Marking Period	Unit Title	Recommended Instructional Days
1	OSHA 10	5

CTE
Disciplinary Concept:
Design/Pre-Construction
Maintenance/Operations
Food Product and Processing Systems
Construction
Arts, A/V Technology & Communications
Education & Training
Early Childhood Development & Services
Restaurants & Food/Beverage Services

Core Ideas and Performance Expectation:

Design/Pre-Construction
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.

Maintenance/Operations
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.5
Plan and practice preventative maintenance activities to service existing buildings.

Food Product and Processing Systems
9.3.12.AG-FD.1
Develop and implement procedures to ensure safety, sanitation and quality in food product and processing facilities.

Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-CLKS within Unit

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

Arts, A/V Technology & Communications
9.3.12.AR.2
Analyze the importance of health, safety and environmental management systems, policies and procedures common in arts, audio/video technology and communications activities and facilities.

Education & Training
9.3.12.ED.4
Evaluate and manage risks to safety, health and the environment in education and training settings.

Early Childhood Development & Services
9.3.HU-ED.5
Evaluate safety and sanitation procedures associated with the early childhood education environment to assure compliance and prevent potential hazards.

Restaurants & Food/Beverage Services
9.3.HT-RFB.2
Demonstrate safety and sanitation procedures in food and beverage service facilities

Life Literacy & Key Skills
Disciplinary Concept:
Creativity and Innovation
Digital Citizenship
Information and Media Literacy

Core Ideas and Performance Expectation:

Creativity and Innovation
Innovative ideas or innovation can lead to career opportunities.

Essential Question/s:
Why is it important to practice safety?
What do safe practices look like in my industry?
How can I keep myself and others safe?

9.4.12.CI.3: Investigate new challenges and opportunities for personal growth, advancement, and transition (e.g., 2.1.12.PGD.1).

Digital Citizenship
Laws govern many aspects of computing, such as privacy, data, property, information, and identity. These laws can have beneficial and harmful effects, such as expediting or delaying advancements in computing and protecting or infringing upon people's rights.
9.4.12.DC.3: Evaluate the social and economic implications of privacy in the context of safety, law, or ethics (e.g., 6.3.12.HistoryCA.1).

Information and Media Literacy
Advanced search techniques can be used with digital and media resources to locate information and to check the credibility and the expertise of sources to answer questions, solve problems, and inform the decision-making.
9.4.12.IML.2: Evaluate digital sources for timeliness, accuracy, perspective, credibility of the source, and relevance of information, in media, data, or other resources (e.g., NJSLSA.W8, Social Studies Practice: Gathering and Evaluating Sources.

Career Awareness, Exploration, Preparation, & Training
Disciplinary Concept:
Career Awareness and Planning

Core Ideas and Performance Expectation:

Career Awareness and Planning
There are strategies to improve one's professional value and marketability.
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.
9.2.12.CAP.3: Investigate how continuing education contributes to one's career and personal growth.

Career planning requires purposeful planning based on research, self-knowledge, and informed choices.
9.2.12.CAP.6: Identify transferable skills in career choices and design alternative career plans based on those skills.

Activity Description:
Activity: Safety Consequences Brainstorm

- Divide students into small groups
- Each group brainstorms potential consequences of not following safety procedures in various workplace scenarios
- Groups present their findings to the class
- Discuss the physical, emotional, and financial impacts of workplace accidents

Activity: Industry-Specific Safety Poster Creation

- Assign different industries to student groups (construction, healthcare, manufacturing, etc.)
- Students research OSHA standards for their assigned industry
- Create informative posters highlighting key safety practices for that industry
- Present posters to the class, explaining the rationale behind each safety practice

Activity: Safety Hazard Identification Walk

- Conduct a supervised walk through the school, or a simulated workplace
- Students identify potential safety hazards and suggest mitigation strategies
- Discuss the importance of speaking up about safety concerns
- Practice using proper communication techniques for reporting hazards

Activity: Guest Speaker Q&A

- Invite a local safety professional or someone who has experienced a workplace injury
- Students prepare questions in advance about the importance of workplace safety
- Conduct a Q&A session, allowing students to understand real-world implications of safety practices

Activity: Safety Equipment Demonstration

- Bring in various pieces of personal protective equipment (PPE)

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.
9.2.12.CAP.8: Determine job entrance criteria (e.g., education credentials, math/writing/reading comprehension tests, drug tests) used by employers in various industry sectors.

Personal Financial Literacy
Disciplinary Concept:

Social and Emotional Learning:

Competencies and Sub-Competencies

Self-Awareness
• Recognize one's feelings and thoughts
• Recognize the impact of one's feelings and thoughts on one's own behavior
• Recognize one's personal traits, strengths, and limitations
• Recognize the importance of self-confidence in handling daily tasks and challenges

Self-Management
• Understand and practice strategies for managing one's own emotions, thoughts, and behaviors
• Recognize the skills needed to establish and achieve personal and educational goals
• Identify and apply ways to persevere or overcome barriers through alternative methods to achieve one's goals

Social Awareness
• Recognize and identify the thoughts, feelings, and perspectives of others
• Demonstrate an awareness of the differences among individuals, groups, and others' cultural backgrounds
• Demonstrate an understanding of the need for mutual respect when viewpoints differ
• Demonstrate an awareness of the expectations for social interactions in a variety of settings.

- Demonstrate proper use and maintenance of PPE
- Students practice putting on and taking off PPE correctly
- Discuss scenarios where each piece of equipment would be necessary

Activity: Safety Scenario Role-Play

- Create cards with different workplace safety scenarios
- Students act out the scenarios, demonstrating both unsafe and safe behaviors
- Class discusses the differences and potential outcomes of each approach
- Emphasize the importance of looking out for coworkers' safety as well as one's own

Activity: Safety Statistics Analysis

- Provide students with workplace injury and illness statistics from OSHA
- In groups, students analyze the data and create visual representations (graphs, charts)
- Present findings to the class, discussing trends and implications
- Relate statistics to the importance of safety practices in reducing these numbers

Interdisciplinary Connections:
Math
ELA

Content:
Walking working surfaces
Emergency action plans
Fire protection
Electrocution hazards
Personal protective equipment
Hazard communication
Materials handling, storage, use and disposal.

Responsible Decision-Making • Develop, implement, and model effective problem-solving and critical thinking skills • Identify the consequences associated with one's actions in order to make constructive choices • Evaluate personal, ethical, safety, and civic impact of decisions **Relationship Skills** • Establish and maintain healthy relationships • Utilize positive communication and social skills to interact effectively with others	**CLKS:** *Consider the environmental, social and economic impacts of decisions.* Students understand the interrelated nature of their actions and regularly make decisions that positively impact and/or mitigate negative impact on other people, organization, and the environment. They are aware of and utilize new technologies, understandings, procedures, materials, and regulations affecting the nature of their work as it relates to the impact on the social condition, the environment and the profitability of the organization. *Plan education and career paths aligned to personal goals.* Students take personal ownership of their own education and career goals, and they regularly act on a plan to attain these goals. They understand their own career interests, preferences, goals, and requirements. They have perspective regarding the pathways available to them and the time, effort, experience and other requirements to pursue each, including a path of entrepreneurship. They recognize the value of each step in the education and experiential process, and they recognize that nearly all career paths require ongoing education and experience. They seek counselors, mentors, and other experts to assist in the planning and execution of career and personal goals.
Assessments (Formative) ***To show evidence of meeting the standard/s, students will successfully engage within:***	**Assessments (Summative)** ***To show evidence of meeting the standard/s, students will successfully complete:***
Formative Assessments: Teacher Observation Do Now Homework Class Participation Portfolio Discussions Quiz Journal writing Group Assessment Group Interaction/Discussion/Computer Research Self and Peer Evaluations	**Benchmarks:** Quiz Exam **Summative Assessments:** Pre-Test Oral Presentations Projects Rubric Teacher observation Written Assessments Reflective Paper Group Presentations OSHA 10 Assessment and Certificate

Differentiated Student Access to Content: Teaching and Learning *Resources/Materials*			
Core Resources	**Alternate Core Resources *IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core Resources**
Tiered Content Materials: Textbooks at different reading levels (below, at, and above grade level) Simplified versions of texts with key concepts highlighted Advanced supplementary readings for accelerated learners Audio versions of texts for auditory learners or struggling readers Multimedia Resources: Educational videos and documentaries Interactive online modules and simulations Podcasts and audio recordings Infographics and visual aids Hands-On Materials: Physical manipulatives and models Lab equipment and supplies for experiments	Tiered Content Materials: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners or struggling readers Leveled or topical readers at different reading levels Books on tape Highlighted text Collaborative Learning Tools: Opportunity to work alone, in pairs, or small groups Structured group roles for small group work Peer tutoring and mentoring programs Individualized Options: Independent study options Compacting the curriculum for advanced learners Varied timelines or check-in points	Keep material concept-focused and principle-driven. Allow the use of digital translation or grouping students together. Provide multiple means of action and expression.	Advanced Technical Materials: Provide access to OSHA's full regulatory standards and technical manuals Offer industry white papers on emerging safety technologies and practices Share case studies of complex workplace safety incidents and their resolutions Project-Based Learning: Design challenges to create innovative safety solutions for real-world scenarios Independent research projects on topics like ergonomics or industrial hygiene Opportunities to develop new safety tools or technologies

Art supplies for creative projects Building materials for engineering challenges	Choice of review activities ESL-Specific Resources: Bilingual dictionaries or glossaries Sentence frames and language scaffolds Visual supports for key vocabulary		

Supplemental Resources

Technology:
- Laptop
- Chromebook
- SmartBoard
- Internet Access
- Projector

Other:
- Plumbing materials

Differentiated Student Access to Content:
Recommended *Strategies & Techniques*

Core Resources	**Alternate Core Resources *IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core**
Content Differentiation: Tiered content at different complexity levels Variety of textbooks at different reading levels	Content Differentiation: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners or struggling readers	Content Differentiation: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners	Content Differentiation: Advanced, above-grade level textbooks and materials Supplementary resources on complex or specialized topics

Supplemental materials like videos, podcasts, and interactive modules Compacting curriculum for advanced learners Choice boards allowing students to select learning activities Varied resources/texts on the same topic Process Differentiation: Flexible grouping (whole group, small group, individual) Learning contracts tailored to student needs Interest centers focused on different aspects of a topic Varied instructional strategies (visual, auditory, kinesthetic) Scaffolded support like graphic organizers and writing frames Technology-enabled instruction (synchronous or asynchronous options) Product Differentiation: Multiple options for demonstrating learning (reports, presentations, models, etc.) Varied assessment methods based on student learning preferences	Leveled readers at different reading levels Bilingual materials for ESL students Visual aids, infographics, and multimedia resources Process Differentiation: Flexible grouping based on readiness levels Scaffolded support like graphic organizers and writing frames Extended time for task completion One-on-one or small group instruction Use of assistive technology (text-to-speech, speech-to-text tools) Product Differentiation: Multiple options for demonstrating learning (oral presentations, projects, etc.) Adjusted expectations based on IEP/504 goals Alternative assessments aligned with student abilities Use of portfolios to showcase progress over time	Leveled readers at different reading levels Bilingual materials and resources1 Visual aids, infographics, and multimedia resources Modified texts with rewording, reduced extraneous information, and added visuals Process Differentiation: Flexible grouping based on language proficiency levels Scaffolded support like graphic organizers and writing frames Extended time for task completion One-on-one or small group instruction Use of gestures and total physical response to support verbal instruction Incorporation of students' native language or culture when possible Product Differentiation: Multiple options for demonstrating learning (oral presentations, projects, etc.) Adjusted expectations based on English proficiency levels Alternative assessments aligned with student abilities	Interdisciplinary curriculum connecting multiple subject areas Primary source documents and advanced readings Access to college-level coursework or materials Process Differentiation: Accelerated pacing of instruction Independent study options on topics of interest Problem-based and project-based learning opportunities Socratic seminars and philosophical discussions Mentorship programs with experts in fields of interest Product Differentiation: Open-ended, creative project options Real-world application of learning through authentic tasks Opportunities for original research and experimentation Multimedia presentations and publications Portfolio development to showcase depth of learning

Adjusting product expectations based on student readiness Learning Environment Differentiation: Flexible seating arrangements Options for individual, paired, or group work Varied time allocations for task completion Use of technology to support different learning needs	Learning Environment Differentiation: Flexible seating arrangements Quiet spaces for individual work Sensory tools or fidgets as needed Visual schedules and routines Specialized Supports Implementation of IEP accommodations and modifications ESL supports like sentence frames and vocabulary guides Interventions for at-risk students (e.g. reading interventions) Social-emotional learning supports Ongoing Assessment Frequent formative assessments to monitor progress Data-driven adjustments to instruction Progress monitoring aligned with IEP goals	Use of portfolios to showcase progress over time Learning Environment Differentiation: Flexible seating arrangements Use of learning centers or stations focused on different aspects of a topic Visual schedules and routines Incorporation of culturally relevant materials and examples Specialized Supports: ESL supports like sentence frames and vocabulary guides Use of students' native language for clarification when needed Frequent opportunities for speaking and listening practice Integration of all four language skills (listening, speaking, reading, writing) Instructional Strategies: Slowing down speech and using clear enunciation Rephrasing and clarifying instructions Using visuals to support verbal instruction	Learning Environment Differentiation: Flexible grouping with intellectual peers Access to advanced technology and lab equipment Field trips and off-campus learning experiences Online courses and virtual learning options Competitions and academic challenges Specialized Supports: Critical and creative thinking skill development Training in research methods and academic writing Guidance on social-emotional needs of gifted learners College and career planning tailored to advanced learners Opportunities to explore passions and develop talents Instructional Strategies: Inquiry-based and discovery learning approaches

		Providing content in multiple formats (visual, auditory, kinesthetic) Connecting content to students' interests and cultural backgrounds Utilizing music, melodies, or songs to enhance learning Ongoing Assessment: Frequent formative assessments to monitor progress Data-driven adjustments to instruction Accommodated assessments (e.g., simplified language, added visuals)	Higher-order questioning techniques Abstract and complex problem-solving tasks Emphasis on depth and complexity of content Integration of multiple disciplines and perspectives Assessment Options: Pre-assessments to determine readiness levels Performance-based and authentic assessments Self-assessment and reflection opportunities Above-grade level standardized testing Credit by examination options

New Jersey Legislative Statutes and Administrative Code (place an "X" before each law/statute if/when present within the curriculum map)											
	Amistad Law: *N.J.S.A. 18A 52:16A-88*		Holocaust Law: *N.J.S.A. 18A:35-28*		LGBT and Disabilities Law: *N.J.S.A. 18A:35-4.35*		Diversity & Inclusion: *N.J.S.A. 18A:35-4.36a*		Standards in Action: *Climate Change*		Erin's Law: *A-769/S-1130*

Marking Period	Unit Title	Recommended Instructional Days
1	Career Awareness	10

CTE **Disciplinary Concept:** **Architecture & Construction**	**Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-CLKS within Unit**
Core Ideas and Performance Expectation: **Architecture & Construction** 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.	
Life Literacy & Key Skills **Disciplinary Concept:** **Creativity and Innovation** **Information and Media Literacy**	
Core Ideas and Performance Expectation: **Creativity and Innovation** *With a growth mindset, failure is an important part of success.* 9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a). Innovative ideas or innovation can lead to career opportunities. 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). 9.4.12.CI.3: Investigate new challenges and opportunities for personal growth, advancement, and transition (e.g., 2.1.12.PGD.1). **Information and Media Literacy** *Accurate information may help in making valuable and ethical choices.*	**Essential Question/s:** How does one prepare for a career? How does one improve marketability? Why is career planning important? What are the risks in starting a business? **Activity Description**: *Industry Research Project:* Objective: Help students understand how to prepare for a career by researching relevant industries. Activity: Assign students to research an industry of interest, focusing on required skills, job opportunities, and emerging trends. Provide resources such as industry reports and online databases. Have students present their findings in groups to foster collaboration and communication skills1. *Resume Building and Personal Branding Workshop:*

9.4.12.IML.7: Develop an argument to support a claim regarding a current workplace or societal/ethical issue such as climate change (e.g., NJSLSA.W1, 7.1.AL.PRSNT.4).	Objective: Improve students' marketability by enhancing their resume writing and personal branding skills. Activity: Conduct a workshop where students create professional resumes using provided templates and guidelines. Discuss the importance of personal branding and have students identify their unique strengths and professional goals. Conclude with mock interviews to practice articulating their skills confidently
Career Awareness, Exploration, Preparation, & Training **Disciplinary Concept:** **Career Awareness and Planning**	*Career Planning Exercise:* Objective: Highlight the importance of career planning through structured reflection. Activity: Use a "Career Wanderings Map" exercise where students reflect on past experiences to identify themes and patterns that can guide their career paths. This activity encourages self-exploration and goal setting, helping students map out potential career trajectories
Core Ideas and Performance Expectation: **There are strategies to improve one's professional value and marketability.** 9.2.12.CAP.1: Analyze unemployment rates for workers with different levels of education and how the economic, social, and political conditions of a time period are affected by a recession. 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. 9.2.12.CAP.3: Investigate how continuing education contributes to one's career and personal growth. **Career planning requires purposeful planning based on research, self-knowledge, and informed choices.** 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. 9.2.12.CAP.5: Assess and modify a personal plan to support current interests and postsecondary plans. 9.2.12.CAP.6: Identify transferable skills in career choices and design alternative career plans based on those skills. 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. 9.2.12.CAP.8: Determine job entrance criteria (e.g., education credentials, math/writing/reading comprehension tests, drug tests) used by employers in various industry sectors. 9.2.12.CAP.9: Locate information on working papers, what is required to obtain them, and who must sign them.	*Entrepreneurship Risk Analysis:* Objective: Educate students about the risks involved in starting a business. Activity: Organize a case study analysis where students examine real-world examples of successful and failed startups. Discuss factors that contributed to each outcome and have students identify potential risks and mitigation strategies for starting a business. *Career Scenario Cards:* Objective: Engage students in exploring various career paths and decision-making processes. Activity: Use career scenario cards to simulate different career-related situations. Students work in groups to discuss how they would handle each scenario, encouraging critical thinking and problem-solving skills5. *Guest Speaker Session:* Objective: Provide real-world insights into career planning and entrepreneurship. Activity: Invite professionals from various industries to speak about their career journeys, the importance of planning, and the challenges of entrepreneurship. Encourage students to ask questions and network with the speaker. **Interdisciplinary Connections:**

9.2.12.CAP.10: Identify strategies for reducing overall costs of postsecondary education (e.g., tuition assistance, loans, grants, scholarships, and student loans). 9.2.12.CAP.11: Demonstrate an understanding of Free Application for Federal Student Aid (FAFSA) requirements to apply for postsecondary education. *An individual's income and benefit needs and financial plan can change over time.* 9.2.12.CAP.12: Explain how compulsory government programs (e.g., Social Security, Medicare) provide insurance against some loss of income and benefits to eligible recipients. 9.2.12.CAP.13: Analyze how the economic, social, and political conditions of a time period can affect the labor market. *Securing an income involve an understanding of the costs and time in preparing for a career field, interview and negotiation skills, job searches, resume development, prior experience, and vesting and retirement plans.* 9.2.12.CAP.14: Analyze and critique various sources of income and available resources (e.g., financial assets, property, and transfer payments) and how they may substitute for earned income. *Understanding income involves an analysis of payroll taxes, deductions and earned benefits.* 9.2.12.CAP.15: Demonstrate how exemptions, deductions, and deferred income (e.g., retirement or medical) can reduce taxable income. 9.2.12.CAP.16: Explain why taxes are withheld from income and the relationship of federal, state, and local taxes (e.g., property, income, excise, and sales) and how the money collected is used by local, county, state, and federal governments. 9.2.12.CAP.17: Analyze the impact of the collective bargaining process on benefits, income, and fair labor practice. 9.2.12.CAP.18: Differentiate between taxable and nontaxable income from various forms of employment (e.g., cash business, tips, tax filing and withholding). 9.2.12.CAP.19: Explain the purpose of payroll deductions and why fees for various benefits (e.g., medical benefits) are taken out of pay, including the cost of employee benefits to employers and self-employment income. 9.2.12.CAP.20: Analyze a Federal and State Income Tax Return.	Math ELA SS **Content:** There are strategies to improve one's professional value and marketability. Career planning requires purposeful planning based on research, self-knowledge, and informed choices. An individual's income and benefit needs and financial plan can change over time. Securing an income involve an understanding of the costs and time in preparing for a career field, interview and negotiation skills, job searches, resume development, prior experience, and vesting and retirement plans Understanding income involves an analysis of payroll taxes, deductions and earned benefits. There are ways to assess a business's feasibility and risk and to align it with an individual's financial goals. **CLKS:** *Act as a responsible and contributing community members and employee.* Students 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. *Plan education and career paths aligned to personal goals. Students take personal ownership of their own education and career goals, and they regularly act on a plan to attain these goals.* They understand their own career interests, preferences, goals, and requirements. They have perspective regarding the pathways available to them and the time, effort, experience and other requirements to pursue each,

There are ways to assess a business's feasibility and risk and to align it with an individual's financial goals. 9.2.12.CAP.21: Explain low-cost and low-risk ways to start a business. 9.2.12.CAP.22: Compare risk and reward potential and use the comparison to decide whether starting a business is feasible. 9.2.12.CAP.23: Identify different ways to obtain capital for starting a business	including a path of entrepreneurship. They recognize the value of each step in the education and experiential process, and they recognize that nearly all career paths require ongoing education and experience. They seek counselors, mentors, and other experts to assist in the planning and execution of career and personal goals.
Personal Financial Literacy **Disciplinary Concept:** **Civic Financial Responsibility**	
Core Ideas and Performance Expectation: **Civic Financial Responsibility** *The potential for building and using personal wealth includes responsibility to the broader community and an understanding of the legal rights and responsibilities of being a good citizen.* 9.1.12.CFR.3: Research companies with corporate governance policies supporting the common good and human rights. 9.1.12.CFR.6: Identify and explain the consequences of breaking federal and/or state employment or financial laws.	
Social and Emotional Learning: ***Competencies and Sub-Competencies***	
Self-Awareness • Recognize one's feelings and thoughts • Recognize the impact of one's feelings and thoughts on one's own behavior • Recognize one's personal traits, strengths, and limitations • Recognize the importance of self-confidence in handling daily tasks and challenges **Self-Management** • Understand and practice strategies for managing one's own emotions, thoughts, and behaviors • Recognize the skills needed to establish and achieve personal and educational goals • Identify and apply ways to persevere or overcome barriers through alternative methods to achieve one's goals	

Social Awareness • Recognize and identify the thoughts, feelings, and perspectives of others • Demonstrate an awareness of the differences among individuals, groups, and others' cultural backgrounds • Demonstrate an understanding of the need for mutual respect when viewpoints differ • Demonstrate an awareness of the expectations for social interactions in a variety of settings. **Responsible Decision-Making** • Develop, implement, and model effective problem-solving and critical thinking skills • Identify the consequences associated with one's actions in order to make constructive choices • Evaluate personal, ethical, safety, and civic impact of decisions **Relationship Skills** • Establish and maintain healthy relationships • Utilize positive communication and social skills to interact effectively with others	
Assessments (Formative) ***To show evidence of meeting the standard/s, students will successfully engage within:***	**Assessments (Summative)** ***To show evidence of meeting the standard/s, students will successfully complete:***
Formative Assessments: Teacher Observation Do Now Homework Class Participation Portfolio Discussions Quiz Journal writing Group Assessment Group Interaction/Discussion/Computer Research	**Benchmarks:** Quiz Exam **Summative Assessments:** Pre-Test Oral Presentations Projects Rubric Teacher observation Written Assessments

Self and Peer Evaluations	Reflective Paper Group Presentations

Differentiated Student Access to Content: Teaching and Learning *Resources/Materials*			
Core Resources	**Alternate Core Resources *IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core Resources**
Tiered Content Materials: Textbooks at different reading levels (below, at, and above grade level) Simplified versions of texts with key concepts highlighted Advanced supplementary readings for accelerated learners Audio versions of texts for auditory learners or struggling readers Multimedia Resources: Educational videos and documentaries Interactive online modules and simulations Podcasts and audio recordings Infographics and visual aids Hands-On Materials: Physical manipulatives and models	Tiered Content Materials: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners or struggling readers Leveled or topical readers at different reading levels Books on tape Highlighted text Collaborative Learning Tools: Opportunity to work alone, in pairs, or small groups Structured group roles for small group work Peer tutoring and mentoring programs Individualized Options: Independent study options Compacting the curriculum for	Keep material concept-focused and principle-driven. Allow the use of digital translation or grouping students together. Provide multiple means of action and expression.	Advanced Textbooks: "Residential Construction Academy: Plumbing" by Michael Joyce and Ray Holder PHCC Educational Foundation's Plumbing Series (higher levels) Online Learning Platforms: NCCER's Plumbing curriculum (advanced modules) Khan Academy for advanced math concepts related to plumbing calculations Hands-On Materials: Advanced plumbing simulation software 3D modeling tools for creating detailed plumbing layouts Enrichment Activities: Independent research projects on emerging plumbing technologies

Lab equipment and supplies for experiments Art supplies for creative projects Building materials for engineering challenges	advanced learners Varied timelines or check-in points Choice of review activities ESL-Specific Resources: Bilingual dictionaries or glossaries Sentence frames and language scaffolds Visual supports for key vocabulary		Design challenges for innovative plumbing solutions Technology Integration: CAD software for designing advanced plumbing systems Virtual reality programs for exploring complex plumbing installations Problem-Solving Challenges: Complex troubleshooting scenarios using real-world plumbing issues Advanced math problems related to pipe sizing and water pressure calculations Industry Certifications: NCCER Plumbing Level One certification OSHA-30 Construction Industry certification Accelerated Curriculum: Cover topics from higher-level plumbing courses Introduce concepts from Plumbing Technology II
Supplemental Resources			

Technology:

- Laptop
- Chromebook
- SmartBoard
- Internet Access
- Projector

Other:

- Plumbing materials

Differentiated Student Access to Content:
Recommended *Strategies & Techniques*

Core Resources	**Alternate Core Resources *IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core**
Content Differentiation: Tiered content at different complexity levels Variety of textbooks at different reading levels Supplemental materials like videos, podcasts, and interactive modules Compacting curriculum for advanced learners Choice boards allowing students to select learning activities Varied resources/texts on the same topic Process Differentiation: Flexible grouping (whole group, small group, individual)	Content Differentiation: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners or struggling readers Leveled readers at different reading levels Bilingual materials for ESL students Visual aids, infographics, and multimedia resources Process Differentiation: Flexible grouping based on readiness levels	Content Differentiation: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners Leveled readers at different reading levels Bilingual materials and resources1 Visual aids, infographics, and multimedia resources Modified texts with rewording, reduced extraneous information, and added visuals Process Differentiation:	Content Differentiation: Advanced, above-grade level textbooks and materials Supplementary resources on complex or specialized topics Interdisciplinary curriculum connecting multiple subject areas Primary source documents and advanced readings Access to college-level coursework or materials Process Differentiation: Accelerated pacing of instruction Independent study options on topics of interest

Learning contracts tailored to student needs Interest centers focused on different aspects of a topic Varied instructional strategies (visual, auditory, kinesthetic) Scaffolded support like graphic organizers and writing frames Technology-enabled instruction (synchronous or asynchronous options) **Product Differentiation:** Multiple options for demonstrating learning (reports, presentations, models, etc.) Varied assessment methods based on student learning preferences Adjusting product expectations based on student readiness **Learning Environment Differentiation:** Flexible seating arrangements Options for individual, paired, or group work Varied time allocations for task completion Use of technology to support different learning needs	Scaffolded support like graphic organizers and writing frames Extended time for task completion One-on-one or small group instruction Use of assistive technology (text-to-speech, speech-to-text tools) **Product Differentiation:** Multiple options for demonstrating learning (oral presentations, projects, etc.) Adjusted expectations based on IEP/504 goals Alternative assessments aligned with student abilities Use of portfolios to showcase progress over time **Learning Environment Differentiation:** Flexible seating arrangements Quiet spaces for individual work Sensory tools or fidgets as needed Visual schedules and routines **Specialized Supports**	Flexible grouping based on language proficiency levels Scaffolded support like graphic organizers and writing frames Extended time for task completion One-on-one or small group instruction Use of gestures and total physical response to support verbal instruction Incorporation of students' native language or culture when possible **Product Differentiation:** Multiple options for demonstrating learning (oral presentations, projects, etc.) Adjusted expectations based on English proficiency levels Alternative assessments aligned with student abilities Use of portfolios to showcase progress over time **Learning Environment Differentiation:** Flexible seating arrangements Use of learning centers or stations focused on different aspects of a topic Visual schedules and routines	Problem-based and project-based learning opportunities Socratic seminars and philosophical discussions Mentorship programs with experts in fields of interest **Product Differentiation:** Open-ended, creative project options Real-world application of learning through authentic tasks Opportunities for original research and experimentation Multimedia presentations and publications Portfolio development to showcase depth of learning **Learning Environment Differentiation:** Flexible grouping with intellectual peers Access to advanced technology and lab equipment Field trips and off-campus learning experiences Online courses and virtual learning options

	Implementation of IEP accommodations and modifications ESL supports like sentence frames and vocabulary guides Interventions for at-risk students (e.g. reading interventions) Social-emotional learning supports Ongoing Assessment Frequent formative assessments to monitor progress Data-driven adjustments to instruction Progress monitoring aligned with IEP goals	Incorporation of culturally relevant materials and examples Specialized Supports: ESL supports like sentence frames and vocabulary guides Use of students' native language for clarification when needed Frequent opportunities for speaking and listening practice Integration of all four language skills (listening, speaking, reading, writing) Instructional Strategies: Slowing down speech and using clear enunciation Rephrasing and clarifying instructions Using visuals to support verbal instruction Providing content in multiple formats (visual, auditory, kinesthetic) Connecting content to students' interests and cultural backgrounds Utilizing music, melodies, or songs to enhance learning Ongoing Assessment: Frequent formative assessments to monitor progress	Competitions and academic challenges Specialized Supports: Critical and creative thinking skill development Training in research methods and academic writing Guidance on social-emotional needs of gifted learners College and career planning tailored to advanced learners Opportunities to explore passions and develop talents Instructional Strategies: Inquiry-based and discovery learning approaches Higher-order questioning techniques Abstract and complex problem-solving tasks Emphasis on depth and complexity of content Integration of multiple disciplines and perspectives Assessment Options:

		Data-driven adjustments to instruction Accommodated assessments (e.g., simplified language, added visuals)	Pre-assessments to determine readiness levels Performance-based and authentic assessments Self-assessment and reflection opportunities Above-grade level standardized testing Credit by examination options

New Jersey Legislative Statutes and Administrative Code (place an "X" before each law/statute if/when present within the curriculum map)											
	Amistad Law: *N.J.S.A. 18A 52:16A-88*		Holocaust Law: *N.J.S.A. 18A:35-28*		LGBT and Disabilities Law: *N.J.S.A. 18A:35-4.35*		Diversity & Inclusion: *N.J.S.A. 18A:35-4.36a*		Standards in Action: *Climate Change*		Erin's Law: *A-769/S-1130*

Marking Period	Unit Title	Recommended Instructional Days
1	Intro to Plumbing	15

CTE
Disciplinary Concept:
Architecture and Construction
Construction
Maintenance/Operations

Core Ideas and Performance Expectation:

Architecture and Construction
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.7 Describe career opportunities and means to achieve those opportunities in each of the Architecture & Construction Career Pathways

Construction
9.3.12.AC-CST.5 Apply practices and procedures required to maintain jobsite safety.
9.3.12.AC-CST.9 Safely use and maintain appropriate tools, machinery, equipment and resources to accomplish construction project goals.

