

Language of Architecture & Construction (Construction Careers Exploration)

Course Description

Language of Architecture and Construction (Construction Careers Exploration) is a 10.0 credit seminar-style course that exposes students to many career industries and fields. The course is split into two sections, (each consisting of 4 units, which are taken in the freshman's year) in which students are actively taking two (four) of the eight topics/units covered during one academic year. These topics include: Graphic Design; Construction; Drafting-General; Freshmen Seminar; Leadership, Education and Training; Printing; Safety; and Automotive.

Students acquire introductory-level knowledge and skills of these disciplines, and allows them to make an informed decision about their continued program of study in a given career field.

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Pacing Guide		
Unit	Topic	Suggested Timing
<i>COHORT A – 36 weeks of instruction</i>		
Unit 1	Introduction and Overview of Graphic Design	approx. 9 weeks
Unit 2	Introduction and Overview of Construction	approx. 9 weeks
Unit 3	Introduction and Overview of Drafting - General	approx. 9 weeks
Unit 4	Introduction and Overview of Freshmen Seminar	approx. 9 weeks
<i>COHORT B – 36 weeks of instruction</i>		
Unit 5	Introduction and Overview of Leadership, Education and Training	approx. 9 weeks
Unit 6	Introduction and Overview of Printing	approx. 9 weeks
Unit 7	Introduction and Overview of Safety	approx. 9 weeks
Unit 8	Introduction and Overview of Automotive	approx. 9 weeks

Educational Technology Standards

8.1.12.A.3, 8.1.12.D.1, 8.1.12.F.1

➤ Technology Operations and Concepts

- Produce and edit a multi-page digital document for a commercial or professional audience and present it to peers and/or professionals in that related area for review.

Example from unit: Students will create and present industry-related career readiness proposal.

➤ Digital Citizenship

- Demonstrate appropriate application of copyright, fair use and/or Creative Commons to an original work.

Example from unit: Students will correctly cite all utilized research, as well as identify appropriate sources.

➤ Critical Thinking, Problem Solving, Decision Making

- Evaluate the strengths and limitations of emerging technologies and their impact on educational, career, personal and or social needs.

Example from unit: Students will assess technology and its use at in the given career field covered in the unit.

Career Ready Practices

Career Ready Practices describe the career-ready skills that all educators in all content areas should seek to develop in their students. They are practices that have been linked to increase college, career, and life success. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

CRP1. Act as a responsible and contributing citizen and employee

Career-ready individuals understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.

Example from unit: Students will articulate skills and practices required of successful employees in the construction industry.

CRP2. Apply appropriate academic and technical skills.

Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.

Example from unit: Students will utilize technical skills required of the construction industry.

CRP4. Communicate clearly and effectively and with reason.

Career-ready individuals communicate thoughts, ideas, and action plans with clarity, whether using written, verbal, and/or visual methods. They communicate in the workplace with clarity and purpose to make maximum use of their own and others' time. They are excellent writers; they master conventions, word choice, and organization, and use effective tone and presentation skills to articulate ideas. They are skilled at interacting with others; they are active listeners and speak clearly and with purpose. Career-ready individuals think about the audience for their communication and prepare accordingly to ensure the desired outcome.

Example from unit: Students will articulate working introductory knowledge of construction concepts.

Career Ready Practices

CRP11. Use technology to enhance productivity.

Career-ready individuals find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems. They are flexible and adaptive in acquiring new technology. They are proficient with ubiquitous technology applications. They understand the inherent risks-personal and organizational-of technology applications, and they take actions to prevent or mitigate these risks.

Example from unit: Students will utilize technology to transfer construction concepts into a digital medium.

CRP12. Work productively in teams while using cultural global competence.

Career-ready individuals positively contribute to every team, whether formal or informal. They apply an awareness of cultural difference to avoid barriers to productive and positive interaction. They find ways to increase the engagement and contribution of all team members. They plan and facilitate effective team meetings.

Example from unit: Students will work collaboratively to develop materials that are culturally sensitive.

