

PLTW CIVIL ENGINEERING AND ARCHITECTURE	
CURRICULUM/CONTENT AREA	COURSE LENGTH
ATE	1 Semester
GRADE LEVEL	DATE LAST REVIEWED
9-12	2022
PREREQUISITE(s) if applicable	BOARD APPROVAL DATE
None	11/15/2022
PRIMARY RESOURCE if applicable	
PLTW Civil Engineering and Architecture	
DESIRED RESULTS	
COURSE DESCRIPTION AND PURPOSE	
Improving our world through thoughtful building design and development! Students learn the fundamentals of building design, site design, and development. They apply math, science, and standard engineering practices to design both residential and commercial projects and document their work using 3D architectural design software. You can change the world, one project at a time.	
ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<i>Students will understand that...</i>	<i>Students will keep considering...</i>
Creativity, innovation, and critical thinking are essential for success in a technologically advanced world.	Why is creativity and innovation important? How is creativity and innovation used in civil engineering and architecture?
	How do teams efficiently and effectively solve problems in an increasingly complex world?
	What strategies and processes can I use to become a more effective creator, thinker and problem solver?
The ability to communicate and collaborate with people with diverse backgrounds and perspectives is key to participation in a global economic society.	Why is communication and collaboration important? How do positive work behaviors and personal qualities impact communication and collaboration?
	What is effective teamwork? What strategies can I use/teams use to work better together? How can perspectives and experiences of a diverse group develop innovative solutions to a given problem?
Career and technical education provides pathways to high-demand, high-wage career opportunities, and personal fulfillment.	Why is career and life readiness important? What jobs and careers are available to meet individual and societal needs locally, regionally, and nationally?
	How might technical knowledge and skills influence one's employability and advancement opportunities within various work settings?
	What are employability skills? How do I prepare myself for a career that is in demand now and in 5, 10, or 20 years from now?
PRIORITY CAREER & TECHNICAL STANDARDS	
<i>Students will be skilled at...</i>	
Creativity, Critical Thinking, Communication and Collaboration	
4C2: Students will formulate and defend judgments and decisions by employing critical thinking skills.	
a: I develop effective resolutions for a given problem, decision or opportunity using available information.	
b: I develop and implement a resolution for a new situation using personal knowledge and experience.	
Career Development	
CD4: Students will identify and apply employability skills.	
a: I identify and demonstrate positive work behaviors and personal qualities needed to be employable.	
b: I demonstrate skills related to seeking and applying for employment to find and obtain a desired job.	
c: I identify and exhibit traits for retaining employment.	
d: I develop positive relationships with others.	

Information, Media, Technology

IMT1: Students will access, interpret and evaluate information from a variety of sources in order to inform and support premises, arguments, decisions, ideas and initiatives.

- a: I choose appropriate sources of data and information for a given purpose.
- b: I determine the relevance, validity and timeliness of data and information.
- c: I select relevant information necessary for making decisions and solving problems
- d: I apply data and information to communicate ideas and create new opportunities.

PRIORITY CONTENT STANDARDS

Students will know...

Standard: BB1: Students will analyze the core concepts of technology.

Standard: ENG1: Students will analyze and demonstrate the attributes of design.

Standard: ENG3: Students will demonstrate and analyze the role of troubleshooting, research and development, invention and innovation and experimentation in problem solving.

Standard: ICT1: Students will analyze, select and use information and communication technologies.

Standard: MNF1: Students will be able to select and use manufacturing technologies.