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

Life Literacy & Key Skills
Disciplinary Concept:
Creativity and Innovation

Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-CLKS within Unit

Core Ideas and Performance Expectation:

Creativity and Innovation
With a growth mindset, failure is an important part of success.
9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a).

Innovative ideas or innovation can lead to career opportunities.
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).
9.4.12.CI.3: Investigate new challenges and opportunities for personal growth, advancement, and transition (e.g., 2.1.12.PGD.1).

Career Awareness, Exploration, Preparation, & Training
Disciplinary Concept:
Career Awareness and Planning

Core Ideas and Performance Expectation:

Career Awareness and Planning
Career planning requires purposeful planning based on research, self-knowledge, and informed choices.
9.2.12.CAP.8: Determine job entrance criteria (e.g., education credentials, math/writing/reading comprehension tests, drug tests) used by employers in various industry sectors.

Personal Financial Literacy
Disciplinary Concept:
Financial Institutions

Core Ideas and Performance Expectation:

Financial Institutions
There are factors you can use to select financial institutions and professionals that are best suited for your needs.
• 9.1.12.FI.3: Develop a plan that uses the services of various financial institutions to prepare for long term personal and family goals (e.g., college, retirement).

Social and Emotional Learning:

Competencies and Sub-Competencies

Essential Question/s:
Why are plumbing codes critical to modern infrastructure and public health and safety?
How have historical developments in plumbing shaped the technological advancements and practices we see today?
What are the key differences between potable, DWV, and storm water systems, and why is it important to differentiate these systems in plumbing design?
How do plumbing professionals adapt to the varying plumbing codes and standards across different regions and countries?
What skills and knowledge are essential at the entry-level of plumbing, and how do these foundations support further professional development?

Activity Description:
History of Plumbing

1. Create a timeline highlighting 10 key events in plumbing history from ancient civilizations to modern times.
2. Write a short essay analyzing how the invention of the flush toilet impacted public health and sanitation practices.

Purpose of Plumbing Codes

1. Research and present three major reasons for the development of plumbing codes.
2. Design a poster illustrating how plumbing codes protect public health and safety in residential buildings.

Basic Principles of Plumbing Codes

1. Given a hypothetical home renovation scenario, apply relevant plumbing code principles to ensure compliance.
2. Interpret specific code language for proper venting requirements in a two-story house.

Different Codes Nationally and Internationally

Self-Awareness • Recognize one's feelings and thoughts • Recognize the impact of one's feelings and thoughts on one's own behavior • Recognize one's personal traits, strengths, and limitations • Recognize the importance of self-confidence in handling daily tasks and challenges **Self-Management** • Understand and practice strategies for managing one's own emotions, thoughts, and behaviors • Recognize the skills needed to establish and achieve personal and educational goals • Identify and apply ways to persevere or overcome barriers through alternative methods to achieve one's goals **Social Awareness** • Recognize and identify the thoughts, feelings, and perspectives of others • Demonstrate an awareness of the differences among individuals, groups, and others' cultural backgrounds • Demonstrate an understanding of the need for mutual respect when viewpoints differ • Demonstrate an awareness of the expectations for social interactions in a variety of settings. **Responsible Decision-Making** • Develop, implement, and model effective problem-solving and critical thinking skills • Identify the consequences associated with one's actions in order to make constructive choices • Evaluate personal, ethical, safety, and civic impact of decisions **Relationship Skills** • Establish and maintain healthy relationships • Utilize positive communication and social skills to interact effectively with others	1. Create a comparison chart of the International Plumbing Code (IPC) and the Uniform Plumbing Code (UPC), highlighting key differences. 2. Write a brief report on how differences in plumbing codes might affect international construction projects. Fundamentals of Potable, DWV, and Storm Systems 1. Draw a diagram showing the basic components of a residential potable water system. 2. Calculate the required pipe size for a DWV system serving a small office building. Different Levels and Structures of Being a Plumber 1. Create a career ladder infographic showing the progression from apprentice to master plumber. 2. Role-play different plumbing scenarios to understand the responsibilities of apprentices, journeymen, and master plumbers. Module One Level One NCCER 1. Demonstrate proper use of common plumbing tools as outlined in NCCER Module One. 2. Complete a written assessment covering safety practices and basic plumbing terminology from the NCCER curriculum. **Interdisciplinary Connections:** Math ELA **Content:** *History of Plumbing* ● Understand the evolution and historical milestones in the plumbing industry.

	● Explore significant plumbing innovations and their impact on modern society. *Purpose of Plumbing Codes* ● Identify the role and importance of plumbing codes in ensuring sanitary conditions and public health. ● Discuss how plumbing codes contribute to the safety and efficiency of plumbing systems. *Basic Principles of Plumbing Codes* ● Learn the fundamental concepts and requirements outlined in plumbing codes. ● Understand the application of these codes in various plumbing projects. *Different Codes Nationally and Internationally* ● Compare national and international plumbing codes. ● Examine the differences and similarities in plumbing standards across various countries. *Fundamentals of Potable, DWV, and Storm Systems* ● Define and differentiate between potable water systems, drain-waste-vent (DWV) systems, and storm drainage systems. ● Understand the components and functioning of each system. *Different Levels and Structures of Being a Plumber* ● Explore the career paths and progression opportunities within the plumbing profession. ● Discuss the roles and responsibilities at various levels of the plumbing hierarchy. *Module One Level One NCCER* ● Introduce the National Center for Construction Education and Research (NCCER) curriculum for entry-level plumbing. ● Outline the key skills and knowledge areas covered in Module One, Level One of the NCCER plumbing course.

	CLKS: Act as a responsible and contributing community member and employee. Attend to financial well-being. Consider the environmental, social and economic impacts of decisions. Demonstrate creativity and innovation. Utilize critical thinking to make sense of problems and persevere in solving them. Model integrity, ethical leadership and effective management. Plan education and career paths aligned to personal goals. Use technology to enhance productivity, increase collaboration, and communicate effectively. Work productively in teams while using cultural/global competence.

Assessments (Formative) ***To show evidence of meeting the standard/s, students will successfully engage within:***	**Assessments (Summative)** ***To show evidence of meeting the standard/s, students will successfully complete:***
Formative Assessments: Teacher Observation Do Now Homework Class Participation Portfolio Discussions Quiz Journal writing Group Assessment Group Interaction/Discussion/Computer Research Self and Peer Evaluations	**Benchmarks:** Quiz Exam **Summative Assessments:** Pre-Test Oral Presentations Projects Rubric Teacher observation Written Assessments Reflective Paper Group Presentations Plumbing Codes Quiz ○ A written quiz that tests students on their understanding of various plumbing codes, both national and international, and their ability to apply these codes to specific scenarios. System Design Project ○ Students design a basic plumbing system that includes potable, DWV, and storm water components. This project assesses their ability to integrate knowledge of system requirements, code compliance, and practical design principles. Career Pathway Presentation ○ Students research different career levels and structures within the plumbing profession and present their findings. This assessment evaluates their understanding of the plumbing career ladder and the skills required at each level.

Differentiated Student Access to Content: **Teaching and Learning *Resources/Materials***			
Core **Resources**	**Alternate** **Core Resources** ***IEP/504/At-Risk/ESL***	**ELL** **Core Resources**	**Gifted & Talented** **Core Resources**

Tiered Content Materials: Textbooks at different reading levels (below, at, and above grade level) Simplified versions of texts with key concepts highlighted Advanced supplementary readings for accelerated learners Audio versions of texts for auditory learners or struggling readers Multimedia Resources: Educational videos and documentaries Interactive online modules and simulations Podcasts and audio recordings Infographics and visual aids Hands-On Materials: Physical manipulatives and models Lab equipment and supplies for experiments Art supplies for creative projects Building materials for engineering challenges	Tiered Content Materials: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners or struggling readers Leveled or topical readers at different reading levels Books on tape Highlighted text Collaborative Learning Tools: Opportunity to work alone, in pairs, or small groups Structured group roles for small group work Peer tutoring and mentoring programs Individualized Options: Independent study options Compacting the curriculum for advanced learners Varied timelines or check-in points Choice of review activities ESL-Specific Resources: Bilingual dictionaries or glossaries	Keep material concept-focused and principle-driven. Allow the use of digital translation or grouping students together. Provide multiple means of action and expression.	Advanced Textbooks and References: "Residential Construction Academy: Plumbing" by Michael Joyce and Ray Holder PHCC Educational Foundation's Plumbing Series (Plumbing 201 and 301) "Plumbing Complete: Expert Advice from Start to Finish" by Rex Cauldwell Online Learning Platforms: Khan Academy: Advanced math concepts related to plumbing calculations TED-Ed: Videos on innovative plumbing technologies and water systems Hands-On Materials: Advanced plumbing simulation software for complex system design 3D modeling tools for creating detailed plumbing layouts Enrichment Activities: Independent research projects on emerging plumbing technologies Design challenges to create innovative solutions for plumbing problems

	Sentence frames and language scaffolds Visual supports for key vocabulary		Individualized Learning Options: Accelerated curriculum covering topics from higher-level plumbing courses Mentorship opportunities with experienced plumbers or plumbing engineers Problem-Solving Challenges: Complex troubleshooting scenarios using real-world plumbing issues Advanced math problems related to pipe sizing and water pressure calculations Technology Integration: Virtual reality programs for exploring complex plumbing installations CAD software for designing advanced plumbing systems

Supplemental Resources

Technology:

- Laptop
- Chromebook
- SmartBoard
- Internet Access
- Projector

Other:

-

Differentiated Student Access to Content: **Recommended *Strategies & Techniques***			
Core Resources	**Alternate Core Resources** ***IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core**
Content Differentiation: Tiered content at different complexity levels Variety of textbooks at different reading levels Supplemental materials like videos, podcasts, and interactive modules Compacting curriculum for advanced learners Choice boards allowing students to select learning activities Varied resources/texts on the same topic Process Differentiation: Flexible grouping (whole group, small group, individual) Learning contracts tailored to student needs Interest centers focused on different aspects of a topic Varied instructional strategies (visual, auditory, kinesthetic)	Content Differentiation: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners or struggling readers Leveled readers at different reading levels Bilingual materials for ESL students Visual aids, infographics, and multimedia resources Process Differentiation: Flexible grouping based on readiness levels Scaffolded support like graphic organizers and writing frames Extended time for task completion One-on-one or small group instruction	Content Differentiation: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners Leveled readers at different reading levels Bilingual materials and resources1 Visual aids, infographics, and multimedia resources Modified texts with rewording, reduced extraneous information, and added visuals Process Differentiation: Flexible grouping based on language proficiency levels Scaffolded support like graphic organizers and writing frames Extended time for task completion One-on-one or small group instruction Use of gestures and total physical response to support verbal instruction	Content Differentiation: Advanced, above-grade level textbooks and materials Supplementary resources on complex or specialized topics Interdisciplinary curriculum connecting multiple subject areas Primary source documents and advanced readings Access to college-level coursework or materials Process Differentiation: Accelerated pacing of instruction Independent study options on topics of interest Problem-based and project-based learning opportunities Socratic seminars and philosophical discussions Mentorship programs with experts in fields of interest

Scaffolded support like graphic organizers and writing frames Technology-enabled instruction (synchronous or asynchronous options) **Product Differentiation:** Multiple options for demonstrating learning (reports, presentations, models, etc.) Varied assessment methods based on student learning preferences Adjusting product expectations based on student readiness **Learning Environment Differentiation:** Flexible seating arrangements Options for individual, paired, or group work Varied time allocations for task completion Use of technology to support different learning needs	Use of assistive technology (text-to-speech, speech-to-text tools) **Product Differentiation:** Multiple options for demonstrating learning (oral presentations, projects, etc.) Adjusted expectations based on IEP/504 goals Alternative assessments aligned with student abilities Use of portfolios to showcase progress over time **Learning Environment Differentiation:** Flexible seating arrangements Quiet spaces for individual work Sensory tools or fidgets as needed Visual schedules and routines **Specialized Supports** Implementation of IEP accommodations and modifications ESL supports like sentence frames and vocabulary guides	Incorporation of students' native language or culture when possible **Product Differentiation:** Multiple options for demonstrating learning (oral presentations, projects, etc.) Adjusted expectations based on English proficiency levels Alternative assessments aligned with student abilities Use of portfolios to showcase progress over time **Learning Environment Differentiation:** Flexible seating arrangements Use of learning centers or stations focused on different aspects of a topic Visual schedules and routines Incorporation of culturally relevant materials and examples **Specialized Supports:** ESL supports like sentence frames and vocabulary guides Use of students' native language for clarification when needed	**Product Differentiation:** Open-ended, creative project options Real-world application of learning through authentic tasks Opportunities for original research and experimentation Multimedia presentations and publications Portfolio development to showcase depth of learning **Learning Environment Differentiation:** Flexible grouping with intellectual peers Access to advanced technology and lab equipment Field trips and off-campus learning experiences Online courses and virtual learning options Competitions and academic challenges **Specialized Supports:** Critical and creative thinking skill development

	Interventions for at-risk students (e.g. reading interventions) Social-emotional learning supports Ongoing Assessment Frequent formative assessments to monitor progress Data-driven adjustments to instruction Progress monitoring aligned with IEP goals	Frequent opportunities for speaking and listening practice Integration of all four language skills (listening, speaking, reading, writing) Instructional Strategies: Slowing down speech and using clear enunciation Rephrasing and clarifying instructions Using visuals to support verbal instruction Providing content in multiple formats (visual, auditory, kinesthetic) Connecting content to students' interests and cultural backgrounds Utilizing music, melodies, or songs to enhance learning Ongoing Assessment: Frequent formative assessments to monitor progress Data-driven adjustments to instruction Accommodated assessments (e.g., simplified language, added visuals)	Training in research methods and academic writing Guidance on social-emotional needs of gifted learners College and career planning tailored to advanced learners Opportunities to explore passions and develop talents Instructional Strategies: Inquiry-based and discovery learning approaches Higher-order questioning techniques Abstract and complex problem-solving tasks Emphasis on depth and complexity of content Integration of multiple disciplines and perspectives Assessment Options: Pre-assessments to determine readiness levels Performance-based and authentic assessments Self-assessment and reflection opportunities

			Above-grade level standardized testing Credit by examination options

New Jersey Legislative Statutes and Administrative Code (place an "X" before each law/statute if/when present within the curriculum map)											
	Amistad Law: *N.J.S.A. 18A 52:16A-88*		Holocaust Law: *N.J.S.A. 18A:35-28*		LGBT and Disabilities Law: *N.J.S.A. 18A:35-4.35*		Diversity & Inclusion: *N.J.S.A. 18A:35-4.36a*		Standards in Action: *Climate Change*		Erin's Law: *A-769/S-1130*

Marking Period	Unit Title	Recommended Instructional Days
1	Plumbing Safety Terminology and Tools	15

CTE
Disciplinary Concept:
Construction
Maintenance/Operations

Core Ideas and Performance Expectation:

Construction
9.3.12.AC-CST.5 Apply practices and procedures required to maintain jobsite safety.
9.3.12.AC-CST.9 Safely use and maintain appropriate tools, machinery, equipment and resources to accomplish construction project goals.

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

Life Literacy & Key Skills
Disciplinary Concept:

Core Ideas and Performance Expectation:

Career Awareness, Exploration, Preparation, & Training
Disciplinary Concept:
Career Awareness and Planning

Core Ideas and Performance Expectation:

Career Awareness and Planning
Career planning requires purposeful planning based on research, self-knowledge, and informed choices.
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.

Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-CLKS within Unit

Essential Question/s:
What are the critical safety procedures for using power tools in plumbing, and why is their adherence non-negotiable?
How does proper Personal Protective Equipment (PPE) selection and maintenance impact the safety and efficiency of plumbing tasks?
What are the risks associated with improper handling of chemicals and hazardous materials in plumbing, and how can these risks be mitigated?
Why is understanding and implementing lockout/tagout procedures vital for maintaining safety in plumbing operations?
How do the skills learned in NCCER Module Two and Three, Level One, prepare students for real-world plumbing challenges?
How can understanding and applying climate-aware plumbing terminology contribute to creating more resilient and sustainable plumbing systems in a changing environment?

Personal Financial Literacy **Disciplinary Concept:**	**Activity Description**:
	Personal Protection Equipment (PPE) Demonstration 1. Task: Create a video demonstration showing the proper selection, donning, and doffing of PPE for a specific plumbing task (e.g., soldering pipes). 2. Skill: Demonstrate proper selection and use of PPE for various plumbing tasks. Hand and Power Tools Maintenance Log 1. Task: Maintain a weekly log of tool inspections and maintenance for a set of common plumbing tools. 2. Skill: Perform routine maintenance on tools to ensure they remain in safe, working condition. Electrical Hazard Identification Exercise 1. Task: Given a series of plumbing workspace photos, identify potential electrical hazards and explain how to mitigate them. 2. Skill: Identify potential electrical hazards in plumbing environments and know how to mitigate them. Ladder and Scaffolding Setup Competition 1. Task: In teams, set up and dismantle a ladder and small scaffolding system, following all safety protocols. Judge based on speed and adherence to safety guidelines. 2. Skill: Correctly set up and dismantle ladders and scaffolding while following safety protocols. Material Handling and Storage Plan 1. Task: Design a storage plan for a plumbing workshop, considering proper lifting techniques and efficient organization of materials. 2. Skills: Utilize proper lifting techniques; Organize and store materials in a manner that minimizes risk and maximizes efficiency. Chemical Safety Data Sheet (SDS) Scavenger Hunt 1. Task: Given a set of plumbing chemicals, locate and interpret key information from their Safety Data Sheets.
Social and Emotional Learning: ***Competencies and Sub-Competencies***	
Self-Awareness • Recognize one's feelings and thoughts • Recognize the impact of one's feelings and thoughts on one's own behavior • Recognize one's personal traits, strengths, and limitations • Recognize the importance of self-confidence in handling daily tasks and challenges **Self-Management** • Understand and practice strategies for managing one's own emotions, thoughts, and behaviors • Recognize the skills needed to establish and achieve personal and educational goals • Identify and apply ways to persevere or overcome barriers through alternative methods to achieve one's goals **Social Awareness** • Recognize and identify the thoughts, feelings, and perspectives of others • Demonstrate an awareness of the differences among individuals, groups, and others' cultural backgrounds • Demonstrate an understanding of the need for mutual respect when viewpoints differ • Demonstrate an awareness of the expectations for social interactions in a variety of settings. **Responsible Decision-Making** • Develop, implement, and model effective problem-solving and critical thinking skills • Identify the consequences associated with one's actions in order to make constructive choices	

• Evaluate personal, ethical, safety, and civic impact of decisions **Relationship Skills** • Establish and maintain healthy relationships • Utilize positive communication and social skills to interact effectively with others	2. Skill: Handle and apply plumbing-related chemicals correctly and safely. Hazardous Waste Management Simulation 1. Task: Participate in a role-playing scenario where students must properly label, handle, and dispose of various types of hazardous waste encountered in plumbing. 2. Skill: Properly label, handle, and dispose of hazardous waste. Torch Safety Checklist Creation 1. Task: Develop a comprehensive safety checklist for using torches in plumbing work, including pre-use inspection, proper ignition procedures, and post-use safety measures. 2. Skill: Use torches and related equipment safely, including checking for leaks and proper igniting procedures. NCCER Module Two Practical Assessment 1. Task: Complete a series of hands-on tasks demonstrating proficiency in using various plumbing tools safely, as outlined in NCCER Module Two, Level One. 2. Skill: Complete practical tasks and assessments as outlined in NCCER Module Two, Level One, focused on tools and safety. High Reach Equipment Safety Presentation 1. Task: Research and present on the safety features and proper operation of a specific piece of high reach equipment used in plumbing (e.g., boom lift or scissor lift). 2. Skill: Operate high-reach equipment like boom lifts and scissor lifts safely. Flood-related terminology: Introduce terms related to flood prevention and mitigation in plumbing systems, such as backflow preventers and sump pumps. **Interdisciplinary Connections:** Math ELA

	Content: *Personal Protection* ● Understand the importance and proper usage of Personal Protective Equipment (PPE) in the plumbing industry. ● Recognize different types of PPE and their specific applications. *Hand and Power Tools* ● Identify common hand tools and power tools used in plumbing. ● Learn safe handling, operation, and maintenance procedures for these tools. *Electrical Safety* ● Gain basic knowledge of electrical safety relevant to plumbing work ● Understand precautions to take when working near electrical systems. *Ladders and Scaffolding* ● Learn the correct selection, setup, and use of ladders and scaffolding. ● Understand safety protocols for working at heights. *High Reach and Motor Vehicle Operations* ● Understand the safety measures and operational protocols for using high-reach equipment. ● Learn the basics of safe motor vehicle operations related to plumbing tasks. *Material Handling* ● Acquire skills for safe lifting, moving, and storage of plumbing materials and equipment. ● Recognize ergonomic practices to prevent injuries. *Chemicals and Hazardous Materials* ● Learn the types of chemicals and hazardous materials encountered in plumbing. ● Understand proper handling, storage, and disposal procedures to minimize risks. *Hazardous Waste Management* ● Identify types of hazardous waste commonly generated in plumbing work. ● Learn procedures for safe disposal and emergency response to hazardous waste incidents.

	Torch Safety ● Understand the safe use of torches and tanks in plumbing applications. ● Learn about the risks associated with torch use and how to mitigate them. *NCCER Module Two and Three, Level One* ● Complete Module Two, Level One of the NCCER curriculum, focusing on plumbing tools and safety. ● Advance to Module Three, Level One, covering more complex tools and safety scenarios in plumbing. **NJSLS#:** NJSLS-CLKS: 9.4.12.CI.1 (Demonstrate the ability to reflect, analyze, and use creative skills and ideas) NJSLS-CLKS: 9.4.12.IML.8 (Evaluate media sources for point of view, bias, and motivations) NJSLS-CLKS: 9.4.12.TL.1 (Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task) NJSLS-CLKS: 9.3.12.AG.2 (Analyze the relationship between regulatory agencies and the agriculture industry) NJSLS-CLKS: 9.2.12.CAP.4 (Evaluate different careers and develop various plans to prepare for employment) NJSLS-CLKS: 9.4.12.CT.2 (Explain the potential benefits of collaborating to enhance critical thinking and problem solving) NJSLS-CLKS: 9.4.12.IML.2 (Evaluate digital sources for timeliness, accuracy, perspective, credibility of the source, and relevance of information, in media, data, or other resources) NJSLS-CLKS: 9.4.12.TL.3 (Analyze the effectiveness of the process and quality of collaborative environments) NJSLS-CLKS: 9.4.12.TL.2 (Generate data using formula-based calculations in a spreadsheet and draw conclusions about the data) NJSLS-CLKS: 9.4.12.CI.3 (Investigate new challenges and opportunities for personal growth, advancement, and transition)

	NJSLS-CLKS: 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) NJSLS-CLKS: 9.4.12.DC.7 (Evaluate the influence of digital communities on the nature, content and responsibilities of careers, and other aspects of society) Act as a responsible and contributing community member and employee. Attend to financial well-being. Consider the environmental, social and economic impacts of decisions. Demonstrate creativity and innovation. Utilize critical thinking to make sense of problems and persevere in solving them. Model integrity, ethical leadership and effective management. Plan education and career paths aligned to personal goals. Use technology to enhance productivity, increase collaboration, and communicate effectively. Work productively in teams while using cultural/global competence.
Assessments (Formative) ***To show evidence of meeting the standard/s, students will successfully engage within:***	**Assessments (Summative)** ***To show evidence of meeting the standard/s, students will successfully complete:***
Formative Assessments: Teacher Observation Do Now Homework Class Participation Portfolio	**Benchmarks:** Quiz Exam **Summative Assessments:** Pre-Test

Discussions Quiz Journal writing Group Assessment Group Interaction/Discussion/Computer Research Self and Peer Evaluations	Oral Presentations Projects Rubric Teacher observation Written Assessments Reflective Paper Group Presentations Safety Protocol Simulation Students participate in a simulated plumbing project where they must demonstrate proper use of Personal Protective Equipment (PPE), correctly follow lockout/tagout procedures, and safely handle tools and materials. This hands-on assessment tests their ability to apply safety knowledge in practical scenarios. Tool Proficiency Exam A practical examination where students demonstrate their ability to safely and effectively use a variety of hand and power tools. This includes setting up, operating, and maintaining tools according to industry standards and manufacturer guidelines. Hazard Response Plan Project Students create a comprehensive emergency response plan for potential hazardous material spills or accidents that could occur during plumbing operations. This project assesses their understanding of HazCom guidelines, chemical handling protocols, and emergency procedures, including evacuation plans and first responder communications.