Differentiated Instruction

Strategies to Accommodate Students Based on Individual Needs

<u>Time/General</u>	<u>Processing</u>	<u>Comprehension</u>	<u>Recall</u>
<ul style="list-style-type: none"> • Extra time for assigned tasks • Adjust length of assignment • Timeline with due dates for reports and projects • Communication system between home and school • Provide lecture notes/assignments, and tutorials outline 	<ul style="list-style-type: none"> • Extra Response time • Have students verbalize steps • Repeat, clarify or reword directions • Mini-breaks between tasks • Provide a warning for transitions • Video lessons online 	<ul style="list-style-type: none"> • Precise step-by-step directions • Short manageable tasks • Brief and concrete directions • Provide immediate feedback • Small group instruction • Emphasize multi-sensory learning 	<ul style="list-style-type: none"> • Teacher-made checklist • Use visual graphic organizers • Reference resources to promote independence • Visual and verbal reminders • Graphic organizers
<u>Assistive Technology</u>	<u>Tests/Quizzes/Grading</u>	<u>Behavior/Attention</u>	<u>Organization</u>
<ul style="list-style-type: none"> • Computer/whiteboard • Video lesson • Spell-checker • Text speech software 	<ul style="list-style-type: none"> • Adjusted rubrics for projects • Study guides • Shortened tests • Read directions aloud 	<ul style="list-style-type: none"> • Consistent daily structured routine • Simple and clear classroom rules • Frequent feedback 	<ul style="list-style-type: none"> • Individual daily planner • Display a written agenda • Note-taking assistance • Color code materials

Differentiated Instruction

Strategies to Accommodate Students Based on Content-Specific Needs

- Paired instruction
- Frequent one-on-one, informal and formal meetings
- Frequent revision of individualized goals and objectives
- Extra time for assigned tasks
- Adjust length of assignment
- Timeline with due dates for reports and projects
- Communication system between home and school
- Small group instruction

Enrichment

Strategies Used to Accommodate Based on Students Individual Needs:

- Adaption of Material and Requirements
- Evaluate Vocabulary
- Elevated Text Complexity
- Elevated Projects Rubrics
- Independent Written and Video Online Tutorials
- Projects completed individual or with Partners
- Self Selection of Research
- Tiered/Multilevel Activities
- Online Learning Communities
- Individual Response Board
- Independent Book Studies
- Open-ended activities
- Community/Subject expert mentorships

Assessments

Suggested Formative/Summative Classroom Assessments

- Presentation of unit applicability in professional and education sectors
- Teacher-created Unit Assessments, Topic Assessments, Quizzes
- Industry-applicable DBQs, Essays, Short Answer
- Spot site visits and demonstrations/role-plays
- Projects, Portfolio, Presentations, Prezi, Gallery Walks
- Homework
- Concept Mapping
- Primary and Secondary Source analysis
- Photo, Video, Political Cartoon, Radio, Game Analysis
- Create an Original Song, Animation, Board Game

Interdisciplinary Connections

English Language Arts

- Close reading of unit-specific industry-related content (NJSLSA.R1)
- Develop a proposal to increase recruitment in a given industry (NJSLSA.W2)

Social Studies

- Research the history of careers in field of site assignment (6.1.12)
- Research prominent historical individuals in a given industry/profession (6.2.12)

Fine & Performing Arts

- Create a poster recruiting young people to focus their studies on a specific career or industry (1.2.12)
- Create a brochure for a specific industry (1.2.12)

Math

- Unit topic-specific/ industry applications (N.Q.A.1)
- Unit topic-specific/industry projection scenarios (A.CED.A.1)

Science

- Research and discuss latest developments in unit/industry-specific technology (HS-ETS1-4)
- Investigate applicable-careers within the field of the given unit (9.2.12)

World Language

- Translate unit-specific industry content (7.1.ILA)
- Create a translated index of unit-specific industry vocabulary (7.1.ILA)

New Jersey Student Learning Standards

9.3– Career and Technical Education

Career Cluster: Architecture and Construction (AC)

- 9.3.12.AC.1: Use vocabulary, symbols and formulas common to architecture and construction.
- 9.3.12.AC.2: Use architecture and construction skills to create and manage a project .
- 9.3.12.AC.3: Comply with regulations and applicable codes to establish and manage a legal and safe workplace.
- 9.3.12.AC.4: Evaluate the nature and scope of the Architecture & Construction Career Cluster and the role of architecture and construction in society and the economy.
- 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.6: Read, interpret and use technical drawings, documents and specifications to plan a project
- 9.3.12.AC.7: Describe career opportunities and means to achieve those opportunities in each of the Architecture & Construction Career Pathways.

