



Northeast Indiana  
National E-Week

## 9<sup>TH</sup> ANNUAL MIDDLE SCHOOL BRIDGE DESIGN COMPETITION

The 2008 Engineer's Week Committee and the Anthony Wayne Chapter of the Indiana Society of Professional Engineers would like to call your attention to the 9<sup>th</sup> Annual Middle School Bridge Design Competition. During National Engineer's Week, February 16-23, 2008, a student bridge design contest will be sponsored for all area middle school students as outlined on the entry form on the following page. This competition challenges students in the areas of engineering, design, science, and creativity. Prizes will be provided by several professional societies. The competition will be held at Science Central as part of the National Engineer's Week celebration, on February 16, 2008.

Participating students must observe all competition rules. Times for judging and testing will be established after the February 6, 2008, deadline for the entries. All entrants that do not provide a valid email address must enclose a self-addressed, stamped envelope so they may be notified of their test times.

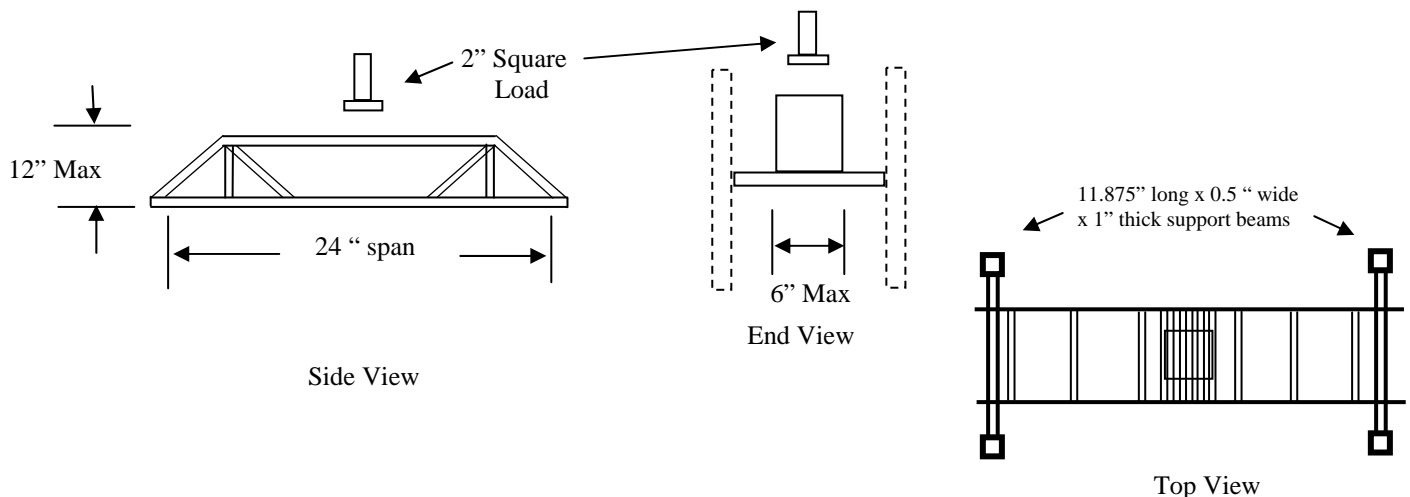
The goal of the Engineer's Week Committee is that all students become more aware of the fun and challenging aspects of the professional and technical world. We believe that the future of our students' education is the responsibility of both community and educators.

A copy of the rules and general information concerning the competition is on the other side of this sheet. Please feel free to make additional copies for your use. If you have technical questions or concerns about judging criteria, please call Suleiman Ashur at (260) 481-6080. If you want to know more about registration or the facility, please call Lou Papai at (260) 424-2400, extension 442. Thank you for your time and commitment to education.