Potential INDUSTRY-RECOGNIZED CREDENTIALS (IRCs) Opportunities associated with the course	Potential WORK BASED LEARNING (WBL) opportunities associated with the course
<p>Potential DUAL CREDIT Opportunities associated with the course Applicable to colleges/universities who recognize this PLTW course for dual credit.</p>	

UNIT 1: OVERVIEW OF CIVIL ENGINEERING AND ARCHITECTURE		
STAGE 1: Desired Unit Results What will students understand as a result of the unit?		STAGE 2: Assessment Evidence By what criteria will performances of understanding be assessed? Through what authentic performance tasks will students demonstrate the desired unit results?
ESSENTIAL QUESTION (s) What thought-provoking questions will foster inquiry, understanding, and transfer of learning?		Success Criteria with Standards The criteria for evaluating performance on standards is constant.
What strategies and processes can I use to become a more effective creator, thinker and problem solver?		CTE standards-based Rubric: Throughout the course, students and teachers use the rubric for communication of success criteria, reflection, goal setting, and feedback.
Why is communication and collaboration important? How do positive work behaviors and personal qualities impact communication and collaboration?		In their portfolio/evidence journal, students will reflect on the essential questions through a quick write, constructed response.
PRIORITY CAREER & TECHNICAL STANDARDS & Learning Targets		Performance Tasks Options/ Assessment Strategies by Standard Students may be given options to show their learning in varied ways.
Creativity, Critical Thinking, Communication and Collaboration 4C2: Students will formulate and defend judgments and decisions by employing critical thinking skills.		3D design and computer modeling Team collaboration Project management Problem solving Communication and presentation skills Technical writing
a: I develop effective resolutions for a given problem, decision or opportunity using available information.	4C2.a.11.h: I can determine the information needed to address an identified problem. 4C2.a.12.h: I can contrast the benefits and drawbacks of various proposed resolutions to a given situation. 4C2.a.13.h: I can predict how an action could result in unintended consequences, both positive and negative. 4C2.a.14.h: I can analyze the impact of a decision using a systems thinking model. 4C2.a.15.h: I can determine the best resolution for a problem, decision or opportunity based on given criteria. C2.a.16.h: I can defend an action taken or a decision implemented.	-Using the engineering notebook to document, reflect, and refine. -Quick Write Reflections 1. What strategies and processes did I use to become a more effective creator, thinker and problem solver? 2. Why is communication and collaboration important? 3. How have positive work behaviors and personal qualities impacted communication and collaboration?
b: I develop and implement a resolution for a new situation using personal knowledge and experience.	4C2.b.5.h: I can apply past experience to develop a course of action for a new situation. 4C2.b.6.h: I can use existing knowledge to develop a resolution for a new situation, problem or opportunity.	Collaboratively evaluate historic and current architectural innovations.
Information, Media, Technology IMT1: Students will access, interpret and evaluate information from a variety of sources in order to inform and support premises, arguments, decisions, ideas and initiatives.		
a: I choose appropriate sources of data and information for a given purpose.	IMT1.a.6.h: I can justify the selection of various information sources for a given purpose. IMT1.a.7h: I can explain the level of objectivity for a given source of information.	Research and evaluate historical civil engineering and architectural innovations.
PRIORITY CONTENT STANDARDS & Learning Targets		Performance Tasks Options/ Assessment Strategies by Standard Students may be given options to show their learning in varied ways.
Standard: BB1: Students will analyze the core concepts of technology.	I can identify 3 structural systems used by architects in historical construction projects.	
Standard: ENG1: Students will analyze and demonstrate the attributes of design.	I can describe how visual design element and principles manifest in architecture.	
Stage 3: Learning Activities		
A brief summary of the key learning activities- How will students build knowledge & develop skills? How will learning be relevant, accessible, and engaging? How will the learning unfold in a natural flow?		
GUIDING UNIT QUESTIONS	STRATEGIES/ACTIVITIES	RESOURCES/MATERIALS
Using Costas' Level of Thinking, what questions will hook and hold students so that they develop a deep understanding of the desired results? The guiding questions are more topic-specific to the particular unit. They guide the exploration of the essential questions and rigor of the standards. This may include questions that guide project based/ problem based learning	What learning strategies and experiences will authentically engage students so that they gain understanding the desired results? This includes strategies and activities that help learners acquire targeted knowledge and skills, make meaning of important ideas, and transfer their learning to new situations. Consider how the learning will be tailored and flexible to address the interests and learning styles of all students.	This includes an applicable textbooks, software, industry recognized certification software/tools, subscriptions (such asPLTW), etc.
How did the art and science of architecture and civil engineering evolve over time?	Research evolution of architecture and prepare presentation of a structure.	PLTW Unit 1
How have historical innovations contributed to modern civil engineering and architecture?	Identify historic innovations in modern civil engineering and architecture.	
How are visual design elements and principles manifested in architecture?	Discuss with teams visual design element and principles reflected in architecture.	
What are three structural systems used by architects in historical construction projects?	Identify and describe structural systems used in historical construction projects.	
What abilities and interests do you possess that could translate to a career field related to civil engineering or architecture?	Civil engineers and architects apply math and science to design and implement solutions	