Pathway: Construction (AC-CST)

- 9.3.12.AC-CST.1: Describe contractual relationships between all parties involved in the building process.
- 9.3.12. AC-CST.2: Describe the approval procedures required for successful completion of a construction project
- 9.3.12. AC-CST.3: Implement testing and inspection procedures to ensure successful completion of a construction project
- 9.3.12. AC-CST.4: Apply scheduling practices to ensure the successful completion of a construction project.
- 9.3.12. AC-CST.5: Apply practices and procedures required to maintain jobsite safety.
- 9.3.12. AC-CST.6: Manage relationships with internal and external parties to successfully complete construction projects.
- 9.3.12. AC-CST.7: Compare and contrast the building systems and components required for a construction project.
- 9.3.12. AC-CST.8: Demonstrate the construction crafts required for each phase of a construction project.
- 9.3.12. AC-CST.9: Safely use and maintain appropriate tools, machinery, equipment and resources to accomplish construction project goals.

Pathway: Design/Pre-Construction (AC-DES)

- 9.3.12.AC-DES.1 Justify design solutions through the use of research documentation and analysis of data.
- 9.3.12.ACDEDES.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.3 Describe the requirements of the integral systems that impact the design of buildings.
- 9.3.12.AC-DES.4 Apply building codes, laws and rules in the project design.
- 9.3.12.ACDES.5 Identify the diversity of needs, values and social patterns in project design, including accessibility standards.
- 9.3.12.AC-DES.6 Apply the techniques and skills of modern drafting, design, engineering and construction to projects.
- 9.3.12.AC-DES.7 Employ appropriate representational media to communicate concepts and project design.
- 9.3.12.ACDES.8 Apply standards, applications and restrictions pertaining to the selection and use of construction materials, components and assemblies in the project design.

Pathway: Maintenance/Operations (AC-MO)

- 9.3.12.AC-MO.1 Recognize and employ universal construction signs and symbols to function safely in the workplace.
- 9.3.12.AC-MO.2 Use troubleshooting procedures when solving a maintenance problem in buildings.
- 9.3.12.AC-MO.3 Apply construction skills when repairing, restoring or renovating existing buildings.
- 9.3.12.AC-MO.4 Determine work required to repair or renovate an existing building.
- 9.3.12.AC-MO.5 Plan and practice preventative maintenance activities to service existing buildings.
- 9.3.12.AC-MO.6 Maintain and inspect building systems to achieve safe and efficient operation of buildings.

Common Career Technical Core (CCTC)

Architecture and Construction Career Cluster (AC)

AC 1. Use vocabulary, symbols and formulas common to architecture and construction.

AC 2. Use architecture and construction skills to create and manage a project.

AC 3. Comply with regulations and applicable codes to establish and manage a legal and safe workplace.

AC 4. Evaluate the nature and scope of the Architecture & Construction Career Cluster and the role of architecture and construction in society and the economy.

AC 5. Describe the roles, responsibilities and relationships found in the architecture and construction trades and professions, including labor/management relationships.

AC 6. Read, interpret and use technical drawings, documents and specifications to plan a project.

AC 7. Describe career opportunities and means to achieve those opportunities in each of the Architecture and Construction career pathways.

Construction Career Pathway (AC-CST)

AC-CST 1. Describe contractual relationships between all parties involved in the building process.

AC-CST 2. Describe the approval procedures required for successful completion of a construction project.

AC-CST 3. Implement testing and inspection procedures to ensure successful completion of a construction project.

AC-CST 4. Apply scheduling practices to ensure the successful completion of a construction project.

AC-CST 5. Apply practices and procedures required to maintain jobsite safety.

AC-CST 6. Manage relationships with internal and external parties to successfully complete construction projects.

AC-CST 7. Compare and contrast the building systems and components required for a construction project.

AC-CST 8. Demonstrate the construction crafts required for each phase of a construction project.

AC-CST 9. Safely use and maintain appropriate tools, machinery, equipment and resources to accomplish construction project goals.

