Unit 02: Urban Planning

Content Area: **Applied Technology**
Course(s):
Time Period: **Marking Period 1**
Length: **3 weeks**
Status: **Published**

Summary

Introduction

Students will gain and develop knowledge and understandings related to urban planning. Students will develop a plan drawing for a block that will contain a variety of building types and a park. The block plan will be the building site for student designs throughout the course.

Revision Date: July 2021

LA.RH.11-12	Reading History
	Key Ideas and Details
LA.RH.11-12.1	Accurately cite strong and thorough textual evidence, (e.g., via discussion, written response, etc.), to support analysis of primary and secondary sources, connecting insights gained from specific details to develop an understanding of the text as a whole.
LA.RH.11-12.2	Determine the theme, central ideas, information and/or perspective(s) presented in a primary or secondary source; provide an accurate summary of how key events, ideas and/or author's perspective(s) develop over the course of the text.
LA.RH.11-12.3	Evaluate various perspectives for actions or events; determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
LA.WHST.11-12	Writing History, Science and Technical Subjects
	Text Types and Purposes
LA.WHST.11-12.1	Write arguments focused on discipline-specific content.
SCI.HS-ETS1	Engineering Design
SCI.HS-ETS1-1	Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.
SCI.HS-ETS1-2	Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.
SCI.HS-ETS1-3	Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.
SCI.HS-ETS1-4	Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem.
CS.9-12.8.2.12.EC.1	Analyze controversial technological issues and determine the degree to which individuals, businesses, and governments have an ethical role in decisions that are made.
CS.9-12.8.2.12.EC.2	Assess the positive and negative impacts of emerging technologies on developing countries and evaluate how individuals, non-profit organizations, and governments have responded.
CS.9-12.8.2.12.EC.3	Synthesize data, analyze trends, and draw conclusions regarding the effect of a technology on the individual, culture, society, and environment and share this information with the appropriate audience.

CS.9-12.8.2.12.ED.1	Use research to design and create a product or system that addresses a problem and make modifications based on input from potential consumers.
CS.9-12.8.2.12.ED.2	Create scaled engineering drawings for a new product or system and make modification to increase optimization based on feedback.
CS.9-12.8.2.12.ED.3	Evaluate several models of the same type of product and make recommendations for a new design based on a cost benefit analysis.
CS.9-12.8.2.12.ETW.4	Research historical tensions between environmental and economic considerations as driven by human needs and wants in the development of a technological product and present the competing viewpoints.
CS.9-12.EC	Ethics & Culture
CS.9-12.ED	Engineering Design
WRK.9.2.12.CAP	Career Awareness and Planning
TECH.8.1.12.D	Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
TECH.8.1.12.E	Research and Information Fluency: Students apply digital tools to gather, evaluate, and use information.
TECH.8.1.12.E.CS2	Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.
TECH.8.1.12.F	Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.
TECH.8.1.12.F.1	Evaluate the strengths and limitations of emerging technologies and their impact on educational, career, personal and or social needs.
TECH.8.1.12.F.CS1	Identify and define authentic problems and significant questions for investigation.
TECH.8.1.12.F.CS2	Plan and manage activities to develop a solution or complete a project.
TECH.8.1.12.F.CS3	Collect and analyze data to identify solutions and/or make informed decisions.
TECH.8.1.12.F.CS4	Use multiple processes and diverse perspectives to explore alternative solutions.
TECH.8.2.12	Technology Education, Engineering, Design, and Computational Thinking - Programming: All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.
TECH.8.2.12.A	The Nature of Technology: Creativity and Innovation: Technology systems impact every aspect of the world in which we live.
TECH.8.2.12.A.CS1	The characteristics and scope of technology.
TECH.8.2.12.A.CS3	The relationships among technologies and the connections between technology and other fields of study.
TECH.8.2.12.B	Technology and Society: Knowledge and understanding of human, cultural and society values are fundamental when designing technology systems and products in the global society.
TECH.8.2.12.B.1	Research and analyze the impact of the design constraints (specifications and limits) for a product or technology driven by a cultural, social, economic or political need and publish for review.
TECH.8.2.12.B.2	Evaluate ethical considerations regarding the sustainability of environmental resources that are used for the design, creation and maintenance of a chosen product.
TECH.8.2.12.B.3	Analyze ethical and unethical practices around intellectual property rights as influenced by human wants and/or needs.
TECH.8.2.12.B.4	Investigate a technology used in a given period of history, e.g., stone age, industrial

