



Science Olympiad: Encouraging Makers in Middle and High School

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Dr. Pung has interests in experiential learning, design processes and student teams.

Science Olympiad – Encouraging Makers in Middle and Highschool

The 2016 Science Olympiad has several events that require students to design and build an item that meets a certain set of criteria. These are air trajectory (object launch), bridge building, an electric vehicle, video game design, time keeping, model airplane building and a robotic arm. These events provide students with the opportunity to apply scientific thinking to a problem and then build the solution sets the stage for future application of theory. The display will have an electric vehicle and photographs of other items.

Many school districts have science Olympiad teams. Offering to help coach one or more events will always be appreciated. The time commitment will vary with the event. A relatively simple build may be handled with three to four half hour meetings ending with a four hour build event after school hours or on a weekend.

Events from the 2016 competition with a build component are listed below. The B and C are designations for middle school (B) and/or highschool (C) teams.

Air Trajectory (B/C) - Prior to the competition, teams will design, construct and calibrate a single device capable of launching projectiles into a target and collect data regarding device parameters and performance.

Bottle Rocket (B) - Prior to the tournament, teams construct two rockets designed to stay aloft for the greatest amount of time.

Bridge Building (B/C) - Teams will design and build the lightest bridge with the highest structural efficiency that can span a given opening meeting the requirements given.

Elastic Launched Glider (B) - Students will design, build and test two elastic launched gliders capable of the maximum time aloft.

Electric Vehicle (C) - Teams must design, build and test one vehicle that uses electrical energy as its sole means of propulsion to travel as quickly as possible and stop close to a Target Point.

Game On (C) - This event will determine a team's ability to design and build an original computer game incorporating the theme provided to them by the supervisor using the program Scratch.

It's About Time (C) - Competitors may construct one non-electrical device to measure time intervals between 10 and 300 seconds and answer questions related to time.

Protein Modeling (C) - Students will use computer visualization and online resources to construct physical models of proteins.

Robot Arm (C) - Prior to the competition, teams must design, build, document and test one robotic device to move scoreable items.

Scrambler (B) - Competitors must design, build and test a mechanical device which uses the energy from a falling mass to transport an egg along a track as quickly as possible and stop as close to the center of a terminal barrier without breaking the egg.

Wind Power (B/C) - Teams will build a blade assembly that consists of any kind of propeller/pinwheel/rotor attached to a CD which will be used to capture wind power. Students will also be tested on their knowledge relating to alternative energy.

Wright Stuff (C) - Prior to the competition teams design, construct and test free flight rubber-powered monoplanes to achieve maximum time aloft.

Support for individuals interested in creating a team or assisting a team can be found at <https://www.soinc.org/>.

Additionally there are multiple wikis for student and coaches to reference. http://scioly.org/wiki/index.php/2016_Test_Exchange was particularly valuable to this author's team.

Information regarding science Olympiad can be found at this address <https://www.soinc.org/>