Design/Pre-Construction Career Pathway (AC-DES)

AC-DES.1. Justify design solutions through the use of research documentation and analysis of data. AC-DES.2. Use effective communication skills and strategies (listening, speaking, reading, writing and graphic communications) to work with clients and colleagues.

AC-DES.3. Describe the requirements of the integral systems that impact the design of buildings.

AC-DES.4. Apply building codes, laws and rules in the project design.

AC-DES.5. Identify the diversity of needs, values and social patterns in project design, including accessibility standards.

AC-DES.6. Apply the techniques and skills of modern drafting, design, engineering and construction to projects.

AC-DES.7. Employ appropriate representational media to communicate concepts and project design.

AC-DES.8. Apply standards, applications and restrictions pertaining to the selection and use of construction materials, components and assemblies in the project design.

Maintenance/Operations Career Pathway (AC-MO)

AC-MO. 1. Recognize and employ universal construction signs and symbols to function safely in the workplace.

AC-MO. 2. Use troubleshooting procedures when solving a maintenance problem in buildings.

AC-MO. 3. Apply construction skills when repairing, restoring or renovating existing buildings.

AC-MO. 4. Determine work required to repair or renovate an existing building.

AC-MO. 5. Plan and practice preventative maintenance activities to service existing buildings.

AC-MO. 6. Maintain and inspect building systems to achieve safe and efficient operation of buildings.

Common Core State Standards (CCSS)

CCSS - English-Language Arts

Key Ideas and Details:

- CCSS.ELA-LITERACY.RST.11-12.1. Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.
- CCSS.ELA-LITERACY.RST.11-12.2. Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.
- CCSS.ELA-LITERACY.RST.11-12.3. Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

Craft and Structure:

- CCSS.ELA-LITERACY.RST.11-12.4. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics.
- CCSS.ELA-LITERACY.RST.11-12.5. Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.
- CCSS.ELA-LITERACY.RST.11-12.6. Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved.

Integration of Knowledge and Ideas:

- CCSS.ELA-LITERACY.RST.11-12.7. Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.
- CCSS.ELA-LITERACY.RST.11-12.8. Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.
- CCSS.ELA-LITERACY.RST.11-12.9. Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

- CCSS.ELA-LITERACY.RST.11-12.10. By the end of grade 12, read and comprehend science/technical texts in the grades 11–CCR text complexity band independently and proficiently

Research to Build and Present Knowledge:

- CCSS.ELA-LITERACY.W.11-12.7 Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

Range of Writing:

- CCSS.ELA-LITERACY.W.11-12.10 Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences

NJSLS: MATHEMATICS

Number and Quantity

N.Q.A.1. Use units as a way to understand problems and to guide the solution of multi-step problems; Choose and interpret units consistently in formulas; Choose and interpret the scale and the origin in graphs and data displays.

N.Q.A.2. Define appropriate quantities for the purpose of descriptive modeling.

N.Q.A.3. Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

<p>Course: Language of Architecture & Construction (Construction Careers Exploration)</p> <p>Unit: 2- Construction</p> <p>Grade Level: 9-12</p>	<p>Unit Overview: This unit provides knowledge and skills for best practice of safety in the workshop and workplace in the construction environment.</p> <p>Students will become aware of the importance of safety procedures, tool use, appropriate attire and proper eye and body protection</p>
<p>New Jersey Student Learning Standards (NJSLS): 9.3.12.AC 1,3, 4,6, 7; 9.3.12.AC-CST. 5, 6, 9; 9.3.12.AC-DES 1,4, 8; 9.3.12.AC-MO 1, 6;</p>	
<p>Common Career Technical Core (CCTC): AC 1,3,7; AC-CST 5,6, 7,9; AC-DES 1,4,8; AC-MO1,6;</p>	
<p>Common Core State Standards (CCSS): ELA-LITERACY.RST.11-12.1; ELA-LITERACY.RST.11-12.2RL.9-10.1; CCSS.ELA-LITERACY.RST.11-12.3; ELA-LITERACY.RST.11-12.10; ELA-LITERACY.W.11-12.10;</p>	
<p>Math Standards: N.Q.A.1-3.</p>	

