

## EVENT 4: THE MARBLE COASTER (as of 9/21/07)

**Objective:** To construct a track along which a marble will be in motion for the longest period of time.

### **Rules:**

- a) The marble coaster must be designed, built and brought to the competition by the team.
- b) The coaster must be constructed from oak tag, construction paper, cardboard or similar material and masking tape.
- c) The coaster cannot be larger than a cube 60 cm on edge.
- d) The coaster must have a horizontal or vertical backdrop enabling the track to be secured to a wall or table.
- e) The judges will provide the team with a glass marble, approximately 16 millimeters in diameter.
- f) The energy to run the machine is to come from gravitational potential energy only. No other forms of energy are to be used to increase, decrease, or maintain the speed of the marble.

### **Competition and Scoring:**

- a) During registration, the team will provide a sketch of their coaster to the judge(s) clearly indicating the route of the track.
- b) The team will have 15 minutes to assemble their coaster according to the sketch given the judge(s) and to mount their coaster to a wall or table.
- c) The competition will take place in a typical High School lab room or classroom using tables approximately between 70 to 92 cm high.
- d) The coaster may touch the floor.
- e) The team will position their marble and signal the judge(s) to start timing.
- f) Timing begins when the marble is released and ends when the marble exits the coaster.
- g) Each team will be allowed two runs of the marble, the run with the longest time will be the one used for scoring.
- h) The marble needs to be in motion at all times: if the marble becomes stuck in one place for more than 3 seconds, the clock will be stopped.
- i) The winning coaster will be the one that keeps the marble in motion for the longest period of time before exiting the coaster.

**Final Score**= {(your time) / (winning time)} X 100