

PSCA 2014-2015 Academic Competitions

Informational Sessions

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Agenda

- Introduction
- Housekeeping Items
- Program goals
- Program overview
- Open positions
- Q&A

Why Academic Competitions ?

- Math & Science learning beyond classroom
- Learn & Compete in Math & Science
- Develop leadership skills & team work
- Promote extracurricular activities
- Science Olympiad builds skills in STEM
- Promotes parent involvement
- Provides recognition for student achievement
- Social skills & acquire new friends
- Last not but least have lots of fun
- Real-time competition experience with other schools
- Medals and trophies are bonus but primary goal is learn and compete

What programs are available?

- Academic Games (3-5)
- Elementary School Science Olympiad (3-5)
- Middle School Science Olympiad (6-8)
- Middle School MATHCOUNTS (6-8)
- Middle School Model United Nations (6-8)

Elementary School Academic Games

- Students will participate and compete in 3 academic games (Words, Sets and Equations)
- Tournaments:
 - Regional – 5 Saturday competitions starting from Sep
 - State– March 2015, Crowne Plaza Hotel, Grand Rapids, MI
 - National – April 2015, TBD
- Students will attend practice sessions scheduled by coach
- Grade Levels: 3-5
- Team Size: 5 per team (no limit on no of teams)
- Games:
 - On-Words, On-Sets, Equations
- Websites:
 - MLAG: <http://www.mlagonline.com>
 - AGLOA: <http://www.agloa.org/>
 - Past Results: <http://scholarsolympiad.weebly.com/results.html>
- Head Coach: Venkat Pingili
- Coaches: Venkat Pingili, Indu Nimmagadda, Krishna and **TBD**
- Program Fees:
 - School Program Participation Fee: \$75
 - State SUPER tournament fee: \$250-\$300
 - National participation fee: TBD
- Student is expected to spend 2-4 hours per week depending on how many events he/she registers
- All participating students are eligible to participate in Saturday competitions and Super tournament as long as student is willing to cover the expense for Grand Rapids trip.

Academic Games – Game Descriptions

- **Equations:** is a mathematics game created by University of Michigan Law Professor Layman Allen in the mid 1960's. This is the first game that most students learn.
- **On-Sets:** is a game involving Set Theory, where students utilize set operations to identify groups of colors.
- **On-Words:** is a word game involving spelling, counting, grammar, phonetics, word roots, inflectional endings, prefixes and suffixes.
- ~~**WFF-N Proof:** is a logic game that was created by Layman Allen. Player create a goal that is a WFF, well-formed formula, and use logic rules and other WFFs to to write a proof that ends with the goal. This game was created by Layman Allen to teach law students the fundamentals of symbolic logic.~~
- ~~**Presidents:** The game assesses students' knowledge of American Presidents, and the events that happened during their presidencies.~~
- ~~**Propaganda:** is a game that creates critical thinkers. Propaganda assesses student's knowledge of recognizing and understanding different techniques of persuasion.~~
- ~~**World Card:** is a game of political and current events. Students research a particular topic given each year, players learn about major current events.~~
- ~~**LinguiSHTIK:** is a grammar game where students make demands, rules relate to the subject of grammar, that focus on creating a sentence that meet all the demands made.~~

Elementary School Science Olympiad

- Students will participate and compete in 16 science events
- Tournaments:
 - School science olympiads – Dates TBD
 - WOSO District Tournament, Apr 2015 – Place TBD
 - WOSO County Tournament, May 2015 – Place TBD
- Students will attend practice sessions scheduled by coach at school or home
- Eligible Grade Levels: 3-5
- Past Achievements:
 - 7th place in 2014 Macomb Country Tournament
 - Participated and won several medals in 2014 WOSO district tournament
 - 2nd prize in 2013 Macomb District Tournament
 - 3rd prize in 2013 Macomb Country Tournament
- Student is recommended to participate in at least 3 events
- School Website: <http://scholarsolympiad.weebly.com/>
- WOSO Website: <http://wayneoaklandso.weebly.com/>
- Past Results: <http://scholarsolympiad.weebly.com/results.html>
- Head Coach: Murali Dhulipalla
- Event Coaches: **Many parent coaches**
- 2015 Program Fee: \$50 per student
- Student is expected to spend 1.5 hrs per event
- Parent/coach is expected to spend 2 hours per week
- *All students are eligible to participate in WOSO district tournament*
- *Selection process will be applied for WOSO county tournament. Selection process primarily depends on grade level, attendance, performance, participation in multiple events and parent coaching.*