Student Learning Objectives (SLOs)	Essential Questions	Skills & Indicators	Sample Activities	Resources
<p>1.1. Identify and practice safety in the workshop/workplace with regards self:</p> <ul style="list-style-type: none"> • Worker responsibility • Personal protective equipment • Safe work habits • Good housekeeping. <p>NJSLS: 9.3.12.AC 1,3; 9.3.12.AC-CST 5, 9; 9.3.12.AC-DES 4,8; 9.3.12.AC-MO.1, 6;</p> <p>CCTC: AC 1,3; AC-CST 5,9; AC-DES 4,8; AC-MO1,6;</p> <p>CCSS: RL.9-10.1; RI.9-10.5; SL.9-10.1</p>	<p>Is safety a life-long mindset?</p> <p>How do you know when the workshop is safe?</p>	<p>Identifying terminology and safety rules for personal protection, housekeeping and first aid.</p> <p>Locating safety centers in the workshop.</p> <p>Being aware of safety policy in the workshop</p> <p>NOCTI TESTING.</p>	<p>Practicing safety for eyes and face, respiratory, PPE, hearing and attire.</p> <p>Practicing acceptable attributes in the workshop.</p> <p>Read text on Building Trades (several in the workshop reference).</p> <p>Be familiar with residential symbols in blueprints and drawings (symbols and emergency exits are on anchor charts about the workshop).</p> <p>Online Research building codes and laws associated with building industry (search under “municipality”).</p> <p>Research building trades</p>	<p>Library. Safety in workshops-reference book on Technical Education.</p> <p>IDEA (disability). http://www.parentcenterub.org/repository/legacy/</p> <p>OSHA Website https://www.osha.gov/law-regs.html</p> <p>Video: https://www.youtube.com/watch?v=6o3kE3dGaRw</p> <p>Workshop: Safety Manuals for the tools. District Safety Manual.</p>

Student Learning Objectives (SLOs)	Essential Questions	Skills & Indicators	Sample Activities	Resources
			<p>(search “construction industry”).</p> <p>Wear proper attire in the workshop.</p>	
<p>1.2. Identify and practice safety in the workshop/workplace with regards to the following:</p> <ul style="list-style-type: none"> • Electrical safety • Aerial lift safety • Material handling safety, hazardous materials, confined spaces, excavations, barricades, guardrails, ramps, • Runways, temporary stairs, fire prevention. <p>NJSLS: 9.3.12.AC 1,3; 9.3.12.AC-CST 5, 9;</p>	<p>Is safety a life-long mindset?</p> <p>How do you know when the workshop is safe?</p>	<p>Identifying fire, electrical, and tools safety.</p> <p>Inspecting the setting for environmental safety hazards.</p> <p>Describing corrective actions for potential hazards.</p> <p>Being aware fire hazards.</p> <p>Interpreting MSDS</p>	<p>Listing safety rules in the workshop.</p> <p>Identifying work area.</p> <p>Identify fire extinguishers types and location.</p> <p>Identify electrical danger.</p> <p>Practicing proper use of hand and power tools.</p> <p>Being aware of emergency guidelines.</p>	<p><u>Library.</u> Safety in workshops-reference book on Technical Education.</p> <p><u>IDEA (disability).</u> http://www.parentcenterhub.org/repository/legacy/</p> <p><u>OSHA Website</u> https://www.osha.gov/law-regs.html</p> <p><u>NFPA safety:</u> http://www.nfpa.org/public-education/by-topic/top-causes-of-fire/electrical/electrical-</p>

