WEST POINT BRIDGE ENGINEERING CHALLENGE

http://bridgecontest.usma.edu/index.htm

(INDIVIDUAL OR TEAM; COMPETITIVE; ON-SITE TESTING)

DESCRIPTION: The purpose of the contest is to provide middle school and high school students with a realistic, engaging introduction to engineering. The purpose of this contest is to provide an opportunity for students to demonstrate their ability to design and construct a bridge capable of withstanding as great a compressive load as possible at the lowest cost possible. With assigned span and width specifications. A team may consist of no more than two members.

The contest will provide you with an opportunity to:

a. learn about engineering through a realistic, hands-on problem-solving experience.
b. learn about the engineering design process - the application of math, science, and technology to create devices and systems that meet human needs.
c. learn about truss bridges and how they work.
d. learn how engineers use the computer as a problem-solving tool.
e. we also hope you will have some fun pitting your problem-solving skills against other bridge designers in Missouri

GENERAL RULES AND REGULATIONS:

On the day of the contest,

A. Students will be required to supply their own computers, with the West Point Bridge Design software pre-installed on the computer ready to set up ready to use the day of the contest.

B. Students will have *up to* 1 hour to design, construct, and submit a bridge based on the specifications to be set at the time of the competition using West Point Bridge Design software.

C. The length, along with other configurations will be assigned the day of the competition.

D. The design must be structurally adequate; i.e., it passes the WPBD load test with no member failures;

E. And the design has no instances of one structural member drawn directly over the top of another.

Judging:

The contest officials will automatically reject any design that is identical to any previously submitted design.
The first participant to achieve and submit a given design will obtain full, exclusive credit for it.
Two designs are considered to be identical if:

(1) their joints are all in exactly the same positions;
(2) their structural members are all in the same positions (without regard to member numbers); and
(3) each member in one design uses exactly the same material, cross-section, and size as the corresponding member in the other design.

- the submitted design must be created entirely within the West Point Bridge Designer. Any attempt to manually modify the bridge design file will result in rejection of the design and may result in disqualification.
- if a design is rejected, the submitting team will usually be notified immediately.
- once an entry is determined to be valid, its standing in the contest is determined by its cost.
- a lower cost results in a higher standing. The lowest cost wins.
- the cost of a design is as calculated by WPBD.
- the load test results is calculated by WPBD
- if two designs that are not identical but that have exactly the same cost, the tie will be broken based upon the time of submission. The design submitted earlier will have the higher standing.

COST:_____ TIME:_____

AWARDS IN LEVELS I AND II.