ESO – Science Concepts and Knowledge

- **A is for Anatomy:** Students will identify anatomical structures of the human muscular and skeletal systems. Only the scientific names of the bones, parts of bones and muscles will be accepted as correct.
- **Don't Bug Me:** Using characteristics of the major arthropod classes, students are to distinguish insects from non-insects. They will also identify insect specimens, body parts, characteristics, habitats, ecological significance, and life cycles of specified orders of insects.
- **Ecology Rangers:** Students will be tested on their knowledge of the ecology of terrestrial biomes. Additionally, they will be expected to understand how human activities have affected this ecology.
- **Rock Hound:** Students will prepare charts and use them to identify various rocks and minerals. Questions about the rocks or minerals, such as their color, specific gravity, relative hardness, reaction to 3 molar hydrochloric acid, shape, and texture will be asked.
- **Starry, Starry Night:** This event will test students' knowledge of astronomical facts and concepts relating to the earth, moon, solar system, celestial sphere, stars and constellations.
- **Weather or Not:** Students will be tested on their knowledge of weather and meteorology. Topics may include clouds, simple scientific weather instruments and their functions, weather patterns, severe weather, and weather photographs, drawings, or diagrams. Questions may also include states of water, water cycle, weather terminology, atmosphere, and seasonal changes in weather.
- **Wildlife Safari:** Students will demonstrate their ability to identify Michigan birds and their habitats through the use of field guides.

ESO – Science Process and Thinking Skills

- **Charged Up:** Students will be tested on their knowledge of electricity and related concepts. The exam will cover circuits, conductors, diodes, voltage, current, resistance, schematic drawings, meter reading, electrical sources and safety.
- **Grasp-A-Graph:** Students will interpret and organize information using pictographs, pie, bar, double bar, line and double line graphs.
- **Reflection Relay:** A team of three students will work cooperatively to determine the path a light beam takes, as it reflects off a series of plane mirrors.
- **Simple Machines:** Participants will identify, use, and answer questions about simple machines and recognize the relationships between work, force and distance as they apply to each simple machine. Knowledge of the following six simple machines will be demonstrated: lever, inclined plane, pulley, screw, wheel and axle, and wedge. Students should know and understand the concept of mechanical advantage and be able to estimate it by comparing the ratio of forces or distances.
- **Zowie Estimation:** Presented with a variety of tasks, students will be asked to estimate mass in grams, volume in cubic centimeters, and number of objects in a container.

ESO – Science Application and Technology

- **Crash Car Eggspert:** Each team will build a structure on top of a PineCar Racer. The structure will be designed to hold and protect an egg as the car is rolled down a progressively steeper series of ramps and crashed into an immovable barrier.
- **Mystery Architecture:** Students will be given a bag of materials to build a freestanding tower as tall as they can. The tower should be constructed to support a tennis ball at its top.
- **Rubber Band Catapult:** Students will design and construct a catapult device, according to the parameters set forth in the rules, to shoot a rubber band at a target that is placed within a given range.
- **Water Rockets:** Prior to the tournament, contestants will use 2-liter soda/pop bottles to build one or more rockets propelled by pressurized air and water. Rockets will be launched at the tournament and time aloft recorded. The rocket that stays aloft for the longest time will win.