Student Learning Objectives (SLOs)	Essential Questions	Skills & Indicators	Sample Activities	Resources
<p>9.3.12.AC-DES 4,8; 9.3.12.AC-MO.1, 6;</p> <p>CCTC: AC 1,3; AC-CST 5,9; AC-DES 4,8; AC-MO1,6;</p> <p>CCSS: RL.9-10.1; RI.9-10.5; SL.9-10.1</p>		<p>sheets.</p> <p>Be aware of OSHA.</p> <p style="text-align: center;">NOCTI TESTING.</p>	<p><u>Editorial</u> Write an article on safety in the workshop.</p> <p><u>Close Reading</u> MSDS sheets. OSHA Policies. Tools manuals</p>	<p>safety-in-the-home/electrical-safety-tips</p> <p><u>Video:</u> https://www.youtube.com/watch?v=6o3kE3dGaRw</p> <p><u>Workshop:</u> Safety Manuals for the tools. District Safety Manual.</p>
<p>1.3. Communicate and demonstrate the safe use of Ladders & Scaffoldings.</p> <p>NJSLS: 9.3.12.AC 1,3; 9.3.12.AC-CST 5, 9; 9.3.12.AC-DES 4,8; 9.3.12.AC-MO.1, 6;</p> <p>CCTC: AC 1,3; AC-CST 5,9;</p>	<p>How safe is the ladder? What is the safe rating of ladders?</p>	<p>Identifying ladder capacity ratings.</p> <p>Identifying proper ladder angle and base.</p> <p>Applying fall protection devices always for climbing.</p> <p style="text-align: center;">NOCTI TESTING.</p>	<p><u>Online</u> Interpret ladder ratings.</p> <p>Apply ladder ratings for specific ladders.</p> <p><u>Library</u> Integrate IDEA (disability).</p> <p><u>VIDEOS:</u> Show workshop video on</p>	<p><u>Video:</u> https://www.youtube.com/watch?v=HKytKZ3833k</p> <p><u>Workshop:</u> Safety Manuals for the ladders and scaffoldings.</p> <p><u>Online:</u> http://home.howstuffworks.com/home-improvement/household-safety/tips/home-repair-</p>

Student Learning Objectives (SLOs)	Essential Questions	Skills & Indicators	Sample Activities	Resources
AC-DES 4,8; AC-MO1,6; CCSS: RL.9-10.1; RI.9-10.5; SL.9-10.1			ladder and scaffolding use. Fall protection in action. Practical use of ladders in shop	safety-tips.htm
1.4. Demonstrate introductory level knowledge of and the skills to assess the design of residential buildings. NJSLS: 9.3.12.AC 6; 9.3.12.AC-CST 6; 9.3.12.AC-DES 1,8; 9.3.12.AC-MO.1,6; CCTC: AC 1,7; AC-CST 7; AC-DES 1,8; AC-MO1,6; CCSS: RL.9-10.1; RI.9-10.5; SL.9-10.1 MATH:	Why are there so many designs to buildings? Does a building design influence its structural integrity?	Identifying designs of residential buildings. Applying the codes, laws and rules to these designs. •	<u>Workshop</u> Read text on Building Trades-“Carpentry” by Leonard Koel. Be familiar with residential symbols in blueprints and drawings. <u>Online</u> Research building codes and laws associated with building industry (specific to municipalities). Research building trades.	<u>Library.</u> Carpentry by Leonard Koel. <u>Video:</u> Building structure: https://www.youtube.com/watch?v=Md0BaiK98fU Building codes: https://www.youtube.com/watch?v=Kk358ZZa8pk

Student Learning Objectives (SLOs)	Essential Questions	Skills & Indicators	Sample Activities	Resources
N.Q.A.1-3.				
<p>1.5. Demonstrate introductory level knowledge of and the skills to assess the design of commercial buildings.</p> <p>NJSLS: 9.3.12.AC 6; 9.3.12.AC-CST 6; 9.3.12.AC-DES 1,8; 9.3.12.AC-MO.1,6;</p> <p>CCTC: AC 1,7; AC-CST 7; AC-DES 1,8; AC-MO1,6;</p> <p>CCSS: RL.9-10.1; RI.9-10.5; SL.9-10.1</p> <p>MATH: N.Q.A.1-3.</p>	<p>Why are there so many designs to buildings?</p> <p>Does a building design influence its structural integrity?</p> <p>What are the comparison of the design and structure of a residential building and a commercial one?</p>	<p>Identifying the designs of commercial buildings.</p> <p>Explaining the codes, laws and rules of these designs.</p> <ul style="list-style-type: none"> • 	<p><u>Workshop</u> Read text on Building Trades-“Carpentry” by Leonard Koel.</p> <p>Be familiar with residential symbols in blueprints and drawings.</p> <p><u>Online</u> Research building codes and laws associated with building industry (specific to municipalities).</p> <p>Research building trades.</p>	<p><u>Library.</u> Carpentry by Leonard Koel.</p> <p><u>Video:</u> Youtube videos on the “structure of residential buildings”.</p> <p><u>Video:</u> Building structure: https://www.youtube.com/watch?v=Md0BaiK98fU</p> <p>Building codes: https://www.youtube.com/watch?v=Kk358ZZa8pk</p>
1.6. Differentiate the various trades in the	What are the trades associated with the	Identifying the trades that are exist in the building	<u>Library and online:</u> Research career	<u>Library.</u> Carpentry by Leonard

