

### Design and Construction of a Bridge

You are the owner of a consulting engineering company, and your company has been retained by the City of Metropolis to design and build a bridge over Kryptonite River. The river is 48 feet long, with an additional 16 feet on each end of the bridge connecting it to the roadway. The bridge can not be greater than 12 feet wide or less than 8 feet wide. You will need two support columns on each end of the bridge. These columns must be a minimum of 8 feet high in order for pedestrians to pass underneath. The bridge must be able to stand on its own. The City Commissioners want you to provide a bridge that is to the scale of 4 feet is equal to 1 inch, and test your design.

You will be asked to provide a brief description of your bridge at a City Council meeting prior to testing. In this meeting you will explain the reason why you chose the design that you built. What you think that advantages and concerns might be for your design, and what the final cost was, and how the final cost compared to your initial cost estimate. You will need to include your final drawing in this presentation.

You will be required to provide an initial cost estimate prior after you select your design and prior to construction.

The cost of the materials are as follows: Popsicle stick= \$ 1.50/ea (full stick) and \$ 0.75/ partial stick. The glue will cost \$ 5.00/ glue stick.

You will be judged on the following criteria:

1) Amount of load that your bridge can hold:	50%	_____ pts
2) Final Cost:	20%	_____ pts
3) Bridge Aesthetics:	20%	_____ pts
4) Final Presentation:	10%	_____ pts

This will be based on a total of 100 points. If there is a tie, final cost will be the deciding factor.

Please review the background knowledge on bridges that are in your packets.