UNIT 2: RESIDENTIAL DESIGN		
STAGE 1: Desired Unit Results What will students understand as a result of the unit?		STAGE 2: Assessment Evidence By what criteria will performances of understanding be assessed? Through what authentic performance tasks will students demonstrate the desired unit results?
ESSENTIAL QUESTION (s) What thought-provoking questions will foster inquiry, understanding, and transfer of learning?		Success Criteria with Standards The criteria for evaluating performance on standards is constant.
What strategies and processes can I use to become a more effective creator, thinker and problem solver?		CTE standards-based Rubric: Throughout course, students and teachers use rubric for communication of success criteria, reflection, goal setting, and feedback.
Why is communication and collaboration important? How do positive work behaviors and personal qualities impact communication and collaboration?		
PRIORITY CAREER & TECHNICAL STANDARDS & Learning Targets		Performance Tasks Options/ Assessment Strategies by Standard Students may be given options to show their learning in varied ways.
Creativity, Critical Thinking, Communication and Collaboration		
4C2: Students will formulate and defend judgments and decisions by employing critical thinking skills.		
a: I develop effective resolutions for a given problem, decision or opportunity using available information.	4C2.a.11.h: I can determine the information needed to address an identified problem.	Collaboratively create lists of what is known and what they need to know about the challenge. Document in Engineering Notebook.
	4C2.a.15.h: I can determine the best resolution for a problem, decision or opportunity based on given criteria.	In Engineering Notebook document: Identify possible complications and strategies for the game challenge. Identify what the robot needs to accomplish. Propose a scoring strategy.
PRIORITY CONTENT STANDARDS & Learning Targets		Performance Tasks Options/ Assessment Strategies by Standard Students may be given options to show their learning in varied ways.
Standard: ENG1: Students will analyze and demonstrate the attributes of design.	Students will identify and analyze key components of a typical residential house framing system.	Through projects and authentic problem sets, students will be assessed on their application of the design process. as it relates to residential design.
Standard: ENG3: Students will demonstrate and analyze the role of troubleshooting, research and development, invention and innovation and experimentation in problem solving.	Students will design a residential structure given a specific set of requirements.	
Standard: ICT1: Students will analyze, select and use information and communication technologies.	Students will use material unit costs to complete a construction cost estimate for a given design	
Stage 3: Learning Activities		
A brief summary of the key learning activities- How will students build knowledge & develop skills? How will learning be relevant, accessible, and engaging? How will the learning unfold in a natural flow?		
GUIDING UNIT QUESTIONS Using Costas' Level of Thinking, what questions will hook and hold students so that they develop a deep understanding of the desired results? The guiding questions are more topic-specific to the particular unit. They guide the exploration of the essential questions and rigor of the standards. This may include questions that guide project based/ problem based learning	STRATEGIES/ACTIVITIES What learning strategies and experiences will authentically engage students so that they gain understanding the desired results? This includes strategies and activities that help learners acquire targeted knowledge and skills, make meaning of important ideas, and transfer their learning to new situations. Consider how the learning will be tailored and flexible to address the interests and learning styles of all students.	RESOURCES/MATERIALS This includes an applicable textbooks, software, industry recognized certification software/tools, subscriptions (such asPLTW), etc.
Why is wood so often used for residential buildings?	Investigate the physical properties of wood and other building materials.	PLTW Unit 2
What alternatives to wood frame construction are available and what are the advantages and disadvantages of each?		
How are trusses able to span large distances?	Use computer simulator to investigate forces in trusses.	
What framing systems are used to support residential roofs?	Research roof support designs.	
How are different roof styles and pitches related to different architectural styles?		
What is the difference between R-value and U-value? When are they used?	Conduct energy audit of a residential structure.	
What are some leading causes of solar gain?		
What key areas of a building can minimize heat loss?		
Why is a cost estimate important to create before starting a project?	Prepare a cost estimate for a residential design	