Differentiated Student Access to Content:
Teaching and Learning *Resources/Materials*

Core Resources	**Alternate Core Resources** ***IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core Resources**

Tiered Content Materials: Textbooks at different reading levels (below, at, and above grade level) Simplified versions of texts with key concepts highlighted Advanced supplementary readings for accelerated learners Audio versions of texts for auditory learners or struggling readers Multimedia Resources: Educational videos and documentaries Interactive online modules and simulations Podcasts and audio recordings Infographics and visual aids Hands-On Materials: Physical manipulatives and models Lab equipment and supplies for experiments Art supplies for creative projects Building materials for engineering challenges	Tiered Content Materials: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners or struggling readers Leveled or topical readers at different reading levels Books on tape Highlighted text Collaborative Learning Tools: Opportunity to work alone, in pairs, or small groups Structured group roles for small group work Peer tutoring and mentoring programs Individualized Options: Independent study options Compacting the curriculum for advanced learners Varied timelines or check-in points Choice of review activities ESL-Specific Resources: Bilingual dictionaries or glossaries Sentence frames and language	Keep material concept-focused and principle-driven. Allow the use of digital translation or grouping students together. Provide multiple means of action and expression.	Advanced Textbooks: "Residential Construction Academy: Plumbing" by Michael Joyce and Ray Holder PHCC Educational Foundation's Plumbing Series (higher levels) Online Learning Platforms: NCCER's Plumbing curriculum (advanced modules) Khan Academy for advanced math concepts related to plumbing calculations Hands-On Materials: Advanced plumbing simulation software 3D modeling tools for creating detailed plumbing layouts Enrichment Activities: Independent research projects on emerging plumbing technologies Design challenges for innovative plumbing solutions Technology Integration: CAD software for designing advanced plumbing systems Virtual reality programs for exploring complex plumbing installations Problem-Solving Challenges:

	scaffolds Visual supports for key vocabulary		Complex troubleshooting scenarios using real-world plumbing issues Advanced math problems related to pipe sizing and water pressure calculations Industry Certifications: NCCER Plumbing Level One certification OSHA-30 Construction Industry certification Accelerated Curriculum: Cover topics from higher-level plumbing courses Introduce concepts from Plumbing Technology II

Supplemental Resources

Technology:

- Laptop
- Chromebook
- SmartBoard
- Internet Access
- Projector

Other:

- Plumbing materials

Differentiated Student Access to Content:
Recommended *Strategies & Techniques*

Core Resources	**Alternate Core Resources** ***IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core**
Content Differentiation: Tiered content at different complexity levels Variety of textbooks at different reading levels Supplemental materials like videos, podcasts, and interactive modules Compacting curriculum for advanced learners Choice boards allowing students to select learning activities Varied resources/texts on the same topic Process Differentiation: Flexible grouping (whole group, small group, individual) Learning contracts tailored to student needs Interest centers focused on different aspects of a topic Varied instructional strategies (visual, auditory, kinesthetic) Scaffolded support like graphic organizers and writing frames	Content Differentiation: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners or struggling readers Leveled readers at different reading levels Bilingual materials for ESL students Visual aids, infographics, and multimedia resources Process Differentiation: Flexible grouping based on readiness levels Scaffolded support like graphic organizers and writing frames Extended time for task completion One-on-one or small group instruction Use of assistive technology (text-to-speech, speech-to-text tools)	Content Differentiation: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners Leveled readers at different reading levels Bilingual materials and resources1 Visual aids, infographics, and multimedia resources Modified texts with rewording, reduced extraneous information, and added visuals Process Differentiation: Flexible grouping based on language proficiency levels Scaffolded support like graphic organizers and writing frames Extended time for task completion One-on-one or small group instruction Use of gestures and total physical response to support verbal instruction Incorporation of students' native language or culture when possible	Content Differentiation: Advanced, above-grade level textbooks and materials Supplementary resources on complex or specialized topics Interdisciplinary curriculum connecting multiple subject areas Primary source documents and advanced readings Access to college-level coursework or materials Process Differentiation: Accelerated pacing of instruction Independent study options on topics of interest Problem-based and project-based learning opportunities Socratic seminars and philosophical discussions Mentorship programs with experts in fields of interest Product Differentiation:

Technology-enabled instruction (synchronous or asynchronous options) Product Differentiation: Multiple options for demonstrating learning (reports, presentations, models, etc.) Varied assessment methods based on student learning preferences Adjusting product expectations based on student readiness Learning Environment Differentiation: Flexible seating arrangements Options for individual, paired, or group work Varied time allocations for task completion Use of technology to support different learning needs	Product Differentiation: Multiple options for demonstrating learning (oral presentations, projects, etc.) Adjusted expectations based on IEP/504 goals Alternative assessments aligned with student abilities Use of portfolios to showcase progress over time Learning Environment Differentiation: Flexible seating arrangements Quiet spaces for individual work Sensory tools or fidgets as needed Visual schedules and routines Specialized Supports Implementation of IEP accommodations and modifications ESL supports like sentence frames and vocabulary guides Interventions for at-risk students (e.g. reading interventions) Social-emotional learning supports	Product Differentiation: Multiple options for demonstrating learning (oral presentations, projects, etc.) Adjusted expectations based on English proficiency levels Alternative assessments aligned with student abilities Use of portfolios to showcase progress over time Learning Environment Differentiation: Flexible seating arrangements Use of learning centers or stations focused on different aspects of a topic Visual schedules and routines Incorporation of culturally relevant materials and examples Specialized Supports: ESL supports like sentence frames and vocabulary guides Use of students' native language for clarification when needed Frequent opportunities for speaking and listening practice	Open-ended, creative project options Real-world application of learning through authentic tasks Opportunities for original research and experimentation Multimedia presentations and publications Portfolio development to showcase depth of learning Learning Environment Differentiation: Flexible grouping with intellectual peers Access to advanced technology and lab equipment Field trips and off-campus learning experiences Online courses and virtual learning options Competitions and academic challenges Specialized Supports: Critical and creative thinking skill development Training in research methods and academic writing

	Ongoing Assessment Frequent formative assessments to monitor progress Data-driven adjustments to instruction Progress monitoring aligned with IEP goals	Integration of all four language skills (listening, speaking, reading, writing) Instructional Strategies: Slowing down speech and using clear enunciation Rephrasing and clarifying instructions Using visuals to support verbal instruction Providing content in multiple formats (visual, auditory, kinesthetic) Connecting content to students' interests and cultural backgrounds Utilizing music, melodies, or songs to enhance learning Ongoing Assessment: Frequent formative assessments to monitor progress Data-driven adjustments to instruction Accommodated assessments (e.g., simplified language, added visuals)	Guidance on social-emotional needs of gifted learners College and career planning tailored to advanced learners Opportunities to explore passions and develop talents Instructional Strategies: Inquiry-based and discovery learning approaches Higher-order questioning techniques Abstract and complex problem-solving tasks Emphasis on depth and complexity of content Integration of multiple disciplines and perspectives Assessment Options: Pre-assessments to determine readiness levels Performance-based and authentic assessments Self-assessment and reflection opportunities Above-grade level standardized testing Credit by examination options

New Jersey Legislative Statutes and Administrative Code (place an "X" before each law/statute if/when present within the curriculum map)											
	Amistad Law: *N.J.S.A. 18A 52:16A-88*		Holocaust Law: *N.J.S.A. 18A:35-28*		LGBT and Disabilities Law: *N.J.S.A. 18A:35-4.35*		Diversity & Inclusion: *N.J.S.A. 18A:35-4.36a*	X	Standards in Action: *Climate Change*		Erin's Law: *A-769/S-1130*

Marking Period	Unit Title	Recommended Instructional Days
2	Plastic, Cast Iron, Copper Pipes and Fittings Theory	15

CTE
Disciplinary Concept:
Architecture and Construction
Construction
Design/Pre-Construction

Core Ideas and Performance Expectation:

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

Construction
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.

Design/Pre-Construction
9.3.12.AC-DES.1 Justify design solutions through the use of research documentation and analysis of data.
9.3.12.AC-DES.6 Apply the techniques and skills of modern drafting, design, engineering and construction to projects.

Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-CLKS within Unit

Life Literacy & Key Skills
Disciplinary Concept:
Creativity and Innovation
Critical Thinking and Problem Solving

Core Ideas and Performance Expectation:

Creativity and Innovation

Essential Question/s:
What are the advantages and limitations of using plastic pipes in plumbing installations compared to other materials like copper or cast iron?

With a growth mindset, failure is an important part of success.
9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a).

Critical Thinking and Problem Solving
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.3: Enlist input from a variety of stakeholders (e.g., community members, experts in the field) to design a service learning activity that addresses a local or global issue (e.g., environmental justice).

Career Awareness, Exploration, Preparation, & Training
Disciplinary Concept:
Career Awareness and Planning

Core Ideas and Performance Expectation:

Career Awareness and Planning
There are strategies to improve one's professional value and marketability.
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.
9.2.12.CAP.3: Investigate how continuing education contributes to one's career and personal growth

Personal Financial Literacy
Disciplinary Concept:

Social and Emotional Learning:

Competencies and Sub-Competencies

Self-Awareness
• Recognize one's feelings and thoughts
• Recognize the impact of one's feelings and thoughts on one's own behavior

How do the requirements of plumbing codes influence the selection and installation of pipe hangers and supports?
Why is it critical to follow manufacturer's instructions when installing plastic piping systems?
What are the key factors to consider when performing pressure tests on newly installed plumbing systems?
How do installation techniques differ between plastic, copper, and cast iron piping, and why are these differences important for a plumber to understand?
How have African Americans contributed to the development of modern plumbing systems, and how can understanding their role enhance our appreciation for the materials and methods used in plumbing today?

Activity Description:
1. Plastic Pipe Cutting and Joining Challenge
- Task: Students measure, cut, and join various types of plastic pipes (PVC, CPVC, PEX) to create a predetermined configuration.
- Skills: Measure, cut, and prepare plastic pipes; Safely use tools specific to cutting and joining plastic piping.

2. Code-Compliant Plastic Pipe Installation Project
- Task: Design and install a small-scale plastic pipe system (e.g., for a bathroom sink) that adheres to local plumbing codes.
- Skills: Install plastic pipes and fittings according to codes; Securely join and seal plastic piping systems.

3. Hanger and Support Selection Quiz
- Task: Given various plastic pipe scenarios, students must select the appropriate hangers and supports, explaining their choices.
- Skill: Select appropriate hangers and supports for different types of plastic pipes.

4. Pressure Testing Simulation
- Task: Conduct a pressure test on a pre-installed plastic pipe system, document the results, and troubleshoot any issues.
- Skills: Conduct pressure tests; Interpret test results and make necessary adjustments.

• Recognize one's personal traits, strengths, and limitations • Recognize the importance of self-confidence in handling daily tasks and challenges **Self-Management** • Understand and practice strategies for managing one's own emotions, thoughts, and behaviors • Recognize the skills needed to establish and achieve personal and educational goals • Identify and apply ways to persevere or overcome barriers through alternative methods to achieve one's goals **Social Awareness** • Recognize and identify the thoughts, feelings, and perspectives of others • Demonstrate an awareness of the differences among individuals, groups, and others' cultural backgrounds • Demonstrate an understanding of the need for mutual respect when viewpoints differ • Demonstrate an awareness of the expectations for social interactions in a variety of settings **Responsible Decision-Making** • Develop, implement, and model effective problem-solving and critical thinking skills • Identify the consequences associated with one's actions in order to make constructive choices • Evaluate personal, ethical, safety, and civic impact of decisions **Relationship Skills** • Establish and maintain healthy relationships • Utilize positive communication and social skills to interact effectively with others	5. Copper Tubing Bending and Joining Exercise - Task: Create a specific pattern using copper tubing, incorporating bends and various joining methods (soldering, crimping). - Skills: Cut, bend, and join copper tubing; Apply best practices for installing copper pipes. 6. Copper Pipe Support System Design - Task: Design and install a support system for a multi-level copper pipe installation using various types of hangers and supports. - Skills: Install and secure hangers for copper systems; Assess and adjust the support system. 7. Precision Copper Installation Competition - Task: In teams, install a copper pipe system to exact specifications, judged on precision of measurements and alignments. - Skill: Achieve precision in measurements and alignments during installations. 8. Cast Iron Pipe Handling Safety Demonstration - Task: Create a safety video demonstrating proper techniques for handling and installing cast iron pipes. - Skills: Manage the weight and rigidity of cast iron pipes; Follow safety protocols. 9. Cast Iron Cutting and Fitting Practice - Task: Practice cutting and fitting cast iron pipes using appropriate tools and techniques. - Skill: Use appropriate tools and techniques for cutting and fitting cast iron pipes. 10. Comprehensive Piping System Project - Task: Design and install a mixed-material piping system incorporating plastic, copper, and cast iron pipes, ensuring proper support and connections for each material. - Skills: Install and secure different types of pipes; Ensure connections meet required standards.

	Examine how African American workers contributed to urban development projects involving mass plumbing installations, emphasizing their skill in working with materials like cast iron and copper. **Interdisciplinary Connections:** Math ELA **Content:** **NCCER Module Six: Plastic Pipes and Fittings** *Understanding Different Types of Plastic Pipes* ■ Identify various types of plastic piping such as ABS, PVC, CPVC, PE, and PEX. ■ Learn the applications and limitations of each type of plastic pipe in plumbing systems. *Fitting Selection and Use* ■ Understand the criteria for selecting the appropriate fittings for different plastic piping. ■ Learn how to ensure compatibility between pipes and fittings to avoid leaks and other issues. *Installation Techniques for Plastic Piping* ■ Gain proficiency in measuring, cutting, fitting, and joining plastic pipes. ■ Follow manufacturer's instructions and current plumbing codes for installation. *Hangers and Supports* ■ Identify and select proper hangers and supports according to code and standard practice. ■ Understand the importance and principles of properly supporting plastic piping to prevent sagging and damage. *Pressure Testing Methods* ■ Learn and apply pressure testing methods to ensure the integrity of installations.

	■ Conduct test-out procedures after installation to verify system functionality. **Module Seven: Copper Tube Installations** *Copper Pipe and Fittings* ■ Identify and understand the use of copper pipes and fittings in plumbing. ■ Learn the specifics of handling, preparing, and installing copper tubing. *Support Mechanisms for Copper Tubing* ■ Select and install proper hangers, supports, threaded rods, clevis, split rings, and strut bars. ■ Ensure installations meet building codes and standards for durability and safety. *Installation Practices for Copper Piping* ■ Apply standard practices for installing copper pipes, including soldering and sealing. ■ Understand the proper grade and type of materials needed for secure copper pipe installations. **Module Eight: Cast Iron Pipe Installations** *Characteristics of Cast Iron Pipes and Fittings* ■ Distinguish cast iron pipes and fittings and their applications in plumbing. ■ Review the properties that make cast iron suitable for certain plumbing systems. *Installing Cast Iron Piping* ■ Master the techniques for handling, fitting, and installing cast iron pipes. ■ Learn the specific tools and methods required for working with cast iron. *Hangers and Supports for Cast Iron* ■ Properly select and install hangers and supports for cast iron pipes according to building codes and materials. ■ Understand why specific supports are needed for the weight and rigidity of cast iron. **NJSLS#:**

	NJSLS-CLKS: 9.4.12.CI.1 (Demonstrate the ability to reflect, analyze, and use creative skills and ideas) NJSLS-CLKS: 9.4.12.IML.8 (Evaluate media sources for point of view, bias, and motivations) NJSLS-CLKS: 9.4.12.TL.1 (Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task) NJSLS-CLKS: 9.3.12.AG.2 (Analyze the relationship between regulatory agencies and the agriculture industry) NJSLS-CLKS: 9.2.12.CAP.4 (Evaluate different careers and develop various plans to prepare for employment) NJSLS-CLKS: 9.4.12.CT.2 (Explain the potential benefits of collaborating to enhance critical thinking and problem solving) NJSLS-CLKS: 9.4.12.IML.2 (Evaluate digital sources for timeliness, accuracy, perspective, credibility of the source, and relevance of information, in media, data, or other resources) NJSLS-CLKS: 9.4.12.TL.3 (Analyze the effectiveness of the process and quality of collaborative environments) NJSLS-CLKS: 9.4.12.TL.2 (Generate data using formula-based calculations in a spreadsheet and draw conclusions about the data) NJSLS-CLKS: 9.4.12.CI.3 (Investigate new challenges and opportunities for personal growth, advancement, and transition) NJSLS-CLKS: 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) NJSLS-CLKS: 9.4.12.DC.7 (Evaluate the influence of digital communities on the nature, content and responsibilities of careers, and other aspects of society) Act as a responsible and contributing community member and employee. Attend to financial well-being. Consider the environmental, social and economic impacts of decisions. Demonstrate creativity and innovation.

Assessments (Formative) ***To show evidence of meeting the standard/s, students will successfully engage within:***	**Assessments (Summative)** ***To show evidence of meeting the standard/s, students will successfully complete:***
Formative Assessments: Teacher Observation Do Now Homework Class Participation Portfolio Discussions Quiz Journal writing Group Assessment Group Interaction/Discussion/Computer Research Self and Peer Evaluations	**Benchmarks:** Quiz Exam **Summative Assessments:** Pre-Test Oral Presentations Projects Rubric Teacher observation Written Assessments Reflective Paper Group Presentations Piping Material Comparison Report Students research and write a detailed comparison of different piping materials, including plastic, copper, and cast iron. The report should cover aspects such as cost, durability, ease of installation, and typical applications. This assignment encourages students to understand the nuances of each material and its suitability for various plumbing scenarios. Hands-on Piping Installation Project Assign students to a practical project where they must install a small-scale plumbing system using plastic pipes. They should demonstrate proper measurement, cutting, fitting, and joining techniques as taught in class. This project should also include installing supports and performing a pressure test to ensure the system's integrity. This hands-on activity helps students apply their theoretical knowledge in a controlled, practical setting.

	Safety Protocol and Emergency Response Plan Students create a comprehensive safety protocol and emergency response plan for a hypothetical plumbing project. This assignment should include specific steps for handling hazardous materials, using torches safely, and implementing lockout/tagout procedures. It's designed to ensure that students are prepared to manage safety effectively in their future careers as plumbers.

Differentiated Student Access to Content:
Teaching and Learning *Resources/Materials*

Core Resources	**Alternate Core Resources** ***IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core Resources**
Tiered Content Materials: Textbooks at different reading levels (below, at, and above grade level) Simplified versions of texts with key concepts highlighted Advanced supplementary readings for accelerated learners Audio versions of texts for auditory learners or struggling readers Multimedia Resources: Educational videos and documentaries Interactive online modules and simulations Podcasts and audio recordings Infographics and visual aids	Tiered Content Materials: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners or struggling readers Leveled or topical readers at different reading levels Books on tape Highlighted text Collaborative Learning Tools: Opportunity to work alone, in pairs, or small groups Structured group roles for small group work Peer tutoring and mentoring programs	Keep material concept-focused and principle-driven. Allow the use of digital translation or grouping students together. Provide multiple means of action and expression.	Advanced Textbooks: "Residential Construction Academy: Plumbing" by Michael Joyce and Ray Holder PHCC Educational Foundation's Plumbing Series (higher levels) Online Learning Platforms: NCCER's Plumbing curriculum (advanced modules) Khan Academy for advanced math concepts related to plumbing calculations Hands-On Materials: Advanced plumbing simulation software 3D modeling tools for creating detailed plumbing layouts Enrichment Activities:

Hands-On Materials: Physical manipulatives and models Lab equipment and supplies for experiments Art supplies for creative projects Building materials for engineering challenges	Individualized Options: Independent study options Compacting the curriculum for advanced learners Varied timelines or check-in points Choice of review activities ESL-Specific Resources: Bilingual dictionaries or glossaries Sentence frames and language scaffolds Visual supports for key vocabulary		Independent research projects on emerging plumbing technologies Design challenges for innovative plumbing solutions Technology Integration: CAD software for designing advanced plumbing systems Virtual reality programs for exploring complex plumbing installations Problem-Solving Challenges: Complex troubleshooting scenarios using real-world plumbing issues Advanced math problems related to pipe sizing and water pressure calculations Industry Certifications: NCCER Plumbing Level One certification OSHA-30 Construction Industry certification Accelerated Curriculum: Cover topics from higher-level plumbing courses Introduce concepts from Plumbing Technology II

Supplemental Resources			
Technology: ● Laptop ● Chromebook ● SmartBoard ● Internet Access ● Projector **Other:** ● Plumbing materials			
Differentiated Student Access to Content: **Recommended *Strategies & Techniques***			
Core Resources	**Alternate Core Resources** ***IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core**
Content Differentiation: Tiered content at different complexity levels Variety of textbooks at different reading levels Supplemental materials like videos, podcasts, and interactive modules Compacting curriculum for advanced learners Choice boards allowing students to select learning activities Varied resources/texts on the same topic Process Differentiation:	Content Differentiation: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners or struggling readers Leveled readers at different reading levels Bilingual materials for ESL students Visual aids, infographics, and multimedia resources Process Differentiation:	Content Differentiation: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners Leveled readers at different reading levels Bilingual materials and resources1 Visual aids, infographics, and multimedia resources Modified texts with rewording, reduced extraneous information, and added visuals	Content Differentiation: Advanced, above-grade level textbooks and materials Supplementary resources on complex or specialized topics Interdisciplinary curriculum connecting multiple subject areas Primary source documents and advanced readings Access to college-level coursework or materials Process Differentiation: Accelerated pacing of instruction

Flexible grouping (whole group, small group, individual) Learning contracts tailored to student needs Interest centers focused on different aspects of a topic Varied instructional strategies (visual, auditory, kinesthetic) Scaffolded support like graphic organizers and writing frames Technology-enabled instruction (synchronous or asynchronous options) Product Differentiation: Multiple options for demonstrating learning (reports, presentations, models, etc.) Varied assessment methods based on student learning preferences Adjusting product expectations based on student readiness Learning Environment Differentiation: Flexible seating arrangements Options for individual, paired, or group work Varied time allocations for task completion	Flexible grouping based on readiness levels Scaffolded support like graphic organizers and writing frames Extended time for task completion One-on-one or small group instruction Use of assistive technology (text-to-speech, speech-to-text tools) Product Differentiation: Multiple options for demonstrating learning (oral presentations, projects, etc.) Adjusted expectations based on IEP/504 goals Alternative assessments aligned with student abilities Use of portfolios to showcase progress over time Learning Environment Differentiation: Flexible seating arrangements Quiet spaces for individual work Sensory tools or fidgets as needed Visual schedules and routines	Process Differentiation: Flexible grouping based on language proficiency levels Scaffolded support like graphic organizers and writing frames Extended time for task completion One-on-one or small group instruction Use of gestures and total physical response to support verbal instruction Incorporation of students' native language or culture when possible Product Differentiation: Multiple options for demonstrating learning (oral presentations, projects, etc.) Adjusted expectations based on English proficiency levels Alternative assessments aligned with student abilities Use of portfolios to showcase progress over time Learning Environment Differentiation: Flexible seating arrangements Use of learning centers or stations focused on different aspects of a topic	Independent study options on topics of interest Problem-based and project-based learning opportunities Socratic seminars and philosophical discussions Mentorship programs with experts in fields of interest Product Differentiation: Open-ended, creative project options Real-world application of learning through authentic tasks Opportunities for original research and experimentation Multimedia presentations and publications Portfolio development to showcase depth of learning Learning Environment Differentiation: Flexible grouping with intellectual peers Access to advanced technology and lab equipment Field trips and off-campus learning experiences

Use of technology to support different learning needs	Specialized Supports Implementation of IEP accommodations and modifications ESL supports like sentence frames and vocabulary guides Interventions for at-risk students (e.g. reading interventions) Social-emotional learning supports Ongoing Assessment Frequent formative assessments to monitor progress Data-driven adjustments to instruction Progress monitoring aligned with IEP goals	Visual schedules and routines Incorporation of culturally relevant materials and examples Specialized Supports: ESL supports like sentence frames and vocabulary guides Use of students' native language for clarification when needed Frequent opportunities for speaking and listening practice Integration of all four language skills (listening, speaking, reading, writing) Instructional Strategies: Slowing down speech and using clear enunciation Rephrasing and clarifying instructions Using visuals to support verbal instruction Providing content in multiple formats (visual, auditory, kinesthetic) Connecting content to students' interests and cultural backgrounds Utilizing music, melodies, or songs to enhance learning Ongoing Assessment:	Online courses and virtual learning options Competitions and academic challenges Specialized Supports: Critical and creative thinking skill development Training in research methods and academic writing Guidance on social-emotional needs of gifted learners College and career planning tailored to advanced learners Opportunities to explore passions and develop talents Instructional Strategies: Inquiry-based and discovery learning approaches Higher-order questioning techniques Abstract and complex problem-solving tasks Emphasis on depth and complexity of content Integration of multiple disciplines and perspectives

		Frequent formative assessments to monitor progress Data-driven adjustments to instruction Accommodated assessments (e.g., simplified language, added visuals)	Assessment Options: Pre-assessments to determine readiness levels Performance-based and authentic assessments Self-assessment and reflection opportunities Above-grade level standardized testing Credit by examination options

New Jersey Legislative Statutes and Administrative Code (place an "X" before each law/statute if/when present within the curriculum map)											
X	Amistad Law: *N.J.S.A. 18A 52:16A-88*		Holocaust Law: *N.J.S.A. 18A:35-28*		LGBT and Disabilities Law: *N.J.S.A. 18A:35-4.35*		Diversity & Inclusion: *N.J.S.A. 18A:35-4.36a*		Standards in Action: *Climate Change*		Erin's Law: *A-769/S-1130*

Marking Period	Unit Title	Recommended Instructional Days
2	Plastic, Cast Iron, Copper & Fittings Lab	15

CTE
Disciplinary Concept:
Architecture and Construction
Construction
Design/Pre-Construction

Core Ideas and Performance Expectation:

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

Construction
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.

Design/Pre-Construction
9.3.12.AC-DES.1 Justify design solutions through the use of research documentation and analysis of data.
9.3.12.AC-DES.6 Apply the techniques and skills of modern drafting, design, engineering and construction to projects.

Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-CLKS within Unit

Life Literacy & Key Skills
Disciplinary Concept:
Critical Thinking and Problem Solving

Core Ideas and Performance Expectation:

Critical Thinking and Problem Solving

Essential Question/s:

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.3: Enlist input from a variety of stakeholders (e.g., community members, experts in the field) to design a service learning activity that addresses a local or global issue (e.g., environmental justice).

Career Awareness, Exploration, Preparation, & Training
Disciplinary Concept:
Career Awareness and Planning

Core Ideas and Performance Expectation:

Career Awareness and Planning
There are strategies to improve one's professional value and marketability.
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.
9.2.12.CAP.3: Investigate how continuing education contributes to one's career and personal growth

Personal Financial Literacy
Disciplinary Concept:

Social and Emotional Learning:

Competencies and Sub-Competencies

Self-Awareness
• Recognize one's feelings and thoughts
• Recognize the impact of one's feelings and thoughts on one's own behavior
• Recognize one's personal traits, strengths, and limitations
• Recognize the importance of self-confidence in handling daily tasks and challenges

Self-Management

How do different types of piping materials (plastic, cast iron, copper) affect the design and efficiency of plumbing systems, and what factors should be considered when selecting the appropriate material for a given application?
What role does the Water Supply Fixture Units (WSFU) system play in plumbing design, and how can it be effectively applied to ensure adequate water supply and drainage in residential and commercial settings?
How do pressure testing methods help ensure the integrity and safety of plumbing installations, and what are the key steps involved in conducting a pressure test?
What are the seismic concerns in plumbing installations, and how can plumbing systems be designed and installed to mitigate the risks associated with earthquakes and other seismic events?
How do regulatory codes and standards influence the selection, sizing, and installation of plumbing fittings and materials, and what steps should be taken to ensure compliance with these requirements?
How can understanding the historical and ethical lessons of the Holocaust influence our approach to designing and implementing plumbing systems that promote equity, dignity, and human rights?

Activity Description:
1. Plumbing Math Challenge
- Task: Complete a series of word problems involving plumbing-related calculations (e.g., pipe lengths, water volume, flow rates).
- Skills: Perform basic calculations; Apply math to real-world plumbing scenarios.

2. Multi-Material Pipe Installation Project
- Task: Install a small-scale plumbing system using plastic, copper, and cast iron pipes, incorporating various joining methods.
- Skills: Install various pipe materials; Use specialized plumbing tools.

3. Water Supply System Sizing Exercise
- Task: Given a floor plan of a small building, use the WSFU system to calculate and size the water supply system.
- Skills: Apply WSFU system for sizing; Interpret sizing and code charts.

• Understand and practice strategies for managing one's own emotions, thoughts, and behaviors • Recognize the skills needed to establish and achieve personal and educational goals • Identify and apply ways to persevere or overcome barriers through alternative methods to achieve one's goals **Social Awareness** • Recognize and identify the thoughts, feelings, and perspectives of others • Demonstrate an awareness of the differences among individuals, groups, and others' cultural backgrounds • Demonstrate an understanding of the need for mutual respect when viewpoints differ • Demonstrate an awareness of the expectations for social interactions in a variety of settings **Responsible Decision-Making** • Develop, implement, and model effective problem-solving and critical thinking skills • Identify the consequences associated with one's actions in order to make constructive choices • Evaluate personal, ethical, safety, and civic impact of decisions **Relationship Skills** • Establish and maintain healthy relationships • Utilize positive communication and social skills to interact effectively with others	4. Flow Rate Analysis Lab - Task: Measure and compare flow rates in different pipe materials and sizes, then create a report analyzing the results. - Skills: Measure flow rates and understand capacity; Perform basic calculations. 5. Pressure Testing Simulation - Task: Conduct a pressure test on a pre-installed system, document the process, and troubleshoot any issues. - Skills: Conduct pressure testing; Understand and implement safety measures. 6. Seismic-Resistant Plumbing Design Project - Task: Design and present a plumbing system for a building in an earthquake-prone area, highlighting seismic safety features. - Skills: Address seismic concerns in plumbing installations; Interpret code charts. 7. Material Management Challenge - Task: Organize a mock plumbing workshop, creating an efficient storage and inventory system for various plumbing materials. - Skill: Handle and store materials properly. 8. Valve and Fixture Installation Practicum - Task: Install various types of valves and fixtures in a mock-up setting, ensuring proper function and code compliance. - Skills: Install valves and other fixtures; Interpret code charts. 9. Plumbing Code Scavenger Hunt - Task: Given specific plumbing scenarios, locate and interpret relevant sections of the plumbing code to ensure compliance. - Skill: Interpret and apply code charts. 10. NCCER Module 12 Completion Project - Task: Complete a comprehensive project that incorporates key elements from NCCER Module 12, including water system design and installation. - Skills: Complete NCCER Module 12; Integrate various plumbing skills.

	Relate the importance of ethical decision-making in plumbing design and installation to broader lessons from the Holocaust about human rights and the consequences of discriminatory practices. **Interdisciplinary Connections:** Math ELA **Content:** **Basic Mathematical and Measurement Skills** *Mathematical Operations* ■ Demonstrate the ability to add, subtract, multiply, and work with whole numbers and decimals essential for precise measurements and calculations in plumbing. **Fundamental Plumbing Concepts** *Introduction to Water Systems* ■ Understand the basic components and functioning of water supply and DWV (Drain, Waste, and Vent) systems. ■ Learn how different materials and designs affect system efficiency and safety. *Flow Rate and Velocity* ■ Understand what affects flow velocity in piping systems. ■ Learn different methods to measure flow rate and the significance of these measurements in plumbing applications. **Plumbing Design and Sizing** *Use of a WSFU (Water Supply Fixture Units) System* ■ Learn to use WSFU systems to determine the demand of various fixtures and the required supply needs in plumbing systems. ■ Apply knowledge of WSFU in practical scenarios to design efficient water supply systems. *Sizing Charts and Code Charts*

	■ Utilize sizing charts to select appropriate pipe sizes based on system requirements. ■ Use code charts to ensure compliance with local and national plumbing codes. *Capacity Differences Among Pipe Materials* ■ Compare the capacities and limitations of different pipe materials such as plastic, cast iron, and copper. ■ Understand how material choice impacts the overall design and functionality of plumbing systems. **NCCER Curriculum Integration** *NCCER Module 12: Water Systems* ■ Complete the NCCER Module 12, which focuses on water systems, incorporating theoretical knowledge and practical skills. ■ Apply the concepts learned in real-world plumbing scenarios. **Practical Skills and Safety** *Installation Techniques* ■ Practice in-place cutting, joining, and installation techniques for various types of pipesaccording to manufacturer's specifications and plumbing codes. ■ Master the installation of valves and other fixtures with an emphasis on precision and safety. *Pressure Testing and Seismic Concerns* ■ Learn and apply pressure testing methods to ensure the integrity and safety of installed systems. ■ Understand how to account for seismic concerns in pipe installation and support systems. *Handling and Storage of Piping Materials* ■ Learn proper techniques for handling and storing different types of piping materials.