Middle School Science Olympiad

- Students will participate and compete in 23 science events
- Tournaments:
 - School science olympiads – Dates TBD
 - Invitationals – Dec – Jan 2015, Various Locations
 - REGION 8 (Team Size: 15/team) – March 2015, Thurston High School, Reford, MI
 - STATE (Team Size: 15) – May 2, 2015, MSU, Lansing, MI
 - NATIONAL (Team Size: 15) – May 2015, TBD
- Students will attend practice sessions scheduled by coach at school/home
- Grade Levels: 6-8
- Student is recommended to participate in at least 4 events
- Team Size: 15 students
- Websites:
 - <http://sonic.org>
 - http://scioly.org/wiki/index.php/Main_Page
 - <http://www.mi-so.org/>
 - <http://scienceolympiad.umd.umich.edu/>
 - Past Results: <http://scholarsolympiad.weebly.com/results.html>
- Head Coach: Murali Dhulipalla
- Event Coaches: Many parent volunteers
- Program Fee: \$TBD, Team Dinner Fee: \$TBD – if we qualify for state
- Student is expected to spend 1.5 hrs per week per event
- All students (multiple teams) are eligible to participate in invitational tournaments.
- Two teams will participate in Region 8 regional tournament.
- One team will participate in State tournament (if eligible)
- One team will participate in National tournament (if eligible)
- Selection process will be applied for regional and state teams. Selection process primarily depends on grade level, attendance, performance, participation in multiple events and parent coaching.

Middle School Science Olympiad Events

- **Earth and Space Science (5)**
 - Dynamic Planet, Fossils, Meteorology, Road Scholar, Solar System
- **Inquiry and Nature of Science (4)**
 - Bottle Rockets, Experimental Design, Picture This, Write it Do it
- **Life, Personal and Social Science (5)**
 - Anatomy, Bio-Process Lab, Disease Detectives, Entomology, Green Generation
- **Physical Science and Chemistry (5)**
 - Can't Judge a Powder, Crave the Wave, Crime Busters, Simple Machines, Trajectory
- **Technology and Engineering (4)**
 - Bridges, Elastic Launch Glider, Robo-Cross, Wheeled Vehicle

MSO – Earth and Space Science

- **Dynamic Planet** – Students will use process skills to complete tasks related to oceanography.
- **Fossils** – This event includes identifying various fossilized animals and plants, providing details about these creatures such as the environment it lived in, its mode of life, how it formed, etc., and answering questions on general paleontology.
- **Meteorology** – This event emphasizes the use of process skills within designated meteorological topics.
- **Road Scholar** – Teams will answer interpretive questions that may use one or more state highway maps, USGS topographic maps, internet-generated maps, a road atlas or satellite/aerial images.
- **Solar System** – Students will demonstrate an understanding and knowledge of the properties and evolution of extraterrestrial ice and water in the solar system.

MSO – Inquiry and Nature of Science

- **Bottle Rockets** – Students design, construct and launch up to two rockets made from two empty plastic carbonated drink bottles, which hold 1 liter or less, to remain aloft for the maximum period of time possible
- **Experimental Design** – This event will determine a team's ability to design, conduct and report the findings of an experiment actually conducted on site.
- **Picture This** - Imagine Pictionary with science words but you only have 4 minutes to cover 25 terms. Each person will take turns being a sketcher and guesser. If the supervisor says so, you can write parts of the term that the guesser(s) said correctly. The sketcher may not sketch any numbers, letters, or symbols
- **Write it Do it** – One student will write a description of an object and how to build it, and then the other student will attempt to construct the object from this description.

MSO – Life, Personal and Social Science

- **Anatomy** – This event encompasses the anatomy of various human body systems
- **Bio-Process Lab** - This event is a lab-oriented competition involving the fundamental science processes of a middle school science program. It consists of a series of biological questions or tasks which involve the use of one or more process skills such as formulating and/or evaluating hypotheses and procedures, using scientific instruments to collect data, making observations, presenting and/or interpreting data, or making inferences and conclusions.
- **Disease Detectives** – Students will use their investigative skills in the scientific study of disease, injury, health, and disability in populations of groups of people with a focus on Population Growth.
- **Entomology** – Students will be asked to identify insects and selected immature insects by order and family, answer questions about insects and use or construct a dichotomous key.
- **Green Generation** - According to the most recent rules released by the national committee, in Green Generation, "students will answer questions involving the history and consequences of human impact on our environment, solutions to reversing trends, and sustainability concepts." It contains elements of [Ecology](#), [Water Quality](#), and [Wind Power](#), as well as other topics.

