

Unit 2 Materials and Structures, Lesson 2.4 Design Problem: Bridge Simulated Structural Design Lesson Plan

COURSE:

TEACHER

- Engineers use a design process to create solutions to existing problems.
- Design briefs are used to identify the problem specifications and to establish project constraints.
- Working in a team requires effective communication, clear responsibilities, and attention to interpersonal relationships.
- Design teams conduct research to develop their knowledge base, stimulate creative ideas, and make informed decisions.

Knowledge and Skills

Knowledge: Students will:

- Know the purpose of each part of a design brief.
- Describe a step-by-step, iterative design process.

Skills: Students will:

- Brainstorm and sketch possible solutions to an existing design problem.
- Create a decision-making matrix for a design problem.
- Select an approach that meets or satisfies the constraints provided in a design brief.
- Create a detailed pictorial sketch or use 3D-modeling software to document a proposed design.

ESSENTIAL QUESTIONS:

Students will keep considering:

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Homework

The students will:

- Complete assignments that were not completed in class.
- Conduct research as needed for assignments.
- Review the lesson/unit concepts, content, and skills as needed to prepare for lesson/unit assessments.

ASSESSMENTS:

Checks for Understanding (Formative and/or Summative):

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| ☒ Bell Ringer(s) | ☒ Peer Evaluation / Reflection |
| ☒ Check Class Assignment(s) / Homework | ☐ Performance- |
| ☒ Class Participation | |
| ☒ Group Activity | |
| ☒ Hands On / Lab Activity | |
| ☒ Independent Practice | |
| ☐ Interview | |
| ☒ Oral Responses | |