UNIT 3: COMMERCIAL APPLICATIONS		
STAGE 1: Desired Unit Results What will students understand as a result of the unit?		STAGE 2: Assessment Evidence By what criteria will performances of understanding be assessed? Through what authentic performance tasks will students demonstrate the desired unit results?
ESSENTIAL QUESTION (s) What thought-provoking questions will foster inquiry, understanding, and transfer of learning?		Success Criteria with Standards The criteria for evaluating performance on standards is constant.
What strategies and processes can I use to become a more effective creator, thinker and problem solver? Why is communication and collaboration important? How do positive work behaviors and personal qualities impact communication and collaboration?		CTE standards-based Rubric: Throughout course, students and teachers use rubric for communication of success criteria, reflection, goal setting, and feedback.
PRIORITY CAREER & TECHNICAL STANDARDS & Learning Targets		Performance Tasks Options/ Assessment Strategies by Standard Students may be given options to show their learning in varied ways.
Creativity, Critical Thinking, Communication and Collaboration 4C2: Students will formulate and defend judgments and decisions by employing critical thinking skills.		
a: I develop effective resolutions for a given problem, decision or opportunity using available information.	4C2.a.11.h: I can determine the information needed to address an identified problem. 4C2.a.14.h: I can analyze the impact of a decision using a systems thinking model. 4C2.a.15.h: I can determine the best resolution for a problem, decision or opportunity based on given criteria. C2.a.16.h: I can defend an action taken or a decision implemented.	-Using the engineering notebook to document, reflect, and refine. -Quick Write Reflections 1. What strategies and processes did I use to become a more effective creator, thinker and problem solver? 2. Why is communication and collaboration important? 3. How do positive work behaviors and personal qualities impacted communication and collaboration?
b: I develop and implement a resolution for a new situation using personal knowledge and experience.	4C2.b.6.h: I can use existing knowledge to develop a resolution for a new situation, problem or opportunity.	
Career Development CD4: Students will identify and apply employability skills.		
a: I identify and demonstrate positive work behaviors and personal qualities needed to be employable.	CD4.a.9.h: I can use positive work qualities typically desired in each of the career cluster's pathways. CD4.a.10.h: I can manage work roles and responsibilities to balance them with other life roles and responsibilities.	-Using the engineering notebook, students will reflect on career readiness skills and experiences.
b: I demonstrate skills related to seeking and applying for employment to find and obtain a desired job.	CD4.b.5.h: I can use multiple resources to locate job opportunities. CD4.b.7.h: I can employ critical thinking and decision-making skills to exhibit qualifications to a potential employer in an interview.	
c: I identify and exhibit traits for retaining employment.	CD4.c.4.h: I can model behaviors that demonstrate reliability and dependability. CD4.c.7.h: I can summarize key activities necessary to retain a job in an industry.	
d: I develop positive relationships with others.	CD4.d.7.h: I can examine the skills required to enable students to successfully transition to postsecondary opportunities.	
Information, Media, Technology IMT1: Students will access, interpret and evaluate information from a variety of sources in order to inform and support premises, arguments, decisions, ideas and initiatives.		
a: I choose appropriate sources of data and information for a given purpose.	IMT1.a.6.h: I can justify the selection of various information sources for a given purpose. IMT1.a.7.h: I can explain the level of objectivity for a given source of information. IMT1.a.8.h: I can model how raw data can be applied differently to support opposing arguments or premises.	
b: I determine the relevance, validity and timeliness of data and information.	IMT1.b.7.h: I can use raw data and information appropriately to support an argument, idea or initiative. IMT1.b.8.h: I can compare and contrast validity of information from electronic and non-electronic sources. IMT1.b.9.h: I can defend a position or decision using relevant, valid and timely data and information.	
c: I select relevant information necessary for making decisions and solving problems	IMT1.c.5.h: I can defend a solution or conclusion using appropriate data and information. IMT1.c.6.h: I can interpret and select appropriate information to develop a resolution for a given situation.	
d: I apply data and information to communicate ideas and create new opportunities.	IMT1.d.6.h: I can defend a proposal for a new product or service based on data and information analysis. IMT1.d.7.h: I can synthesize data and information from multiple sources to identify new trends. IMT1.d.8.h: I can manage and share stored data and information for a specific purpose.	
PRIORITY CONTENT STANDARDS & Learning Targets		Performance Tasks Options/ Assessment Strategies by Standard Students may be given options to show their learning in varied ways.
Standard: BB1: Students will analyze the core concepts of technology.	Students will analyze key components of commercial framing system design.	Through projects and authentic problem sets, students will be assessed on their application of the design process, as it relates to commercial design.
Standard: ENG1: Students will analyze and demonstrate the attributes of design.	Students will perform a basic plumbing, electrical, and mechanical system design for a commercial building.	

