Unit 03: Landscape Architecture

Content Area: **Applied Technology**
Course(s):
Time Period: **Marking Period 1**
Length: **5 Weeks**
Status: **Published**

Brief Summary of Unit

Students will develop knowledge and understanding related to landscape architecture and design, with an emphasis on environmental stewardship, sustainability, and responsible site planning. Students will apply both previously acquired and newly developed CAD skills to effectively communicate a garden design that responds to historical influences, horticultural requirements, environmental considerations, and the criteria outlined in a design brief. Design solutions will incorporate sustainable landscape practices, including appropriate plant selection, water conservation strategies, ecological impacts, and the relationship between the built and natural environments.

Revision Date: July 2026

Essential Questions/Enduring Understandings

Essential Questions:

How are landscape design elements communicated through technical drawings?

What can be learned from historical examples of gardens, and how can those principles be applied to contemporary garden design?

How is the design loop applied to solve a technological or design problem?

Enduring Understandings:

The design brief outlines the requirements, criteria, and environmental considerations necessary for developing an effective and sustainable solution within the design loop.

The selection of landscape and garden elements involves aesthetic, functional, environmental, and ecological considerations, including sustainability, water conservation, and site stewardship.

Effective communication of a design depends on the intended audience, purpose of the presentation, and the ability to clearly convey environmental impacts and sustainable design strategies.

Different audiences require different types and levels of information to fully understand a design concept, including its functional, aesthetic, and environmental benefits.

Students Will Know/Students Will Be Skilled At

Students will know:

What contour lines are and how they are used in landscape and site design.

How to create and manage different line types and layers using design software.

Planning and design requirements for driveways, parking areas, and pedestrian circulation elements.

How landscape elements are used to develop cohesive and functional designs.

The factors that influence the selection of landscape elements, including size, hardiness, environmental conditions, and horticultural requirements.

The defining characteristics and design elements of two historical garden styles: English and French gardens.

The environmental impact of gardens and landscape design decisions.

Career opportunities and responsibilities related to the fields of landscape architecture and environmental engineering.

Students will be able to:

Design a garden that responds to site context and historical precedent.

Develop presentation drawings of a garden using specialized drafting and rendering techniques.

Create organized and properly labeled landscape drawings.

Analyze texts and design criteria in order to develop effective solutions to design problems.

Draft plan drawings using software that clearly communicate a design solution to a defined audience.

Create and present projects using a professional digital portfolio.

Learning Plan

- Preview and discuss the unit's essential questions, encouraging students to make connections between the questions and course content throughout the learning process.
- Participate in lectures, guided discussions, and classroom activities focused on the unit's guiding questions and key concepts.
- Engage in formative assessments throughout the instructional process to evaluate comprehension, participation, and progress toward learning objectives.

- Attend lectures and presentations examining historically significant high-rise buildings, with an emphasis on architectural innovation, structural systems, and design impact.
- Analyze examples of notable high-rise structures and participate in discussions that connect historical precedents to contemporary design practices.
- Complete design sketches, planning activities, research tasks, and progress reviews related to the design problem.
- Receive and apply teacher and peer feedback throughout the design process to refine ideas and improve project outcomes.
- Demonstrate understanding of project requirements through ongoing checkpoints, critiques, and portfolio reviews.
- Complete a design problem requiring the design of a high-rise speculative office building, hotel, or apartment building that responds to identified program requirements and design criteria.
- Create professional-quality presentation drawings that effectively communicate the intent, functionality, and aesthetic qualities of the proposed design.
- Demonstrate the application of architectural design principles, technical drawing standards, and appropriate industry terminology throughout the project.
- Incorporate project drawings, research materials, design development work, and final presentation materials into a comprehensive digital portfolio.
- Participate in formal design critiques and presentations that communicate the design process, project goals, and final solutions.
- Present the completed digital portfolio for review, demonstrating growth, design development, and mastery of unit objectives.
- Complete a summative assessment evaluated collaboratively by the student and teacher using a rubric specific to the design problem. Assessment criteria may include student-developed goals, project requirements, technical accuracy, creativity, and presentation quality.
- Reflect on the design process and evaluate the effectiveness of the final solution in addressing project objectives and essential questions.

Assessment

Formative Assessments:

Formative assessments will be conducted throughout the design process to monitor student understanding, guide instruction, and provide ongoing feedback that supports student growth and achievement.

