

Perpetual Motion

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

This is a two-part problem. In part 1, you will have 6 minutes to develop your solution and practice. In part 2, you will be given 4 minutes to test your solution for score. You may ask the judge questions at any time; however, time will continue.

Your Problem Is: In Part 1, your team will use the materials on the table to design and build a machine that will keep the marble in motion, above the table, for as long as possible. When completed, the machine must rest entirely on the table surface. *(indicate table)* **In Part 2, you will test your machine for score. You will begin each test by saying "Start Clock" and releasing the marble. Once the marble has been released and an attempt is in progress, no team member may directly or indirectly touch the marble or the machine. Touching the machine will automatically end the attempt. You may test your machine as many times as you like, and only the highest-scoring attempt will count.**

You will be scored as follows:

Every second that the marble stays in motion above the table: 1 point

How well your team works together: 1-10 points

The creativity of your solution: 1-10 points

*Repeat items in **bold**. Begin by saying 'I repeat:' When you are finished, continue.*

You may begin.

Part 1: 6 minutes

Part 2: 4 minutes

FOR JUDGES ONLY:

For Part 1, give the team a set of construction materials, along with a pair of scissors. The following list may be helpful:

8 mailing labels

5 unsharpened pencils

1 empty cereal box

2 paper plates

2 paper cups

1 small plastic bag

1 2' piece of string

3 pieces of 8.5"x11" paper

3 plastic spoons

The team may adjust their machine in between scoring attempts during Part 2. Stop the clock if a team member touches the machine or the marble, or when the marble comes to rest or falls off of the table. "Motion" of the marble is defined as observable motion relative to the table.