Sincerely,

Suleiman Ashur  
Chair, Student Design Competition  
Associate Prof. of Civil Eng. Dept. of Eng.-IPFW

Lou Papai  
Indiana Engineer's Week Committee Member  
Science Central



# 2008 ENGINEER'S WEEK MIDDLE SCHOOL BRIDGE DESIGN COMPETITION

You are invited to participate in the Ninth Annual Middle School Bridge Design Competition. The 2008 NE Indiana Engineer's Week Committee, Science Central, and the School of Engineering, Technology, and Computer Science of IPFW sponsor the challenge in conjunction with National Engineer's Week. It is open to all area middle school students. The contest will be held at Science Central in Fort Wayne on Saturday, February 16, 2008. Registration will begin at 10:00 A.M. and the competition will commence at 10:30 a.m. Prizes will be awarded to the top three bridges.

**First Prize: \$60 cash prize**  
**Second Prize: \$30 cash prize**  
**Third Prize: \$15 cash prize**

The object of the competition is to design the lightest possible "bridge" to span a 24" gap with minimal deflection. The bridge will be loaded until it breaks, and the bridge with the highest load to weight to deflection ratio will win the contest (see Item 7 below). The bridge must be within the size limitations listed on this sheet.

## COMPETITION RULES

1. Each entry may be an individual *or* team effort. Teams must have no more than three members. Team entries will be required to divide all prizes awarded.
2. Only two materials are allowed in the construction: Elmer's yellow wood glue and wooden popsicle sticks. The maximum number of sticks is 200. Remember, the lightest bridge holding the heaviest load with minimal deflection will win.
3. Bridges cannot be painted or coated with any materials.
4. Each bridge must span a 24" gap during testing. So remember to make it longer than 24" (~26"). The bridge can be no taller than 12" and no wider than 6".
5. The bridge must be open to allow a 3" square block to pass through the bridge lengthwise. A deck only bridge structure can be used, minimum width 3". (structure below the deck). The bridge must have at least 2 parallel trusses.
6. Each bridge must allow a minimum opening of 2" x 2" square at the top to allow the test load to be applied down onto the deck of the bridge.
7. The test load is to be applied on the deck of the bridge until the bridge fails. The failing load will be determined by when the bridge breaks, the load breaks through the deck of the bridge, the bridge deflects (bends) more than 3" from the horizontal, or until the maximum load is reached. The ratio of the failure load divided by the deflection divided by the weight of the bridge will be used for scoring.

**Example:** 100 pounds failing load, deflection of .250 inches, and bridge weight of 2 pounds equals a score of 200 points.  $100 / (.250 \times 2) = 200$ .

**Highest point score wins.**

~Continued

8. Judging will be conducted by a panel established by the Middle School Bridge Design Committee. All decisions are final.

9. Each applicant will be notified of his/her time for prejudging and testing. The testing will be done in 2-hour blocks on February 16. All entrants that do not provide a valid email address must enclose a stamped, self-addressed envelope so that they may be notified of their test times.

\*All entry forms must be mailed to Science Central Bridge Building. Forms are on the preceding page. Entries must be postmarked no later than February 6, 2008. For technical questions, call Suleiman Ashur at (260) 481-6080. For scheduling concerns, contact Lou Papai at (260) 424-2400 extension 442.

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## MIDDLE SCHOOL BRIDGE DESIGN COMPETITION ENTRY FORM

\* means required information.

\* Team Member Names

\* Grade

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\*Mentor Teacher \_\_\_\_\_

\*Teacher Phone # \_\_\_\_\_

\*School Name \_\_\_\_\_

\*Student Home Phone # \_\_\_\_\_

\*School Address \_\_\_\_\_

Fax Number \_\_\_\_\_

\*City, State, Zip \_\_\_\_\_

Email Address \_\_\_\_\_

\*County of Residence \_\_\_\_\_

*Due to the sensitive nature of emailing to minors, we would prefer that either the Mentor Teacher or a Parent be the email recipient of the student's schedule.*

Please mail one copy of this form for each team to the address below. You may duplicate this form. Entries must be **postmarked no later than February 6 2008**. If not providing valid email address, then include one self-addressed, stamped envelope per school. All participants will be scheduled and notified of their competition time after their forms are received. Student participants will be asked to pay a \$3.00 contest admission fee when they arrive on February 16<sup>th</sup>.

**Science Central Bridge Building**  
Attn: Lou Papai  
1950 N. Clinton  
Fort Wayne, IN 46805



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