MSO – Physical Science and Chemistry

- **Can't Judge a Powder** – Students will test and characterize one pure substance and then based only on data they collect answer a series of questions about the substance.
- **Crave the Wave** - Students will demonstrate knowledge and process skills needed to solve problems and answer questions regarding all types and areas of waves and wave motion.
- **Crime Busters** – Given a scenario, a collection of evidence, and possible suspects, students will perform a series of tests. The test results along with other evidence will be used to solve a crime.
- **Simple Machines** – This event includes activities and questions related to simple machines.
- **Trajectory - Trajectory** is an event in which you must make a device that is able to launch a tennis ball, racket ball, ping pong ball or hacky sack, powered by a non metallic elastic solid. The device should fit in an 70cm by 70cm cube for Division B and a 60cm by 60cm cube for Division C.

MSO – Technology and Engineering

- **Bridges** - The objective of **Elevated Bridge** is to build a bridge which is very lightweight and capable of holding a designated weight.
- **Elastic Launch Glider** - This event is a building event consisting of two parts: a glider made to be launched by the pulling and releasing of a rubber loop, which can be constructed based on plans of the competitor, or from a kit, and a flight log similar to that of other aviation events.
- **Robo-Cross** – Teams design and build a robot capable of performing certain tasks on a prescribed field.
- **Wheeled Vehicle** – Competitors must design, build, and test one vehicle that uses a non-metallic, elastic material as its sole means of propulsion to travel a distance as quickly and accurately as possible.

Middle School MATHCOUNTS

- 6-8 grade students will participate and compete in MATHCOUNTS challenging program
- Tournaments:
 - School – Dec 2014/Jan 2015, PSCA
 - Chapter – Feb 2015, TBD
 - State – March 2015, TBD
 - National – May 2015, TBD
- Students will attend practice sessions at school/home
- Team Size: 4 (Team Matheletes) + 6 (Individual Matheletes)
- Competition Rounds:
 - **The Sprint Round** (40 minutes) consists of 30 problems.
 - **The Target Round** (30 minutes) consists of eight problems presented to competitors in four pairs (6 minutes per pair).
 - **The Team Round** (20 minutes) consists of 10 problems that team members work together to solve.
 - **The Countdown Round** is a fast-paced, oral competition for top-scoring individuals (based on scores in the Sprint and Target Rounds).
- Website: <http://www.mathcounts.org>
- Head Coach: Murali Dhulipalla
- Coaches: Many parent coaches
- Program Fees: \$50
- Student is expected to spend 2-4 hours per week and will work on MATHCOUNTS syllabus using two books
- **Top-10 students will be selected for Chapter Competition via school competition test.**

Middle School Model United Nations

- Model UN, in simplest terms, is a game. As a player (or “delegate”), you take on the role of an ambassador to one of several world organizations. Through debate, deviousness and demands, you make your nation’s position known to the full committee. The most optimistic conclusion involves coming to an accord—with the other nations represented in your committee—on the topic at hand. However, Model UN being a reflection of real-world politics, this rarely happens. That being said, the true experience of Model UN can’t be described in words. You just have to come to MSUMUN and see for yourself.
- Sample topics: Historical, National and International policy issues. Examples: Animal Rights, Epidemics, Managing floods & natural disasters, World War II, WHO, Soviet Space Program.
- Tournaments:
 - School – Jan 2014, PSCA
 - State Conference – Red Cedar Model UN, MSU, Date TBD
- Students will attend practice sessions at school/home
- Eligible grades: 6-8
- Team Size: TBD
- Websites: <http://msumun.org/students/how-to-do-model-u-n/>
- Head Coach: Murali Dhulipalla or TBD
- Coaches: Ms. Call, Mr. Savya and TBD
- Program Fees: \$TBD
- Student’s time requirement per week: TBD
- Parent’s time requirement per week: TBD
- Team Selection process: TBD

Volunteer Positions

- Head coach
- Event Coach
- Assistant Head Coach
- Assistant Event Coach
- Tournament Volunteers
- General Volunteers
- Fundraisers
- Elementary Science Olympiad requires parents to coach/lead at least 1 science olympiad event in order for their child to participate in competition teams
- Middle School Science Olympiad requires parents to coach/lead at least 2 science olympiad events in order for their child to participate in competition teams
- MATHCOUNTS program requires parents to coach/assist their child to do their course homework throughout the year
- Academic Games requirement - TBD
- Model United Nations requirement - TBD