



## Bridge of understanding



King Elementary School Gifted and Talented Education students work on their project for the 18th annual Student Model Bridge Building Contest, being held Saturday at the Thomas Beam Engineering Complex at UNLV.

FRED COUZENS/VIEW

By FRED COUZENS

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### Students learn engineering skills through competition

Come this Saturday, 18 Gifted and Talented Education students from Martha King Elementary School will be under a lot of

stress, and so will the bridges they've been building for the past six weeks. That's because at 1 p.m., the fifth-

graders and their 10 entries in the 18th annual Student Model Bridge Building Contest will begin an agonizing 90 min-

utes, as their lightweight basswood bridge replicas first undergo a qualification test to see if they meet the contest's strict specifications. Then, the qualifying bridges go head-to-head

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against the slow, crushing pressure of the Tinius-Nelson Universal Testing Machine that puts objects under a stress load until they break into dozens of splinters.

The machine, located in the Thomas Beam Engineering Complex at UNLV, has dealt many a blow to youthful wannabe engineers, so this year, the GATE students are working to beat King's best finisher from last year — the entry from Aaron Richner, Tyler Goodale and Brent Hickey that withstood 40.5 pounds per square inch of pressure.

To do that, GATE teacher Anne Marie Eby gives them instruction so the youngsters can strike out on their own with design and fabrication work.

"They learn how a truss works in terms of compression, tension and how a load needs to be dispersed," said Eby, who's been in charge of the GATE program for the past four years. "They learn how to make them strong, so they do the sketches and then build their bridges from the sketches. Some do the project for aesthetics, which aren't as strong, and then there's some who want to have the strongest one. I don't say do it this way or that way."

To get the students started, Eby hands out illustrated materials and text that explains the different bridge types — beam, arch and suspension — and shows examples of truss bridges.

The fifth-graders started their projects in mid-January and were in the process of assembling the final product last week, with modifications and gluing taking the spotlight as the time for competition drew closer.

The competition, sponsored by the Bureau of Reclamation, the American Society of Professional Engineers, UNLV,

the Clark County School District, the Clark County Public Works Department and local engineering firms, requires that "the bridges be weighed, tested and scored by their efficiency, which is the load divided by bridge weight. Using materials from an official kit, students must design and construct a wooden bridge according to the specifications."

What that means is each bridge must fit into certain parameters — it must span a gap of roughly 12 to 16 inches, be no taller than about 3 inches from its roadbed, be between 1.2 to 3.5 inches wide and can weigh no more than 1.06 ounces.

A major challenge, some might think, but for the kids, it's basically child's play.

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ANNE MARIE EBY  
GATE INSTRUCTOR

"It's fun and you get to be creative," said 10-year-old Ruth Faulkner.

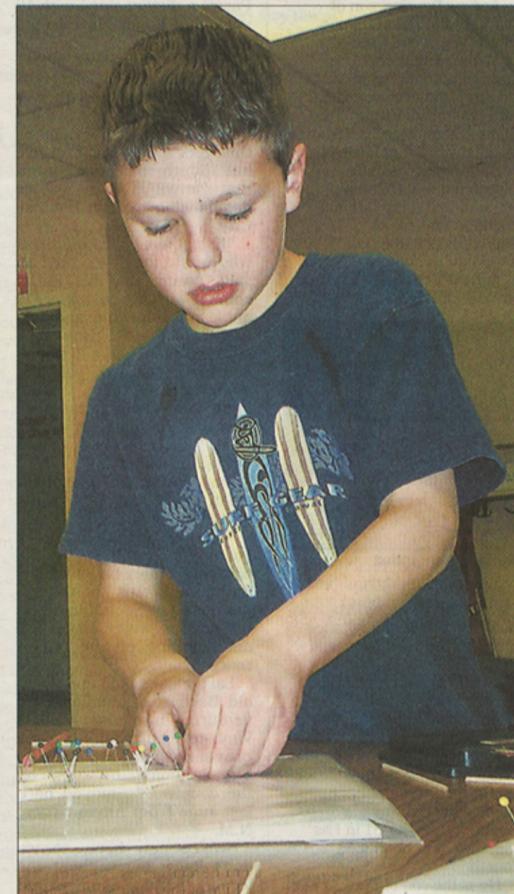
"I'm learning how to build stuff and what's stronger. Triangles are much stronger."

"I like (building the bridge) because it teaches you to be patient because the little, tiny pieces are hard to cut," said 11-year-old Emily Cooper.

"I'm learning engineering and construction," said 10-year-old Nathaniel Karr. "This is the first time I've gotten to work with wood."

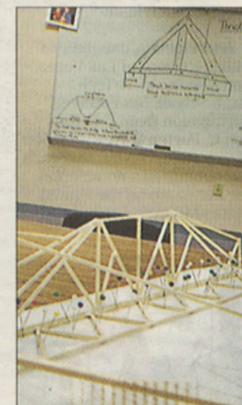
If anyone were to bet on the outcome of this weekend's competition — remember, there's no gambling allowed in Boulder City — the grandson of Clark County Commissioner Bruce Woodbury might be where the money should be put.

"My older brother, Joseph, and I made a bet a couple of days ago to see which bridge would be the strongest," said Sam Woodbury, in reference to the bridge his brother built that withstood 50 pounds per square inch. "The bet's for \$25, so I have to get 50.1 pounds, but if it's a tie, nobody gets it."



Above, 11-year-old Katlyn Jackson, left, and 9-year-old Amy Pellochoud listen to GATE teacher Anne Marie Eby talk about stress points on their entry for the 18th annual Student Model Bridge Building Contest, being held Saturday at the Thomas Beam Engineering Complex at UNLV. Left, 10-year-old Sam Woodbury works on his entry for the contest. Each bridge can weigh no more than 1.06 ounces, must span a gap of 12 to 16 inches, be no taller than about 3 inches from its roadbed, be between 1.2 and 3.5 inches wide and should follow general engineering principles for load-bearing construction.

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Above, Ruth Faulkner, 10, checks the progress she's made on her entry. Below, GATE teacher Anne Marie Eby gives some pointers to Sam Woodbury on one of the structural members of his entry into the Student Model Bridge Building Contest.