Standard: ICT1: Students will analyze, select and use information and communication technologies.	Students will evaluate a site's storm water runoff and classify soils.
Standard: MNF1: Students will be able to select and use manufacturing technologies.	Complete a basic survey of a plot of land.

Stage 3: Learning Activities

A brief summary of the key learning activities- How will students build knowledge & develop skills? How will learning be relevant, accessible, and engaging? How will the learning unfold in a natural flow?

GUIDING UNIT QUESTIONS	STRATEGIES/ACTIVITIES	RESOURCES/MATERIALS
Using Costas' Level of Thinking, what questions will hook and hold students so that they develop a deep understanding of the desired results? The guiding questions are more topic-specific to the particular unit. They guide the exploration of the essential questions and rigor of the standards. This may include questions that guide project based/ problem based learning	What learning strategies and experiences will authentically engage students so that they gain understanding the desired results? This includes strategies and activities that help learners acquire targeted knowledge and skills, make meaning of important ideas, and transfer their learning to new situations. Consider how the learning will be tailored and flexible to address the interests and learning styles of all students.	This includes applicable textbooks, software, industry recognized certification software/tools, subscriptions (such as PLTW), etc.
How do Land Use and Development regulations help or hinder development in a community?		CTE Rubric (to be developed)
Why are building codes important in the construction of buildings?		
How does commercial building design and construction differ from residential building design and construction?		
What factors influence the choice of commercial construction materials?		
How do sustainable design alternatives, such as a green roof, impact the environment and quality of life?		
What is structural engineering?		
What is the function of a structure?		
How do you determine the loads that must be used to design a structure?		
How does the design of a structure impact how loads are dispersed?		
How does the use of mathematics help in understanding and quantifying the forces and loads on a structure?		
What limitations affect electricity production using solar cells?		
What limitations affect electricity production using hydrogen fuel cells?		
How can system configuration affect voltage and current?		
How does thermodynamics relate to energy and power?		
How is land surveying used in the development of a building project?		
What information is important to consider when planning the placement of driveways, parking spaces, and pedestrian		
Why is it important to know the soil characteristics of a site when planning a building project?		
What steps must be taken to ensure that the improvements made on a property will not adversely affect users or		

