

# Rube Tube

This is a hands-on problem. In an actual tournament you would have one minute to select the five team members who would compete.

**You will have nine minutes to solve this problem.** You may ask the judge questions at any time; however, time will continue. You will be scored at the end of eight minutes or when the team asks to be scored.

**In front of you on the table are various building materials. You may use only the materials provided in your solution.**

Rube Goldberg was a cartoonist who designed insanely complex machines to complete simple tasks. A Rube Goldberg machine is first set up, and then triggered by a simple action.

**Your Problem Is: Your team must design and build your own Rube Goldberg machine that will knock the tennis ball off of the tube. (*Indicate tube and tennis ball*) When the team decides to test their machine for score, they will inform the judges, and one team member will set off the machine by releasing the golf ball. When testing the machine for score, team members may not touch the machine during the interval between the releasing of the golf ball and the tipping of the tennis ball. If the team touches the machine while it is operating, they must restart the attempt. You may attempt to run the machine as many times as you wish; however, only the last attempt will be scored.**

You will be scored as follows:

**The machine successfully knocks the tennis ball off of the tube: 20 points**

**Complexity of the machine: 1-40 points**

**Percentage of the materials used (approximately): 1-20 points (*100% being 20 points*)**

**How well your team works together: 1-30 points**

*Repeat items in bold. Begin by saying 'I repeat:'*

FOR JUDGES ONLY:

This is a fun one. ☺ For the tube, use a cardboard tube from a toilet paper roll. Duct tape the tube, standing upright, to one end of a table. Set the tennis ball on top of it. For the materials, the following list may be helpful:

|              |                   |                              |
|--------------|-------------------|------------------------------|
| 1 golf ball  | 5 rubber bands    | 3 sheets of 8.5" x 11" paper |
| 3 paper cups | 3 pins            | 5 paper clips                |
| 5 dominos    | 10 mailing labels | 1 pair of scissors           |
| 4 straws     | 5 popsicle sticks | 1 24" piece of string        |
| 5 marbles    | 1 matchbox car    |                              |

*It is important to remember that for this problem, there is no Part II: the team must finish testing their machine for score during the single 9-minute period. Do not emphasize this fact unless directly questioned by the team members.*