

Winslow Township School District
11-12 CAD II
Unit 3: Site, Landscape & Roof Plans

Overview: In this unit, students will discover how to select site location and structure orientation.

Overview	Standards	Unit Focus	Essential Questions
<p><u>Unit 3</u> Site, Landscape & Roof Plans</p>	<ul style="list-style-type: none"> • 8.2.12.ED.2 • 8.2.12.NT.2 • 8.2.12.ETW.1 • 9.3.12.AC.1 • 9.3.12.AC.3 • 9.3.12.AC.5 • 9.3.12.AC.7 • 9.3.12.AC-DES.2 • 9.3.12.AC-DES.4 • 9.3.12.AC-DES.6 	<ul style="list-style-type: none"> • Students will be introduced to and draw site plans. • Students will demonstrate an understanding of orienting a structure onto a site. • Students will research local vegetation used on sites. • Compare and contrast all items located on site plans. • Compare and contrast site, plot and landscape plans. • Students will identify roof structures and design. 	<ul style="list-style-type: none"> • How can topography be depicted on a plan drawing? • What items are included in a site plan? • What linetypes are used in conjunction with site plans? • What is the difference between a site, plot and landscape plan? • How is roof slop calculated?
<p><i>Unit 3: Enduring Understandings</i></p>	<ul style="list-style-type: none"> • A site plan is drawing illustrating the natural layout of a piece of land. • Besides natural features, site plans contain property lines and corner elevations. Distance and bearing direction of each property line are included. They also display contour lines which contain numbers that denote their elevation above sea level. The distance between these lines correlates with the rise and fall of the ground. • Many linetypes are used in site and plot plans. They are used to denote contour lines, property lines and utility lines as well as any object lines. • A site plan contains only natural features whereas a plot plan contains any proposed construction. A landscape plan contains any added vegetation. • The math function of rise over run is how roof slope is calculated. 		

Winslow Township School District
11-12 CAD II
Unit 3: Site, Landscape & Roof Plans

Curriculum Unit 3	Standards		Pacing	
			Days	Unit Days
Unit 3: Site, Landscape & Roof Plans	8.2.12.ED.2	Create scaled engineering drawings for a new product or system and make modification to increase optimization based on feedback.	4	39
	8.2.12.NT.2	Redesign an existing product to improve form or function.	4	
	8.2.12.ETW.1	Evaluate ethical considerations regarding the sustainability of environmental resources that are used for the design, creation, and maintenance of a chosen product.	3	
	9.3.12.AC.1	Use vocabulary, symbols and formulas common to architecture and construction.	4	
	9.3.12.AC.3	Comply with regulations and applicable codes to establish and manage a legal and safe workplace.	6	
	9.3.12.AC.5	Describe the roles, responsibilities, and relationships found in the architecture and construction trades and professions, including labor/management relationships.	2	
	9.3.12.AC.7	Describe career opportunities and means to achieve those opportunities in each of the Architecture & Construction Career Pathways.	4	
	9.3.12.AC-DES.2	Use effective communication skills and strategies (listening, speaking, reading, writing and graphic communications) to work with clients and colleagues.	3	
	9.3.12.AC-DES.4	Apply building codes, laws and rules in the project design.	2	
	9.3.12.AC-DES.6	Apply the techniques and skills of modern drafting, design, engineering and construction to projects.	5	
	Assessment, Re-teach and Extension		2	

Winslow Township School District
11-12 CAD II
Unit 3: Site, Landscape & Roof Plans

Unit 3 Grade 11-12		
Enduring Understanding	Indicator #	Performance Expectation
Engineering design is a complex process in which creativity, content knowledge, research, and analysis are used to address local and global problems.	8.2.12.ED.2	Create scaled engineering drawings for a new product or system and make modification to increase optimization based on feedback.
Technology, product, or system redesign can be more difficult than the original design.	8.2.12.NT.2	Redesign an existing product to improve form or function.
Development and modification of any technological system needs to take into account how the operation of the system will affect natural resources and ecosystems.	8.2.12.ETW.1	Evaluate ethical considerations regarding the sustainability of environmental resources that are used for the design, creation, and maintenance of a chosen product.
	9.3.12.AC.1	Use vocabulary, symbols and formulas common to architecture and construction.