UNIT 4: COMMERCIAL BUILDING DESIGN		
STAGE 1: Desired Unit Results What will students understand as a result of the unit?		STAGE 2: Assessment Evidence By what criteria will performances of understanding be assessed? Through what authentic performance tasks will students demonstrate the desired unit results?
ESSENTIAL QUESTION (s) What thought-provoking questions will foster inquiry, understanding, and transfer of learning?		Success Criteria with Standards The criteria for evaluating performance on standards is constant.
What strategies and processes can I use to become a more effective creator, thinker and problem solver?		CTE standards-based Rubric: Throughout course, students and teachers use rubric for communication of success criteria, reflection, goal setting, and feedback.
Why is communication and collaboration important? How do positive work behaviors and personal qualities impact communication and collaboration?		
PRIORITY CAREER & TECHNICAL STANDARDS & Learning Targets		Performance Tasks Options/ Assessment Strategies by Standard Students may be given options to show their learning in varied ways.
Creativity, Critical Thinking, Communication and Collaboration		
4C2: Students will formulate and defend judgments and decisions by employing critical thinking skills.		
a: I develop effective resolutions for a given problem, decision or opportunity using available information.	4C2.a.11.h: I can determine the information needed to address an identified problem.	-Using the engineering notebook to document, reflect, and refine. -Quick Write. Reflections 1. What strategies and processes did I use to become a more effective creator, thinker and problem solver? 2. Why is communication and collaboration important? 3. How have positive work behaviors and personal qualities impacted communication and collaboration?
	4C2.a.12.h: I can contrast the benefits and drawbacks of various proposed resolutions to a given situation.	
	4C2.a.13.h: I can predict how an action could result in unintended consequences, both positive and negative.	
	4C2.a.14.h: I can analyze the impact of a decision using a systems thinking model.	
	4C2.a.15.h: I can determine the best resolution for a problem, decision or opportunity based on given criteria.	
	C2.a.16.h: I can defend an action taken or a decision implemented.	
b: I develop and implement a resolution for a new situation using personal knowledge and experience.	4C2.b.5.h: I can apply past experience to develop a course of action for a new situation.	
	4C2.b.6.h: I can use existing knowledge to develop a resolution for a new situation, problem or opportunity.	
Career Development		
CD4: Students will identify and apply employability skills.		
a: I identify and demonstrate positive work behaviors and personal qualities needed to be employable.	CD4.a.6.h: I can evaluate how self-discipline, self-worth, positive attitude and integrity displayed in a work situation affect employment status.	-Using the engineering notebook, students will reflect on career readiness skills and experiences.
	CD4.a.7.h: I can assess how flexibility and willingness to learn new knowledge and skills affect employment status.	
	CD4.a.8.h: I can apply communication strategies when adapting to a culturally diverse environment.	
	CD4.a.9.h: I can use positive work qualities typically desired in each of the career cluster's pathways.	
	CD4.a.10.h: I can manage work roles and responsibilities to balance them with other life roles and responsibilities.	
	CD4.b.5.h: I can use multiple resources to locate job opportunities.	
b: I demonstrate skills related to seeking and applying for employment to find and obtain a desired job.	CD4.b.6.h: I can prepare a resume, cover letter, employment application.	
	CD4.b.7.h: I can employ critical thinking and decision-making skills to exhibit qualifications to a potential employer in an interview.	
	CD4.c.4.h: I can model behaviors that demonstrate reliability and dependability.	
c: I identify and exhibit traits for retaining employment.	CD4.c.5.h: I can maintain appropriate dress and behavior for the job to contribute to a safe and effective workplace/jobsite.	
	CD4.c.6.h: I can complete required employment forms and documentation.	
	CD4.c.7.h: I can summarize key activities necessary to retain a job in an industry.	
	CD4.d.5.h: I can participate in cocurricular and community activities to enhance the school experience.	
	CD4.d.6.h: I can evaluate the best method to assist co-workers in accomplishing goals and tasks.	
d: I develop positive relationships with others.	CD4.d.7.h: I can examine the skills required to enable students to successfully transition to postsecondary opportunities.	
	CD4.d.8.h: I can use a systematic approach to academic and career planning for students to achieve their learning, socio-cultural and work goals.	

