

High School: Bridge Building Constraints

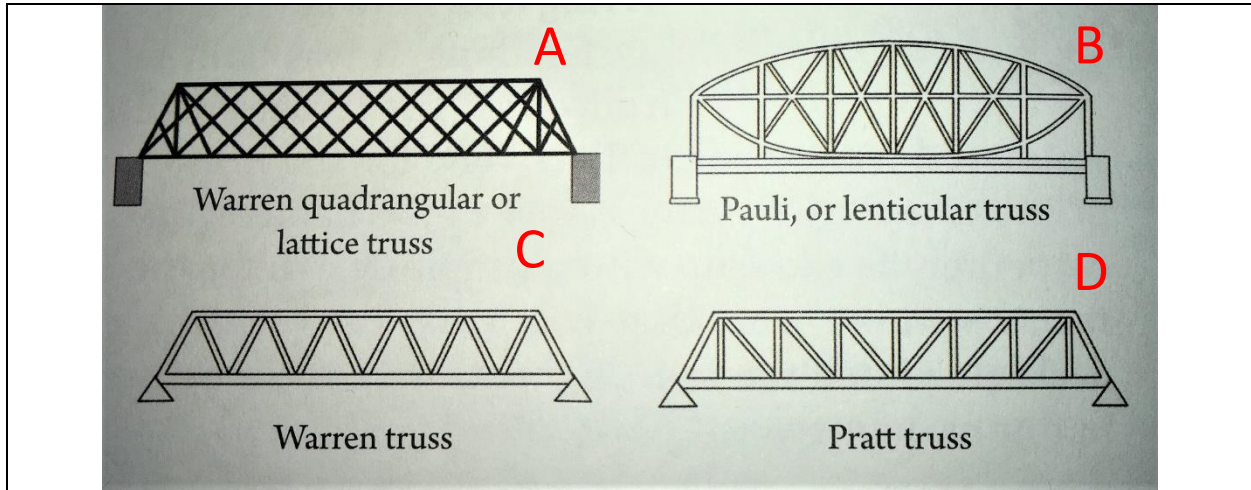


Figure 1: From page 64 of Noyce, Pendred E, *Engineering Bridges Connecting the World*, Boston: Tumblehome, Inc., 2019

1. Must be freestanding
2. Bridge must not weigh more than _____*
3. Bridge must have a road that spans 8 inches long, 3 inches wide, and has guardrails on both side of the bridge
4. May only use the provided resources
5. Budget must not exceed \$500,000
6. Must be able to support the weight of one or more of the following for 10 seconds without buckling
 - a. Ten toy cars
 - b. Four block erasers

Must be as close to the chosen patented design as possible

Budget Sheet:

Materials Fees

- Construction Paper: **\$10,255 per sheet**
- Scissors: **\$15,000 per scissors**
- Tape: **\$50,000 per roll 9 (2 meters)**
- Ruler: **\$10,000**

Construction Fees

- *Labor Cost*: 45,000 per person in group + **\$65.87 per minute worked**

Disposal Fee:

- Construction Paper: \$5,127.50 per sheet **returned**
- Construction Paper: \$2,563.75 per sheet; **portion** of sheet **returned** practices fee
- Tape: \$25,000 per roll returned