Demonstrate the application of the design loop throughout the development and refinement of a park design project.

Participate in class discussions, critiques, and collaborative activities designed to reinforce key concepts, evaluate progress, and strengthen design-thinking skills.

Teacher feedback and individual conferences will be used to support student learning, guide project development, and encourage continuous improvement throughout the design process.

Summative Assessment:

Demonstrate the effective use of technical drawing conventions to communicate a design solution clearly,

accurately, and professionally.

Demonstrate understanding and proper application of required architectural and landscape design vocabulary in both written and visual communications.

Demonstrate proficiency in the use of software applications and technical drawing standards to communicate design solutions effectively and professionally.

Design and create presentation drawings for a building that demonstrate an understanding of means of egress, curtain wall systems, and steel construction. The presentation will include a written description explaining the technical aspects of the proposal. Projects will be evaluated using teacher- and student-developed rubrics aligned with project objectives and design criteria.

Maintain a comprehensive design log documenting the evolution of the project, including sources of information, research findings, design decisions, feedback, revisions, and critiques. The design log will be evaluated using a rubric.

The completed presentation and supporting project materials will be included in an electronic portfolio that documents the design process and final outcomes.

Demonstrate the appropriate selection, integration, and application of landscape elements within the overall design solution.

Respond to and address the essential questions of the unit through project work, presentations, and written responses.

Complete written quizzes and tests assessing understanding of course content, technical concepts, and subject-specific materials.

Projects and presentations will be evaluated using rubrics specific to the design problem and project criteria. Students will formally present their digital portfolios and defend their design decisions.

Complete a written reflection or writing prompt related to the design process, project outcomes, challenges encountered, and lessons learned throughout the project.

Alternative Assessment:

Presentation on Landscape Elements

Benchmark Assessment:

Final Exam

Materials

The CADD LAB-computers equipped with up-to-date AutoCAD and/or other design and drafting software,

presentation software, productivity software, a scanner and printers/plotters.

Traditional drafting equipment and supplies-vellum, colored and graphite pencils, pen and ink, drawing boards, tape, scissors, t-squares, triangles etc.

Chip-board, X-acto knives and other model making supplies.

A computer with INTERNET based presentation software (i.e. Prezi and Google Slides) and Microsoft Powerpoint.

3-D printer and supplies

Safety glasses

INTERNET resources and tutorials on how to use CAD software.

Teacher e-board.

SmartBoard use for teacher presentation and interactive lessons

SmartBoard use for student presentations.

Model making materials, dependant on projects that used.

Standards

9.4.12.CI	Creativity and Innovation
TECH.K-12.1.1	Empowered Learner
9.2.12.CAP	Career Awareness and Planning
L.SS.9–10.1	Demonstrate command of the system and structure of the English language when writing or speaking.
	There are strategies to improve one’s professional value and marketability.
TECH.K-12.1.1.a	articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes.
	Innovative ideas or innovation can lead to career opportunities.
9.2.12.CAP.2	Develop college and career readiness skills by participating in opportunities such as structured learning experiences, apprenticeships, and dual enrollment programs.
L.SS.9–10.1.B	Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.
9.2.12.CAP.3	Investigate how continuing education contributes to one's career and personal growth.
9.4.12.CI.2	Identify career pathways that highlight personal talents, skills, and abilities (e.g., 1.4.12prof.CR2b, 2.2.12.LF.8).
TECH.K-12.1.1.c	use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
9.4.12.CI.3	Investigate new challenges and opportunities for personal growth, advancement, and

