquiry with students: How would you use character traits to predict traits of cuttings? How can you compare the acid / alkaline levels of various soil samples? How can you represent the effects of nutrient levels relative to growth? What lighting variables (intensity, direction, color) are most effective for seedling development? How are First Peoples traditional medicines prepared in your local area? How has the diversity of plants in your local area benefited First Peoples?	**Evaluating** Sample questions to support inquiry with students: What factors contribute to the increase of growth rates in plants? How do macronutrients affect appearance (color, girth, leaf production)? When is it appropriate to delay growth? How does thinning and spacing contribute to the overall health of a plant?
Applying and Innovating Sample questions to support inquiry with students: How are new technologies being used to increase productions rates in crops? How can you use what you know about the plant life cycle to make a game or activity to help other students learn about the growth and functions of a plant? How can First Peoples traditional knowledge be incorporated into crop development? How much fresh produce can you grow in your own backyard?	**Communicating** Sample questions to support inquiry with students: How can you prepare for a debate on the use of organic versus non-organic fertilizers? How would you present the effects of a community garden to the local city council? How would you explain to elementary students how to propagate and care for a plant? How would you convince your parents or guardians of the benefits of putting a garden in the yard?

Content – Elaborations	
Basic Botany Identify roots, stems, leaves, flowers, fruits, and seeds. Explain the functions of the leaf. List the four fundamental root types Provide examples of plant life cycles. Analyze the processes of respiration, transpiration, and photosynthesis in plants. Summarize the processes of fertilization and pollination.	**Career Opportunities in Horticulture** Develop a list of career opportunities related to the field of horticulture Explore post-secondary opportunities for further studies in agriculture Identify personal skills and interests that may lead to career exploration Determine skills and interests that would enhance occupational choices
Fundamental Soil Characteristics Identify separate soil samples Construct soil charts The structural types of soil Communicate the function of organic matter	**Aboriginal Harvesting Practices** list local plants harvested by local aboriginal community identify how local plants were harvested by local aboriginal community members identify how local plants were processed for consumption, ceremonial practices and medicinal practices
Safety-Recognizing Hazards Identify potential safety hazards related to handling gardening equipment Identify hazards related to handling nutrients	**Vegetable Gardens** Determine possible locations for a vegetable garden Select a site for a vegetable garden on a landscaped property Choose different vegetables and plant varieties suitable for a vegetable garden Investigate the benefits of traditional garden plots compared to raised bed gardens Experiment with different methods for improving the productivity of the soil to increase the yield.
Plant Production Grow a healthy plant Identify four different ways that plants are propagated Develop and share the skills required to cultivate and nurture different plants List the fundamental characteristics of light and its role in propagation Explain the role of hydration in plant development	**Greenhouse Production** Demonstrate safe greenhouse/workplace practices Describe the functional working of a greenhouse Manipulate climate environment within the greenhouse Plant and maintain and develop seedlings

Recommended Instructional Components:
Experiential learning
Direct and indirect instruction
Class discussions and tasks
Guest speakers
Field trips
Practical components in lab format with plants and plant samples brought into the classroom
Descriptive feedback to provide students with information about what they need to do to improve understanding and performance
Incorporate First Person Principles of story, land-based learning and the role of elders and local indigenous knowledge
Videos

Recommended Assessment Components: Ensure alignment with the Principles of Quality Assessment
Creating a journal of ongoing self-assessment (i.e., "I can ... "statements) of key concepts and techniques allows for students to demonstrate principles of knowing, doing, and understanding.
Student is involved in assessment and feedback
Performance assessment is ongoing, timely, specific, and embedded in day-to-day instruction
Student presentations will allow for a collection of student work to be gathered over time to provide a full profile of the learner and learning

Learning Resources:
Teacher generated resources
Variety of plant and gardening books
Videos
Library and Internet sources
Community resources and associations related to horticulture

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BOARD/AUTHORITY AUTHORIZED (BAA) COURSE FORM

PART A: BAA COURSE VERIFICATION STATEMENT – To be completed by District Superintendent, Independent School or Offshore School Principal

Prior to submitting the attached BAA Course Framework to the Board of Education or Independent School Authority (Board/Authority) for approval, I _____ verify that I have reviewed the BAA Course to ensure that it is fully compliant with the *School Act* (if offered by a Board or Offshore School), the *Independent School Act* (if offered by an Independent School Authority), the *Board Authorized Course Order*, policy document *Board/Authority Authorized Courses: Requirements and Procedures Guidebook,* and for BAA ELL courses, the ELL Guidelines: *Template for Board/Authority Authorized Language Acquisition/Culture Courses at the Grade 10, 11, 12 Levels.*

By signing below, I verify that the BAA Course:

- ✓ is not preparatory, remedial or modified
- ✓ does not significantly overlap with provincial curriculum Content
- ✓ name reflects the subject area and includes the Grade level
- ✓ assigned Grade reflects the appropriate level of instruction
- ✓ credit value appropriately reflects the length and scope of the course
- ✓ synopsis clearly outlines what a student has gained when the course is completed
- ✓ goals are general statements of intention that give structure to the curriculum
- ✓ rationale outlines the importance of the learning to the student and society
- ✓ embeds Aboriginal Worldviews and Perspectives
- ✓ organizational structure outlines the Content, Curricular Competencies, and Big Ideas
- ✓ learning standards are assessable and observable and can be understood by students and parents
- ✓ recommended instructional component clarifies the learning standards and provides a range of pedagogical opportunities
- ✓ recommended assessment component aligns with the Principles of Quality Assessment
- ✓ learning resources are age appropriate, support learning standards and diversity of learning rates and styles.

Course Name: Horticulture 10 **Grade:** 10 **TRAX Code:** (e.g. YVPA) YAAPS10C

School District Name and Number: 22 (Vernon)

Independent School Name and Number:

Name of District Superintendent/Independent or Offshore School Principal: Joe Rogers, Superintendent

Signature: Joe Rogers **Date:** June 16, 2021

PART B: BAA COURSE AUTHORIZATION STATEMENT – To be completed by Board/Authority Chair or Designate or Executive Director of Independent Schools and International Education, Ministry of Education

A signed copy of this document must be submitted to the Student Certification Branch. The original document and accompanying BAA Course Framework must be retained by the district/school for submission to the Ministry upon request. (*Board Authorized Course Order*, M285/04, s. 3; *Educational Standards Order*, M41/91, s. 5 (2)(c))

☐ I declare that this BAA Course is approved by the Board/Authority or Executive Director.

Name of Board/Authority Chair or Designate or Executive Director of Independent Schools and International Education: Gen Acton

Signature: **Date:** June 16, 2021

PART C: BAA INSPECTOR CONFIRMATION (FOR INDEPENDENT SCHOOLS ONLY) – To be completed by Inspector of Independent Schools or Designate during regular inspection/monitoring visit

A signed copy of this document (Parts A and C) must be retained for submission to the Ministry upon request.

The BAA Course noted above is fully compliant with the Independent School Act and the BC Ministry of Education requirements outlined in the policy document *Board/Authority Authorized Courses: Requirements and Procedures.* (*Educational Standards Order*, M41/91, s. 5 (2)(c))

Name of Inspector of Independent Schools or Designate:

Signature: **Date:**

Send completed form to the Student Certification Branch
Email EDUC.GradStandards@gov.bc.ca

Revised August 2019