



The Bridge

Scenario

You and your friends are stuck in an old mine shaft and have discovered a trolley of gold. You need to build a bridge to transport your gold to the outside world.

Aim

The aim of this full-day activity is to build a light and strong model bridge to carry 'gold' ingots from one side of the test rig to the other.

What to do

Your team needs to design and construct a model bridge from a fixed quantity of balsa, cardboard, wooden sticks, plastic sticks, masking tape and paper. Paper clips and string are also available. You cannot use anything you've brought with you. No glue is allowed. A small saw, a cutting block, ruler and scissors will also be provided.

Your bridge will be tested at the end of the day in front of everyone present. The test involves running a trolley across the aluminium deck of the bridge. After each successful attempt, an ingot is added to the trolley.

Rules

Each team must construct one bridge to be tested at the end of the day.

Prior to final testing, each team's bridge must be placed in the test rig by its builders.

The bridge can only be supported by the ledges on each end of the gap.

The bridge must not be secured to the test rig in any way.

When testing, the trolley must not be pushed or held back on release.

The bridge is successful if the trolley rolls all the way across the deck on to the flat track on the other side of the gap.

A bridge is unsuccessful if:

- It touches the bottom of the test rig, even if the trolley crosses the gap.
- The trolley almost crosses, but rolls back on to, the deck.
- The trolley falls off the test rig before all four wheels are on the flat track.
- The bridge breaks.

If the bridge doesn't break you are allowed 3 attempts for each load.

The official bridge judge(s) will decide if an attempt is successful, and if a bridge is sound enough for another attempt. Their decision is final.

Scoring

At the end of the session, immediately prior to final testing, each bridge will be weighed and pre-tested to check that it can support the weight of the deck. If it can, some points are awarded and the bridge becomes eligible for final testing.

The final test involves placing each bridge, one at a time, into the test rig and rolling a trolley, loaded with an increasing number of ingots, across it. This continues until the bridge breaks, or supports all the ingots.

Points are awarded based on the weight of the bridge and the number of ingots that it supports.

Tips

Your bridge must fit into the test rig; if your bridge doesn't fit, it can't be tested!