Winslow Township School District
11-12 CAD II
Unit 3: Site, Landscape & Roof Plans

	9.3.12.AC.3	Comply with regulations and applicable codes to establish and manage a legal and safe workplace.
	9.3.12.AC.5	Describe the roles, responsibilities, and relationships found in the architecture and construction trades and professions, including labor/management relationships.
	9.3.12.AC.7	Describe career opportunities and means to achieve those opportunities in each of the Architecture & Construction Career Pathways.
	9.3.12.AC-DES.2	Use effective communication skills and strategies (listening, speaking, reading, writing and graphic communications) to work with clients and colleagues.
	9.3.12.AC-DES.4	Apply building codes, laws and rules in the project design.
	9.3.12.AC-DES.6	Apply the techniques and skills of modern drafting, design, engineering and construction to projects.

Winslow Township School District
11-12 CAD II
Unit 3: Site, Landscape & Roof Plans

Unit 3 Grade 10-12

Assessment Plan

Teacher Created Formative Assessments

- Terminology Quizzes.
- Design Projects.
- Tutorial exercises and packets
- Pre-planning bubble diagrams

Teacher Created Summative Assessments

- End of Unit Exams.
- Mid-term Exams.
- Final Exams
- Portfolio Review

Alternative Assessments:

- Group Critiques of student work consisting of round robin style class discussions.
- Conduct short research projects on construction documentation as well as master architects/engineers including analysis and reflection.
- Observe online master videos and teacher created power points of CAD methods and techniques followed by round robin style group discussion.
- Flash card “buzz” word review presented in a game show style.

Winslow Township School District
11-12 CAD II
Unit 3: Site, Landscape & Roof Plans

Resources	Activities
<p>Textbooks:</p> <p>Kicklighter & Thomas, <i>Architecture: Residential Drafting & Design</i>, Goodheart- Wilcox, 11th edition.</p> <p>Ramsey/Sleeper, American Institute of Architects, <i>Architectural Graphic Standards</i>, Wiley; 12th student edition</p> <p>Other Resources:</p> <ul style="list-style-type: none"> • https://sweets.construction.com/ • Various online home plan websites, magazines and books • United States Department of Justice, Civil rights division, https://www.ada.gov/2010ADASTandards_index.htm <p>Digital Imaging Software:</p> <ul style="list-style-type: none"> ○ AutoDesk: AutoCAD <p>Other Software:</p> <ul style="list-style-type: none"> • G Suite (Classroom, Slides, Docs, Sheets) • Microsoft Office (Word, Power Point) • Internet Browsers (Chrome, Safari) • PC Browsers (Finder, Explorer) <p>Diversity, Equity & Inclusion Educational Resources</p> <p>https://www.nj.gov/education/standards/dei/</p>	<ul style="list-style-type: none"> • Along with the text, teacher will introduce the concept of site, plot, landscape and roof plans. • Students will research, design and draw the following plans in succession. Each one is a progression of the previous. They include but are not limited to: <ul style="list-style-type: none"> • Site Plan • Plot Plan • Landscape Plan • Roof Plan • Roof Truss Plan • Roof Section • Students will implement building codes from regulatory groups such as the FHA, ADA, BOCA, Dept. of Transportation, etc. into their assignments. • Students will determine which scales to use as opposed to having the instructor dictate. • Students will research native trees and shrubs to southern New Jersey and incorporate them into the landscape plan. • From their landscape plans, students will design and add low voltage lighting, driveway, walkway, pool, fence and hardscaping.

