

Urban Gardening and Horticulture

Grades: 9, 10, 11, 12

Length: Full Year

Environment: Classroom-based

Honors: None

Subject: College-Preparatory Elective (G)

Discipline: Interdisciplinary

Institution: Alvord Unified School District

Course Overview:

Urban Gardening is growing plants in a city environment. Urban gardening has a positive impact on the economy, the environment, and food security. Urban Horticulture is the study of garden crops, generally fruits, vegetables, and ornamental plants. Horticulture focuses on the use of small plots with a wide variety of mixed crops. Homesteading activities typically include growing and preserving food crops, cooking meals from scratch, raising animals, making homemade medicines, personal care products, and cleaning products. Through a combined study of horticulture and the experiential processes of creating (home, if possible) and school/community gardens, students will gain knowledge of important topics in horticulture while applying square foot gardening techniques to maximize product yield and garden space.

Students will gain and utilize skills in designing, cultivating, growing, and harvesting crops from the urban garden plots that have been established. Students will deepen their understanding of the essential requirements in growing and tending their urban plots in order to produce variety and maximize crop yield while applying square foot gardening techniques. Ornamental planting will be included for aesthetics, for local sustainability, and for pollinating insects to thrive and support the garden. Students will learn how to market, price, package, and sell the produce harvested along with ornamental flowers and plants to support the program and include a small business experience. Ideally, they will have a farm stand that will be accessible to the students, school, and community. Students will work to provide a "seasonal garden box" program which features freshly-picked vegetables, fruits, herbs from our school urban garden plots. The farm stand will provide opportunities to learn the art of communication and sales while supporting the program. This idea is generated from Community Supported Agriculture.

Urban homesteading is a sustainable living technique which includes growing and preserving your own food, raising animals, and practicing a more self-sufficient life. Students will learn some of the traditional skills from urban homesteading such as preserving (canning and jarring) food crops, making jams, learn the art of pickling, and have options to make homemade cleaning products or personal care products (such as a natural loofa) (possibly partnering with our culinary program for this unit). Items produced will be provided to the community via the farm stand in our "seasonal garden boxes". Along with preserving, students will learn about seed saving to support preserving genetic diversity, save funds, become more self-reliant, help pollinators, and adapt seeds to the garden.

Students will pick a project to research and complete during the school year.

Students will be empowered and educated in producing their own food and homemade products.

Unit 1: Urban Gardening:

- Learn about and implement square foot gardening techniques

- Design and plan a garden area
- Build a garden bed and maintain it
- Plant seeds and seedlings
- Cultivate, grow, and rotate crops utilizing the square foot gardening method to maximize variety and crop yield
- Harvest produce
- Market, price, package, and sell “seasonal garden boxes” for sale via the farm stand
- Utilize a farm stand to connect with community members and support the program
 - Build and/or maintain the stand
 - Promote and advertise the program and products
 - Create pamphlets about what is in each “seasonal garden box” with health benefits
- Develop a lifelong skill of growing their own food utilizing square foot gardening techniques

Unit 2: Urban Horticulture:

- Plant flowers, bushes, and shrubs from seed
- Propagate (grow from already growing plant) to plant
- Prune and manage the ornamental plants
- Market, price, package, and sell ornamental plants for sale via the farm stand
- Learn how horticulture can support sustainability and pollinating insects
- Utilize a farm stand to connect with community members and support the program
 - Promote and advertise the program and products
 - Create pamphlets with the benefits of the plants being sold and their link to sustainability and pollinators
- Learn a lifelong skill of creating a beautiful garden with local and native plants

Unit 3: Semi-Homestead Techniques:

- Discover and utilize the art of canning and jarring of produce
- Learn to pickle harvested produce
- Utilize harvested fruits and veggies to create jams
- Learn to grow and make homemade cleaning products or personal care products (such as a natural loofa)
- Learn how to save seeds to support preserving genetic diversity, save funds, become more self-reliant, help pollinators, and adapt seeds to the garden to improve growth and resilience to the local environment
- Utilize a farm stand to connect with community members and support the program
 - Promote and advertise the program and products
 - Create pamphlets with how to use homemade cleaning products or personal care products
- Learn a lifelong skill of preserving food and making organic products for home and personal use

Projects:

- Options to:
 - Create a garden space at home and document the process and results
 - Research, learn, and make organic cleaning products and document the process and results
 - Research, learn, and make health and/or beauty products and document the process and results
 - Create, implement and maintain a square foot garden “themed layout” with companion plants, so the process and results can be documented
 - Student ideas for a project will be considered

CTE Pathway: Agriculture and Natural Resources

F. Ornamental Horticulture Pathway

The Ornamental Horticulture pathway prepares students for careers in the nursery, landscaping, and floral industries. Topics include plant identification, plant physiology, soil science, plant reproduction, nursery production, and floriculture, as well as landscaping design, installation, and maintenance.