Student Learning Objectives (SLOs)	Essential Questions	Skills & Indicators	Sample Activities	Resources
<p>construction industry.</p> <p>NJSLS: 9.3.12.AC 4,7; 9.3.12.AC-CST 6; 9.3.12.AC-DES 5; 9.3.12.AC-MO.6.</p>	<p>construction industry?</p> <p>How to obtain certification in each specialty area?</p>	<p>industry.</p> <p>Coordinating work between trades.</p> <p style="text-align: center;">•</p>	<p>exploration in the building industry. (Many on YouTube).</p> <p><u>Classroom discussion</u> What specialty area are you interested in the building industry?</p>	<p>Koel.</p> <p><u>Video:</u> Careers in Building Construction: https://www.youtube.com/watch?v=mvHGCrGKuLk</p> <p><u>Video:</u> https://www.youtube.com/watch?v=xTiqFF9MjLA</p>

Unit Vocabulary

Aggregates	Sand and gravel in a concrete mixture.
Architect	Person qualified and licensed to design and oversee construction of a building.
Asphalt	Petroleum product obtained from crude oil, it is waterproof and is the base for many products used for road, wall and floor covering.
Barricade	Structure set up around a construction job to prevent unauthorized persons from entering working areas. Covered barricades also protect the public from falling objects.
Drywall frame	Brace placed in a framed wall to increase lateral strength.
Expansion Joint	Expansion joints allow for expansion of a slab due to temperature changes.
Façade	Exterior of the front of a building.
Fiberglass	Insulating material made of spun glass fibers.
Floor plans	Drawings in a set of blueprints that give a plan view of each floor of the building.
	Door with a flat surface made of a frame covered with plywood or

Flush door	hardboard face panels.
Foundation	The part of a building that rests on and extends into the ground, it provides support fro the structural loads above.
Footing	Base of a foundation system. It bears directly on the soil.
General contractor	Licensed individual or firm that can enter into legal contracts to do construction work, and is in charge of the overall organization and supervision of a construction project.
Ground-electrical	Safety feature to prevent shock due to a fault in an electrical system. It consists of an added ground wire running from a plug or equipment to the ground.
Gutter	Wood or metal trough attached to the eaves to receive water runoff from the roof.
Hollow-core door	Lightweight, less expensive type of flush door.
Interior finish	In carpentry, the application of finish wall covering, molding, cabinets and interior door jambs. Also included are the hanging of doors and installation of finish hardware.
Joint	The place where two pieces of material meet or are joined together.
Joist	Horizontal plank placed on edge to which subfloor and ceiling materials are nailed.

Journeyman	Worker who has completed an apprenticeship training course and passed certification requirements for working in the trades.
Kick plate	Metal or plastic plate mounted at the bottom of a door face to prevent damage from foot pressure against the door.
Level	Line of plane that would be parallel to still water or tool used for leveling and plumbing purposes.
Lot survey	Survey of a piece of property, usually carried out by a qualified surveyor or engineer.
Masonry	Molded or shaped construction materials such as concrete blocks , bricks, stones, and tiles.
Millwright	Person who installs machinery and other mechanical equipment in mills and factories.
Partition	Interior wall.
plank	Lumber over 1” thick and 6” or more in width.
Plywood	Product made of wood layers glued and pressed together under high heat and pressure.
site	In construction work, the location of a construction project.
Yard lumber	All lumber sold for structural building purposes.
Zoning regulation.	Local regulations that govern the type of buildings and structures that may be erected in different areas of a community. Most zones come under the general categories of residential, commercial, and manufacturing.

Suggested Unit Projects
Choose At Least One

Apply all your knowledge and tools skills to:

- Design and construct a tool box.
- Design and construct a dog house.
- Design and construct a bird house.
- Design and construct an object of your choice but must be approved by the teacher.

If working in groups, each student must be assigned at least one specific part of that project.

Suggested Structured Learning Experiences

At least one District approved site visit to a construction site.