Winslow Township School District
11-12 CAD II
Unit 3: Site, Landscape & Roof Plans

Instructional Best Practices and Exemplars	
1. Identifying similarities and differences 2. Summarizing and note taking 3. Reinforcing effort and providing recognition 4. Homework and practice 5. Nonlinguistic representations	6. Cooperative learning 7. Setting objectives and providing feedback 8. Generating and testing hypotheses 9. Cues, questions, and advance organizers 10. Manage response rates
9.1 Personal Financial Literacy, 9.2 Career Awareness, Exploration, Preparation and Training, 9.3 21 st Century Life and Careers & 9.4 Life Literacies and Key Skills	
<p>9.2.12.CAP.3 Investigate how continuing education contributes to one's career and personal growth.</p> <p>9.2.12.CAP.4 Evaluate different careers and develop various plans (e.g., costs of public, private, training schools) and timetables for achieving them, including educational/training requirements, costs, loans, and debt repayment.</p> <p>9.2.12.CAP.5 Assess and modify a personal plan to support current interests and postsecondary plans.</p> <p>9.2.12.CAP.6 Identify transferable skills in career choices and design alternative career plans based on those skills</p> <p>9.2.12.CAP.10 Identify strategies for reducing overall costs of postsecondary education (e.g., tuition assistance, loans, grants, scholarships, and student loans).</p> <p>9.2.12.CAP.13 Analyze how the economic, social, and political conditions of a time period can affect the labor market</p> <p>9.3.12.AR.6 Evaluate technological advancements and tools that are essential to occupations within the Arts, A/V Technology & Communications Career Cluster.</p> <p>9.3.12.AR-VIS.1 Describe the history and evolution of the visual arts and its role in and impact on society.</p> <p>9.3.12.AC.1 Use vocabulary, symbols and formulas common to architecture and construction</p> <p>9.3.12.AC-DES.6 Apply the techniques and skills of modern drafting, design, engineering and construction to projects.</p> <p>9.4.12.CI.1 Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a).</p> <p>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).</p>	

Winslow Township School District
11-12 CAD II
Unit 3: Site, Landscape & Roof Plans

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).

9.4.12.DC.1

Explain the beneficial and harmful effects that intellectual property laws can have on the creation and sharing of content (e.g., 6.1.12.CivicsPR.16.a).

9.4.12.DC.4

Explain the privacy concerns related to the collection of data (e.g., cookies) and generation of data through automated processes that may not be evident to users (e.g., 8.1.12.NI.3).

9.4.12.IML.1

Compare search browsers and recognize features that allow for filtering of information.

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.).

The implementation of the 21st Century skills and standards for students of the Winslow Township District is infused in an interdisciplinary format in a variety of curriculum areas that include, English language Arts, Mathematics, School Guidance, Social Studies, Technology, Visual and Performing Arts, Science, Physical Education and Health, and World Language.

Additional opportunities to address 9.1, 9.2 & 9.4:

Philadelphia Mint

<https://www.usmint.gov/learn/kids/resources/educational-standards>

Different ways to teach Financial Literacy.

<https://www.makeuseof.com/tag/10-interactive-financial-websites-teach-kids-money-management-skills/>

Winslow Township School District
11-12 CAD II
Unit 3: Site, Landscape & Roof Plans

Modifications for Special Education/504

Students with special needs: The students' needs will be addressed on an individual and grade level using a variety of modalities.

Accommodations will be made for those students who need extra time to complete assignment. Support staff will be available to aid students related to IEP specifications. 504 accommodations will also be attended to by all instructional leaders. Physical expectations and modifications, alternative assessments, and scaffolding strategies will be used to support this learning. The use of Universal Design for Learning (UDL) will be considered for all students as teaching strategies are considered.

- Small group instruction and demonstration
- Electronic, printed and verbal instruction
- One-on-one demonstration
- Leveled informational texts and videos via online
- Modeling and guided practice
- Read directions aloud
- Repeat, rephrase and clarify directions
- Extended time as needed
- Break down assignments into smaller units
- Provide shortened assignments
- Modify testing format
- Preferential seating
- Graphic organizers
- Study guides, study aids and re-teaching as needed

Winslow Township School District
11-12 CAD II
Unit 3: Site, Landscape & Roof Plans

Modifications for At-Risk Students

Formative and summative data will be used to monitor student success. At first signs of failure, student work will be reviewed to determine support. This may include parent consultation, basic skills review and differentiation strategies. With considerations to UDL, time may be a factor in overcoming developmental considerations. More time will be made available with a certified instructor to aid students in reaching the standards.

