

# **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:



## 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):

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Bell Ringer(s)                       | <input checked="" type="checkbox"/> Peer Evaluation / Reflection |
| <input checked="" type="checkbox"/> Check Class Assignment(s) / Homework | <input type="checkbox"/> Performance-                            |
| <input checked="" type="checkbox"/> Class Participation                  |  |
| <input checked="" type="checkbox"/> Group Activity                       |  |
| <input checked="" type="checkbox"/> Hands On / Lab Activity              |  |
| <input checked="" type="checkbox"/> Independent Practice                 |  |
| <input type="checkbox"/> Interview                                       |  |
| <input checked="" type="checkbox"/> Oral Responses                       |  |