	■ Manage inventory requirements efficiently to maintain order and accessibility in the workshop. **NJSLS#:** NJSLS-CLKS: 9.4.12.CI.1 (Demonstrate the ability to reflect, analyze, and use creative skills and ideas) NJSLS-CLKS: 9.4.12.IML.8 (Evaluate media sources for point of view, bias, and motivations) NJSLS-CLKS: 9.4.12.TL.1 (Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task) NJSLS-CLKS: 9.3.12.AG.2 (Analyze the relationship between regulatory agencies and the agriculture industry) NJSLS-CLKS: 9.2.12.CAP.4 (Evaluate different careers and develop various plans to prepare for employment) NJSLS-CLKS: 9.4.12.CT.2 (Explain the potential benefits of collaborating to enhance critical thinking and problem solving) NJSLS-CLKS: 9.4.12.IML.2 (Evaluate digital sources for timeliness, accuracy, perspective, credibility of the source, and relevance of information, in media, data, or other resources) NJSLS-CLKS: 9.4.12.TL.3 (Analyze the effectiveness of the process and quality of collaborative environments) NJSLS-CLKS: 9.4.12.TL.2 (Generate data using formula-based calculations in a spreadsheet and draw conclusions about the data) NJSLS-CLKS: 9.4.12.CI.3 (Investigate new challenges and opportunities for personal growth, advancement, and transition) NJSLS-CLKS: 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) NJSLS-CLKS: 9.4.12.DC.7 (Evaluate the influence of digital communities on the nature, content and responsibilities of careers, and other aspects of society) Act as a responsible and contributing community member and employee. Attend to financial well-being.

	Consider the environmental, social and economic impacts of decisions. Demonstrate creativity and innovation. Utilize critical thinking to make sense of problems and persevere in solving them. Model integrity, ethical leadership and effective management. Plan education and career paths aligned to personal goals. Use technology to enhance productivity, increase collaboration, and communicate effectively. Work productively in teams while using cultural/global competence.
Assessments (Formative) ***To show evidence of meeting the standard/s, students will successfully engage within:***	**Assessments (Summative)** ***To show evidence of meeting the standard/s, students will successfully complete:***
Formative Assessments: Teacher Observation Do Now	**Benchmarks:** Quiz Exam

Homework Class Participation Portfolio Discussions Quiz Journal writing Group Assessment Group Interaction/Discussion/Computer Research Self and Peer Evaluations	**<u>Summative Assessments:</u>** Pre-Test Oral Presentations Projects Rubric Teacher observation Written Assessments Reflective Paper Group Presentations Plumbing System Design Project ○ Task students with designing a plumbing system for a residential or commercial building, incorporating various piping materials (plastic, cast iron, copper) and fixtures. ○ Students must calculate the demand using the Water Supply Fixture Units (WSFU) system, select appropriate pipe sizes based on flow rate requirements, and design the system layout while adhering to relevant plumbing codes and standards. Installation Skills Assessment ○ Conduct a hands-on assessment where students demonstrate their proficiency in installing different types of piping materials (plastic, cast iron, copper) and fittings. ○ Students must accurately measure, cut, join, and install pipes and fittings according to manufacturer specifications and plumbing codes, while also ensuring proper support and alignment. Pressure Testing and Compliance Evaluation ○ Assign students a pressure testing project where they must pressure test a plumbing installation to verify its integrity and compliance with safety standards. ○ Students will plan and execute the pressure test, interpret the results, and identify any leaks or deficiencies that need to be addressed to ensure compliance with regulatory requirements.
Differentiated Student Access to Content:	

Teaching and Learning *Resources/Materials*			
Core Resources	**Alternate Core Resources** ***IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core Resources**
Tiered Content Materials: Textbooks at different reading levels (below, at, and above grade level) Simplified versions of texts with key concepts highlighted Advanced supplementary readings for accelerated learners Audio versions of texts for auditory learners or struggling readers Multimedia Resources: Educational videos and documentaries Interactive online modules and simulations Podcasts and audio recordings Infographics and visual aids Hands-On Materials: Physical manipulatives and models Lab equipment and supplies for experiments Art supplies for creative projects Building materials for engineering	Tiered Content Materials: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners or struggling readers Leveled or topical readers at different reading levels Books on tape Highlighted text Collaborative Learning Tools: Opportunity to work alone, in pairs, or small groups Structured group roles for small group work Peer tutoring and mentoring programs Individualized Options: Independent study options Compacting the curriculum for advanced learners Varied timelines or check-in points Choice of review activities	Keep material concept-focused and principle-driven. Allow the use of digital translation or grouping students together. Provide multiple means of action and expression.	Advanced Textbooks: "Residential Construction Academy: Plumbing" by Michael Joyce and Ray Holder PHCC Educational Foundation's Plumbing Series (higher levels) Online Learning Platforms: NCCER's Plumbing curriculum (advanced modules) Khan Academy for advanced math concepts related to plumbing calculations Hands-On Materials: Advanced plumbing simulation software 3D modeling tools for creating detailed plumbing layouts Enrichment Activities: Independent research projects on emerging plumbing technologies Design challenges for innovative plumbing solutions Technology Integration: CAD software for designing advanced plumbing systems

challenges	ESL-Specific Resources: Bilingual dictionaries or glossaries Sentence frames and language scaffolds Visual supports for key vocabulary		Virtual reality programs for exploring complex plumbing installations Problem-Solving Challenges: Complex troubleshooting scenarios using real-world plumbing issues Advanced math problems related to pipe sizing and water pressure calculations Industry Certifications: NCCER Plumbing Level One certification OSHA-30 Construction Industry certification Accelerated Curriculum: Cover topics from higher-level plumbing courses Introduce concepts from Plumbing Technology II

Supplemental Resources

Technology:

- Laptop
- Chromebook
- SmartBoard
- Internet Access
- Projector

Other:

- Plumbing materials

Differentiated Student Access to Content:
Recommended *Strategies & Techniques*

Core Resources	**Alternate Core Resources *IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core**
Content Differentiation: Tiered content at different complexity levels Variety of textbooks at different reading levels Supplemental materials like videos, podcasts, and interactive modules Compacting curriculum for advanced learners Choice boards allowing students to select learning activities Varied resources/texts on the same topic Process Differentiation: Flexible grouping (whole group, small group, individual) Learning contracts tailored to student needs Interest centers focused on different aspects of a topic	Content Differentiation: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners or struggling readers Leveled readers at different reading levels Bilingual materials for ESL students Visual aids, infographics, and multimedia resources Process Differentiation: Flexible grouping based on readiness levels Scaffolded support like graphic organizers and writing frames Extended time for task completion One-on-one or small group instruction	Content Differentiation: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners Leveled readers at different reading levels Bilingual materials and resources1 Visual aids, infographics, and multimedia resources Modified texts with rewording, reduced extraneous information, and added visuals Process Differentiation: Flexible grouping based on language proficiency levels Scaffolded support like graphic organizers and writing frames Extended time for task completion One-on-one or small group instruction	Content Differentiation: Advanced, above-grade level textbooks and materials Supplementary resources on complex or specialized topics Interdisciplinary curriculum connecting multiple subject areas Primary source documents and advanced readings Access to college-level coursework or materials Process Differentiation: Accelerated pacing of instruction Independent study options on topics of interest Problem-based and project-based learning opportunities Socratic seminars and philosophical discussions

Varied instructional strategies (visual, auditory, kinesthetic) Scaffolded support like graphic organizers and writing frames Technology-enabled instruction (synchronous or asynchronous options) **Product Differentiation:** Multiple options for demonstrating learning (reports, presentations, models, etc.) Varied assessment methods based on student learning preferences Adjusting product expectations based on student readiness **Learning Environment Differentiation:** Flexible seating arrangements Options for individual, paired, or group work Varied time allocations for task completion Use of technology to support different learning needs	Use of assistive technology (text-to-speech, speech-to-text tools) **Product Differentiation:** Multiple options for demonstrating learning (oral presentations, projects, etc.) Adjusted expectations based on IEP/504 goals Alternative assessments aligned with student abilities Use of portfolios to showcase progress over time **Learning Environment Differentiation:** Flexible seating arrangements Quiet spaces for individual work Sensory tools or fidgets as needed Visual schedules and routines **Specialized Supports** Implementation of IEP accommodations and modifications ESL supports like sentence frames and vocabulary guides	Use of gestures and total physical response to support verbal instruction Incorporation of students' native language or culture when possible **Product Differentiation:** Multiple options for demonstrating learning (oral presentations, projects, etc.) Adjusted expectations based on English proficiency levels Alternative assessments aligned with student abilities Use of portfolios to showcase progress over time **Learning Environment Differentiation:** Flexible seating arrangements Use of learning centers or stations focused on different aspects of a topic Visual schedules and routines Incorporation of culturally relevant materials and examples **Specialized Supports:** ESL supports like sentence frames and vocabulary guides	Mentorship programs with experts in fields of interest **Product Differentiation:** Open-ended, creative project options Real-world application of learning through authentic tasks Opportunities for original research and experimentation Multimedia presentations and publications Portfolio development to showcase depth of learning **Learning Environment Differentiation:** Flexible grouping with intellectual peers Access to advanced technology and lab equipment Field trips and off-campus learning experiences Online courses and virtual learning options Competitions and academic challenges **Specialized Supports:**

	Interventions for at-risk students (e.g. reading interventions) Social-emotional learning supports Ongoing Assessment Frequent formative assessments to monitor progress Data-driven adjustments to instruction Progress monitoring aligned with IEP goals	Use of students' native language for clarification when needed Frequent opportunities for speaking and listening practice Integration of all four language skills (listening, speaking, reading, writing) Instructional Strategies: Slowing down speech and using clear enunciation Rephrasing and clarifying instructions Using visuals to support verbal instruction Providing content in multiple formats (visual, auditory, kinesthetic) Connecting content to students' interests and cultural backgrounds Utilizing music, melodies, or songs to enhance learning Ongoing Assessment: Frequent formative assessments to monitor progress Data-driven adjustments to instruction Accommodated assessments (e.g., simplified language, added visuals)	Critical and creative thinking skill development Training in research methods and academic writing Guidance on social-emotional needs of gifted learners College and career planning tailored to advanced learners Opportunities to explore passions and develop talents Instructional Strategies: Inquiry-based and discovery learning approaches Higher-order questioning techniques Abstract and complex problem-solving tasks Emphasis on depth and complexity of content Integration of multiple disciplines and perspectives Assessment Options: Pre-assessments to determine readiness levels Performance-based and authentic assessments

			Self-assessment and reflection opportunities Above-grade level standardized testing Credit by examination options

New Jersey Legislative Statutes and Administrative Code (place an "X" before each law/statute if/when present within the curriculum map)											
	Amistad Law: *N.J.S.A. 18A 52:16A-88*	X	Holocaust Law: *N.J.S.A. 18A:35-28*		LGBT and Disabilities Law: *N.J.S.A. 18A:35-4.35*		Diversity & Inclusion: *N.J.S.A. 18A:35-4.36a*		Standards in Action: *Climate Change*		Erin's Law: *A-769/S-1130*

Marking Period	Unit Title	Recommended Instructional Days
2	Advanced Piping - Water Supply Distribution	15

CTE
Disciplinary Concept:
Construction
Design/Pre-construction

Core Ideas and Performance Expectation:

Construction
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.7 Compare and contrast the building systems and components required for a construction project.
9.3.12.AC-CST.9 Safely use and maintain appropriate tools, machinery, equipment and resources to accomplish construction project goals.

Design/Pre-Construction
9.3.12.AC-DES.1 Justify design solutions through the use of research documentation and analysis of data.
9.3.12.AC-DES.7 Employ appropriate representational media to communicate concepts and project design.

Life Literacy & Key Skills
Disciplinary Concept:
Creativity and Innovation

Core Ideas and Performance Expectation:

Creativity and Innovation
Innovative ideas or innovation can lead to career opportunities.
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).

Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-CLKS within Unit

Essential Question/s:
How do different piping materials (plastic, copper, steel) impact the design and efficiency of water supply and distribution systems, and what factors should be considered when selecting the appropriate material for a given application?

	What role does the Water Supply Fixture Units (WSFU) system play in plumbing design, and how can it be effectively applied to ensure adequate water supply and drainage in residential and commercial settings? How do pressure testing methods help ensure the integrity and safety of plumbing installations, and what are the key steps involved in conducting a pressure test? What are the primary components and functions of a water supply and distribution system, and how do different types of systems (e.g., potable water, reclaimed water) impact plumbing design and installation practices? How do regulatory codes and standards influence the selection, sizing, and installation of plumbing fittings and materials, and what steps should be taken to ensure compliance with these requirements?
Career Awareness, Exploration, Preparation, & Training **Disciplinary Concept:** **Career Awareness and Planning**	
Core Ideas and Performance Expectation: **Career Awareness and Planning** *There are strategies to improve one's professional value and marketability.* 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. 9.2.12.CAP.3: Investigate how continuing education contributes to one's career and personal growth	
Personal Financial Literacy **Disciplinary Concept:**	**Activity Description**: 1. Plumbing Math Workbook - Task: Complete a series of plumbing-related math problems involving addition, subtraction, multiplication, and division of whole numbers and decimals. - Skills: Perform mathematical operations; Apply math to plumbing scenarios.
Social and Emotional Learning: ***Competencies and Sub-Competencies***	
Self-Awareness • Recognize one's feelings and thoughts • Recognize the impact of one's feelings and thoughts on one's own behavior • Recognize one's personal traits, strengths, and limitations • Recognize the importance of self-confidence in handling daily tasks and challenges **Self-Management** • Understand and practice strategies for managing one's own emotions, thoughts, and behaviors • Recognize the skills needed to establish and achieve personal and educational goals • Identify and apply ways to persevere or overcome barriers through alternative methods to achieve one's goals	2. Water Supply System Design Project - Task: Design a water supply system for a small residential building using the WSFU system to calculate fixture demand and size pipes appropriately. - Skills: Utilize Water Supply Fixture Units (WSFU) System; Interpret sizing charts and code charts. 3. Multi-Material Pipe Installation Lab - Task: Install sections of plastic, copper, and steel pipes, demonstrating proper cutting, joining, and support techniques for each material. - Skills: Install different piping materials; Apply proper techniques for cutting, threading, and joining pipes. 4. Pressure Testing Practicum

Social Awareness • Recognize and identify the thoughts, feelings, and perspectives of others • Demonstrate an awareness of the differences among individuals, groups, and others' cultural backgrounds • Demonstrate an understanding of the need for mutual respect when viewpoints differ • Demonstrate an awareness of the expectations for social interactions in a variety of settings **Responsible Decision-Making** • Develop, implement, and model effective problem-solving and critical thinking skills • Identify the consequences associated with one's actions in order to make constructive choices • Evaluate personal, ethical, safety, and civic impact of decisions **Relationship Skills** • Establish and maintain healthy relationships • Utilize positive communication and social skills to interact effectively with others	- Task: Conduct a pressure test on a pre-installed plumbing system, document the process, interpret results, and address any issues found. - Skills: Perform pressure tests; Interpret test results and address deficiencies. 5. NCCER Module Application Case Study - Task: Analyze a complex plumbing scenario and apply concepts from NCCER Modules 11 and 12 to propose solutions and installation plans. - Skills: Apply NCCER Module concepts; Demonstrate competency in NCCER curriculum tasks. 6. Water System Components Diagram - Task: Create a detailed diagram of a municipal water system, from source to distribution, explaining each component's function. - Skills: Understand water systems and distribution; Identify factors affecting flow velocity. 7. Pipe Material Comparison Project - Task: Research and present a comparison of different piping materials, including their properties, applications, advantages, and limitations. - Skills: Differentiate between pipe materials; Understand characteristics and applications of piping materials. 8. Carbon Steel Piping Workshop - Task: Practice cutting, threading, and installing carbon steel pipes for a mock gas or steam system, following safety protocols and industry standards. - Skills: Handle and install carbon steel piping; Safely operate tools for carbon steel piping. 9. Flow Rate Calculation Exercise - Task: Calculate flow rates for different pipe sizes and materials using various methods (e.g., GPM, FPS) and compare results. - Skills: Understand water systems and distribution; Perform mathematical operations. 10. Code Compliance Scavenger Hunt

	- Task: Given a set of plumbing installation scenarios, use plumbing code books to identify relevant code sections and ensure compliance. - Skills: Interpret sizing charts and code charts; Apply NCCER Module concepts. **Interdisciplinary Connections:** Math ELA **Content:** **Basic Mathematical Skills** *Mathematical Operations* ■ Perform addition, subtraction, multiplication, and division of whole numbers and decimals to solve plumbing-related calculations. **Fundamental Plumbing Concepts** *Introduction to Water Systems* ■ Understand the components and functions of water supply systems, including sources, treatment methods, and distribution networks. ■ Differentiate between various types of water supply systems and their applications. *DWV System* ■ Identify components and terminology of Drain, Waste, and Vent (DWV) systems. ■ Understand the function and purpose of each component within a DWV system. *Water Supply Fixture Units (WSFU) System* ■ Utilize the WSFU system to determine fixture demand and size water supply systems accordingly. ■ Apply WSFU calculations to ensure proper sizing of supply lines and distribution networks. *Flow Velocity and Flow Rate* ■ Identify factors that affect flow velocity in piping systems, such as pipe diameter, material, and pressure.

	■ Differentiate between various measurements of flow rate, including Gallons per Minute (GPM) and Drainage Fixture Units (DFU). **Plumbing Design and Sizing** *Use of Sizing Charts and Code Charts* ■ Interpret sizing charts to select appropriate pipe sizes based on flow rate requirements and plumbing code specifications. ■ Utilize code charts to ensure compliance with local and national plumbing codes and standards. *Different Pipes, Different Capacity* ■ Understand how different types of pipes (e.g., plastic, copper, steel) have varying capacities and limitations. ■ Apply knowledge of pipe materials and capacities when designing and sizing plumbing systems. **NCCER Curriculum Integration** *NCCER Modules 11 and 12* ■ Complete theoretical and practical tasks outlined in NCCER Modules 11 and 12, focusing on water systems and advanced piping techniques. ■ Demonstrate competency in applying NCCER curriculum concepts to real-world plumbing scenarios. **NJSLS#:** NJSLS-CLKS: 9.4.12.CI.1 (Demonstrate the ability to reflect, analyze, and use creative skills and ideas) NJSLS-CLKS: 9.4.12.IML.8 (Evaluate media sources for point of view, bias, and motivations) NJSLS-CLKS: 9.4.12.TL.1 (Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task) NJSLS-CLKS: 9.3.12.AG.2 (Analyze the relationship between regulatory agencies and the agriculture industry) NJSLS-CLKS: 9.2.12.CAP.4 (Evaluate different careers and develop various plans to prepare for employment)

	NJSLS-CLKS: 9.4.12.CT.2 (Explain the potential benefits of collaborating to enhance critical thinking and problem solving) NJSLS-CLKS: 9.4.12.IML.2 (Evaluate digital sources for timeliness, accuracy, perspective, credibility of the source, and relevance of information, in media, data, or other resources) NJSLS-CLKS: 9.4.12.TL.3 (Analyze the effectiveness of the process and quality of collaborative environments) NJSLS-CLKS: 9.4.12.TL.2 (Generate data using formula-based calculations in a spreadsheet and draw conclusions about the data) NJSLS-CLKS: 9.4.12.CI.3 (Investigate new challenges and opportunities for personal growth, advancement, and transition) NJSLS-CLKS: 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) NJSLS-CLKS: 9.4.12.DC.7 (Evaluate the influence of digital communities on the nature, content and responsibilities of careers, and other aspects of society) Act as a responsible and contributing community member and employee. Attend to financial well-being. Consider the environmental, social and economic impacts of decisions. Demonstrate creativity and innovation. Utilize critical thinking to make sense of problems and persevere in solving them. Model integrity, ethical leadership and effective management. Plan education and career paths aligned to personal goals. Use technology to enhance productivity, increase collaboration, and communicate effectively.

	Work productively in teams while using cultural/global competence.
Assessments (Formative) ***To show evidence of meeting the standard/s, students will successfully engage within:***	**Assessments (Summative)** ***To show evidence of meeting the standard/s, students will successfully complete:***
<u>Formative Assessments:</u> Teacher Observation Do Now Homework Class Participation Portfolio Discussions Quiz Journal writing Group Assessment Group Interaction/Discussion/Computer Research Self and Peer Evaluations	**<u>Benchmarks:</u>** Quiz Exam **<u>Summative Assessments:</u>** Pre-Test Oral Presentations Projects Rubric Teacher observation Written Assessments Reflective Paper Group Presentations Plumbing System Design Project ○ Task students with designing a comprehensive plumbing system for a residential or commercial building, incorporating various piping materials and fixtures. ○ Students must calculate fixture demand using the Water Supply Fixture Units (WSFU) system, select appropriate pipe sizes based on flow rate requirements, and design the system layout while adhering to relevant plumbing codes and standards. Installation Skills Assessment ○ Conduct a practical assessment where students demonstrate their proficiency in installing different types of piping materials (plastic, copper, steel) and fittings. ○ Students will be evaluated on their ability to accurately measure, cut, join, and install pipes and fittings according to manufacturer specifications and plumbing codes, while ensuring proper support and alignment.

	Pressure Testing and Compliance Evaluation ○ Assign students a pressure testing project where they must pressure test a plumbing installation to verify its integrity and compliance with safety standards. ○ Students will plan and execute the pressure test, interpret the results, and identify any leaks or deficiencies that need to be addressed to ensure compliance with regulatory requirements.

Differentiated Student Access to Content:
Teaching and Learning *Resources/Materials*

Core Resources	**Alternate Core Resources** ***IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core Resources**
Tiered Content Materials: Textbooks at different reading levels (below, at, and above grade level) Simplified versions of texts with key concepts highlighted Advanced supplementary readings for accelerated learners Audio versions of texts for auditory learners or struggling readers Multimedia Resources: Educational videos and documentaries Interactive online modules and simulations Podcasts and audio recordings	Tiered Content Materials: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners or struggling readers Leveled or topical readers at different reading levels Books on tape Highlighted text Collaborative Learning Tools: Opportunity to work alone, in pairs, or small groups Structured group roles for small group work Peer tutoring and mentoring	Keep material concept-focused and principle-driven. Allow the use of digital translation or grouping students together. Provide multiple means of action and expression.	Advanced Textbooks: "Residential Construction Academy: Plumbing" by Michael Joyce and Ray Holder PHCC Educational Foundation's Plumbing Series (higher levels) Online Learning Platforms: NCCER's Plumbing curriculum (advanced modules) Khan Academy for advanced math concepts related to plumbing calculations Hands-On Materials: Advanced plumbing simulation software 3D modeling tools for creating detailed plumbing layouts

Infographics and visual aids Hands-On Materials: Physical manipulatives and models Lab equipment and supplies for experiments Art supplies for creative projects Building materials for engineering challenges	programs Individualized Options: Independent study options Compacting the curriculum for advanced learners Varied timelines or check-in points Choice of review activities ESL-Specific Resources: Bilingual dictionaries or glossaries Sentence frames and language scaffolds Visual supports for key vocabulary		Enrichment Activities: Independent research projects on emerging plumbing technologies Design challenges for innovative plumbing solutions Technology Integration: CAD software for designing advanced plumbing systems Virtual reality programs for exploring complex plumbing installations Problem-Solving Challenges: Complex troubleshooting scenarios using real-world plumbing issues Advanced math problems related to pipe sizing and water pressure calculations Industry Certifications: NCCER Plumbing Level One certification OSHA-30 Construction Industry certification Accelerated Curriculum: Cover topics from higher-level plumbing courses Introduce concepts from Plumbing Technology II

Supplemental Resources

Technology:

- Laptop
- Chromebook
- SmartBoard
- Internet Access
- Projector

Other:

- Plumbing materials

Differentiated Student Access to Content:
Recommended *Strategies & Techniques*

Core Resources	**Alternate Core Resources *IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core**
Content Differentiation: Tiered content at different complexity levels Variety of textbooks at different reading levels Supplemental materials like videos, podcasts, and interactive modules Compacting curriculum for advanced learners Choice boards allowing students to select learning activities Varied resources/texts on the same topic	Content Differentiation: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners or struggling readers Leveled readers at different reading levels Bilingual materials for ESL students Visual aids, infographics, and multimedia resources	Content Differentiation: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners Leveled readers at different reading levels Bilingual materials and resources1 Visual aids, infographics, and multimedia resources	Content Differentiation: Advanced, above-grade level textbooks and materials Supplementary resources on complex or specialized topics Interdisciplinary curriculum connecting multiple subject areas Primary source documents and advanced readings Access to college-level coursework or materials

Process Differentiation: Flexible grouping (whole group, small group, individual) Learning contracts tailored to student needs Interest centers focused on different aspects of a topic Varied instructional strategies (visual, auditory, kinesthetic) Scaffolded support like graphic organizers and writing frames Technology-enabled instruction (synchronous or asynchronous options) Product Differentiation: Multiple options for demonstrating learning (reports, presentations, models, etc.) Varied assessment methods based on student learning preferences Adjusting product expectations based on student readiness Learning Environment Differentiation: Flexible seating arrangements Options for individual, paired, or group work	Process Differentiation: Flexible grouping based on readiness levels Scaffolded support like graphic organizers and writing frames Extended time for task completion One-on-one or small group instruction Use of assistive technology (text-to-speech, speech-to-text tools) Product Differentiation: Multiple options for demonstrating learning (oral presentations, projects, etc.) Adjusted expectations based on IEP/504 goals Alternative assessments aligned with student abilities Use of portfolios to showcase progress over time Learning Environment Differentiation: Flexible seating arrangements Quiet spaces for individual work Sensory tools or fidgets as needed	Modified texts with rewording, reduced extraneous information, and added visuals Process Differentiation: Flexible grouping based on language proficiency levels Scaffolded support like graphic organizers and writing frames Extended time for task completion One-on-one or small group instruction Use of gestures and total physical response to support verbal instruction Incorporation of students' native language or culture when possible Product Differentiation: Multiple options for demonstrating learning (oral presentations, projects, etc.) Adjusted expectations based on English proficiency levels Alternative assessments aligned with student abilities Use of portfolios to showcase progress over time Learning Environment Differentiation:	Process Differentiation: Accelerated pacing of instruction Independent study options on topics of interest Problem-based and project-based learning opportunities Socratic seminars and philosophical discussions Mentorship programs with experts in fields of interest Product Differentiation: Open-ended, creative project options Real-world application of learning through authentic tasks Opportunities for original research and experimentation Multimedia presentations and publications Portfolio development to showcase depth of learning Learning Environment Differentiation: Flexible grouping with intellectual peers

Varied time allocations for task completion Use of technology to support different learning needs	Visual schedules and routines Specialized Supports Implementation of IEP accommodations and modifications ESL supports like sentence frames and vocabulary guides Interventions for at-risk students (e.g. reading interventions) Social-emotional learning supports Ongoing Assessment Frequent formative assessments to monitor progress Data-driven adjustments to instruction Progress monitoring aligned with IEP goals	Flexible seating arrangements Use of learning centers or stations focused on different aspects of a topic Visual schedules and routines Incorporation of culturally relevant materials and examples Specialized Supports: ESL supports like sentence frames and vocabulary guides Use of students' native language for clarification when needed Frequent opportunities for speaking and listening practice Integration of all four language skills (listening, speaking, reading, writing) Instructional Strategies: Slowing down speech and using clear enunciation Rephrasing and clarifying instructions Using visuals to support verbal instruction Providing content in multiple formats (visual, auditory, kinesthetic) Connecting content to students' interests and cultural backgrounds Utilizing music, melodies, or songs to enhance learning	Access to advanced technology and lab equipment Field trips and off-campus learning experiences Online courses and virtual learning options Competitions and academic challenges Specialized Supports: Critical and creative thinking skill development Training in research methods and academic writing Guidance on social-emotional needs of gifted learners College and career planning tailored to advanced learners Opportunities to explore passions and develop talents Instructional Strategies: Inquiry-based and discovery learning approaches Higher-order questioning techniques Abstract and complex problem-solving tasks

		Ongoing Assessment: Frequent formative assessments to monitor progress Data-driven adjustments to instruction Accommodated assessments (e.g., simplified language, added visuals)	Emphasis on depth and complexity of content Integration of multiple disciplines and perspectives Assessment Options: Pre-assessments to determine readiness levels Performance-based and authentic assessments Self-assessment and reflection opportunities Above-grade level standardized testing Credit by examination options

New Jersey Legislative Statutes and Administrative Code (place an "X" before each law/statute if/when present within the curriculum map)											
	Amistad Law: *N.J.S.A. 18A 52:16A-88*		Holocaust Law: *N.J.S.A. 18A:35-28*		LGBT and Disabilities Law: *N.J.S.A. 18A:35-4.35*		Diversity & Inclusion: *N.J.S.A. 18A:35-4.36a*		Standards in Action: *Climate Change*		Erin's Law: *A-769/S-1130*

<table>
<tr><th>Marking Period</th><th>Unit Title</th><th>Recommended Instructional Days</th></tr>
<tr><td>3</td><td colspan="2">Applied Plumbing Math and Science Theory</td><td>15</td></tr>
<tr><td colspan="2">CTE
Disciplinary Concept:
Design/Pre-Construction</td><td colspan="2" rowspan="4">Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-CLKS within Unit</td></tr>
<tr><td colspan="2">Core Ideas and Performance Expectation:

Design/Pre-construction
9.3.12.AC-DES.1 Justify design solutions through the use of research documentation and analysis of data.
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.8 Apply standards, applications and restrictions pertaining to the selection and use of construction materials, components and assemblies in the project design.</td></tr>
<tr><td colspan="2">Life Literacy & Key Skills
Disciplinary Concept:
Creativity and Innovation</td></tr>
<tr><td colspan="2">Core Ideas and Performance Expectation:

Creativity and Innovation
Innovative ideas or innovation can lead to career opportunities.
9.4.12.CI.3: Investigate new challenges and opportunities for personal growth, advancement, and transition (e.g., 2.1.12.PGD.1).</td></tr>
<tr><td colspan="2">Career Awareness, Exploration, Preparation, & Training
Disciplinary Concept:</td><td colspan="2" rowspan="3"><u>Essential Question/s:</u>
How do mathematical concepts such as fractions, decimals, and percentages apply to real-world plumbing scenarios, and what techniques can be used to convert between different forms of measurement accurately?
What is the significance of pressure in plumbing systems, and how does understanding pressure help in determining friction and pressure loss in pipes due to fluid flow?
How do grade and slope influence the installation of plumbing lines, and what techniques are used to ensure proper drainage in plumbing installations?
What role does measurement accuracy play in plumbing installations, and how can precision in reading rulers and architect's rules contribute to the success of plumbing projects?</td></tr>
<tr><td colspan="2">Core Ideas and Performance Expectation:</td></tr>
<tr><td colspan="2">Personal Financial Literacy</td></tr>
</table>

Disciplinary Concept:	How do mathematical and scientific principles intersect in solving practical plumbing problems, and what critical thinking skills are required to apply these principles effectively in real-world scenarios? How can our understanding of plumbing mathematics and science be enhanced by considering the contributions and needs of LGBT individuals and people with disabilities in the field?
Social and Emotional Learning: ***Competencies and Sub-Competencies***	**<u>Activity Description</u>**:
Self-Awareness • Recognize one's feelings and thoughts • Recognize the impact of one's feelings and thoughts on one's own behavior • Recognize one's personal traits, strengths, and limitations • Recognize the importance of self-confidence in handling daily tasks and challenges **Self-Management** • Understand and practice strategies for managing one's own emotions, thoughts, and behaviors • Recognize the skills needed to establish and achieve personal and educational goals • Identify and apply ways to persevere or overcome barriers through alternative methods to achieve one's goals **Social Awareness** • Recognize and identify the thoughts, feelings, and perspectives of others • Demonstrate an awareness of the differences among individuals, groups, and others' cultural backgrounds • Demonstrate an understanding of the need for mutual respect when viewpoints differ • Demonstrate an awareness of the expectations for social interactions in a variety of settings **Responsible Decision-Making** • Develop, implement, and model effective problem-solving and critical thinking skills • Identify the consequences associated with one's actions in order to make constructive choices • Evaluate personal, ethical, safety, and civic impact of decisions	1. Plumbing Math Workbook ● Task: Complete a comprehensive workbook with problems involving whole numbers, fractions, decimals, and percentages related to plumbing scenarios. ● Skills: Perform basic mathematical operations; Convert between decimals and fractions. 2. Pipe Offset Calculation Project ● Task: Calculate and design various pipe offset arrangements using mathematical formulas, then create a diagram of the design. ● Skills: Apply mathematical formulas; Demonstrate proficiency in measuring and marking. 3. Precision Measurement Lab ● Task: Use rulers and architect's rules to measure and mark various plumbing components with high precision, then verify measurements with peers. ● Skills: Read and interpret measurements; Demonstrate proficiency in measuring and marking. 4. Pressure and Friction Loss Analysis ● Task: Calculate pressure loss in a given piping system, considering friction and other factors. Present findings in a detailed report. ● Skills: Understand pressure concepts; Calculate friction and pressure loss. 5. Drainage Slope Design Challenge ● Task: Design a drainage system for a small building, ensuring proper grade and slope for effective drainage.