Information, Media, Technology IMT1: Students will access, interpret and evaluate information from a variety of sources in order to inform and support premises, arguments, decisions, ideas and initiatives.		
a: I choose appropriate sources of data and information for a given purpose.	IMT1.a.6.h: I can justify the selection of various information sources for a given purpose.	
	IMT1.a.7.h: I can explain the level of objectivity for a given source of information.	
	IMT1.a.8.h: I can model how raw data can be applied differently to support opposing arguments or premises.	
	b: I determine the relevance, validity and timeliness of data and information.	IMT1.b.7.h: I can use raw data and information appropriately to support an argument, idea or initiative.
	IMT1.b.8.h: I can compare and contrast validity of information from electronic and non-electronic sources.	
	IMT1.b.9.h: I can defend a position or decision using relevant, valid and timely data and information.	
c: I select relevant information necessary for making decisions and solving problems	IMT1.c.5.h: I can defend a solution or conclusion using appropriate data and information.	
	IMT1.c.6.h: I can interpret and select appropriate information to develop a resolution for a given situation.	
d: I apply data and information to communicate ideas and create new opportunities.	IMT1.d.6.h: I can defend a proposal for a new product or service based on data and information analysis.	
	IMT1.d.7.h: I can synthesize data and information from multiple sources to identify new trends.	
	IMT1.d.8.h: I can manage and share stored data and information for a specific purpose.	
PRIORITY CONTENT STANDARDS & Learning Targets		Performance Tasks Options/ Assessment Strategies by Standard Students may be given options to show their learning in varied ways.
Standard: ENG1: Students will analyze and demonstrate the attributes of design.	Students will plan and design a commercial building's structure, utilities, and site.	Through projects and authentic problem sets, students will be assessed on their application of the design process, as it relates to commercial design.
Standard: ENG3: Students will demonstrate and analyze the role of troubleshooting, research and development, invention and innovation and experimentation in problem solving.	Students will prepare and present a set of construction documents and design work for a commercial project.	
Stage 3: Learning Activities		
A brief summary of the key learning activities- How will students build knowledge & develop skills? How will learning be relevant, accessible, and engaging? How will the learning unfold in a natural flow?		
GUIDING UNIT QUESTIONS Using Costas' Level of Thinking, what questions will hook and hold students so that they develop a deep understanding of the desired results? The guiding questions are more topic-specific to the particular unit. They guide the exploration of the essential questions and rigor of the standards. This may include questions that guide project based/ problem based learning	STRATEGIES/ACTIVITIES What learning strategies and experiences will authentically engage students so that they gain understanding the desired results? This includes strategies and activities that help learners acquire targeted knowledge and skills, make meaning of important ideas, and transfer their learning to new situations. Consider how the learning will be tailored and flexible to address the interests and learning styles of all students.	RESOURCES/MATERIALS This includes an applicable textbooks, software, industry recognized certification software/tools, subscriptions (such as PLTW), etc.
Why is it important for every team member to understand and carry out the appropriate team role when working together on a project?		
As the developer of a piece of property, what factors must you consider for cost effectiveness and success of your development?		
What types of information should you gather about a site before making a decision on site selection?		
What is meant by "viability analysis"? What kinds of questions should a viability analysis answer?		
What regulatory agencies should you know? Why is it important to work with them in preparing to develop property? 1-6. As an owner		
As an owner of the property, what issues are of concern to you and may affect the development of the property?		