Unit 1.1: Course Intro / History of CEA / Architectural Features

Content Area: **Science**
Course(s): **Civil Eng & Arc**
Time Period: **Semester 1**
Length: **2 weeks**
Status: **Published**

Standards

Text Types and Purposes

6. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others. (AS.W.6)

7. Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation. (AS.W.7)

9. Draw evidence from literary or informational texts to support analysis, reflection, and research. (AS.W.9)

Comprehension and Collaboration

4. Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience. (AS.SL.4)

5. Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations. (AS.SL.5)

6. Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate. (AS.SL.6)

Conventions of Standard English

1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. (AS.L.1)
6. Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression. (AS.L.6)

CS.9-12.8.2.12.ED.5	Evaluate the effectiveness of a product or system based on factors that are related to its requirements, specifications, and constraints (e.g., safety, reliability, economic considerations, quality control, environmental concerns, manufacturability, maintenance and repair, ergonomics).
CS.9-12.8.2.12.ED.6	Analyze the effects of changing resources when designing a specific product or system (e.g., materials, energy, tools, capital, labor).
CS.9-12.ED	Engineering Design
VPA.9-12.1.1.12.2	Stimuli for the creation of artworks can come from many places, including other arts disciplines.

VPA.9-12.1.1.12.D.1	Distinguish innovative applications of the elements of art and principles of design in visual artworks from diverse cultural perspectives and identify specific cross-cultural themes. 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. Engineering design evaluation, a process for determining how well a solution meets requirements, involves systematic comparisons between requirements, specifications, and constraints.

Enduring Understandings

- Many features of ancient structures are seen in modern buildings.
- Architectural style is often an important key to understanding how a community or neighborhood has developed and the aesthetic customs that have formed over time.
- The multiple architectural styles that have been developed throughout history are an indication of changing needs of people and society and uses for space.
- Visual design principles and elements constitute an aesthetic vocabulary that can be used to describe buildings and may help identify the buildings function, location, or time period.

Essential Questions

- How did the art and science of architecture and civil engineering evolve over time?
- What are the structural systems created to solve structural limitations and how do they work?
- How have historical innovations contributed to modern civil engineering and architecture?
- How are visual design elements and principles manifested in architecture?

Knowledge and Skills

Students will be able to:

- Cite the rules and grading criteria for the course.
- Connect modern structural and architectural designs to historical architectural and civil engineering achievements.
- Identify three general categories of structural systems used in historical buildings.
- Explain how historical innovations have contributed to the evolution of civil engineering and architecture.
- Identify and explain the application of principles and elements of design to architectural buildings.
- Determine architectural style through identification of building features, components, and materials.

- Create a mock-up model depicting an architectural style or feature using a variety of materials.

Assessments

https://docs.google.com/document/d/1wR7bQF-8AQoRrt0g4C3hKja0yjwDjC9_BiAmONWbTcI/edit

Modifications

https://docs.google.com/document/d/1ODqaPP69YkcFiyG72fIT8XsUIe3K1VSG7nxuc4CpCec/edit

Resources

- KT HistoryCivilArchitecture.doc
- A HistoryCivilEngineeringArchitecure.doc
- A History of Civil Engineering and Architecture.ppt
- DesignPrinciplesElements.doc
- Principles and Elements of Design Applied to Architecture.ppt
- ArchitecturalFeatures.doc
- ArchitecturalFeaturesRubric.doc