Relationship Skills • Establish and maintain healthy relationships • Utilize positive communication and social skills to interact effectively with others	● Skills: Apply knowledge of grade and slope; Determine degree of angle for installation. 6. Blueprint Interpretation and Calculation Exercise ● Task: Analyze a set of plumbing blueprints, extract relevant measurements, and perform necessary calculations for a hypothetical installation. ● Skills: Analyze plumbing blueprints; Apply critical thinking skills. 7. Hands-On Plumbing Installation Practicum ● Task: Complete a series of hands-on lab exercises installing various plumbing components, applying mathematical and scientific principles learned in class. ● Skills: Apply mathematical and scientific principles; Demonstrate proficiency in hands-on exercises. 8. Plumbing Problem-Solving Presentation ● Task: In small groups, analyze a complex plumbing scenario, develop a solution, and present it to the class, explaining all calculations and reasoning. ● Skills: Apply critical thinking skills; Communicate mathematical and scientific concepts. 9. Measurement Conversion Race ● Task: Participate in a timed competition to convert between various units of measurement commonly used in plumbing (e.g., gallons to liters, inches to millimeters). ● Skills: Convert between units; Perform basic mathematical operations quickly and accurately. 10. Collaborative Plumbing Design Project ● Task: Work in teams to design a complete plumbing system for a small house, including calculations for pipe sizes, pressure, and drainage slopes. ● Skills: Collaborate with peers; Apply mathematical and scientific principles; Communicate effectively. Explore how plumbing systems can be designed to accommodate diverse needs, including those of people with disabilities.

	Interdisciplinary Connections: Math ELA SCI **Content:** **Mathematical Skills:** *Basic Math Concepts:* ■ Whole numbers, fractions, decimals, and percentages. ■ Techniques for converting between decimals and fractions. *Measurement Techniques:* ■ Reading a ruler accurately. ■ Understanding and utilizing an architect's rule for precise measurements. *Applied Mathematics in Plumbing:* ■ Calculating offsets and piping arrangements using mathematical formulas. ■ Understanding constants and variables used in plumbing math calculations. **Scientific Concepts:** *Understanding Pressures:* ■ Exploring atmospheric pressure and its impact on plumbing systems. ■ Determining friction and pressure loss in pipes due to fluid flow. **Practical Applications:** *Line Installation Techniques:* ■ Utilizing grade and slope to ensure proper drainage in plumbing installations. ■ Understanding the degree of angle and its significance in plumbing layout. *Lab Jobsets:* ■ Practical exercises and hands-on lab work to reinforce mathematical and scientific concepts learned in class. ■ Applying learned skills to real-world plumbing scenarios, such as pipe installations and measurements.

	NJSLS#: NJSLS-CLKS: 9.4.12.CI.1 (Demonstrate the ability to reflect, analyze, and use creative skills and ideas) NJSLS-CLKS: 9.4.12.IML.8 (Evaluate media sources for point of view, bias, and motivations) NJSLS-CLKS: 9.4.12.TL.1 (Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task) NJSLS-CLKS: 9.3.12.AG.2 (Analyze the relationship between regulatory agencies and the agriculture industry) NJSLS-CLKS: 9.2.12.CAP.4 (Evaluate different careers and develop various plans to prepare for employment) NJSLS-CLKS: 9.4.12.CT.2 (Explain the potential benefits of collaborating to enhance critical thinking and problem solving) NJSLS-CLKS: 9.4.12.IML.2 (Evaluate digital sources for timeliness, accuracy, perspective, credibility of the source, and relevance of information, in media, data, or other resources) NJSLS-CLKS: 9.4.12.TL.3 (Analyze the effectiveness of the process and quality of collaborative environments) NJSLS-CLKS: 9.4.12.TL.2 (Generate data using formula-based calculations in a spreadsheet and draw conclusions about the data) NJSLS-CLKS: 9.4.12.CI.3 (Investigate new challenges and opportunities for personal growth, advancement, and transition) NJSLS-CLKS: 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) NJSLS-CLKS: 9.4.12.DC.7 (Evaluate the influence of digital communities on the nature, content and responsibilities of careers, and other aspects of society) Act as a responsible and contributing community member and employee. Attend to financial well-being. Consider the environmental, social and economic impacts of decisions.

	Demonstrate creativity and innovation. Utilize critical thinking to make sense of problems and persevere in solving them. Model integrity, ethical leadership and effective management. Plan education and career paths aligned to personal goals. Use technology to enhance productivity, increase collaboration, and communicate effectively. Work productively in teams while using cultural/global competence.
Assessments (Formative) ***To show evidence of meeting the standard/s, students will successfully engage within:***	**Assessments (Summative)** ***To show evidence of meeting the standard/s, students will successfully complete:***
Formative Assessments: Teacher Observation Do Now Homework Class Participation Portfolio Discussions	**Benchmarks:** Quiz Exam **Summative Assessments:** Pre-Test Oral Presentations

Quiz Journal writing Group Assessment Group Interaction/Discussion/Computer Research Self and Peer Evaluations	Projects Rubric Teacher observation Written Assessments Reflective Paper Group Presentations Practical Measurement and Calculation Exercise: ○ Students apply measurement techniques and mathematical calculations to plumbing blueprints or diagrams. ○ They accurately measure plumbing components, perform calculations for offsets and pressure loss, and mark installations accordingly. ○ Assessment criteria include precision in measurements, correctness of calculations, and adherence to plumbing standards. Problem-Solving Scenario Analysis: ○ Students analyze real-world plumbing scenarios, identifying mathematical and scientific concepts involved. ○ They propose solutions to address challenges, demonstrating critical thinking and understanding of plumbing principles. ○ Assessment criteria include depth of analysis, effectiveness of solutions, and clarity in communication. Lab Performance and Jobset Evaluation: ○ Students complete hands-on lab exercises and jobsets simulating plumbing installations. ○ They apply measurement techniques, mathematical calculations, and scientific principles to complete tasks accurately and safely. ○ Assessment criteria include overall performance in labs, accuracy of completed jobsets, and adherence to safety protocols.

Differentiated Student Access to Content:
Teaching and Learning *Resources/Materials*

Core Resources	**Alternate Core Resources** ***IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core Resources**

Tiered Content Materials: Textbooks at different reading levels (below, at, and above grade level) Simplified versions of texts with key concepts highlighted Advanced supplementary readings for accelerated learners Audio versions of texts for auditory learners or struggling readers Multimedia Resources: Educational videos and documentaries Interactive online modules and simulations Podcasts and audio recordings Infographics and visual aids Hands-On Materials: Physical manipulatives and models Lab equipment and supplies for experiments Art supplies for creative projects Building materials for engineering challenges	Tiered Content Materials: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners or struggling readers Leveled or topical readers at different reading levels Books on tape Highlighted text Collaborative Learning Tools: Opportunity to work alone, in pairs, or small groups Structured group roles for small group work Peer tutoring and mentoring programs Individualized Options: Independent study options Compacting the curriculum for advanced learners Varied timelines or check-in points Choice of review activities ESL-Specific Resources: Bilingual dictionaries or glossaries Sentence frames and language	Keep material concept-focused and principle-driven. Allow the use of digital translation or grouping students together. Provide multiple means of action and expression.	Advanced Textbooks: "Residential Construction Academy: Plumbing" by Michael Joyce and Ray Holder PHCC Educational Foundation's Plumbing Series (higher levels) Online Learning Platforms: NCCER's Plumbing curriculum (advanced modules) Khan Academy for advanced math concepts related to plumbing calculations Hands-On Materials: Advanced plumbing simulation software 3D modeling tools for creating detailed plumbing layouts Enrichment Activities: Independent research projects on emerging plumbing technologies Design challenges for innovative plumbing solutions Technology Integration: CAD software for designing advanced plumbing systems Virtual reality programs for exploring complex plumbing installations Problem-Solving Challenges:

	scaffolds Visual supports for key vocabulary		Complex troubleshooting scenarios using real-world plumbing issues Advanced math problems related to pipe sizing and water pressure calculations Industry Certifications: NCCER Plumbing Level One certification OSHA-30 Construction Industry certification Accelerated Curriculum: Cover topics from higher-level plumbing courses Introduce concepts from Plumbing Technology II

Supplemental Resources

Technology:

- Laptop
- Chromebook
- SmartBoard
- Internet Access
- Projector

Other:

- Plumbing materials

Differentiated Student Access to Content:
Recommended *Strategies & Techniques*

Core Resources	**Alternate Core Resources** ***IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core**
Content Differentiation: Tiered content at different complexity levels Variety of textbooks at different reading levels Supplemental materials like videos, podcasts, and interactive modules Compacting curriculum for advanced learners Choice boards allowing students to select learning activities Varied resources/texts on the same topic Process Differentiation: Flexible grouping (whole group, small group, individual) Learning contracts tailored to student needs Interest centers focused on different aspects of a topic Varied instructional strategies (visual, auditory, kinesthetic) Scaffolded support like graphic organizers and writing frames	Content Differentiation: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners or struggling readers Leveled readers at different reading levels Bilingual materials for ESL students Visual aids, infographics, and multimedia resources Process Differentiation: Flexible grouping based on readiness levels Scaffolded support like graphic organizers and writing frames Extended time for task completion One-on-one or small group instruction Use of assistive technology (text-to-speech, speech-to-text tools)	Content Differentiation: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners Leveled readers at different reading levels Bilingual materials and resources1 Visual aids, infographics, and multimedia resources Modified texts with rewording, reduced extraneous information, and added visuals Process Differentiation: Flexible grouping based on language proficiency levels Scaffolded support like graphic organizers and writing frames Extended time for task completion One-on-one or small group instruction Use of gestures and total physical response to support verbal instruction Incorporation of students' native language or culture when possible	Content Differentiation: Advanced, above-grade level textbooks and materials Supplementary resources on complex or specialized topics Interdisciplinary curriculum connecting multiple subject areas Primary source documents and advanced readings Access to college-level coursework or materials Process Differentiation: Accelerated pacing of instruction Independent study options on topics of interest Problem-based and project-based learning opportunities Socratic seminars and philosophical discussions Mentorship programs with experts in fields of interest Product Differentiation:

Technology-enabled instruction (synchronous or asynchronous options) Product Differentiation: Multiple options for demonstrating learning (reports, presentations, models, etc.) Varied assessment methods based on student learning preferences Adjusting product expectations based on student readiness Learning Environment Differentiation: Flexible seating arrangements Options for individual, paired, or group work Varied time allocations for task completion Use of technology to support different learning needs	Product Differentiation: Multiple options for demonstrating learning (oral presentations, projects, etc.) Adjusted expectations based on IEP/504 goals Alternative assessments aligned with student abilities Use of portfolios to showcase progress over time Learning Environment Differentiation: Flexible seating arrangements Quiet spaces for individual work Sensory tools or fidgets as needed Visual schedules and routines Specialized Supports Implementation of IEP accommodations and modifications ESL supports like sentence frames and vocabulary guides Interventions for at-risk students (e.g. reading interventions) Social-emotional learning supports	Product Differentiation: Multiple options for demonstrating learning (oral presentations, projects, etc.) Adjusted expectations based on English proficiency levels Alternative assessments aligned with student abilities Use of portfolios to showcase progress over time Learning Environment Differentiation: Flexible seating arrangements Use of learning centers or stations focused on different aspects of a topic Visual schedules and routines Incorporation of culturally relevant materials and examples Specialized Supports: ESL supports like sentence frames and vocabulary guides Use of students' native language for clarification when needed Frequent opportunities for speaking and listening practice	Open-ended, creative project options Real-world application of learning through authentic tasks Opportunities for original research and experimentation Multimedia presentations and publications Portfolio development to showcase depth of learning Learning Environment Differentiation: Flexible grouping with intellectual peers Access to advanced technology and lab equipment Field trips and off-campus learning experiences Online courses and virtual learning options Competitions and academic challenges Specialized Supports: Critical and creative thinking skill development Training in research methods and academic writing

	Ongoing Assessment Frequent formative assessments to monitor progress Data-driven adjustments to instruction Progress monitoring aligned with IEP goals	Integration of all four language skills (listening, speaking, reading, writing) Instructional Strategies: Slowing down speech and using clear enunciation Rephrasing and clarifying instructions Using visuals to support verbal instruction Providing content in multiple formats (visual, auditory, kinesthetic) Connecting content to students' interests and cultural backgrounds Utilizing music, melodies, or songs to enhance learning Ongoing Assessment: Frequent formative assessments to monitor progress Data-driven adjustments to instruction Accommodated assessments (e.g., simplified language, added visuals)	Guidance on social-emotional needs of gifted learners College and career planning tailored to advanced learners Opportunities to explore passions and develop talents Instructional Strategies: Inquiry-based and discovery learning approaches Higher-order questioning techniques Abstract and complex problem-solving tasks Emphasis on depth and complexity of content Integration of multiple disciplines and perspectives Assessment Options: Pre-assessments to determine readiness levels Performance-based and authentic assessments Self-assessment and reflection opportunities Above-grade level standardized testing Credit by examination options

New Jersey Legislative Statutes and Administrative Code (place an "X" before each law/statute if/when present within the curriculum map)											
	Amistad Law: *N.J.S.A. 18A 52:16A-88*		Holocaust Law: *N.J.S.A. 18A:35-28*	X	LGBT and Disabilities Law: *N.J.S.A. 18A:35-4.35*		Diversity & Inclusion: *N.J.S.A. 18A:35-4.36a*		Standards in Action: *Climate Change*		Erin's Law: *A-769/S-1130*

Marking Period	Unit Title	Recommended Instructional Days
3	Plumbing Fixtures and Fittings	15

CTE
Disciplinary Concept:
Design/Pre-Construction

Core Ideas and Performance Expectation:

Design/Pre-Construction
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.AC-DES.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.

Life Literacy & Key Skills
Disciplinary Concept:
Critical Thinking and Problem-solving

Core Ideas and Performance Expectation:

Critical Thinking and Problem-solving
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).

Career Awareness, Exploration, Preparation, & Training
Disciplinary Concept:

Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-CLKS within Unit

Essential Question/s:
What distinguishes plumbing fixtures from appliances in a plumbing system, and how does understanding this distinction impact installation and maintenance practices?
How do water heaters and water softeners function within plumbing systems, and what scientific principles and technologies are utilized in their operation?
What factors influence the selection and placement of plumbing fixtures in residential and commercial settings, and how do water conservation principles affect fixture choices and design?
Why is it essential to analyze the composition of water in plumbing systems, and what methods and technologies are employed in water analysis and treatment processes?

Core Ideas and Performance Expectation:	What are the emerging trends and innovations in plumbing fixtures and fittings, and how do these advancements reflect evolving priorities in sustainability, efficiency, and user comfort?
Personal Financial Literacy Disciplinary Concept:	
	Activity Description: 1. Fixture Identification Gallery - Task: Create a digital or physical gallery of common plumbing fixtures, including detailed descriptions, uses, and installation requirements for each. - Skills: Identify and classify plumbing fixtures; Differentiate between fixtures and appliances.
Social and Emotional Learning: ***Competencies and Sub-Competencies***	
Self-Awareness • Recognize one's feelings and thoughts • Recognize the impact of one's feelings and thoughts on one's own behavior • Recognize one's personal traits, strengths, and limitations • Recognize the importance of self-confidence in handling daily tasks and challenges	2. Hands-On Fixture Installation Lab - Task: Install a bathroom sink or toilet, following manufacturer specifications and plumbing codes. Document the process and explain each step. - Skills: Demonstrate proficiency in installing fixtures; Adhere to safety protocols and best practices.
Self-Management • Understand and practice strategies for managing one's own emotions, thoughts, and behaviors • Recognize the skills needed to establish and achieve personal and educational goals • Identify and apply ways to persevere or overcome barriers through alternative methods to achieve one's goals	3. Water Heater Technology Presentation - Task: Research different types of water heaters (tankless, solar, heat pump) and create a presentation explaining their operation, advantages, and disadvantages. - Skills: Explain water heating technologies; Discuss current and emerging trends.
Social Awareness • Recognize and identify the thoughts, feelings, and perspectives of others • Demonstrate an awareness of the differences among individuals, groups, and others' cultural backgrounds • Demonstrate an understanding of the need for mutual respect when viewpoints differ • Demonstrate an awareness of the expectations for social interactions in a variety of settings	4. Water Softener Science Project - Task: Conduct an experiment demonstrating the process of water softening, then write a report explaining the science behind it. - Skills: Describe water softening processes; Analyze water composition.
Responsible Decision-Making	5. Water Quality Analysis and Treatment Plan - Task: Analyze a water sample, interpret the results, and develop a treatment plan to address any issues found. - Skills: Analyze water contents; Interpret water analysis results; Recommend treatment methods.

• Develop, implement, and model effective problem-solving and critical thinking skills • Identify the consequences associated with one's actions in order to make constructive choices • Evaluate personal, ethical, safety, and civic impact of decisions **Relationship Skills** • Establish and maintain healthy relationships • Utilize positive communication and social skills to interact effectively with others	6. Future of Plumbing Tech Report - Task: Research and write a report on emerging technologies in plumbing, focusing on water conservation and sustainability. - Skills: Discuss current and emerging trends; Evaluate potential impact of future technologies. 7. Fixture Troubleshooting Simulation - Task: Participate in a series of simulated scenarios where students must diagnose and propose solutions for common fixture problems. - Skills: Apply critical thinking skills; Propose effective solutions to challenges. 8. Plumbing Code Compliance Quiz - Task: Complete a comprehensive quiz on relevant plumbing codes and standards related to fixture installation and maintenance. - Skills: Demonstrate knowledge of plumbing codes and standards. 9. Sustainable Fixture Design Challenge - Task: Design a water-conserving plumbing fixture, explaining its features and how it improves upon existing designs. - Skills: Discuss current trends in water conservation; Apply critical thinking skills. 10. Fixture Installation Safety Protocol Development - Task: Develop a comprehensive safety checklist for installing various plumbing fixtures, considering potential hazards and prevention measures. - Skills: Adhere to safety protocols; Demonstrate knowledge of regulatory requirements. These assignments provide a mix of theoretical knowledge and practical application, covering various aspects of plumbing fixtures from identification and installation to emerging technologies and safety considerations. **Interdisciplinary Connections:** Math ELA

	Content: **Understanding Plumbing Fixtures:** ○ Define what constitutes a plumbing fixture. ○ Differentiate between fixtures and appliances in plumbing systems. **Identification and Installation of Fixtures:** ○ Identify typical plumbing fixtures found in residential and commercial settings. ○ Understand the associated trim components for each fixture type. ○ Learn proper installation techniques for various fixtures. **Water Heating and Softening Technologies:** ○ Explore the functionality of water heaters and water softeners in plumbing systems. ○ Understand the science and technologies behind water heating and softening processes. **Water Composition and Analysis:** ○ Establish the contents of water, including minerals, chemicals, and impurities. ○ Study the science of water analysis and its importance in plumbing system maintenance and troubleshooting. **Future Trends and Innovations:** ○ Discuss emerging trends and technologies in plumbing fixtures and fittings. ○ Explore advancements in fixture design, water conservation techniques, and sustainability practices. **NJSLS#:** NJSLS-CLKS: 9.4.12.CI.1 (Demonstrate the ability to reflect, analyze, and use creative skills and ideas) NJSLS-CLKS: 9.4.12.IML.8 (Evaluate media sources for point of view, bias, and motivations) NJSLS-CLKS: 9.4.12.TL.1 (Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task)

	NJSLS-CLKS: 9.3.12.AG.2 (Analyze the relationship between regulatory agencies and the agriculture industry) NJSLS-CLKS: 9.2.12.CAP.4 (Evaluate different careers and develop various plans to prepare for employment) NJSLS-CLKS: 9.4.12.CT.2 (Explain the potential benefits of collaborating to enhance critical thinking and problem solving) NJSLS-CLKS: 9.4.12.IML.2 (Evaluate digital sources for timeliness, accuracy, perspective, credibility of the source, and relevance of information, in media, data, or other resources) NJSLS-CLKS: 9.4.12.TL.3 (Analyze the effectiveness of the process and quality of collaborative environments) NJSLS-CLKS: 9.4.12.TL.2 (Generate data using formula-based calculations in a spreadsheet and draw conclusions about the data) NJSLS-CLKS: 9.4.12.CI.3 (Investigate new challenges and opportunities for personal growth, advancement, and transition) NJSLS-CLKS: 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) NJSLS-CLKS: 9.4.12.DC.7 (Evaluate the influence of digital communities on the nature, content and responsibilities of careers, and other aspects of society) Act as a responsible and contributing community member and employee. Attend to financial well-being. Consider the environmental, social and economic impacts of decisions. Demonstrate creativity and innovation. Utilize critical thinking to make sense of problems and persevere in solving them. Model integrity, ethical leadership and effective management. Plan education and career paths aligned to personal goals.

	Use technology to enhance productivity, increase collaboration, and communicate effectively. Work productively in teams while using cultural/global competence.
Assessments (Formative) ***To show evidence of meeting the standard/s, students will successfully engage within:***	**Assessments (Summative)** ***To show evidence of meeting the standard/s, students will successfully complete:***
Formative Assessments: Teacher Observation Do Now Homework Class Participation Portfolio Discussions Quiz Journal writing Group Assessment Group Interaction/Discussion/Computer Research Self and Peer Evaluations	**Benchmarks:** Quiz Exam **Summative Assessments:** Pre-Test Oral Presentations Projects Rubric Teacher observation Written Assessments Reflective Paper Group Presentations Fixture Identification and Installation Practical Exam: ○ Students will be presented with a variety of plumbing fixtures and associated trim components. ○ They must correctly identify each fixture and demonstrate proper installation techniques for a selection of fixtures. ○ Assessment criteria include accuracy in fixture identification, adherence to installation guidelines, and overall quality of workmanship. Water Analysis and Treatment Report: ○ Students will conduct a water analysis using provided water samples or simulated data. ○ Based on their analysis, students will prepare a comprehensive report detailing the composition of the water, identifying any contaminants or impurities, and recommending appropriate treatment methods.

	○ Assessment criteria include accuracy of analysis, clarity and organization of the report, and effectiveness of treatment recommendations. Emerging Trends Research Presentation: ○ Students will research current and emerging trends in plumbing fixtures and fittings, focusing on topics such as design innovations, water conservation technologies, and sustainability practices. ○ They will prepare a research presentation highlighting key trends, discussing their significance for the plumbing industry, and proposing potential applications in real-world settings. ○ Assessment criteria include depth of research, clarity and effectiveness of presentation, and ability to articulate the relevance of trends to the field of plumbing fixtures and fittings.

Differentiated Student Access to Content:
Teaching and Learning *Resources/Materials*

Core Resources	**Alternate Core Resources** ***IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core Resources**
Tiered Content Materials: Textbooks at different reading levels (below, at, and above grade level) Simplified versions of texts with key concepts highlighted Advanced supplementary readings for accelerated learners Audio versions of texts for auditory learners or struggling readers Multimedia Resources: Educational videos and	Tiered Content Materials: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners or struggling readers Leveled or topical readers at different reading levels Books on tape Highlighted text Collaborative Learning Tools: Opportunity to work alone, in pairs,	Keep material concept-focused and principle-driven. Allow the use of digital translation or grouping students together. Provide multiple means of action and expression.	Advanced Textbooks: "Residential Construction Academy: Plumbing" by Michael Joyce and Ray Holder PHCC Educational Foundation's Plumbing Series (higher levels) Online Learning Platforms: NCCER's Plumbing curriculum (advanced modules) Khan Academy for advanced math concepts related to plumbing calculations

documentaries Interactive online modules and simulations Podcasts and audio recordings Infographics and visual aids Hands-On Materials: Physical manipulatives and models Lab equipment and supplies for experiments Art supplies for creative projects Building materials for engineering challenges	or small groups Structured group roles for small group work Peer tutoring and mentoring programs Individualized Options: Independent study options Compacting the curriculum for advanced learners Varied timelines or check-in points Choice of review activities ESL-Specific Resources: Bilingual dictionaries or glossaries Sentence frames and language scaffolds Visual supports for key vocabulary		Hands-On Materials: Advanced plumbing simulation software 3D modeling tools for creating detailed plumbing layouts Enrichment Activities: Independent research projects on emerging plumbing technologies Design challenges for innovative plumbing solutions Technology Integration: CAD software for designing advanced plumbing systems Virtual reality programs for exploring complex plumbing installations Problem-Solving Challenges: Complex troubleshooting scenarios using real-world plumbing issues Advanced math problems related to pipe sizing and water pressure calculations Industry Certifications: NCCER Plumbing Level One certification OSHA-30 Construction Industry certification Accelerated Curriculum:

			Cover topics from higher-level plumbing courses Introduce concepts from Plumbing Technology II

Supplemental Resources

Technology:

- Laptop
- Chromebook
- SmartBoard
- Internet Access
- Projector

Other:

- Plumbing materials

Differentiated Student Access to Content:
Recommended *Strategies & Techniques*

Core Resources	**Alternate Core Resources** ***IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core**
Content Differentiation: Tiered content at different complexity levels Variety of textbooks at different reading levels Supplemental materials like videos, podcasts, and interactive modules	Content Differentiation: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners or struggling readers Leveled readers at different reading levels	Content Differentiation: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners Leveled readers at different reading levels Bilingual materials and resources1	Content Differentiation: Advanced, above-grade level textbooks and materials Supplementary resources on complex or specialized topics Interdisciplinary curriculum connecting multiple subject areas

Compacting curriculum for advanced learners Choice boards allowing students to select learning activities Varied resources/texts on the same topic **Process Differentiation:** Flexible grouping (whole group, small group, individual) Learning contracts tailored to student needs Interest centers focused on different aspects of a topic Varied instructional strategies (visual, auditory, kinesthetic) Scaffolded support like graphic organizers and writing frames Technology-enabled instruction (synchronous or asynchronous options) **Product Differentiation:** Multiple options for demonstrating learning (reports, presentations, models, etc.) Varied assessment methods based on student learning preferences Adjusting product expectations based on student readiness	Bilingual materials for ESL students Visual aids, infographics, and multimedia resources **Process Differentiation:** Flexible grouping based on readiness levels Scaffolded support like graphic organizers and writing frames Extended time for task completion One-on-one or small group instruction Use of assistive technology (text-to-speech, speech-to-text tools) **Product Differentiation:** Multiple options for demonstrating learning (oral presentations, projects, etc.) Adjusted expectations based on IEP/504 goals Alternative assessments aligned with student abilities Use of portfolios to showcase progress over time **Learning Environment Differentiation:**	Visual aids, infographics, and multimedia resources Modified texts with rewording, reduced extraneous information, and added visuals **Process Differentiation:** Flexible grouping based on language proficiency levels Scaffolded support like graphic organizers and writing frames Extended time for task completion One-on-one or small group instruction Use of gestures and total physical response to support verbal instruction Incorporation of students' native language or culture when possible **Product Differentiation:** Multiple options for demonstrating learning (oral presentations, projects, etc.) Adjusted expectations based on English proficiency levels Alternative assessments aligned with student abilities Use of portfolios to showcase progress over time	Primary source documents and advanced readings Access to college-level coursework or materials **Process Differentiation:** Accelerated pacing of instruction Independent study options on topics of interest Problem-based and project-based learning opportunities Socratic seminars and philosophical discussions Mentorship programs with experts in fields of interest **Product Differentiation:** Open-ended, creative project options Real-world application of learning through authentic tasks Opportunities for original research and experimentation Multimedia presentations and publications Portfolio development to showcase depth of learning

Learning Environment Differentiation: Flexible seating arrangements Options for individual, paired, or group work Varied time allocations for task completion Use of technology to support different learning needs	Flexible seating arrangements Quiet spaces for individual work Sensory tools or fidgets as needed Visual schedules and routines Specialized Supports Implementation of IEP accommodations and modifications ESL supports like sentence frames and vocabulary guides Interventions for at-risk students (e.g. reading interventions) Social-emotional learning supports Ongoing Assessment Frequent formative assessments to monitor progress Data-driven adjustments to instruction Progress monitoring aligned with IEP goals	Learning Environment Differentiation: Flexible seating arrangements Use of learning centers or stations focused on different aspects of a topic Visual schedules and routines Incorporation of culturally relevant materials and examples Specialized Supports: ESL supports like sentence frames and vocabulary guides Use of students' native language for clarification when needed Frequent opportunities for speaking and listening practice Integration of all four language skills (listening, speaking, reading, writing) Instructional Strategies: Slowing down speech and using clear enunciation Rephrasing and clarifying instructions Using visuals to support verbal instruction Providing content in multiple formats (visual, auditory, kinesthetic)	Learning Environment Differentiation: Flexible grouping with intellectual peers Access to advanced technology and lab equipment Field trips and off-campus learning experiences Online courses and virtual learning options Competitions and academic challenges Specialized Supports: Critical and creative thinking skill development Training in research methods and academic writing Guidance on social-emotional needs of gifted learners College and career planning tailored to advanced learners Opportunities to explore passions and develop talents Instructional Strategies: Inquiry-based and discovery learning approaches

		Connecting content to students' interests and cultural backgrounds Utilizing music, melodies, or songs to enhance learning Ongoing Assessment: Frequent formative assessments to monitor progress Data-driven adjustments to instruction Accommodated assessments (e.g., simplified language, added visuals)	Higher-order questioning techniques Abstract and complex problem-solving tasks Emphasis on depth and complexity of content Integration of multiple disciplines and perspectives Assessment Options: Pre-assessments to determine readiness levels Performance-based and authentic assessments Self-assessment and reflection opportunities Above-grade level standardized testing Credit by examination options

New Jersey Legislative Statutes and Administrative Code (place an "X" before each law/statute if/when present within the curriculum map)											
	Amistad Law: *N.J.S.A. 18A 52:16A-88*		Holocaust Law: *N.J.S.A. 18A:35-28*		LGBT and Disabilities Law: *N.J.S.A. 18A:35-4.35*		Diversity & Inclusion: *N.J.S.A. 18A:35-4.36a*		Standards in Action: *Climate Change*		Erin's Law: *A-769/S-1130*

Marking Period	Unit Title	Recommended Instructional Days
3	Blueprints and Plumbing Isometrics	15

CTE
Disciplinary Concept:
Architecture & Construction

Core Ideas and Performance Expectation:

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

Life Literacy & Key Skills
Disciplinary Concept:
Critical Thinking and Problem-solving

Core Ideas and Performance Expectation:

Critical Thinking and Problem-solving
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).

Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-CLKS within Unit

Essential Question/s:
How do blueprints and isometric drawings differ in their representation of plumbing installations, and when is each type of drawing typically used in the plumbing trade?
What are the key symbols and conventions used in plumbing blueprints and isometric drawings, and how are they interpreted to understand plumbing layout instructions accurately?

Career Awareness, Exploration, Preparation, & Training **Disciplinary Concept:**	How does the use of a scale ruler facilitate measurement and dimension interpretation on blueprints and isometric drawings, and what techniques are employed to ensure precision in scaling? What are riser diagrams, and how do they depict vertical plumbing systems within buildings? What symbols and conventions are used in riser diagrams, and how are they interpreted to understand plumbing connections and layouts? How do the concepts learned in NCCER Level One Module Five integrate with blueprint and isometric interpretation, and how are plumbing principles and practices applied in analyzing and implementing plumbing layout instructions from drawings? How can we create plumbing blueprints and isometric drawings that reflect and serve the needs of diverse communities while promoting inclusivity in design?
Core Ideas and Performance Expectation:	
Personal Financial Literacy **Disciplinary Concept:**	
Core Ideas and Performance Expectation:	
Social and Emotional Learning: ***Competencies and Sub-Competencies***	
Self-Awareness • Recognize one's feelings and thoughts • Recognize the impact of one's feelings and thoughts on one's own behavior • Recognize one's personal traits, strengths, and limitations • Recognize the importance of self-confidence in handling daily tasks and challenges **Self-Management** • Understand and practice strategies for managing one's own emotions, thoughts, and behaviors • Recognize the skills needed to establish and achieve personal and educational goals • Identify and apply ways to persevere or overcome barriers through alternative methods to achieve one's goals **Social Awareness** • Recognize and identify the thoughts, feelings, and perspectives of others • Demonstrate an awareness of the differences among individuals, groups, and others' cultural backgrounds • Demonstrate an understanding of the need for mutual respect when viewpoints differ • Demonstrate an awareness of the expectations for social interactions in a variety of settings	**Activity Description**: 1. Blueprint Symbol Scavenger Hunt - Task: Given a complex plumbing blueprint, identify and list all plumbing symbols, fittings, and fixtures within a set time limit. - Skills: Interpret plumbing symbols; Understand plumbing layout instructions. 2. Scale Ruler Measurement Challenge - Task: Use a scale ruler to measure various components on a blueprint, then convert these measurements to real-world dimensions. - Skills: Use scale ruler; Convert measurements between scale and standard rulers. 3. 3D Plumbing System Modeling - Task: Using an isometric drawing, create a 3D model (physical or digital) of the plumbing system depicted. - Skills: Interpret isometric drawings; Visualize three-dimensional plumbing installations. 4. Riser Diagram Analysis Project

Responsible Decision-Making • Develop, implement, and model effective problem-solving and critical thinking skills • Identify the consequences associated with one's actions in order to make constructive choices • Evaluate personal, ethical, safety, and civic impact of decisions **Relationship Skills** • Establish and maintain healthy relationships • Utilize positive communication and social skills to interact effectively with others	- Task: Analyze a complex riser diagram for a multi-story building, identifying all components and creating a detailed inventory list. - Skills: Read and understand riser diagrams; Identify plumbing components and connections. 5. NCCER Module Five Application Exercise - Task: Complete a series of blueprint interpretation tasks that directly apply concepts from NCCER Level One Module Five. - Skills: Apply NCCER Module Five concepts; Integrate plumbing principles into drawing interpretation. 6. Blueprint Troubleshooting Simulation - Task: Given a blueprint with intentional errors or inconsistencies, identify the issues and propose solutions. - Skills: Analyze complex drawings; Identify potential issues; Propose effective solutions. 7. Collaborative Blueprint Interpretation Project - Task: In small groups, interpret a complex plumbing blueprint and create a presentation explaining the layout to the class. - Skills: Communicate interpretations effectively; Collaborate with team members. 8. Isometric to Orthographic Conversion Exercise - Task: Convert an isometric plumbing drawing into orthographic views (top, front, and side). - Skills: Interpret isometric drawings; Visualize spatial relationships. 9. Blueprint-to-Materials List Challenge - Task: Using a given blueprint, create a comprehensive materials list for the plumbing installation, including quantities and specifications. - Skills: Interpret plumbing symbols; Understand layout instructions; Apply critical thinking. 10. Virtual Reality Plumbing Layout Experience

	- Task: Using VR technology (if available), navigate through a 3D representation of a blueprint, identifying components and explaining the layout. - Skills: Interpret blueprints; Visualize three-dimensional installations; Communicate effectively. Collaborative learning: Implement group projects that require students from diverse backgrounds to work together on creating blueprints and isometric drawings. **Interdisciplinary Connections:** Math ELA **Content:** **Blueprint Interpretation:** *Understanding Blueprint Usage:* ■ Learn when and how to use blueprints versus shop sets in plumbing projects. ■ Understand the purpose and importance of blueprints in plumbing layout and installation work. *Scale Ruler Reading:* ■ Master the use of a scale ruler in print reading. ■ Understand how to read measurements on a scale ruler and interpret them accurately. *Relation Between Scale and Standard Rulers:* ■ Learn to relate the measurements on a scale ruler to those on a standard ruler. ■ Understand the principles of scaling and how they apply to blueprint interpretation. **Isometric and Riser Diagrams:** *Interpreting Isometric Drawings:* ■ Gain proficiency in interpreting isometric drawings commonly used in plumbing projects.

	■ Understand how isometric drawings represent three-dimensional plumbing installations. *Riser Diagrams Understanding:* ■ Learn to interpret riser diagrams depicting vertical plumbing systems. ■ Understand the symbols and conventions used in riser diagrams for plumbing layouts. **NCCER Module Integration:** *Application of NCCER Level One Module Five Concepts:* ■ Apply concepts learned in NCCER Level One Module Five to blueprint and isometric interpretation. ■ Integrate knowledge of plumbing principles and practices into the interpretation of plumbing drawings. **NJSLS#:** NJSLS-CLKS: 9.4.12.CI.1 (Demonstrate the ability to reflect, analyze, and use creative skills and ideas) NJSLS-CLKS: 9.4.12.IML.8 (Evaluate media sources for point of view, bias, and motivations) NJSLS-CLKS: 9.4.12.TL.1 (Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task) NJSLS-CLKS: 9.3.12.AG.2 (Analyze the relationship between regulatory agencies and the agriculture industry) NJSLS-CLKS: 9.2.12.CAP.4 (Evaluate different careers and develop various plans to prepare for employment) NJSLS-CLKS: 9.4.12.CT.2 (Explain the potential benefits of collaborating to enhance critical thinking and problem solving) NJSLS-CLKS: 9.4.12.IML.2 (Evaluate digital sources for timeliness, accuracy, perspective, credibility of the source, and relevance of information, in media, data, or other resources) NJSLS-CLKS: 9.4.12.TL.3 (Analyze the effectiveness of the process and quality of collaborative environments) NJSLS-CLKS: 9.4.12.TL.2 (Generate data using formula-based calculations in a spreadsheet and draw conclusions about the data)

	NJSLS-CLKS: 9.4.12.CI.3 (Investigate new challenges and opportunities for personal growth, advancement, and transition) NJSLS-CLKS: 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) NJSLS-CLKS: 9.4.12.DC.7 (Evaluate the influence of digital communities on the nature, content and responsibilities of careers, and other aspects of society) Act as a responsible and contributing community member and employee. Attend to financial well-being. Consider the environmental, social and economic impacts of decisions. Demonstrate creativity and innovation. Utilize critical thinking to make sense of problems and persevere in solving them. Model integrity, ethical leadership and effective management. Plan education and career paths aligned to personal goals. Use technology to enhance productivity, increase collaboration, and communicate effectively. Work productively in teams while using cultural/global competence.

Assessments (Formative) ***To show evidence of meeting the standard/s, students will successfully engage within:***	**Assessments (Summative)** ***To show evidence of meeting the standard/s, students will successfully complete:***
<u>Formative Assessments:</u> Teacher Observation Do Now Homework Class Participation Portfolio Discussions Quiz Journal writing Group Assessment Group Interaction/Discussion/Computer Research Self and Peer Evaluations	**<u>Benchmarks:</u>** Quiz Exam **<u>Summative Assessments:</u>** Pre-Test Oral Presentations Projects Rubric Teacher observation Written Assessments Reflective Paper Group Presentations Blueprint Interpretation Exam: ○ Students are presented with a set of plumbing blueprints and isometric drawings. ○ They must accurately interpret the drawings, identifying plumbing symbols, fittings, fixtures, and layout instructions. ○ Assessment criteria include accuracy in interpretation, proficiency in scaling measurements, and adherence to plumbing standards. Isometric Drawing Assignment: ○ Students are tasked with creating an isometric drawing of a plumbing installation based on provided specifications. ○ They must accurately depict plumbing components, connections, and spatial relationships in the isometric representation.

	○ Assessment criteria include accuracy of the drawing, clarity of depiction, and adherence to plumbing layout instructions. Riser Diagram Analysis and Presentation: ○ Students analyze a set of riser diagrams depicting vertical plumbing systems within buildings. ○ They must identify plumbing components, connections, and layout details depicted in the diagrams. ○ Students then prepare a presentation summarizing their analysis and interpretations of the riser diagrams. ○ Assessment criteria include depth of analysis, clarity of presentation, and accuracy in identifying plumbing components and connections.

Differentiated Student Access to Content:
Teaching and Learning *Resources/Materials*

Core Resources	**Alternate Core Resources** ***IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core Resources**
Tiered Content Materials: Textbooks at different reading levels (below, at, and above grade level) Simplified versions of texts with key concepts highlighted Advanced supplementary readings for accelerated learners Audio versions of texts for auditory learners or struggling readers Multimedia Resources: Educational videos and documentaries	Tiered Content Materials: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners or struggling readers Leveled or topical readers at different reading levels Books on tape Highlighted text Collaborative Learning Tools: Opportunity to work alone, in pairs, or small groups	Keep material concept-focused and principle-driven. Allow the use of digital translation or grouping students together. Provide multiple means of action and expression.	Advanced Textbooks: "Residential Construction Academy: Plumbing" by Michael Joyce and Ray Holder PHCC Educational Foundation's Plumbing Series (higher levels) Online Learning Platforms: NCCER's Plumbing curriculum (advanced modules) Khan Academy for advanced math concepts related to plumbing calculations Hands-On Materials:

Interactive online modules and simulations Podcasts and audio recordings Infographics and visual aids Hands-On Materials: Physical manipulatives and models Lab equipment and supplies for experiments Art supplies for creative projects Building materials for engineering challenges	Structured group roles for small group work Peer tutoring and mentoring programs Individualized Options: Independent study options Compacting the curriculum for advanced learners Varied timelines or check-in points Choice of review activities ESL-Specific Resources: Bilingual dictionaries or glossaries Sentence frames and language scaffolds Visual supports for key vocabulary		Advanced plumbing simulation software 3D modeling tools for creating detailed plumbing layouts Enrichment Activities: Independent research projects on emerging plumbing technologies Design challenges for innovative plumbing solutions Technology Integration: CAD software for designing advanced plumbing systems Virtual reality programs for exploring complex plumbing installations Problem-Solving Challenges: Complex troubleshooting scenarios using real-world plumbing issues Advanced math problems related to pipe sizing and water pressure calculations Industry Certifications: NCCER Plumbing Level One certification OSHA-30 Construction Industry certification Accelerated Curriculum: Cover topics from higher-level plumbing courses

			Introduce concepts from Plumbing Technology II

Supplemental Resources

Technology:

- Laptop
- Chromebook
- SmartBoard
- Internet Access
- Projector

Other:

- Plumbing materials

Differentiated Student Access to Content:
Recommended *Strategies & Techniques*

Core Resources	**Alternate Core Resources *IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core**
Content Differentiation: Tiered content at different complexity levels Variety of textbooks at different reading levels Supplemental materials like videos, podcasts, and interactive modules Compacting curriculum for advanced learners	Content Differentiation: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners or struggling readers Leveled readers at different reading levels Bilingual materials for ESL students	Content Differentiation: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners Leveled readers at different reading levels Bilingual materials and resources1	Content Differentiation: Advanced, above-grade level textbooks and materials Supplementary resources on complex or specialized topics Interdisciplinary curriculum connecting multiple subject areas Primary source documents and advanced readings

Choice boards allowing students to select learning activities Varied resources/texts on the same topic Process Differentiation: Flexible grouping (whole group, small group, individual) Learning contracts tailored to student needs Interest centers focused on different aspects of a topic Varied instructional strategies (visual, auditory, kinesthetic) Scaffolded support like graphic organizers and writing frames Technology-enabled instruction (synchronous or asynchronous options) Product Differentiation: Multiple options for demonstrating learning (reports, presentations, models, etc.) Varied assessment methods based on student learning preferences Adjusting product expectations based on student readiness Learning Environment Differentiation:	Visual aids, infographics, and multimedia resources Process Differentiation: Flexible grouping based on readiness levels Scaffolded support like graphic organizers and writing frames Extended time for task completion One-on-one or small group instruction Use of assistive technology (text-to-speech, speech-to-text tools) Product Differentiation: Multiple options for demonstrating learning (oral presentations, projects, etc.) Adjusted expectations based on IEP/504 goals Alternative assessments aligned with student abilities Use of portfolios to showcase progress over time Learning Environment Differentiation: Flexible seating arrangements	Visual aids, infographics, and multimedia resources Modified texts with rewording, reduced extraneous information, and added visuals Process Differentiation: Flexible grouping based on language proficiency levels Scaffolded support like graphic organizers and writing frames Extended time for task completion One-on-one or small group instruction Use of gestures and total physical response to support verbal instruction Incorporation of students' native language or culture when possible Product Differentiation: Multiple options for demonstrating learning (oral presentations, projects, etc.) Adjusted expectations based on English proficiency levels Alternative assessments aligned with student abilities Use of portfolios to showcase progress over time	Access to college-level coursework or materials Process Differentiation: Accelerated pacing of instruction Independent study options on topics of interest Problem-based and project-based learning opportunities Socratic seminars and philosophical discussions Mentorship programs with experts in fields of interest Product Differentiation: Open-ended, creative project options Real-world application of learning through authentic tasks Opportunities for original research and experimentation Multimedia presentations and publications Portfolio development to showcase depth of learning Learning Environment Differentiation:

Flexible seating arrangements Options for individual, paired, or group work Varied time allocations for task completion Use of technology to support different learning needs	Quiet spaces for individual work Sensory tools or fidgets as needed Visual schedules and routines Specialized Supports Implementation of IEP accommodations and modifications ESL supports like sentence frames and vocabulary guides Interventions for at-risk students (e.g. reading interventions) Social-emotional learning supports Ongoing Assessment Frequent formative assessments to monitor progress Data-driven adjustments to instruction Progress monitoring aligned with IEP goals	Learning Environment Differentiation: Flexible seating arrangements Use of learning centers or stations focused on different aspects of a topic Visual schedules and routines Incorporation of culturally relevant materials and examples Specialized Supports: ESL supports like sentence frames and vocabulary guides Use of students' native language for clarification when needed Frequent opportunities for speaking and listening practice Integration of all four language skills (listening, speaking, reading, writing) Instructional Strategies: Slowing down speech and using clear enunciation Rephrasing and clarifying instructions Using visuals to support verbal instruction Providing content in multiple formats (visual, auditory, kinesthetic)	Flexible grouping with intellectual peers Access to advanced technology and lab equipment Field trips and off-campus learning experiences Online courses and virtual learning options Competitions and academic challenges Specialized Supports: Critical and creative thinking skill development Training in research methods and academic writing Guidance on social-emotional needs of gifted learners College and career planning tailored to advanced learners Opportunities to explore passions and develop talents Instructional Strategies: Inquiry-based and discovery learning approaches Higher-order questioning techniques

		Connecting content to students' interests and cultural backgrounds Utilizing music, melodies, or songs to enhance learning Ongoing Assessment: Frequent formative assessments to monitor progress Data-driven adjustments to instruction Accommodated assessments (e.g., simplified language, added visuals)	Abstract and complex problem-solving tasks Emphasis on depth and complexity of content Integration of multiple disciplines and perspectives Assessment Options: Pre-assessments to determine readiness levels Performance-based and authentic assessments Self-assessment and reflection opportunities Above-grade level standardized testing Credit by examination options

New Jersey Legislative Statutes and Administrative Code (place an "X" before each law/statute if/when present within the curriculum map)											
	Amistad Law: *N.J.S.A. 18A 52:16A-88*		Holocaust Law: *N.J.S.A. 18A:35-28*		LGBT and Disabilities Law: *N.J.S.A. 18A:35-4.35*	X	Diversity & Inclusion: *N.J.S.A. 18A:35-4.36a*		Standards in Action: *Climate Change*		Erin's Law: *A-769/S-1130*

Marking Period	Unit Title	Recommended Instructional Days
4	Business Law for Plumbers	13

CTE
Disciplinary Concept:
Construction

Core Ideas and Performance Expectation:

Construction

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.

Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-CLKS within Unit

Life Literacy & Key Skills
Disciplinary Concept:

Core Ideas and Performance Expectation:

Career Awareness, Exploration, Preparation, & Training

Essential Question/s:

What legal obligations do plumbers have regarding documentation, tax compliance, and regulatory requirements, and how can they ensure they meet these obligations effectively?

Disciplinary Concept: **Career Awareness and Planning**	How do pricing decisions impact the profitability of a plumbing business, and what factors should plumbers consider when setting pricing structures to ensure profitability while remaining competitive in the market? What forms and reports are due quarterly for regulatory compliance in the plumbing industry, and what are the consequences of failing to submit these documents accurately and on time? What role do accountants play in managing the financial aspects of plumbing businesses, and how can plumbers effectively collaborate with accountants to ensure financial compliance and strategic decision-making? How can plumbers navigate legal and financial challenges such as liability issues, tax audits, and financial reporting requirements to minimize risks and protect their business interests effectively? How can plumbers incorporate child protection principles into their business practices and professional conduct to ensure the safety of minors while maintaining legal and ethical standards in their work?
Core Ideas and Performance Expectation: **Career Awareness and Planning** *An individual's income and benefit needs and financial plan can change over time.* 9.2.12.CAP.13: Analyze how the economic, social, and political conditions of a time period can affect the labor market. *There are ways to assess a business's feasibility and risk and to align it with an individual's financial goals.* 9.2.12.CAP.21: Explain low-cost and low-risk ways to start a business. 9.2.12.CAP.22: Compare risk and reward potential and use the comparison to decide whether starting a business is feasible.	**<u>Activity Description</u>**: 1. Invoice Creation Exercise - Task: Create detailed invoices for hypothetical plumbing jobs, including itemized services and materials used. - Skills: Accurately fill out invoice documents; Detail services and materials. 2. Plumbing Tax Law Quiz - Task: Complete a quiz on relevant tax laws affecting plumbing businesses, including sales tax and payroll deductions. - Skills: Understand legal codes and tax laws; Apply knowledge to ensure compliance. 3. Pricing Strategy Project - Task: Develop a pricing strategy for a fictional plumbing business, considering overhead costs, labor, and market rates. - Skills: Determine profitable pricing structures; Consider various factors affecting pricing. 4. Quarterly Compliance Calendar
Personal Financial Literacy **Disciplinary Concept:**	
Core Ideas and Performance Expectation:	
Social and Emotional Learning: ***Competencies and Sub-Competencies***	
Self-Awareness • Recognize one's feelings and thoughts • Recognize the impact of one's feelings and thoughts on one's own behavior • Recognize one's personal traits, strengths, and limitations • Recognize the importance of self-confidence in handling daily tasks and challenges **Self-Management** • Understand and practice strategies for managing one's own emotions, thoughts, and behaviors • Recognize the skills needed to establish and achieve personal and educational goals	

• Identify and apply ways to persevere or overcome barriers through alternative methods to achieve one's goals **Social Awareness** • Recognize and identify the thoughts, feelings, and perspectives of others • Demonstrate an awareness of the differences among individuals, groups, and others' cultural backgrounds • Demonstrate an understanding of the need for mutual respect when viewpoints differ • Demonstrate an awareness of the expectations for social interactions in a variety of settings **Responsible Decision-Making** • Develop, implement, and model effective problem-solving and critical thinking skills • Identify the consequences associated with one's actions in order to make constructive choices • Evaluate personal, ethical, safety, and civic impact of decisions **Relationship Skills** • Establish and maintain healthy relationships • Utilize positive communication and social skills to interact effectively with others	- Task: Create a calendar outlining which forms and reports are due quarterly for regulatory compliance. - Skills: Know required forms and deadlines; Plan for timely submission. 5. Accountant Collaboration Role-Play - Task: Participate in a role-playing exercise where students act as plumbers collaborating with accountants on financial matters. - Skills: Understand the role of accountants; Collaborate effectively on financial issues. 6. Legal and Financial Case Study Analysis - Task: Analyze a case study of a plumbing business facing legal and financial challenges, and propose solutions. - Skills: Analyze challenges; Propose effective solutions; Navigate complex requirements. 7. Financial Documentation Portfolio - Task: Compile a portfolio of accurately completed financial documents relevant to a plumbing business. - Skills: Document financial transactions; Communicate information clearly and professionally. 8. Regulatory Compliance Presentation - Task: Research and present on key regulatory compliance requirements for plumbing businesses in your area. - Skills: Understand regulatory compliance; Communicate legal information effectively. 9. Profit Margin Calculation Exercise - Task: Calculate profit margins for various plumbing services using provided cost and pricing data. - Skills: Analyze profitability; Apply critical thinking to financial data. 10. Mock Audit Preparation - Task: Prepare financial and legal documentation for a mock audit of a plumbing business.

	- Skills: Ensure compliance; Document efforts accurately; Navigate complex requirements. Discuss the ethical responsibilities of plumbers when working in homes and schools, emphasizing the importance of maintaining appropriate boundaries with clients, especially minors. **Interdisciplinary Connections:** Math ELA **Content:** **Business Documentation and Compliance:** *Invoice Document Completion:* ■ Understand the components of an invoice document and how to fill it out accurately. ■ Learn best practices for documenting services rendered and materials used in plumbing projects. *Understanding Codes and Tax Laws:* ■ Familiarize with relevant legal codes and tax laws governing the plumbing industry. ■ Learn how to comply with sales tax regulations, payroll deductions, and other tax obligations. **Pricing and Profitability:** *Determining Profitable Pricing:* ■ Gain insight into how to set pricing structures that ensure profitability for plumbing services. ■ Understand factors such as overhead costs, labor expenses, and market demand in pricing decisions. **Regulatory Compliance:** *Quarterly Reporting Requirements:* ■ Identify which forms and reports are due quarterly for compliance with regulatory agencies. ■ Learn how to complete and submit required forms accurately and on time.

	Role of Accounting Professionals: *Understanding the Accountant's Role:* ■ Understand the role of an accountant in managing financial matters for plumbing businesses. ■ Learn how to effectively collaborate with accountants to ensure financial compliance and strategic decision-making. **NJSLS#:** NJSLS-CLKS: 9.4.12.CI.1 (Demonstrate the ability to reflect, analyze, and use creative skills and ideas) NJSLS-CLKS: 9.4.12.IML.8 (Evaluate media sources for point of view, bias, and motivations) NJSLS-CLKS: 9.4.12.TL.1 (Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task) NJSLS-CLKS: 9.3.12.AG.2 (Analyze the relationship between regulatory agencies and the agriculture industry) NJSLS-CLKS: 9.2.12.CAP.4 (Evaluate different careers and develop various plans to prepare for employment) NJSLS-CLKS: 9.4.12.CT.2 (Explain the potential benefits of collaborating to enhance critical thinking and problem solving) NJSLS-CLKS: 9.4.12.IML.2 (Evaluate digital sources for timeliness, accuracy, perspective, credibility of the source, and relevance of information, in media, data, or other resources) NJSLS-CLKS: 9.4.12.TL.3 (Analyze the effectiveness of the process and quality of collaborative environments) NJSLS-CLKS: 9.4.12.TL.2 (Generate data using formula-based calculations in a spreadsheet and draw conclusions about the data) NJSLS-CLKS: 9.4.12.CI.3 (Investigate new challenges and opportunities for personal growth, advancement, and transition) NJSLS-CLKS: 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) NJSLS-CLKS: 9.4.12.DC.7 (Evaluate the influence of digital communities on the nature, content and responsibilities of careers, and other aspects of society)

	Act as a responsible and contributing community member and employee. Attend to financial well-being. Consider the environmental, social and economic impacts of decisions. Demonstrate creativity and innovation. Utilize critical thinking to make sense of problems and persevere in solving them. Model integrity, ethical leadership and effective management. Plan education and career paths aligned to personal goals. Use technology to enhance productivity, increase collaboration, and communicate effectively. Work productively in teams while using cultural/global competence.
Assessments (Formative)	**Assessments (Summative)**

To show evidence of meeting the standard/s, students will successfully engage within:	*To show evidence of meeting the standard/s, students will successfully complete:*
Formative Assessments: Teacher Observation Do Now Homework Class Participation Portfolio Discussions Quiz Journal writing Group Assessment Group Interaction/Discussion/Computer Research Self and Peer Evaluations	**Benchmarks:** Quiz Exam **Summative Assessments:** Pre-Test Oral Presentations Projects Rubric Teacher observation Written Assessments Reflective Paper Group Presentations Case Study Analysis: ○ Provide students with a real-world case study involving legal or financial challenges commonly faced by plumbing businesses. ○ Students must analyze the case study, identify key legal and financial issues, and propose effective solutions. ○ Assessment criteria include the depth of analysis, accuracy of identification of legal and financial issues, and effectiveness of proposed solutions. Regulatory Compliance Quiz: ○ Administer a quiz assessing students' knowledge of regulatory requirements and compliance procedures in the plumbing industry.○ Questions may cover topics such as tax laws, reporting requirements, and legal obligations related to documentation and reporting. ○ Assessment criteria include accuracy of responses and understanding of key legal and regulatory concepts. Business Plan Development: ○ Task students with developing a business plan for a hypothetical plumbing business, incorporating legal and financial considerations. ○ Students must outline pricing strategies, tax compliance measures, and risk management strategies in their business plans.

