CONNECTICUT SCIENCE OLYMIAD
www.ctscienceolympiad.org
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What is the Science Olympiad?

The Science Olympiad is a nationwide volunteer organization dedicated to promoting science education through conducting competitive science tournaments. An SO tournament is much different than a science fair. A science fair usually involves intense work by individual students on a specific problem. At the actual fair, students present results. SO is a team competition where cooperation within small groups of students is essential, and where the actual competitive project trials, labs, or written events are done at the tournament. A science fair is intense, individual, and quiet. A Science Olympiad tournament is full of cheers, groans, and enthusiasm.

In SO, teams of up to 15 students meet on a Saturday and compete in about 23 different science events that cover many different STEM areas. Some events require construction of a project ahead of time. Others involve on the spot application of skills to a given problem. Most events involve two students, and each individual student might be entered in three or four different events. Teams are not required to enter all events at a tournament, and many schools have less than 15 students on their team.

Individual students win medals for placing in an event, with cumulative scores yielding overall team placement at a tournament. The best team in each of the divisions – High School and Middle School - advances to the National Tournament. Nationals for the upcoming 2014 season will be held at The University of Central Florida in May, 2014.

Teachers involved with the Science Olympiad generally find that coaching a team is work, but the kind of work they enjoy most. The teamwork and camaraderie that develops lets science students learn while having the fun and enjoying the team spirit and belonging that athletic teams have always enjoyed. The friendly competition of the Olympiad greatly raises student's interest in science.

2014 Tournament Dates in Connecticut:

High School practice tournament- January 18 at Yale University
Middle School State Tournament- March 22 at I.A. Robbins MS, Farmington
High School State Tournament- March 29 at UConn, Storrs

Standards

The Science Olympiad is specifically cited in the original National Science Standards as a model science activity. The standards for each event are referenced on the national Science Olympiad website at www.soinc.org. (See BC Events – Alignment to National Standards).

The team competition structure of SO results in naturally occurring learning groups adept at problem-solving and highly creative, resource-based, hands-on science learning communities of students in middle and high schools. Students take pride in their accomplishments, and they are always recognized in public at the awards assembly on tournament day. National winning teams usually meet with the President of the United States.

Online information:

www.ctscienceolympiad.org The Connecticut State Science Olympiad website
www.soinc.org The National Science Olympiad website

Schools and Grades

Public schools, private schools, and home schools are welcome. All students must attend the same school, and the school must be the official sponsor of the team. The SO in Connecticut runs two divisions:

B Division (Middle/Junior High School) for grades 6 to 9
Middle schools are limited to five 9th graders.
C Division (High School) for grades 9 to 12
High School teams are limited to seven 12th grade students.

If your school ends at 8th grade, you can bring back five of your school's students from last year. Individual 9th graders cannot compete in both divisions; they can only be on one team in one division.

There is also an "A" Division, which is organized differently and is usually done within individual elementary schools. We do not run this on a statewide basis in Connecticut, but we can help you set this up in your own school.

Coaches

Every team must have two coaches. Coaches do not have to be science teachers, but they must be responsible adults who will be at the tournament. SO is very different from sporting competitions in that the coach cannot be on the sidelines shouting instructions —the students compete on their own. At the tournament, students travel to individual events on their own and compete without any help from the coach or anyone else. All coaches are assigned to help run and judge events. As a coach, you will be tied up for three hours or more while judging and scoring.

Many teams find experts in the community to help with individual events. They are welcome to assist in judging at the tournament.

Coaching Suggestions: Preparing Your Team

The two most important things in preparing your team are the rules for each event, or "spec sheets" and the tournament schedule. The specs tell you what you have to do, and the schedule tells you when you have to do it. At a tournament there are always several events going on simultaneously, and your team will have to be in several places at once.

The "spec sheets", or official rules, are in the Rules Manual you will get when you register a team. Each event has a page or two of rules. Tournament schedules are usually available near the end of October for the following spring's tournaments.

It is important that you read the specs for each event carefully, especially for construction project events. Everyone in the country gets exactly the same specs and they are enforced strictly at tournaments. If the specs say a project can be a maximum of 70 cm long, they mean 70.0 cm — not 70.01cm.

When preparing for construction project events, always work through the scoring formulas. The idea is to build a project that is "in spec" and aimed at a maximum score. There is never a single correct way to design and build a project. It can take much longer to get your project calibrated-- adjusted to score well-- than to build it. Even if the project seems daunting, students like these events. No teams are perfect, so you do not have to be perfect to do well!

Copies of old event question sheets are often available for free on-line and many coaching resources are available from national SO at reasonable cost. You can use old events for practice but make sure you are using this year's specs to get ready for competition. Event specs usually change a little each year, and the events themselves come and go.

The spirit of SO is for students to be the competitors. The students should be the ones constructing devices. It is fine for coaches or parents to help with safety issue like running table saws to cut wood for projects. However, judges must be confident that the student team members have done the design and construction of a project.

Your school can field more than one team. You must register each team separately, and your teams compete with one another just as if they were from different schools. Each team needs two coaches—remember, the coaches are the "volunteers" that help run events.

