

Critical Load Student Worksheet:

Measuring Critical Load (#1)

Answer the following questions on this page with your group.

Step One: You have been provided with four playing cards, some scotch tape, and scissors. As a team and without altering (cutting or bending for example) the cards, devise a bridge that you think will hold up a two quart/64 oz./1.69L containers without collapsing (this will represent a carriage or wagon in the early 1800s). What is your team's strategy or plan for construction?

Step Two: Predict the "critical load" of your structure as you have designed it.

Step Three: As a team, build your structure (prototype) for testing.

Step Four: Your instructor will test your structure, and determine at what weight your team's structure will fail by adding measurable weights (coins, sand, other materials) until it collapses. This is your structure's "critical load." What was your structure's "critical load?" How close were you to your prediction from Step One?