	○ Assessment criteria include the completeness of the business plan, the integration of legal and financial considerations, and the feasibility of proposed strategies.

Differentiated Student Access to Content: Teaching and Learning *Resources/Materials*			
Core Resources	**Alternate Core Resources *IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core Resources**
Tiered Content Materials: Textbooks at different reading levels (below, at, and above grade level) Simplified versions of texts with key concepts highlighted Advanced supplementary readings for accelerated learners Audio versions of texts for auditory learners or struggling readers Multimedia Resources: Educational videos and documentaries Interactive online modules and simulations Podcasts and audio recordings Infographics and visual aids Hands-On Materials: Physical manipulatives and models	Tiered Content Materials: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners or struggling readers Leveled or topical readers at different reading levels Books on tape Highlighted text Collaborative Learning Tools: Opportunity to work alone, in pairs, or small groups Structured group roles for small group work Peer tutoring and mentoring programs Individualized Options: Independent study options Compacting the curriculum for	Keep material concept-focused and principle-driven. Allow the use of digital translation or grouping students together. Provide multiple means of action and expression.	Advanced Textbooks: "Residential Construction Academy: Plumbing" by Michael Joyce and Ray Holder PHCC Educational Foundation's Plumbing Series (higher levels) Online Learning Platforms: NCCER's Plumbing curriculum (advanced modules) Khan Academy for advanced math concepts related to plumbing calculations Hands-On Materials: Advanced plumbing simulation software 3D modeling tools for creating detailed plumbing layouts Enrichment Activities: Independent research projects on emerging plumbing technologies

Lab equipment and supplies for experiments Art supplies for creative projects Building materials for engineering challenges	advanced learners Varied timelines or check-in points Choice of review activities ESL-Specific Resources: Bilingual dictionaries or glossaries Sentence frames and language scaffolds Visual supports for key vocabulary		Design challenges for innovative plumbing solutions Technology Integration: CAD software for designing advanced plumbing systems Virtual reality programs for exploring complex plumbing installations Problem-Solving Challenges: Complex troubleshooting scenarios using real-world plumbing issues Advanced math problems related to pipe sizing and water pressure calculations Industry Certifications: NCCER Plumbing Level One certification OSHA-30 Construction Industry certification Accelerated Curriculum: Cover topics from higher-level plumbing courses Introduce concepts from Plumbing Technology II
Supplemental Resources			

Technology:

- Laptop
- Chromebook
- SmartBoard
- Internet Access
- Projector

Other:

- Plumbing materials

Differentiated Student Access to Content:
Recommended *Strategies & Techniques*

Core Resources	**Alternate Core Resources *IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core**
Content Differentiation: Tiered content at different complexity levels Variety of textbooks at different reading levels Supplemental materials like videos, podcasts, and interactive modules Compacting curriculum for advanced learners Choice boards allowing students to select learning activities Varied resources/texts on the same topic Process Differentiation: Flexible grouping (whole group, small group, individual)	Content Differentiation: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners or struggling readers Leveled readers at different reading levels Bilingual materials for ESL students Visual aids, infographics, and multimedia resources Process Differentiation: Flexible grouping based on readiness levels	Content Differentiation: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners Leveled readers at different reading levels Bilingual materials and resources1 Visual aids, infographics, and multimedia resources Modified texts with rewording, reduced extraneous information, and added visuals Process Differentiation:	Content Differentiation: Advanced, above-grade level textbooks and materials Supplementary resources on complex or specialized topics Interdisciplinary curriculum connecting multiple subject areas Primary source documents and advanced readings Access to college-level coursework or materials Process Differentiation: Accelerated pacing of instruction Independent study options on topics of interest

Learning contracts tailored to student needs Interest centers focused on different aspects of a topic Varied instructional strategies (visual, auditory, kinesthetic) Scaffolded support like graphic organizers and writing frames Technology-enabled instruction (synchronous or asynchronous options) **Product Differentiation:** Multiple options for demonstrating learning (reports, presentations, models, etc.) Varied assessment methods based on student learning preferences Adjusting product expectations based on student readiness **Learning Environment Differentiation:** Flexible seating arrangements Options for individual, paired, or group work Varied time allocations for task completion Use of technology to support different learning needs	Scaffolded support like graphic organizers and writing frames Extended time for task completion One-on-one or small group instruction Use of assistive technology (text-to-speech, speech-to-text tools) **Product Differentiation:** Multiple options for demonstrating learning (oral presentations, projects, etc.) Adjusted expectations based on IEP/504 goals Alternative assessments aligned with student abilities Use of portfolios to showcase progress over time **Learning Environment Differentiation:** Flexible seating arrangements Quiet spaces for individual work Sensory tools or fidgets as needed Visual schedules and routines **Specialized Supports**	Flexible grouping based on language proficiency levels Scaffolded support like graphic organizers and writing frames Extended time for task completion One-on-one or small group instruction Use of gestures and total physical response to support verbal instruction Incorporation of students' native language or culture when possible **Product Differentiation:** Multiple options for demonstrating learning (oral presentations, projects, etc.) Adjusted expectations based on English proficiency levels Alternative assessments aligned with student abilities Use of portfolios to showcase progress over time **Learning Environment Differentiation:** Flexible seating arrangements Use of learning centers or stations focused on different aspects of a topic Visual schedules and routines	Problem-based and project-based learning opportunities Socratic seminars and philosophical discussions Mentorship programs with experts in fields of interest **Product Differentiation:** Open-ended, creative project options Real-world application of learning through authentic tasks Opportunities for original research and experimentation Multimedia presentations and publications Portfolio development to showcase depth of learning **Learning Environment Differentiation:** Flexible grouping with intellectual peers Access to advanced technology and lab equipment Field trips and off-campus learning experiences Online courses and virtual learning options

	Implementation of IEP accommodations and modifications ESL supports like sentence frames and vocabulary guides Interventions for at-risk students (e.g. reading interventions) Social-emotional learning supports Ongoing Assessment Frequent formative assessments to monitor progress Data-driven adjustments to instruction Progress monitoring aligned with IEP goals	Incorporation of culturally relevant materials and examples Specialized Supports: ESL supports like sentence frames and vocabulary guides Use of students' native language for clarification when needed Frequent opportunities for speaking and listening practice Integration of all four language skills (listening, speaking, reading, writing) Instructional Strategies: Slowing down speech and using clear enunciation Rephrasing and clarifying instructions Using visuals to support verbal instruction Providing content in multiple formats (visual, auditory, kinesthetic) Connecting content to students' interests and cultural backgrounds Utilizing music, melodies, or songs to enhance learning Ongoing Assessment: Frequent formative assessments to monitor progress	Competitions and academic challenges Specialized Supports: Critical and creative thinking skill development Training in research methods and academic writing Guidance on social-emotional needs of gifted learners College and career planning tailored to advanced learners Opportunities to explore passions and develop talents Instructional Strategies: Inquiry-based and discovery learning approaches Higher-order questioning techniques Abstract and complex problem-solving tasks Emphasis on depth and complexity of content Integration of multiple disciplines and perspectives Assessment Options:

		Data-driven adjustments to instruction Accommodated assessments (e.g., simplified language, added visuals)	Pre-assessments to determine readiness levels Performance-based and authentic assessments Self-assessment and reflection opportunities Above-grade level standardized testing Credit by examination options

New Jersey Legislative Statutes and Administrative Code (place an "X" before each law/statute if/when present within the curriculum map)											
	Amistad Law: *N.J.S.A. 18A 52:16A-88*		Holocaust Law: *N.J.S.A. 18A:35-28*		LGBT and Disabilities Law: *N.J.S.A. 18A:35-4.35*		Diversity & Inclusion: *N.J.S.A. 18A:35-4.36a*		Standards in Action: *Climate Change*	X	Erin's Law: *A-769/S-1130*

Marking Period	Unit Title	Recommended Instructional Days
4	Business Applications	12

CTE
Disciplinary Concept:
Construction

Core Ideas and Performance Expectation:

Construction

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.

Life Literacy & Key Skills
Disciplinary Concept:

Core Ideas and Performance Expectation:

Career Awareness, Exploration, Preparation, & Training
Disciplinary Concept:
Career Awareness and Planning

Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-CLKS within Unit

Essential Question/s:

How can a well-developed business plan contribute to the success of a plumbing business, and what key components should be included in such a plan?
What marketing strategies are most effective in attracting and retaining customers in the plumbing industry, and how can these strategies be tailored to specific target markets?

Core Ideas and Performance Expectation:

Career Awareness and Planning
Career planning requires purposeful planning based on research, self-knowledge, and informed choices.
9.2.5.CAP.5: Identify various employee benefits, including income, medical, vacation time, and lifestyle benefits provided by different types of jobs and careers.
9.2.5.CAP.6: Compare the characteristics of a successful entrepreneur with the traits of successful employees.
9.2.5.CAP.7: Identify factors to consider before starting a business.

Personal Financial Literacy
Disciplinary Concept:
Financial Psychology
Risk Management and Insurance

Core Ideas and Performance Expectation:

Financial Psychology
To be fiscally responsible, an individual's finances should align with his or her values and goals.
9.1.12.FP.1: Create a clear long-term financial plan to ensure its alignment with your values.
9.1.12.FP.2: Explain how an individual's financial values and goals may change across a lifetime and the adjustments to the personal financial plan that may be needed.

Risk Management and Insurance
A person's tolerance for investment risk can change depending on factors such as life circumstances, financial goals, and economic conditions.
9.1.12.RM.2: Identify types of investments appropriate for different objectives such as liquidity, income, and growth.

Social and Emotional Learning:

Competencies and Sub-Competencies

What are the benefits and challenges of collaborating with sponsor companies in the plumbing business, and how can partnerships be established and managed effectively to achieve mutual business objectives?
What legal and ethical considerations should be taken into account when drafting and negotiating contracts with clients, vendors, and sponsor companies in the plumbing industry?
How can data-driven insights and performance metrics be used to monitor and optimize marketing campaigns, maximize ROI, and achieve business objectives in the plumbing industry?

Activity Description:

1. Comprehensive Business Plan Project
   - Task: Develop a complete business plan for a hypothetical plumbing company, including market analysis, financial projections, and implementation strategies.
   - Skills: Create a comprehensive business plan; Organize and present business plan components coherently.

2. Marketing Campaign Design Challenge
   - Task: Design and present a marketing campaign targeting a specific customer segment (e.g., homeowners in a particular neighborhood).
   - Skills: Implement marketing strategies; Develop promotional campaigns.

3. Sponsor Partnership Simulation
   - Task: Participate in a role-playing exercise to establish a partnership with a sponsor company, negotiating terms and outlining mutual benefits.
   - Skills: Establish collaborative relationships; Negotiate terms and manage partnerships.

4. Contract Drafting Exercise
   - Task: Draft a service contract for a plumbing job, ensuring clear language and fair terms for both the plumber and client.
   - Skills: Draft contracts using clear and legally sound language; Ensure fair and equitable terms.

5. Marketing Analytics Project

Self-Awareness • Recognize one's feelings and thoughts • Recognize the impact of one's feelings and thoughts on one's own behavior • Recognize one's personal traits, strengths, and limitations • Recognize the importance of self-confidence in handling daily tasks and challenges **Self-Management** • Understand and practice strategies for managing one's own emotions, thoughts, and behaviors • Recognize the skills needed to establish and achieve personal and educational goals • Identify and apply ways to persevere or overcome barriers through alternative methods to achieve one's goals **Social Awareness** • Recognize and identify the thoughts, feelings, and perspectives of others • Demonstrate an awareness of the differences among individuals, groups, and others' cultural backgrounds • Demonstrate an understanding of the need for mutual respect when viewpoints differ • Demonstrate an awareness of the expectations for social interactions in a variety of settings **Responsible Decision-Making** • Develop, implement, and model effective problem-solving and critical thinking skills • Identify the consequences associated with one's actions in order to make constructive choices • Evaluate personal, ethical, safety, and civic impact of decisions **Relationship Skills** • Establish and maintain healthy relationships • Utilize positive communication and social skills to interact effectively with others	- Task: Analyze the performance of a mock marketing campaign using provided metrics, then propose optimizations based on the data. - Skills: Monitor marketing campaigns; Analyze performance metrics; Optimize marketing plans. 6. Data Management and Reporting Assignment - Task: Use Microsoft Access to create a database for managing client information and generate reports on service history and revenue. - Skills: Generate reports and maintain records; Organize and manage data for analysis. **Interdisciplinary Connections:** Math ELA **Content:** **Creating a Comprehensive Business Plan:** ○ Understand the components of a business plan, including mission statement, target market analysis, marketing strategies, financial projections, and implementation plans. ○ Develop the skills to create a detailed and well-organized business plan tailored to a specific business or industry. **Developing Strategies to Generate Interest in Products or Services:** ○ Explore techniques for creating interest and demand for products or services among target customers.○ Learn how to develop compelling marketing messages, promotional campaigns, and customer engagement strategies to attract potential clients. **Collaborating with Sponsor Companies:** ○ Understand the benefits and challenges of collaborating with sponsor companies to promote products or services. ○ Develop skills in establishing and maintaining partnerships with sponsors, negotiating terms, and leveraging resources to achieve mutual business objectives.

	Creating and Negotiating Contracts: ○ Learn the essential elements of contracts, including terms and conditions, payment terms, delivery schedules, and dispute resolution mechanisms. ○ Develop skills in drafting, reviewing, and negotiating contracts to ensure clarity, legality, and fairness for all parties involved. **Implementing and Monitoring Marketing Plans:** ○ Gain proficiency in implementing marketing plans and strategies developed as part of the business plan. ○ Learn how to monitor marketing campaigns, track performance metrics, and make data-driven adjustments to optimize results and achieve business objectives. **NJSLS#:** NJSLS-CLKS: 9.4.12.CI.1 (Demonstrate the ability to reflect, analyze, and use creative skills and ideas) NJSLS-CLKS: 9.4.12.IML.8 (Evaluate media sources for point of view, bias, and motivations) NJSLS-CLKS: 9.4.12.TL.1 (Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task) NJSLS-CLKS: 9.3.12.AG.2 (Analyze the relationship between regulatory agencies and the agriculture industry) NJSLS-CLKS: 9.2.12.CAP.4 (Evaluate different careers and develop various plans to prepare for employment) NJSLS-CLKS: 9.4.12.CT.2 (Explain the potential benefits of collaborating to enhance critical thinking and problem solving) NJSLS-CLKS: 9.4.12.IML.2 (Evaluate digital sources for timeliness, accuracy, perspective, credibility of the source, and relevance of information, in media, data, or other resources) NJSLS-CLKS: 9.4.12.TL.3 (Analyze the effectiveness of the process and quality of collaborative environments) NJSLS-CLKS: 9.4.12.TL.2 (Generate data using formula-based calculations in a spreadsheet and draw conclusions about the data)

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Assessments (Formative) ***To show evidence of meeting the standard/s, students will successfully engage within:***	**Assessments (Summative)** ***To show evidence of meeting the standard/s, students will successfully complete:***
Formative Assessments: Teacher Observation Do Now Homework Class Participation	**Benchmarks:** Quiz Exam **Summative Assessments:**

Portfolio Discussions Quiz Journal writing Group Assessment Group Interaction/Discussion/Computer Research Self and Peer Evaluations	Pre-Test Oral Presentations Projects Rubric Teacher observation Written Assessments Reflective Paper Group Presentations Business Plan Presentation and Evaluation: ○ Task students with developing a comprehensive business plan for a hypothetical plumbing business. ○ Require students to present their business plans to the class, highlighting key components such as market analysis, marketing strategies, financial projections, and implementation plans. ○ Evaluate presentations based on the clarity of the business plan, the effectiveness of marketing strategies, and the feasibility of financial projections. Marketing Campaign Analysis and Optimization Project: ○ Assign students to develop and execute a marketing campaign for a specific plumbing product or service. ○ Require students to monitor campaign performance metrics, such as reach, engagement, and conversion rates, using tools like Google Analytics or social media insights. ○ Task students with analyzing campaign data to identify strengths, weaknesses, and areas for improvement, and develop recommendations for optimizing the campaign to maximize ROI. Contract Negotiation Simulation Exercise: ○ Provide students with scenarios involving contract negotiation situations commonly encountered in the plumbing industry, such as client agreements, vendor contracts, or sponsor partnerships.

	○ Pair students and assign each pair a role (e.g., plumber, client, vendor) to negotiate contract terms and conditions. ○ Evaluate negotiation outcomes based on students' ability to articulate and defend their positions, reach mutually beneficial agreements, and demonstrate an understanding of legal and ethical considerations in contract negotiation.

Differentiated Student Access to Content:
Teaching and Learning *Resources/Materials*

Core Resources	**Alternate Core Resources** ***IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core Resources**
Tiered Content Materials: Textbooks at different reading levels (below, at, and above grade level) Simplified versions of texts with key concepts highlighted Advanced supplementary readings for accelerated learners Audio versions of texts for auditory learners or struggling readers Multimedia Resources: Educational videos and documentaries Interactive online modules and simulations Podcasts and audio recordings Infographics and visual aids	Tiered Content Materials: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners or struggling readers Leveled or topical readers at different reading levels Books on tape Highlighted text Collaborative Learning Tools: Opportunity to work alone, in pairs, or small groups Structured group roles for small group work Peer tutoring and mentoring programs Individualized Options:	Keep material concept-focused and principle-driven. Allow the use of digital translation or grouping students together. Provide multiple means of action and expression.	Advanced Textbooks: "Residential Construction Academy: Plumbing" by Michael Joyce and Ray Holder PHCC Educational Foundation's Plumbing Series (higher levels) Online Learning Platforms: NCCER's Plumbing curriculum (advanced modules) Khan Academy for advanced math concepts related to plumbing calculations Hands-On Materials: Advanced plumbing simulation software 3D modeling tools for creating detailed plumbing layouts Enrichment Activities: Independent research projects on emerging plumbing technologies

Hands-On Materials: Physical manipulatives and models Lab equipment and supplies for experiments Art supplies for creative projects Building materials for engineering challenges	Independent study options Compacting the curriculum for advanced learners Varied timelines or check-in points Choice of review activities ESL-Specific Resources: Bilingual dictionaries or glossaries Sentence frames and language scaffolds Visual supports for key vocabulary		Design challenges for innovative plumbing solutions Technology Integration: CAD software for designing advanced plumbing systems Virtual reality programs for exploring complex plumbing installations Problem-Solving Challenges: Complex troubleshooting scenarios using real-world plumbing issues Advanced math problems related to pipe sizing and water pressure calculations Industry Certifications: NCCER Plumbing Level One certification OSHA-30 Construction Industry certification Accelerated Curriculum: Cover topics from higher-level plumbing courses Introduce concepts from Plumbing Technology II
Supplemental Resources			

Technology:

- Laptop
- Chromebook
- SmartBoard
- Internet Access
- Projector

Other:

- Plumbing materials

Differentiated Student Access to Content:
Recommended *Strategies & Techniques*

Core Resources	**Alternate Core Resources *IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core**
Content Differentiation: Tiered content at different complexity levels Variety of textbooks at different reading levels Supplemental materials like videos, podcasts, and interactive modules Compacting curriculum for advanced learners Choice boards allowing students to select learning activities Varied resources/texts on the same topic Process Differentiation: Flexible grouping (whole group, small group, individual)	Content Differentiation: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners or struggling readers Leveled readers at different reading levels Bilingual materials for ESL students Visual aids, infographics, and multimedia resources Process Differentiation: Flexible grouping based on readiness levels	Content Differentiation: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners Leveled readers at different reading levels Bilingual materials and resources1 Visual aids, infographics, and multimedia resources Modified texts with rewording, reduced extraneous information, and added visuals Process Differentiation:	Content Differentiation: Advanced, above-grade level textbooks and materials Supplementary resources on complex or specialized topics Interdisciplinary curriculum connecting multiple subject areas Primary source documents and advanced readings Access to college-level coursework or materials Process Differentiation: Accelerated pacing of instruction Independent study options on topics of interest

Learning contracts tailored to student needs Interest centers focused on different aspects of a topic Varied instructional strategies (visual, auditory, kinesthetic) Scaffolded support like graphic organizers and writing frames Technology-enabled instruction (synchronous or asynchronous options) **Product Differentiation:** Multiple options for demonstrating learning (reports, presentations, models, etc.) Varied assessment methods based on student learning preferences Adjusting product expectations based on student readiness **Learning Environment Differentiation:** Flexible seating arrangements Options for individual, paired, or group work Varied time allocations for task completion Use of technology to support different learning needs	Scaffolded support like graphic organizers and writing frames Extended time for task completion One-on-one or small group instruction Use of assistive technology (text-to-speech, speech-to-text tools) **Product Differentiation:** Multiple options for demonstrating learning (oral presentations, projects, etc.) Adjusted expectations based on IEP/504 goals Alternative assessments aligned with student abilities Use of portfolios to showcase progress over time **Learning Environment Differentiation:** Flexible seating arrangements Quiet spaces for individual work Sensory tools or fidgets as needed Visual schedules and routines **Specialized Supports**	Flexible grouping based on language proficiency levels Scaffolded support like graphic organizers and writing frames Extended time for task completion One-on-one or small group instruction Use of gestures and total physical response to support verbal instruction Incorporation of students' native language or culture when possible **Product Differentiation:** Multiple options for demonstrating learning (oral presentations, projects, etc.) Adjusted expectations based on English proficiency levels Alternative assessments aligned with student abilities Use of portfolios to showcase progress over time **Learning Environment Differentiation:** Flexible seating arrangements Use of learning centers or stations focused on different aspects of a topic Visual schedules and routines	Problem-based and project-based learning opportunities Socratic seminars and philosophical discussions Mentorship programs with experts in fields of interest **Product Differentiation:** Open-ended, creative project options Real-world application of learning through authentic tasks Opportunities for original research and experimentation Multimedia presentations and publications Portfolio development to showcase depth of learning **Learning Environment Differentiation:** Flexible grouping with intellectual peers Access to advanced technology and lab equipment Field trips and off-campus learning experiences Online courses and virtual learning options

	Implementation of IEP accommodations and modifications ESL supports like sentence frames and vocabulary guides Interventions for at-risk students (e.g. reading interventions) Social-emotional learning supports Ongoing Assessment Frequent formative assessments to monitor progress Data-driven adjustments to instruction Progress monitoring aligned with IEP goals	Incorporation of culturally relevant materials and examples Specialized Supports: ESL supports like sentence frames and vocabulary guides Use of students' native language for clarification when needed Frequent opportunities for speaking and listening practice Integration of all four language skills (listening, speaking, reading, writing) Instructional Strategies: Slowing down speech and using clear enunciation Rephrasing and clarifying instructions Using visuals to support verbal instruction Providing content in multiple formats (visual, auditory, kinesthetic) Connecting content to students' interests and cultural backgrounds Utilizing music, melodies, or songs to enhance learning Ongoing Assessment: Frequent formative assessments to monitor progress	Competitions and academic challenges Specialized Supports: Critical and creative thinking skill development Training in research methods and academic writing Guidance on social-emotional needs of gifted learners College and career planning tailored to advanced learners Opportunities to explore passions and develop talents Instructional Strategies: Inquiry-based and discovery learning approaches Higher-order questioning techniques Abstract and complex problem-solving tasks Emphasis on depth and complexity of content Integration of multiple disciplines and perspectives Assessment Options:

		Data-driven adjustments to instruction Accommodated assessments (e.g., simplified language, added visuals)	Pre-assessments to determine readiness levels Performance-based and authentic assessments Self-assessment and reflection opportunities Above-grade level standardized testing Credit by examination options

New Jersey Legislative Statutes and Administrative Code (place an "X" before each law/statute if/when present within the curriculum map)											
	Amistad Law: *N.J.S.A. 18A 52:16A-88*		Holocaust Law: *N.J.S.A. 18A:35-28*		LGBT and Disabilities Law: *N.J.S.A. 18A:35-4.35*		Diversity & Inclusion: *N.J.S.A. 18A:35-4.36a*		Standards in Action: *Climate Change*		Erin's Law: *A-769/S-1130*

Marking Period	Unit Title	Recommended Instructional Days
4	Contracts and Legal Issues	10

CTE
Disciplinary Concept:
Construction

Core Ideas and Performance Expectation:

Construction

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.

Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-CLKS within Unit

Life Literacy & Key Skills
Disciplinary Concept:
Creativity and Innovation

Core Ideas and Performance Expectation:

Creativity and Innovation

Innovative ideas or innovation can lead to career opportunities.
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).

Essential Question/s:

What are the key elements required to create a legally binding contract, and how do they differ in the context of plumbing services?
How can proper document organization and filing ensure legal compliance and facilitate efficient record-keeping in the plumbing business?

9.4.12.CI.3: Investigate new challenges and opportunities for personal growth, advancement, and transition (e.g., 2.1.12.PGD.1).

Career Awareness, Exploration, Preparation, & Training
Disciplinary Concept:
Career Awareness and Planning

Core Ideas and Performance Expectation:

Career Awareness and Planning
Career planning requires purposeful planning based on research, self-knowledge, and informed choices.
9.2.5.CAP.5: Identify various employee benefits, including income, medical, vacation time, and lifestyle benefits provided by different types of jobs and careers.
9.2.5.CAP.6: Compare the characteristics of a successful entrepreneur with the traits of successful employees.
9.2.5.CAP.7: Identify factors to consider before starting a business.

Personal Financial Literacy
Disciplinary Concept:
Civic Financial Responsibility

Core Ideas and Performance Expectation:

Civic Financial Responsibility
Philanthropic, charitable, and entrepreneurial organizations play distinctly different but vitally important roles in supporting the interests of local and global communities.
9.1.12.CFR.2: Summarize causes important to you and compare organizations you seek to support to other organizations with similar missions

Social and Emotional Learning:

Competencies and Sub-Competencies

What is the importance of using precise legal language and terminology when drafting contracts, and how does it impact the enforceability of contractual agreements?
What legal principles and regulations specific to the plumbing industry should be considered when drafting contracts and agreements, and how do they affect business operations?
How can references such as the NCCER textbook Level 2 and the Plumbers Law book be effectively utilized to navigate legal issues and ensure compliance with industry standards in plumbing contracts?

Activity Description:

1. Contract Drafting Project
   - Task: Draft a comprehensive plumbing service contract for a residential bathroom renovation, including scope of work, payment terms, warranties, and legal disclaimers.
   - Skills: Create formal contracts; Apply legal language appropriately.

2. Legal Document Organization Challenge
   - Task: Given a set of various plumbing-related legal documents (contracts, permits, insurance forms), create an organized filing system with proper labeling and categorization.
   - Skills: Organize and file legal documents; Demonstrate proficiency in record-keeping.

3. Legal Terminology Fill-in-the-Blank Exercise
   - Task: Complete a partially filled plumbing contract by inserting appropriate legal terms and phrases in the blank spaces.
   - Skills: Apply legal language appropriately; Utilize proper legal terminology.

4. NCCER Textbook Case Study Analysis
   - Task: Read a specific chapter from the NCCER Level 2 textbook on legal concepts, then write an essay applying these concepts to a given plumbing scenario.

Self-Awareness • Recognize one's feelings and thoughts • Recognize the impact of one's feelings and thoughts on one's own behavior • Recognize one's personal traits, strengths, and limitations • Recognize the importance of self-confidence in handling daily tasks and challenges **Self-Management** • Understand and practice strategies for managing one's own emotions, thoughts, and behaviors • Recognize the skills needed to establish and achieve personal and educational goals • Identify and apply ways to persevere or overcome barriers through alternative methods to achieve one's goals **Social Awareness** • Recognize and identify the thoughts, feelings, and perspectives of others • Demonstrate an awareness of the differences among individuals, groups, and others' cultural backgrounds • Demonstrate an understanding of the need for mutual respect when viewpoints differ • Demonstrate an awareness of the expectations for social interactions in a variety of settings **Responsible Decision-Making** • Develop, implement, and model effective problem-solving and critical thinking skills • Identify the consequences associated with one's actions in order to make constructive choices • Evaluate personal, ethical, safety, and civic impact of decisions **Relationship Skills** • Establish and maintain healthy relationships • Utilize positive communication and social skills to interact effectively with others	- Skills: Analyze legal concepts from textbooks; Apply knowledge to real-world scenarios. 5. Plumbers Law Book Research Assignment - Task: Use the Plumbers Law book to research a specific legal issue in plumbing (e.g., liability for faulty installations), and present findings to the class. - Skills: Evaluate legal references; Apply knowledge to inform decision-making. 6. Contract Negotiation Role-Play - Task: In pairs, role-play a contract negotiation between a plumber and a client, focusing on clear communication of legal terms and conditions. - Skills: Apply knowledge of contract elements; Utilize proper legal language. 7. Legal Compliance Checklist Creation - Task: Develop a comprehensive checklist for ensuring legal compliance in plumbing contracts, based on information from the NCCER textbook and Plumbers Law book. - Skills: Analyze legal concepts; Evaluate legal references; Apply knowledge to practical tools. 8. Mock Legal Audit Preparation - Task: Prepare a set of legal documents for a mock audit, ensuring all necessary contracts, permits, and disclosures are properly organized and compliant. - Skills: Organize and file legal documents; Demonstrate proficiency in regulatory compliance. 9. Contract Comparison and Analysis - Task: Compare and contrast two different plumbing contracts, identifying strengths, weaknesses, and areas for improvement in terms of legal language and coverage. - Skills: Analyze legal concepts; Apply legal language appropriately; Evaluate legal references.