	revolution or information age, and identify their impact and how they may have changed to meet human needs and wants.
TECH.8.2.12.B.5	Research the historical tensions between environmental and economic considerations as driven by human needs and wants in the development of a technological product, and present the competing viewpoints to peers for review.
TECH.8.2.12.B.CS2	The effects of technology on the environment.
TECH.8.2.12.B.CS3	The role of society in the development and use of technology.
TECH.8.2.12.B.CS4	The influence of technology on history.
TECH.8.2.12.C	Design: The design process is a systematic approach to solving problems.
TECH.8.2.12.C.5	Create scaled engineering drawings of products both manually and digitally with materials and measurements labeled.
TECH.8.2.12.C.CS1	The attributes of design.
TECH.8.2.12.C.CS2	The application of engineering design.
TECH.8.2.12.D.3	Determine and use the appropriate resources (e.g., CNC (Computer Numerical Control) equipment, 3D printers, CAD software) in the design, development and creation of a technological product or system.
TECH.8.2.12.D.CS1	Apply the design process.
TECH.8.2.12.D.CS2	Use and maintain technological products and systems.
	Engineering design is a complex process in which creativity, content knowledge, research, and analysis are used to address local and global problems. Decisions on trade-offs involve systematic comparisons of all costs and benefits, and final steps that may involve redesigning for optimization.
	An individual's income and benefit needs and financial plan can change over time.
	Career planning requires purposeful planning based on research, self-knowledge, and informed choices.

Essential Questions/Enduring Understandings

Essential Questions:

How do we use CAD to communicate solutions to urban planning problems?

How do we use the design loop to create a city?

What are the concerns and influences regarding urban planning?

Enduring Understandings:

There are many stakeholders in a community.

Modern communities respond to modern constraints and concerns.

CAD is one tool for communicating solutions to urban planning problems.

How cities are designed is always evolving.

Objectives

Students will know:

The components of a zoning ordinance and who is responsible for their creation and adoption.

Different stakeholders have different concerns about a city.

History provides examples of successful and unsuccessful cities.

How to use CAD functions like SCALE and hatching.

That they can use CAD with Photoshop and other programs to create presentation drawings.

About the career path of an urban planner.

Students will be skillat:

performing analysis of texts to develop a solution to a problem.

drafting plan drawings using software that communicate a solution to a defined audience.

creating presentations in a digital portfolio

Learning Plan

Answer the essential questions.

Guiding questions: What are the characteristics of a good/bad place to live, work, shop, play, and go to school? How would feel if there was a chemical factory, bank, library, school, or a park next to your home? Who are the stake holders in a community, and what are their interests in development? What is a zoning ordinance? Why do they exist? What is the difference between a zoning ordinance and a building code? What information needs to be communicated about zoning in a code? What is the role of history in designing new towns and cities?

Design activity: Students will design a city block that contains various building types. The city block will have spaces for each of different building types to be designed during the course, i.e. an apartment house and corporate office, a park etc. Students will create drawings with CAD and other media to communicate their solutions. The drawing(s) will be placed in a digital portfolio and act as the base drawing. Students will update the base drawing throughout the course.

Students will perform research on a historically significant urban planning location, movement, or urban planning concept and create a presentation for the class.

A guest urban planner or teacher lecture about the occupation of urban planner.

Lecture and demonstration:using Photoshop with AutoCad to create presentation drawings.

Lectures on CAD functions: scale, hatching, pdf printouts and other topical functions will be explained and explored.

Formative assessments will be conducted throughout the design process.

Summative assessment will be conducted by the student and teacher using a rubric specific to the design problem.

Unit test or quiz.

Writing prompt.

Assessment

Formative assessments
will be conducted throughout the design process.
class discussion and teacher feedback

Summative assessment:
Student research will be evaluated using a rubric.

Students' design of the city block will be evaluated using a rubric.

will be conducted by the student and teacher using a rubric specific to the design problem. Students will present their digital portfolio.

Writing prompt.

Alternative Assessment:
City Block Presentation

Benchmark Assessment;
Final Exam

Materials

The CADD LAB-computers equipped with up-to-date AutoCAD and/or other design and drafting software, presentation software, productivity software, a scanner and printers/plotters.

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

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

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

Powerpoint.

Smartboard for demonstrations by the teacher and presentations by students.

Integrated Accommodation and Modifications Spec Ed, ELL, At-Risk, G&T, Career Education, 504's

See the linked document for Integrated Accommodation and Modifications, Special Education, English Language Learners, At-Risk, Gifted and Talented, Career Education and 504s.