If you have enough students, you are encouraged to try all the events at a tournament. The experience is good for your team, and the worst you can do in any event is still much better than a team that does not enter.

Safety Equipment

Many lab and tech events require safety equipment such as goggles, lab aprons, or dress requirements. They are listed in the specs and the safety rules are strictly enforced. The school Lab Safety Agreement applies to all Science Olympiad activities.

SO Events for 2014: Tentative B Division (Grades 6 to 9) Event Descriptions
Each event is done by a team of up to 2 students, unless noted. There are a maximum of 15 students on a team—the team may do some or all events.

B Division (Grades 6-9)

B Anatomy - nervous, digestive
Show your knowledge of nervous and integumentary systems.

B Boomilever
Construct and test a lightweight cantilever beam to support 15 kg.

B Can't Judge a Powder
Conduct lab tests to gather accurate data about unknown powders.

B Crime Busters
CSI Connecticut! Analyze evidence from a crime scene and identify the guilty person.

B Disease Detectives
Investigate and solve disease disability problems related to environmental quality.

B Dynamic Planet
Chill out! Use your process skills to solve problems with glaciers and climate change.

B Entomology
Identify insects by order and family; use or construct a dichotomous key.

B Experimental Design (up to 3 students)
Based on a given a kit of materials, you must design, conduct, and write up an experiment.

B Helicopters
Design and construct a rubber powered helicopters for maximum flight time.

B Heredity
Pass it on! Solve problems using your knowledge of genetic principles.

B Meteorology
Were you handy with Sandy? Solve problems with severe storms.

B Metric Mastery
Can you be the ruler in making accurate estimates and measurements?

B Road Scholar
Help story characters solve their problems by interpreting road and topographic maps.

B Robo Cross
Design and construct a robot to move objects around a course.

B Rocks and Minerals
Join a rock band! Identify rock and mineral samples.

B Rotor Egg Drop
Design, build, test a non-powered helicopter rotor device to gently drop an egg.

B Shock Value
Solve lab and written problems with circuits, electrical and magnetic devices.

B Simple Machines
Design, construct and test a class one lever; solve problems involving simple machines.

B Solar System
Show your knowledge of the evolution of extraterresrial ice and water in the solar system.

B Sounds of Music
Build two different instruments; play them and answer questions on science of music.

B Water Quality
Construct and use a salinometer; demonstrate your knowledge of estuary and marine ecosystems including coral reefs.

B Wheeled Vehicle
Design, construct, and calibrate a vehicle powered by a nonmetallic, elastic material to quickly travel a given distance and stop.

B Write It, Do It (2 students required)
One student sees and describes a device; another uses that description to build the device from a parts bag.

Coaches:

Bedford Middle School

Art Ellis

Coleytown Middle School

David Oestreicher

SO Events for 2014: Tentative C Division (Grades 9 to 12) Event Descriptions
Each event is done by a team of up to 2 students, unless noted. There are a maximum of 15 students on a team; the team may some or all events.

C Anatomy and Physiology
Show your knowledge of nervous, integumentry, and immune systems.

C Astronomy
Show your understanding of the math and physics relating to stellar evolution and variable stars.

C Boomilever
Construct and test a lightweight cantilever beam to support 15 kg.

C Bungee Drop
Construct and calibrate an elastic cord to drop a mass; come as close as possible to the floor without touching.

C Chemistry Lab
Solve lab problems using your science process skills in Equilibrium and stoichiometry.

C Circuit Lab
Using both lab stations and written problems, demonstrate knowledge of DC circuits.

C Compound Machines
Design, construct and test a class one lever; solve problems involving simple and compound machines.

C Designer Genes
Solve problems in Molecular Genetics and Biothechnology.

C Disease Detectives
Investigate and solve disease disability problems related to environmental quality.

C Dynamic Planet
Chill out! Use your process skills to solve problems with glaciers and climate change

C Elastic Launched Glider
Build and test gliders for maximum flight time; launch with a rubber band.

C Entomology
Identify insects by order and family; use or construct a dichotomous key.

C Experimental Design (up to 3 students)
Based on a given a kit of materials, you must design, conduct, and write up an experiment.

C Forensics
CSI Connecticut! Analyze evidence from a crime scene and identify the guilty person.

C GeoLogic Mapping use topo maps, cross sections, and geologic maps to solve problems.

C Maglev
Design, construct, and test a propeller powered maglev vehicle; solve magnetism problems.

C Materials Science
A lab event combining chemistry, physics, engineering, and manufacturing of materials.

C Mission Possible
Construct a Rube Goldberg device to turn on a light bulb.

C Rocks and Minerals
Rock on, dude! Identify and answer questions about rock and mineral specimens.

C Scrambler
Design and calibrate a device, powered by a falling mass, to drive an egg towards a wall. Don't make an omlet!

C Technical Problem Solving
Using electronic probes, gather and process data to solve problems at lab stations.

C Water Quality
Construct and use a salinometer; demonstrate your knowledge of estuary and marine ecosystems including coral reefs.

C Write it, Do It (2 students required)
One student sees and describes a device; another uses that description to build the device from a parts bag.