

## **EVENT 3: BERNOULLI BALL**

**OBJECTIVE:** To guide a ping-pong ball through loops using a hairdryer.

### **RULES:**

- a. The team will bring their hairdryer to the competition.
- b. Any hand held, up to 2,000 watt hairdryer may be used.
- c. An extension cord provided by the team may be used.
- d. A mechanical device that modifies the output airflow may be attached to the nozzle of the hairdryer,
- e. No modifications (e.g., electrical or mechanical) may be made to the hairdryer itself.
- f. The team will be provided with a 40mm diameter ping-pong ball.
- g. The course will consist of a series of ring stands with attached ring clamps; the ring clamps serving as the loops. The ring clamps will have an inner diameter between four to five inches. They are similar to those found in the Sargent Welch Catalog No. WLS 73045.

### **COMPETITION AND SCORING:**

- a. The ring stands with the attached ring clamps will be spaced around a typical high school classroom/lab room.
- b. The ring stands will be arranged in an area of 15 square feet.
- c. The ring clamps will be at different heights from the floor, ranging from a minimum of 40 inches to a maximum of 85 inches.
- d. The ring stands will either be free standing on the floor or clamped to a desk or lab bench.
- e. The number of ring clamps will be announced at the time of the event. The number of ring clamps and the course will be the same for all the teams.
- f. The team will be given 20 seconds to place a ping-pong ball into the airflow from the hairdryer. The team will then signal to the judge(s) to start timing.
- g. The team must guide the ping-pong ball through all the ring clamps of the course using only the output airflow from the non-modified or modified hairdryer.
- h. The ball must be levitated at all times by the airflow from the hairdryer while being navigated through the course.
- i. If the ball drops out of the airflow, a penalty of 5 seconds will be added to the team's score. The clock will not be stopped while the team re-levitates the ball by placing it back into the airflow from the hairdryer.
- j. The team with the fastest time wins.

$$\text{SCORE} = \frac{(\text{Winning Time})}{(\text{Your time})} \times 100$$

- **Updates to the rules will be posted on the NJAAPT web site at [www.njaapt.org](http://www.njaapt.org).**
- **Frequently asked questions with answer will be available by e-mailing [John\\_Valente@mast.mcvsd.org](mailto:John_Valente@mast.mcvsd.org).**
- **It is your team's responsibility to remain updated about changes and clarifications to the rules.**