

PAPER BRIDGE Challenge

Nine ePrep students arrived at Benedictine today and were given two index cards, two paper clips, six inches of masking tape, scissors and a ruler. We reviewed the design process and there was a focused effort by all to design and build a bridge to span five inches that could hold the most pennies.

The rules were challenging for some:

1. The bridge must have a span of 5 inches.
2. The roadbed must be at least 1 1/2 inches above the ground.
3. No part of the roadbed may be taped or touch the ground.
4. Test using the pennies. The weight will be applied to the center of the bridge until the bridge fails. Bridge failure is to be defined as the point where the roadbed touches the ground or collapses because of the weight applied. (The roadbed is that part that is meant to be traveled on.)

Students and their teacher were also given the opportunity to step on a two pound “plastic” truss bridge to demonstrate how much weight could be supported. The two pound K’nex bridge can support over 400 lbs before it deforms.

Prizes were awarded to students whose bridge supported over 450 pennies. After several design iterations ALL of the students designed a paper bridge that supported the weight.

Engineering Connection

This activity is a combination of planning, design, teamwork, and cost efficiency, which are all keys components to any field of engineering, especially civil engineering.

Learning Objectives

After doing this activity, students should be able to:

- Understand the process of planning and gaining approval for projects
- Understand the importance of engineering in bridge design
- Understand that design is a creative planning process that leads to useful products and systems
- Brainstorm in a group: problem-solving design process in which each person in the group presents his or her ideas in an open forum

EPREP WEEK FOUR – PAPER BRIDGE