Sample occupations associated with this pathway:

Florist/Floral Designer

Landscape Design/Architect

Hydroponics Grower

Botanical Specialist

Nursery/Greenhouse Manager

CTE Pathway Standards Covered:

F2.0 Summarize plant physiology and growth principles.

F2.1 Understand plant systems, nutrient transportation, structure, and energy storage.

F2.2 Diagram the seed's essential parts and explain the functions of each. F2.3 Explain how primary, secondary, and trace elements are used in plant growth.

F2.4 Experiment with the factors

F3.0 Demonstrate plant propagation techniques.

F3.1 Explain the different forms of sexual and asexual plant reproduction.

F3.2 Demonstrate the various techniques for successful plant propagation (e.g., budding, grafting, cuttings, seeds).

F3.3 Utilize and monitor plant reproduction for the development of a saleable product.

F4.0 Develop and implement a plan for basic integrated pest management.

F4.1 Read and interpret pesticide labels and understand safe pesticide management practices.

F4.2 Research how pesticide regulations and government agencies affect agriculture.

F4.3 Identify common horticultural pests and diseases and methods of controlling them.

F4.4 Design an integrated approach to solving plant problems.

F5.0 Summarize water and soil (media) management practices.

F5.1 Explain how basic soil science and water principles affect plant growth.

F5.2 Illustrate basic irrigation design and installation methods.

F5.3 Prepare and amend soils, implement soil conservation methods, and compare results.

F5.4 Research major issues related to water sources and water quality

F6.0 Apply ornamental plant nutrition practices.

F6.1 Analyze how primary and secondary nutrients and trace elements affect ornamental plants.

F6.2 Use basic nutrient testing procedures on soil and plant tissue.

F6.3 Analyze organic and inorganic fertilizers to understand their appropriate uses.

F6.4 Read and interpret labels to properly apply fertilizers.

F8.0 Employ nursery production principles.

F8.1 Demonstrate the proper use of production facilities and common nursery equipment.

F8.2 Use common nursery production practices.

F8.3 Demonstrate how to propagate and maintain a horticultural crop to the point of sale.

F8.4 Design a marketing and merchandising strategy to use in nursery production.

F9.0 Demonstrate the proper use of containers and horticultural tools, equipment, and facilities.

F9.1 Use different types of containers and demonstrate how to maintain growing containers in controlled environments.

F9.2 Operate and maintain selected hand and power equipment safely and appropriately.

F9.3 Select proper tools for specific horticultural jobs. F9.4 Install landscape components and electrical, land, and water features.

F10.0 Understand basic landscape planning, design, construction, and maintenance.

F10.3 Use proper landscape planting and maintenance practices.

F10.4 Prune ornamental shrubs, trees, and fruit trees.

Learning & Social Skills:

Analyze, evaluate, explain, problem solve, track cause and effect, brainstorm, create, design, improvising, choose a medium, follow conventions, listen actively, read, speak, take turns, write, use technology, decision making, delegating, goal setting, leading, manage time, team building, communication, relationship management, and respect.

<https://k12.thoughtfullearning.com/FAQ/what-are-learning-skills>

<https://www.indeed.com/career-advice/career-development/social-skills>

21st Century Skills:

Critical thinking, problem solving, synthesizing information, research skills and practices, creativity, innovation, perseverance, self-direction, planning, adaptability, initiative, productivity, accountability, oral and written communication, leadership, teamwork, collaboration, cooperation, global awareness, environmental and conservation literacy, and health and wellness literacy.

<https://www.edglossary.org/21st-century-skills/>

<http://www.battelleforkids.org/networks/p21/frameworks-resourcesResources>

Resources:

Title	Authors/Owners	Organization	Website(s)
Field Guide to Urban Gardening: How to Grow Plants, No Matter Where You Live: Raised Beds • Vertical Gardening • Indoor Edibles • Balconies and Rooftops • Hydroponics	Kevin Espiritu	Epic Gardening	https://www.epicgardening.com/ https://www.youtube.com/user/EpicGardening
All New Square Foot Gardening, 3rd Edition, Fully Updated: MORE Projects - NEW Solutions - GROW Vegetables Anywhere (Volume 9)	Mel Bartholomew and Square Foot Gardening Foundation	Square foot Gardening	https://squarefootgardening.org/ https://www.youtube.com/watch?v=N5Lu-7Flj_g
Agricultural Standards for CTE			https://www.cde.ca.gov/ci/ct/sf/documents/agnatural.pdf https://www.cteonline.org/curriculum