

2.1 Introduction to Civil Engineering

Summary

Students learn about the breadth of work within the field of Civil Engineering through studying a day in the life of a civil engineer.

Learning Objectives

After this class, students will be able to:

- Describe the subdisciplines within Civil Engineering.

Materials

Computers with internet access.

Time

80 minutes

Procedure/Pacing

Before starting this lesson, notify students that they will be expected to research an interesting technology or topic in Civil Engineering. They will to prepare and give an oral report on what they have researched. Topics may be drawn from current research in Civil Engineering, or an interesting example of Civil Engineering they have observed (specific buildings, bridges, roads, water treatment, water reclamation as examples). Students should be ready to answer questions after their presentation. See the Assignment 2.4h and 2.4i for Lesson 2.4 for presentation rubric and expectations.

Suggested Resources for Student Presentations

American Society of Civil Engineers – Newsroom

<http://www.asce.org/newsroom/>

University of Utah Civil Engineering Department News

<http://www.civil.utah.edu/news>

See “News” section of any research university Civil Engineering website.

Choose one of the suggested lesson plans below:

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Guest Speaker

1. If possible, ask a civil engineer to come as a guest speaker for the class period. Have students ask the speaker to describe:
 - Subdiscipline. In what branch of civil engineering does this engineer work?
 - Work location. This includes the environment (office, job site, research lab, etc.) in which this type of engineer might work and the type of people with whom they may work.
 - Typical work hours. Does this engineer work a typical 8am to 5pm work day, do they work shift work, hourly work (paid by the hour), etc.?
 - Pay range. What is the expected pay range for this type of engineer?
 - Types of projects. Include specific examples of the types of projects this type of engineer might work on.
2. Students should complete Assignment 2.1i as they listen to the guest speaker.

Inquiry-based Learning

1. If it is not possible to find a suitable guest speaker, conduct a student-led inquiry activity.
2. Divide students into groups, one for each of the following branches of Civil Engineering: Structural, Construction, Environmental, Transportation, Geotechnical, or Water Resources. You may want to form the groups by letting the students choose which branch they would like to research.
3. Ask students to answer the following question: “What would my life be like if I became a _____ Engineer?” (Fill in the blank with their subdiscipline of Civil Engineering.) Have students complete Assignment 2.1i to help guide their research.
4. Have students create word clouds from their research, either on the board or on large sheets of butcher paper (these can be posted in the room for the remainder of the unit). Challenge students to include as many related words as they can about their subdiscipline.
5. As groups, have students present their discoveries to the class and describe what they learned about their branch of Civil Engineering.

In-Class Assignment

Assignment 2.1i: A Day In the Life – Civil Engineer

Resources

American Society of Civil Engineers

http://www.asce.org/about_civil_engineering/

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What is Civil and Environmental Engineering? – University of Utah
http://www.civil.utah.edu/what_is

Homework

Assignment 2.2h: Truss Calculations

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