	transition (e.g., 2.1.12.PGD.1).
	Career planning requires purposeful planning based on research, self-knowledge, and informed choices.
9.4.12.CT	Critical Thinking and Problem-solving
TECH.K-12.1.2	Digital Citizen
L.KL.9–10.2	Apply knowledge of language to make effective choices for meaning, or style, and to comprehend more fully when reading, writing, speaking or listening.
9.2.12.CAP.5	Assess and modify a personal plan to support current interests and post-secondary plans.
	Collaboration with individuals with diverse experiences can aid in the problem-solving process, particularly for global issues where diverse solutions are needed.
9.4.12.CT.1	Identify problem-solving strategies used in the development of an innovative product or practice (e.g., 1.1.12acc.C1b, 2.2.12.PF.3).
9.4.12.CT.2	Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a).
9.2.12.CAP.7	Use online resources to examine licensing, certification, and credentialing requirements at the local, state, and national levels to maintain compliance with industry requirements in areas of career interest.
TECH.K-12.1.2.c	demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.
TECH.K-12.1.2.d	manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online.
L.VL.9–10.3	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 9–10 reading and content, including technical meanings, choosing flexibly from a range of strategies.
TECH.K-12.1.3	Knowledge Constructor
TECH.K-12.1.3.a	plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.
LA.RST.9-10	Reading Science and Technical Subjects
TECH.K-12.1.3.c	curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions.
TECH.K-12.1.3.d	build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.
TECH.K-12.1.4	Innovative Designer
TECH.K-12.1.4.a	know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.
TECH.K-12.1.4.b	select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.
TECH.K-12.1.4.c	develop, test and refine prototypes as part of a cyclical design process.
9.4.12.GCA	Global and Cultural Awareness
9.4.12.GCA.1	Collaborate with individuals to analyze a variety of potential solutions to climate change effects and determine why some solutions (e.g., political. economic, cultural) may work better than others (e.g., SL.11-12.1., HS-ETS1-1, HS-ETS1-2, HS-ETS1-4, 6.3.12.GeoGI.1, 7.1.IH.IPERS.6, 7.1.IL.IPERS.7, 8.2.12.ETW.3).
TECH.K-12.1.6	Creative Communicator
TECH.K-12.1.6.a	choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.

TECH.K-12.1.6.b	create original works or responsibly repurpose or remix digital resources into new creations.
TECH.K-12.1.6.c	communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.
TECH.K-12.1.6.d	publish or present content that customizes the message and medium for their intended audiences.
9.4.12.TL	Technology Literacy
	Digital tools differ in features, capacities, and styles. Knowledge of different digital tools is helpful in selecting the best tool for a given task.
9.4.12.TL.1	Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task (e.g., W.11-12.6.).
	Engineering design is a complex process in which creativity, content knowledge, research, and analysis are used to address local and global problems. Decisions on trade-offs involve systematic comparisons of all costs and benefits, and final steps that may involve redesigning for optimization.
8.2.12.ED.1	Use research to design and create a product or system that addresses a problem and make modifications based on input from potential consumers.
	Collaborative digital tools can be used to access, record and share different viewpoints and to collect and tabulate the views of groups of people.
8.2.12.ED.2	Create scaled engineering drawings for a new product or system and make modification to increase optimization based on feedback.
8.2.12.ED.3	Evaluate several models of the same type of product and make recommendations for a new design based on a cost benefit analysis.
8.2.12.ED.4	Design a product or system that addresses a global problem and document decisions made based on research, constraints, trade-offs, and aesthetic and ethical considerations and share this information with an appropriate audience.
	Engineering design evaluation, a process for determining how well a solution meets requirements, involves systematic comparisons between requirements, specifications, and constraints.
8.2.12.ED.5	Evaluate the effectiveness of a product or system based on factors that are related to its requirements, specifications, and constraints (e.g., safety, reliability, economic considerations, quality control, environmental concerns, manufacturability, maintenance and repair, ergonomics).
ETW	Effects of Technology on the Natural World
	Development and modification of any technological system needs to take into account how the operation of the system will affect natural resources and ecosystems. Impacts of technological systems on the environment need to be monitored and must inform decision-making. Many technologies have been designed to have a positive impact on the environment and to monitor environmental change over time.
HS-ETS1	Engineering Design
HS-ETS1-1	Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.
	Asking Questions and Defining Problems
	Asking questions and defining problems in 9–12 builds on K–8 experiences and progresses to formulating, refining, and evaluating empirically testable questions and design problems using models and simulations.
ETS1.A	Delimiting Engineering Problems
	Criteria and constraints also include satisfying any requirements set by society, such as

	taking issues of risk mitigation into account, and they should be quantified to the extent possible and stated in such a way that one can tell if a given design meets them. Humanity faces major global challenges today, such as the need for supplies of clean water and food or for energy sources that minimize pollution, which can be addressed through engineering. These global challenges also may have manifestations in local communities.
HS-ETS1-2	Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.
	Constructing Explanations and Designing Solutions
ETS1.C	Optimizing the Design Solution

Integrated Accommodation and Modifications, Special Education students, English Language Learners, At-Risk Students, Gifted and Talented students, Career Education, and those with 504s