- Contact parents, guidance & child study if students are in danger of failing.
- Provide an assignment sheet with step-by-step instructions as well as specifications for each project.
- Provide design templates.
- Provide study guides.
- Provide extended time for written assessments.
- Extended time as needed
- Read directions aloud
- Assist with organization
- Use of computer to create, edit and store student work.
- Emphasize/highlight key concepts
- Recognize success
- Provide timelines for work completion
- Break down multi-step tasks into smaller chunks
- Provide copy of class notes and graphic organizer

Winslow Township School District
11-12 CAD II
Unit 3: Site, Landscape & Roof Plans

English Language Learners	Modifications for Gifted Students
<p>All WIDA Can Do Descriptors can be found at this link: https://wida.wisc.edu/teach/can-do/descriptors</p> <p><input type="checkbox"/> Grades 9-12 WIDA Can Do Descriptors:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Listening <input type="checkbox"/> Speaking <input type="checkbox"/> Reading <input type="checkbox"/> Writing <input type="checkbox"/> Oral Language <p>Students will be provided with accommodations and modifications that may include:</p> <ul style="list-style-type: none"> • Relate to and identify commonalities in Architectural & Engineering studies in student’s home country • Use sentence/paragraph frames to assist with writing reports. • Work with a partner to develop and understand written and design projects • Provide extended time for written responses. • Assist with organization • Use of computer for quick translation • Emphasize/highlight key concepts • Teacher Modeling • Peer Modeling • Label Classroom Materials - Word Walls 	<p>Students excelling in mastery of standards will be challenged with complex, high level challenges related to the topic.</p> <ul style="list-style-type: none"> • Raise levels of intellectual demands • Require higher order thinking, communication, and leadership skills • Differentiate content, process, or product according to student’s readiness, interests, and/or learning styles • Provide higher level texts • Expand use of open-ended, abstract questions • Critical and creative thinking activities that provide an emphasis on research and in-depth study • Enrichment Activities/Project-Based Learning/ Independent Study <p>Additional Strategies may be located at the links:</p> <ul style="list-style-type: none"> ❖ Gifted Programming Standards ❖ Webb’s Depth of Knowledge Levels and/or Revised Bloom’s Taxonomy ❖ REVISED Bloom’s Taxonomy Action Verbs

Winslow Township School District
11-12 CAD II
Unit 3: Site, Landscape & Roof Plans

Interdisciplinary Connections

- ELA**
- NJSLSA.SL1** Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.
- NJSLSA.SL2** Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.
- NJSLSA.R7.** Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.
- NJSLSA.R10.** Read and comprehend complex literary and informational texts independently and proficiently with scaffolding as needed.
- NJSLSA.W4.** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience
- RI.9-10.1** Accurately cite strong and thorough textual evidence, (e.g., via discussion, written response, etc.) and make relevant connections, to support analysis of what the text says explicitly as well as inferentially, including determining where the text leaves matters uncertain.
- RI.9-10.2** Determine a central idea of a text and analyze how it is developed and refined by specific details; provide an objective summary of the text.
- W.9-10.6** Use technology, including the Internet, to produce, share, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.
- SL.9-10.5** Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance findings, reasoning, and evidence and to add interest.
- SL.9-10.6** Adapt speech to a variety of contexts and tasks, demonstrating command of formal English.
- RI.11-12.1** Accurately cite strong and thorough textual evidence, (e.g., via discussion, written response, etc.), to support analysis of what the text says explicitly as well as inferentially, including determining where the text leaves matters uncertain.
- RI.11-12.2** Determine two or more central ideas of a text, and analyze their development and how they interact to provide a complex analysis; provide an objective summary of the text.