	10. Legal Case Study Presentation - Task: Research and present on a real-world legal case involving a plumbing contract dispute, analyzing the legal principles involved and lessons learned. - Skills: Analyze legal concepts; Evaluate legal references; Apply knowledge to real-world scenarios. **Interdisciplinary Connections:** Math ELA **Content:** **Drafting Contracts:** ○ Understand the essential elements of a contract and how to draft formal agreements for plumbing customers, including terms, conditions, and legal considerations. ○ Learn to use appropriate language and terminology when filling out contract documents to ensure clarity and enforceability. **Filing Documents:** ○ Familiarize with the process of filing legal documents, including contracts, agreements, and disclosures, in accordance with regulatory requirements. ○ Develop skills in organizing and maintaining document files to ensure accessibility and compliance. **Legal Language and Terminology:** ○ Learn to use proper legal language and terminology when filling out documents to convey precise meanings and legal implications. ○ Understand the significance of using accurate and specific wording to avoid misunderstandings and potential legal disputes. **NCCER Textbook Level 2:** ○ Study relevant sections of the NCCER textbook Level 2 to gain a deeper understanding of legal concepts and regulations specific to the plumbing industry.

	○ Apply knowledge from the textbook to real-world scenarios and exercises related to contract drafting and legal compliance. **Plumbers Law Book:** ○ Utilize the Plumbers Law book as a reference source for legal principles, regulations, and case studies relevant to plumbing contracts and legal issues. ○ Extract pertinent information from the Plumbers Law book to inform contract drafting and decision-making processes. **NJSLS#:** NJSLS-CLKS: 9.4.12.CI.1 (Demonstrate the ability to reflect, analyze, and use creative skills and ideas) NJSLS-CLKS: 9.4.12.IML.8 (Evaluate media sources for point of view, bias, and motivations) NJSLS-CLKS: 9.4.12.TL.1 (Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task) NJSLS-CLKS: 9.3.12.AG.2 (Analyze the relationship between regulatory agencies and the agriculture industry) NJSLS-CLKS: 9.2.12.CAP.4 (Evaluate different careers and develop various plans to prepare for employment) NJSLS-CLKS: 9.4.12.CT.2 (Explain the potential benefits of collaborating to enhance critical thinking and problem solving) NJSLS-CLKS: 9.4.12.IML.2 (Evaluate digital sources for timeliness, accuracy, perspective, credibility of the source, and relevance of information, in media, data, or other resources) NJSLS-CLKS: 9.4.12.TL.3 (Analyze the effectiveness of the process and quality of collaborative environments) NJSLS-CLKS: 9.4.12.TL.2 (Generate data using formula-based calculations in a spreadsheet and draw conclusions about the data) NJSLS-CLKS: 9.4.12.CI.3 (Investigate new challenges and opportunities for personal growth, advancement, and transition) NJSLS-CLKS: 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)

	NJSLS-CLKS: 9.4.12.DC.7 (Evaluate the influence of digital communities on the nature, content and responsibilities of careers, and other aspects of society) Act as a responsible and contributing community member and employee. Attend to financial well-being. Consider the environmental, social and economic impacts of decisions. Demonstrate creativity and innovation. Utilize critical thinking to make sense of problems and persevere in solving them. Model integrity, ethical leadership and effective management. Plan education and career paths aligned to personal goals. Use technology to enhance productivity, increase collaboration, and communicate effectively. Work productively in teams while using cultural/global competence.

Assessments (Formative) ***To show evidence of meeting the standard/s, students will successfully engage within:***	**Assessments (Summative)** ***To show evidence of meeting the standard/s, students will successfully complete:***
Formative Assessments: Teacher Observation Do Now Homework Class Participation Portfolio Discussions Quiz Journal writing Group Assessment Group Interaction/Discussion/Computer Research Self and Peer Evaluations	**Benchmarks:** Quiz Exam **Summative Assessments:** Pre-Test Oral Presentations Projects Rubric Teacher observation Written Assessments Reflective Paper Group Presentations

Differentiated Student Access to Content: **Teaching and Learning *Resources/Materials***			
Core Resources	**Alternate Core Resources** ***IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core Resources**
Tiered Content Materials: Textbooks at different reading levels (below, at, and above grade level) Simplified versions of texts with key concepts highlighted Advanced supplementary readings for accelerated learners Audio versions of texts for auditory	Tiered Content Materials: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners or struggling readers Leveled or topical readers at different reading levels Books on tape Highlighted text	Keep material concept-focused and principle-driven. Allow the use of digital translation or grouping students together. Provide multiple means of action and expression.	Advanced Textbooks: "Residential Construction Academy: Plumbing" by Michael Joyce and Ray Holder PHCC Educational Foundation's Plumbing Series (higher levels) Online Learning Platforms: NCCER's Plumbing curriculum (advanced modules)

learners or struggling readers Multimedia Resources: Educational videos and documentaries Interactive online modules and simulations Podcasts and audio recordings Infographics and visual aids Hands-On Materials: Physical manipulatives and models Lab equipment and supplies for experiments Art supplies for creative projects Building materials for engineering challenges	Collaborative Learning Tools: Opportunity to work alone, in pairs, or small groups Structured group roles for small group work Peer tutoring and mentoring programs Individualized Options: Independent study options Compacting the curriculum for advanced learners Varied timelines or check-in points Choice of review activities ESL-Specific Resources: Bilingual dictionaries or glossaries Sentence frames and language scaffolds Visual supports for key vocabulary		Khan Academy for advanced math concepts related to plumbing calculations Hands-On Materials: Advanced plumbing simulation software 3D modeling tools for creating detailed plumbing layouts Enrichment Activities: Independent research projects on emerging plumbing technologies Design challenges for innovative plumbing solutions Technology Integration: CAD software for designing advanced plumbing systems Virtual reality programs for exploring complex plumbing installations Problem-Solving Challenges: Complex troubleshooting scenarios using real-world plumbing issues Advanced math problems related to pipe sizing and water pressure calculations Industry Certifications: NCCER Plumbing Level One certification

			OSHA-30 Construction Industry certification Accelerated Curriculum: Cover topics from higher-level plumbing courses Introduce concepts from Plumbing Technology II

Supplemental Resources

Technology:

- Laptop
- Chromebook
- SmartBoard
- Internet Access
- Projector

Other:

- Plumbing materials

Differentiated Student Access to Content:
Recommended *Strategies & Techniques*

Core Resources	**Alternate Core Resources** ***IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core**
Content Differentiation: Tiered content at different complexity levels Variety of textbooks at different reading levels	Content Differentiation: Simplified versions of texts with key concepts highlighted	Content Differentiation: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners	Content Differentiation: Advanced, above-grade level textbooks and materials Supplementary resources on complex or specialized topics

Supplemental materials like videos, podcasts, and interactive modules Compacting curriculum for advanced learners Choice boards allowing students to select learning activities Varied resources/texts on the same topic Process Differentiation: Flexible grouping (whole group, small group, individual) Learning contracts tailored to student needs Interest centers focused on different aspects of a topic Varied instructional strategies (visual, auditory, kinesthetic) Scaffolded support like graphic organizers and writing frames Technology-enabled instruction (synchronous or asynchronous options) Product Differentiation: Multiple options for demonstrating learning (reports, presentations, models, etc.) Varied assessment methods based on student learning preferences	Audio versions of texts for auditory learners or struggling readers Leveled readers at different reading levels Bilingual materials for ESL students Visual aids, infographics, and multimedia resources Process Differentiation: Flexible grouping based on readiness levels Scaffolded support like graphic organizers and writing frames Extended time for task completion One-on-one or small group instruction Use of assistive technology (text-to-speech, speech-to-text tools) Product Differentiation: Multiple options for demonstrating learning (oral presentations, projects, etc.) Adjusted expectations based on IEP/504 goals Alternative assessments aligned with student abilities	Leveled readers at different reading levels Bilingual materials and resources1 Visual aids, infographics, and multimedia resources Modified texts with rewording, reduced extraneous information, and added visuals Process Differentiation: Flexible grouping based on language proficiency levels Scaffolded support like graphic organizers and writing frames Extended time for task completion One-on-one or small group instruction Use of gestures and total physical response to support verbal instruction Incorporation of students' native language or culture when possible Product Differentiation: Multiple options for demonstrating learning (oral presentations, projects, etc.) Adjusted expectations based on English proficiency levels Alternative assessments aligned with student abilities	Interdisciplinary curriculum connecting multiple subject areas Primary source documents and advanced readings Access to college-level coursework or materials Process Differentiation: Accelerated pacing of instruction Independent study options on topics of interest Problem-based and project-based learning opportunities Socratic seminars and philosophical discussions Mentorship programs with experts in fields of interest Product Differentiation: Open-ended, creative project options Real-world application of learning through authentic tasks Opportunities for original research and experimentation Multimedia presentations and publications Portfolio development to showcase depth of learning

Adjusting product expectations based on student readiness Learning Environment Differentiation: Flexible seating arrangements Options for individual, paired, or group work Varied time allocations for task completion Use of technology to support different learning needs	Use of portfolios to showcase progress over time Learning Environment Differentiation: Flexible seating arrangements Quiet spaces for individual work Sensory tools or fidgets as needed Visual schedules and routines Specialized Supports Implementation of IEP accommodations and modifications ESL supports like sentence frames and vocabulary guides Interventions for at-risk students (e.g. reading interventions) Social-emotional learning supports Ongoing Assessment Frequent formative assessments to monitor progress Data-driven adjustments to instruction Progress monitoring aligned with IEP goals	Use of portfolios to showcase progress over time Learning Environment Differentiation: Flexible seating arrangements Use of learning centers or stations focused on different aspects of a topic Visual schedules and routines Incorporation of culturally relevant materials and examples Specialized Supports: ESL supports like sentence frames and vocabulary guides Use of students' native language for clarification when needed Frequent opportunities for speaking and listening practice Integration of all four language skills (listening, speaking, reading, writing) Instructional Strategies: Slowing down speech and using clear enunciation Rephrasing and clarifying instructions Using visuals to support verbal instruction	Learning Environment Differentiation: Flexible grouping with intellectual peers Access to advanced technology and lab equipment Field trips and off-campus learning experiences Online courses and virtual learning options Competitions and academic challenges Specialized Supports: Critical and creative thinking skill development Training in research methods and academic writing Guidance on social-emotional needs of gifted learners College and career planning tailored to advanced learners Opportunities to explore passions and develop talents Instructional Strategies: Inquiry-based and discovery learning approaches

		Providing content in multiple formats (visual, auditory, kinesthetic) Connecting content to students' interests and cultural backgrounds Utilizing music, melodies, or songs to enhance learning Ongoing Assessment: Frequent formative assessments to monitor progress Data-driven adjustments to instruction Accommodated assessments (e.g., simplified language, added visuals)	Higher-order questioning techniques Abstract and complex problem-solving tasks Emphasis on depth and complexity of content Integration of multiple disciplines and perspectives Assessment Options: Pre-assessments to determine readiness levels Performance-based and authentic assessments Self-assessment and reflection opportunities Above-grade level standardized testing Credit by examination options

New Jersey Legislative Statutes and Administrative Code (place an "X" before each law/statute if/when present within the curriculum map)											
	Amistad Law: *N.J.S.A. 18A 52:16A-88*		Holocaust Law: *N.J.S.A. 18A:35-28*		LGBT and Disabilities Law: *N.J.S.A. 18A:35-4.35*		Diversity & Inclusion: *N.J.S.A. 18A:35-4.36a*		Standards in Action: *Climate Change*		Erin's Law: *A-769/S-1130*

Marking Period	Unit Title	Recommended Instructional Days
4	Troubleshooting/Maintenance/Repairs	10

CTE
Disciplinary Concept:
Maintenance/Operations

Core Ideas and Performance Expectation:

Maintenance/Operations

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.

Life Literacy & Key Skills
Disciplinary Concept:
Critical Thinking and Problem-solving

Core Ideas and Performance Expectation:

Critical Thinking and Problem-solving

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).

Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-CLKS within Unit

Essential Question/s:

How can we identify common plumbing fixture issues, and what are the steps involved in diagnosing and repairing them effectively to prevent further damage?
What are the key components of plumbing valves, and how do we troubleshoot and repair valve malfunctions such as leaks, blockages, and faulty operation?

Career Awareness, Exploration, Preparation, & Training Disciplinary Concept:	Why is it important to inspect and replace seals in plumbing fixtures, valves, and connections, and what are the methods for ensuring proper sealing and functionality? How do we determine when to replace filters in plumbing systems, and what factors should be considered when selecting and installing filters for water purification and system maintenance? What are the best practices for purifying piping systems, and how do we assess piping system conditions and implement appropriate purification measures to maintain cleanliness and sanitation?
Core Ideas and Performance Expectation:	
Personal Financial Literacy Disciplinary Concept:	
Core Ideas and Performance Expectation:	
Social and Emotional Learning: ***Competencies and Sub-Competencies***	**Activity Description**:
Self-Awareness • Recognize one's feelings and thoughts • Recognize the impact of one's feelings and thoughts on one's own behavior • Recognize one's personal traits, strengths, and limitations • Recognize the importance of self-confidence in handling daily tasks and challenges **Self-Management** • Understand and practice strategies for managing one's own emotions, thoughts, and behaviors • Recognize the skills needed to establish and achieve personal and educational goals • Identify and apply ways to persevere or overcome barriers through alternative methods to achieve one's goals **Social Awareness** • Recognize and identify the thoughts, feelings, and perspectives of others • Demonstrate an awareness of the differences among individuals, groups, and others' cultural backgrounds • Demonstrate an understanding of the need for mutual respect when viewpoints differ	1. Fixture Diagnosis and Repair Lab - Task: Given a set of malfunctioning fixtures (e.g., leaky faucet, clogged toilet), diagnose the issues and perform necessary repairs. - Skills: Diagnose and repair fixture issues; Change faucets and washers. 2. Valve Troubleshooting Challenge - Task: Troubleshoot and repair a series of malfunctioning valves, documenting the process and solutions for each. - Skills: Troubleshoot and repair valves; Inspect and replace seals. 3. Seal Inspection and Replacement Exercise - Task: Inspect various plumbing fixtures for worn or damaged seals, then demonstrate proper seal replacement techniques. - Skills: Inspect and replace seals; Diagnose and repair fixture issues. 4. Water Filter Replacement Project - Task: Research different types of water filters, then demonstrate the proper replacement process for filters in various plumbing systems. - Skills: Replace filters for water purification; Select appropriate filters. 5. Pipe System Purification Simulation

• Demonstrate an awareness of the expectations for social interactions in a variety of settings **Responsible Decision-Making** • Develop, implement, and model effective problem-solving and critical thinking skills • Identify the consequences associated with one's actions in order to make constructive choices • Evaluate personal, ethical, safety, and civic impact of decisions **Relationship Skills** • Establish and maintain healthy relationships • Utilize positive communication and social skills to interact effectively with others	- Task: Develop and present a plan for purifying a hypothetical contaminated piping system, including flushing, cleaning, and disinfection procedures. - Skills: Purify piping systems; Assess piping system conditions. 6. Faucet and Washer Replacement Race - Task: Participate in a timed competition to correctly remove and replace faucets and washers on various fixtures. - Skills: Change faucets and washers; Diagnose and repair fixture issues. 7. Plumbing System Maintenance Plan - Task: Create a comprehensive maintenance plan for a residential plumbing system, including schedules for inspections, filter changes, and purification procedures. - Skills: All listed skills integrated into a holistic maintenance approach. 8. Troubleshooting Case Study Analysis - Task: Analyze real-world case studies of complex plumbing issues, proposing diagnostic steps and repair solutions. - Skills: Diagnose and repair fixture issues; Troubleshoot and repair valves; Assess piping system conditions. 9. Water Quality Testing and Filtration Project - Task: Test water samples for various contaminants, then recommend and install appropriate filtration systems based on the results. - Skills: Replace filters for water purification; Select appropriate filters; Purify piping systems. 10. Plumbing Repair Video Tutorial Creation - Task: Create instructional videos demonstrating proper techniques for diagnosing and repairing common plumbing issues. - Skills: All listed skills, with emphasis on clear communication and demonstration of techniques. **Interdisciplinary Connections:** Math

	ELA **Content:** **Fixture Repairs:** ○ Understand the common issues associated with plumbing fixtures such as faucets, sinks, and toilets. ○ Learn the methods and techniques for diagnosing and repairing fixture malfunctions, including leaks, drips, and clogs. **Valve Repairs:** ○ Identify various types of valves used in plumbing systems and their respective functions. ○ Learn how to troubleshoot and repair valve problems, including leaks, blockages, and faulty operation. **Seal Repairs/Replacement:** ○ Understand the importance of seals in preventing leaks and maintaining plumbing system integrity. ○ Learn how to inspect, repair, and replace seals in fixtures, valves, and connections. **Filter Replacements:** ○ Understand the role of filters in water purification and plumbing system maintenance. ○ Learn how to identify and replace filters in different plumbing fixtures and systems to ensure water quality and system performance. **Purification of Piping:** ○ Understand the importance of maintaining clean and sanitary piping in plumbing systems. ○ Learn methods and techniques for purifying piping, including flushing, cleaning, and disinfection procedures. **Changing Faucets and Washers:** ○ Learn how to remove and install faucets and washers in plumbing fixtures. ○ Understand the steps involved in replacing worn or damaged faucets and washers to restore proper function and prevent leaks.

	NJSLS#: NJSLS-CLKS: 9.4.12.CI.1 (Demonstrate the ability to reflect, analyze, and use creative skills and ideas) NJSLS-CLKS: 9.4.12.IML.8 (Evaluate media sources for point of view, bias, and motivations) NJSLS-CLKS: 9.4.12.TL.1 (Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task) NJSLS-CLKS: 9.3.12.AG.2 (Analyze the relationship between regulatory agencies and the agriculture industry) NJSLS-CLKS: 9.2.12.CAP.4 (Evaluate different careers and develop various plans to prepare for employment) NJSLS-CLKS: 9.4.12.CT.2 (Explain the potential benefits of collaborating to enhance critical thinking and problem solving) NJSLS-CLKS: 9.4.12.IML.2 (Evaluate digital sources for timeliness, accuracy, perspective, credibility of the source, and relevance of information, in media, data, or other resources) NJSLS-CLKS: 9.4.12.TL.3 (Analyze the effectiveness of the process and quality of collaborative environments) NJSLS-CLKS: 9.4.12.TL.2 (Generate data using formula-based calculations in a spreadsheet and draw conclusions about the data) NJSLS-CLKS: 9.4.12.CI.3 (Investigate new challenges and opportunities for personal growth, advancement, and transition) NJSLS-CLKS: 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) NJSLS-CLKS: 9.4.12.DC.7 (Evaluate the influence of digital communities on the nature, content and responsibilities of careers, and other aspects of society) Act as a responsible and contributing community member and employee. Attend to financial well-being. Consider the environmental, social and economic impacts of decisions.

	Demonstrate creativity and innovation. Utilize critical thinking to make sense of problems and persevere in solving them. Model integrity, ethical leadership and effective management. Plan education and career paths aligned to personal goals. Use technology to enhance productivity, increase collaboration, and communicate effectively. Work productively in teams while using cultural/global competence.
Assessments (Formative) ***To show evidence of meeting the standard/s, students will successfully engage within:***	**Assessments (Summative)** ***To show evidence of meeting the standard/s, students will successfully complete:***
Formative Assessments: Teacher Observation Do Now Homework Class Participation Portfolio Discussions	**Benchmarks:** Quiz Exam **Summative Assessments:** Pre-Test Oral Presentations

Quiz Journal writing Group Assessment Group Interaction/Discussion/Computer Research Self and Peer Evaluations	Projects Rubric Teacher observation Written Assessments Reflective Paper Group Presentations Practical Repair Skills Assessment: ○ Task students with diagnosing and repairing simulated plumbing issues in a controlled environment, such as a mock plumbing system or fixtures set up in the classroom. ○ Evaluate students' ability to identify problems, select appropriate repair methods and tools, and execute repairs effectively while adhering to safety protocols and industry standards. Written Troubleshooting Exam: ○ Administer a written exam that presents various plumbing scenarios and asks students to identify potential issues, troubleshoot the problems, and propose solutions. ○ Assess students' understanding of common plumbing problems, their ability to apply troubleshooting techniques, and their knowledge of repair methods and best practices. Research and Presentation Project: ○ Assign students a research project on a specific plumbing maintenance or repair topic, such as water heater maintenance, faucet repair, or pipe sealing techniques. ○ Require students to conduct research, gather relevant information, and prepare a presentation highlighting key concepts, troubleshooting methods, repair techniques, and preventive maintenance strategies. ○ Evaluate students' research skills, presentation abilities, and depth of understanding of the chosen topic through their presentations and accompanying materials.

Differentiated Student Access to Content: Teaching and Learning *Resources/Materials*			
Core Resources	**Alternate Core Resources *IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core Resources**
Tiered Content Materials: Textbooks at different reading levels (below, at, and above grade level) Simplified versions of texts with key concepts highlighted Advanced supplementary readings for accelerated learners Audio versions of texts for auditory learners or struggling readers Multimedia Resources: Educational videos and documentaries Interactive online modules and simulations Podcasts and audio recordings Infographics and visual aids Hands-On Materials: Physical manipulatives and models Lab equipment and supplies for experiments	Tiered Content Materials: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners or struggling readers Leveled or topical readers at different reading levels Books on tape Highlighted text Collaborative Learning Tools: Opportunity to work alone, in pairs, or small groups Structured group roles for small group work Peer tutoring and mentoring programs Individualized Options: Independent study options Compacting the curriculum for advanced learners Varied timelines or check-in points	Keep material concept-focused and principle-driven. Allow the use of digital translation or grouping students together. Provide multiple means of action and expression.	Advanced Textbooks: "Residential Construction Academy: Plumbing" by Michael Joyce and Ray Holder PHCC Educational Foundation's Plumbing Series (higher levels) Online Learning Platforms: NCCER's Plumbing curriculum (advanced modules) Khan Academy for advanced math concepts related to plumbing calculations Hands-On Materials: Advanced plumbing simulation software 3D modeling tools for creating detailed plumbing layouts Enrichment Activities: Independent research projects on emerging plumbing technologies Design challenges for innovative plumbing solutions Technology Integration:

Art supplies for creative projects Building materials for engineering challenges	Choice of review activities ESL-Specific Resources: Bilingual dictionaries or glossaries Sentence frames and language scaffolds Visual supports for key vocabulary		CAD software for designing advanced plumbing systems Virtual reality programs for exploring complex plumbing installations Problem-Solving Challenges: Complex troubleshooting scenarios using real-world plumbing issues Advanced math problems related to pipe sizing and water pressure calculations Industry Certifications: NCCER Plumbing Level One certification OSHA-30 Construction Industry certification Accelerated Curriculum: Cover topics from higher-level plumbing courses Introduce concepts from Plumbing Technology II
Supplemental Resources			
Technology: ● Laptop ● Chromebook ● SmartBoard ● Internet Access			

- Projector

Other:

- Plumbing materials

Differentiated Student Access to Content:
Recommended *Strategies & Techniques*

Core Resources	**Alternate Core Resources *IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core**
Content Differentiation: Tiered content at different complexity levels Variety of textbooks at different reading levels Supplemental materials like videos, podcasts, and interactive modules Compacting curriculum for advanced learners Choice boards allowing students to select learning activities Varied resources/texts on the same topic Process Differentiation: Flexible grouping (whole group, small group, individual) Learning contracts tailored to student needs Interest centers focused on different aspects of a topic	Content Differentiation: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners or struggling readers Leveled readers at different reading levels Bilingual materials for ESL students Visual aids, infographics, and multimedia resources Process Differentiation: Flexible grouping based on readiness levels Scaffolded support like graphic organizers and writing frames Extended time for task completion	Content Differentiation: Simplified versions of texts with key concepts highlighted Audio versions of texts for auditory learners Leveled readers at different reading levels Bilingual materials and resources1 Visual aids, infographics, and multimedia resources Modified texts with rewording, reduced extraneous information, and added visuals Process Differentiation: Flexible grouping based on language proficiency levels Scaffolded support like graphic organizers and writing frames Extended time for task completion	Content Differentiation: Advanced, above-grade level textbooks and materials Supplementary resources on complex or specialized topics Interdisciplinary curriculum connecting multiple subject areas Primary source documents and advanced readings Access to college-level coursework or materials Process Differentiation: Accelerated pacing of instruction Independent study options on topics of interest Problem-based and project-based learning opportunities Socratic seminars and philosophical discussions

Varied instructional strategies (visual, auditory, kinesthetic) Scaffolded support like graphic organizers and writing frames Technology-enabled instruction (synchronous or asynchronous options) **Product Differentiation:** Multiple options for demonstrating learning (reports, presentations, models, etc.) Varied assessment methods based on student learning preferences Adjusting product expectations based on student readiness **Learning Environment Differentiation:** Flexible seating arrangements Options for individual, paired, or group work Varied time allocations for task completion Use of technology to support different learning needs	One-on-one or small group instruction Use of assistive technology (text-to-speech, speech-to-text tools) **Product Differentiation:** Multiple options for demonstrating learning (oral presentations, projects, etc.) Adjusted expectations based on IEP/504 goals Alternative assessments aligned with student abilities Use of portfolios to showcase progress over time **Learning Environment Differentiation:** Flexible seating arrangements Quiet spaces for individual work Sensory tools or fidgets as needed Visual schedules and routines **Specialized Supports** Implementation of IEP accommodations and modifications	One-on-one or small group instruction Use of gestures and total physical response to support verbal instruction Incorporation of students' native language or culture when possible **Product Differentiation:** Multiple options for demonstrating learning (oral presentations, projects, etc.) Adjusted expectations based on English proficiency levels Alternative assessments aligned with student abilities Use of portfolios to showcase progress over time **Learning Environment Differentiation:** Flexible seating arrangements Use of learning centers or stations focused on different aspects of a topic Visual schedules and routines Incorporation of culturally relevant materials and examples **Specialized Supports:** ESL supports like sentence frames and vocabulary guides	Mentorship programs with experts in fields of interest **Product Differentiation:** Open-ended, creative project options Real-world application of learning through authentic tasks Opportunities for original research and experimentation Multimedia presentations and publications Portfolio development to showcase depth of learning **Learning Environment Differentiation:** Flexible grouping with intellectual peers Access to advanced technology and lab equipment Field trips and off-campus learning experiences Online courses and virtual learning options Competitions and academic challenges **Specialized Supports:**

	ESL supports like sentence frames and vocabulary guides Interventions for at-risk students (e.g. reading interventions) Social-emotional learning supports Ongoing Assessment Frequent formative assessments to monitor progress Data-driven adjustments to instruction Progress monitoring aligned with IEP goals	Use of students' native language for clarification when needed Frequent opportunities for speaking and listening practice Integration of all four language skills (listening, speaking, reading, writing) Instructional Strategies: Slowing down speech and using clear enunciation Rephrasing and clarifying instructions Using visuals to support verbal instruction Providing content in multiple formats (visual, auditory, kinesthetic) Connecting content to students' interests and cultural backgrounds Utilizing music, melodies, or songs to enhance learning Ongoing Assessment: Frequent formative assessments to monitor progress Data-driven adjustments to instruction Accommodated assessments (e.g., simplified language, added visuals)	Critical and creative thinking skill development Training in research methods and academic writing Guidance on social-emotional needs of gifted learners College and career planning tailored to advanced learners Opportunities to explore passions and develop talents Instructional Strategies: Inquiry-based and discovery learning approaches Higher-order questioning techniques Abstract and complex problem-solving tasks Emphasis on depth and complexity of content Integration of multiple disciplines and perspectives Assessment Options: Pre-assessments to determine readiness levels Performance-based and authentic assessments

			Self-assessment and reflection opportunities Above-grade level standardized testing Credit by examination options

New Jersey Legislative Statutes and Administrative Code (place an "X" before each law/statute if/when present within the curriculum map)											
	Amistad Law: *N.J.S.A. 18A 52:16A-88*		Holocaust Law: *N.J.S.A. 18A:35-28*		LGBT and Disabilities Law: *N.J.S.A. 18A:35-4.35*		Diversity & Inclusion: *N.J.S.A. 18A:35-4.36a*		Standards in Action: *Climate Change*		Erin's Law: *A-769/S-1130*

Work-Based Learning Experiences (WBL)- *Previously called Structured Learning Experience (SLE)

Each course within a CTE program is now required to include at least one WBL each year.

Work-Based Learning: Sustained, meaningful interactions with industry or community professionals that foster in-depth, firsthand engagement with the tasks required in a given career field. Experiences may be delivered in workplaces, in the community, at educational institutions, and/or virtually. WBL is aligned with national, state, and/or local standards. WBL develops and reinforces relevant technical, academic, and employability knowledge and skills.

WBL Integration/Activity:	Duration:	Brief description of activities:
		Career Fair, guest speaker, and project feedback.
WBL Partners:		

Content Area: Career Readiness, Life Literacies, and Key Skills (NJSLS-CLKS 9.2, 9.3, 9.4) Grades K - 12 Grade: 9-12	Dev. Date:

Career and Technical Student Organization- *Every CTE program must incorporate a Career and Technical Student Organization (CTSO).		
CTSO:	**CTSO Advisor:**	

Freshman Level: Approximately 10 hours Career Awareness- brief exposure to a variety of work settings needs.	**Sophomore Level: Approximately 20 hours** Career Exploration- understand the nature of work through first-hand exposure to the workplace.	**Junior Level: Approximately 50 hours** Career Preparation - builds basic workplace competence	**Senior Level: Approximately 75 hours** Work-Related Training - a period of work experience for the purpose of training job skills and job-related skills. work experience Students may or may not be paid.
Career fair Guest Speakers Online Career Navigation, Assessments, Videos Informational Interviews Workplace Tours/Field Trips	Informational interviews Job shadowing Workplace tours/worksite visits Simulated Workplace Experience Mock Interviews	Service-learning Interactive/Hands-on demonstrations with industry prof. (online, in person, simulated) Career Cluster Employer Panel Presentations Structured Assignments after a workplace tour, presentation, shadowing Career Related Competitions School-based enterprises Simulated Workplace Experience Non-Paid Work Experience Service Learning/Volunteering	Internships (Paid or Non-Paid) Service Learning Student-led Enterprises Volunteering Work Experience (Paid or Non-Paid) Pre-Apprenticeships Apprenticeship