

# **Cycling Diver Event**

## **North Shore Science League**

### **November Meet**

#### **Purpose**

The goal of this event is to build a device that will undergo as many sink-float cycles as possible in water within a one minute time limit.

#### **Event Description**

The event will be conducted in a Sterilite™ 58 Quart clear plastic storage bin filled with water to a depth of 9 inches. The specific dimensions of the bin are; top - 16 in X 22 in; depth -12 in; bottom: 12 in X 18 in. The event begins when the device is released in the bin, after which, teams may not contact their device until completion of the run. The device should then sink to the bottom of the container, upon contacting the bottom, the device should then float to the surface, upon contacting the surface, the device should then sink to the bottom, etc., repeating this sink-float cycle as many times as possible. There is a one minute time limit. Timing begins once the device is released.

#### **Device Parameters and Limitations**

- The device may not be longer than 8 inches in any dimension at any time during the competition.
- The device must not contaminate the water with any dissolved solids or liquids. Should the device deposit any debris, the team must completely clean out the water in a reasonable time. Should the water need to be replaced due to contamination, the team responsible will be disqualified.
- The device does not have to remain intact. That is, it may shed sections as it undergoes sink-float cycles. However, if a device employs this type of mechanism, it must have a core segment which can easily be identified by the judges, and the sections which separate from the core during the event must be easily cleaned out of the water at the completion of the run.

#### **Event Scoring**

There will be two tiers for ranking. Devices which adhere to all the parameters and limitations will be ranked in the top tier, all other teams which were not disqualified will be ranked in the second tier. Teams will receive one point for each half cycle completed. The half cycles must be completed in order; sink, float, sink, float, sink, float, etc. The number of points will be the first criteria for ranking the teams. Ties will be broken using the starting mass of the device with the lighter device receiving the higher ranking.