



# Activity 5.1f - West Point Bridge Design Problem

## Purpose

Design a truss bridge that is safe, meets all the design requirements and costs as little as possible.

## Equipment

West Point Bridge Designer

## Procedure

### Design Constraints:

- Bridge abutments are 24 meters apart
- The bridge must safely carry two lanes of traffic
- A truss design must be used
- The bridge will be made of steel
- The cost of the bridge must be minimized due to a limited budget for this project.

### Process:

Use the design process to guide you during the bridge design. Use the West Point Bridge Designer program to create your design. The steps to follow are:

1. Select a truss configuration
2. Draw the joints
3. Draw the members
4. Load test your design
5. Modify your design as needed to pass the load test (Remember that no design is ever accomplished on the first attempt).
6. Optimize the design to minimize the cost of the bridge. The design of the members can be changed as follows: material, cross-section and size. During the load test members in tension turn blue and members in compression turn red. The intensity of the color depends on the force to strength ratio. If the color is

