Science Olympiad
2010-2011
Head Coaches’ Guide
Divisions B and C
Region 7
Macomb and St. Clair Counties
Head Coaches’ Guide
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FOREWORD

Welcome to the world of Science Olympiad in Macomb County. This is the first edition of our Head Coaches Handbook intended to help not only the brand new coach, but seasoned ones as well. Our purpose is to simplify the process of starting a team and competing at not only the county level, but the state level as well.

Seeing as this is our first edition, we invite you to provide us any comments or suggestions regarding how useful this tool was to your journey as Head Coach. Our vision is to update this annually – making it a robust resource. Please take a few minutes to provide your feedback on any revisions, additions, or clarifications to the following email address: grazilozen@comcast.net. We will take everything into consideration for our second version.

For the past 27 years, Science Olympiad has led a revolution in science education - thank you for your efforts in making a difference for our future scientists and engineers!

Yours in Science,

The Macomb County Secondary Board

"The most incomprehensible thing about our universe is that it can be comprehended"
Albert Einstein
SECTION A: OVERVIEW OF SCIENCE OLYMPIAD

A Brief History of Macomb Science Olympiad

There is no secret to the fact that the Science Olympiad program has been a tremendous success in creating a nation-wide opportunity for students of science, engineering, and math to challenge themselves in an atmosphere of competition and excitement. It all began in 1984 in Macomb County, based upon the insight of forward-thinking educators who believed that excellence in science education could be advanced in elementary, middle, and high schools by the use of extra-curricular tournaments designed to create competition in a wide range of events that would provide exciting and fun challenges in scientific literacy and technological leadership. The Science Olympiad tradition continues because of the individual contribution of so many people from our community at so many levels and in so many ways; that to give it a good, accurate description would be difficult. Borrowing from a concept familiar to science, it seems appropriate to say that the gravity of Science Olympiad lies in the center of each team where the students come together with a coach that guides them to competition.

This guide was made to assist the coaches in bringing their teams to tournament.

Science Olympiad Regional Organizational Structure

The organizational structure of Macomb Science Olympiad is pretty straight-forward. It is a Michigan based, non-profit corporation with a Section 503(c)(3) designation under the Internal Revenue Code based on its non-profit educational mission. It has an executive board of directors and corporate officers who are elected each year. Two standing committees are assigned the task of planning and conducting the annual tournaments: The Elementary Tournament Committee for the elementary teams (through grade 5), and the Secondary Tournament Committee for both the middle school teams (grades 6-9), and high school teams. The committees are always on the look-out for new participants.

Budgets are established at the beginning of each year for each tournament committee, and with the special help of a fund-raising committee and the generous contributions of businesses in the community, the organization funds the budgetary needs while keeping team registration fees at a modest level. No school or team should ever decide not to participate because of money concerns.

Science Olympiad at the State and National Level

At the state level, Science Olympiad operates through a separate non-profit corporation which conducts a state-wide tournament, inviting a certain pre-determined number of winning teams from each region to compete in the spring on the campus of Michigan State University. Then, the top two teams at the state level are invited to compete in the National Science Olympiad late in the spring in an event conducted by Science Olympiad, Inc.
The Regional Tournament in Early Spring 2011

In our Region #7, the territory includes both Macomb and St. Clair counties (sometimes teams from Wayne County also join the tournament). Last year, at the Regional Tournament, there were 26 schools in Division B and 20 schools in Division C. Usually the Regional Tournament is held at Macomb County Community College, South Campus.

The Regional Tournament will consist of 46 competitive events pre-determined at either the National or Regional level. In Division “B” the middle school teams of students from the 6th to 9th grade compete. The high school teams in Division “C” compete at the 9th to 12th grade level. After the events are completed, the teams gather in the Sports Expo Center and dance to the sounds of a D.J. and await the scoring of events and the resolution of any disputed results. The top finishing students receive medals in their individual events, and the top finishing teams receive trophies. During the award ceremony, the pavilion is filled with the admiring friends and families of the students, and the bleachers literally rumble with all of the cheer and excitement. The top team winners in these divisions advance to a state-wide tournament competition in the spring hosted by the Michigan State University.

Rules Governing Team Formation

Team formation is governed by Science Olympiad rules which are contained in the manuals published each year for each division. Advance registration is required, and early in the fall of each year we send reminders to the schools and then we set a dead-line for final registration about 30 days before the Regional tournament. The team may consist of up to fifteen (15) students from the registered school, with only a maximum of five (5) ninth graders on Division B teams and only seven (7) twelfth graders on Division C teams. There are some rules regarding the fielding of multiple teams per school, the use of alternates, and the final registration or assignment of students to particular events, so read the manual carefully.

Rules Governing the Events

Well in advance of the tournament, the competitive events are selected from an array of events promoted by Science Olympiad and are designed to follow requirements and standards described in the published manual. It is very important to get the manuals and develop a habit of having the rules and event descriptions at your disposal for ready reference in getting the students started and guiding them through the regulations that if not understood could lead to unfortunate disqualification at the tournaments.

Preparation for Tournament Events

Each coach should review the description of the events scheduled for competition, bearing in mind that these events will be tackled by the students who may have had no prior introduction to the subject matter. Frankly, the task of understanding the details of each event description can be daunting even for someone who has prior experience. Plus, subtle changes in the rules can throw
you. Consequently, the Macomb Science Olympiad strives to promote an understanding of the event details through a number of methods:

- **Coaches meetings** - for head coaches and beginning coaches.

- **On-line information feeds** at our web-site where supervisors of each event can field and address questions concerning an event.

- **Workshops** where demonstrations are provided about individual events by coaches, supervisors, or outside experts that have “been there and done it”.

- **Event “Extravaganzas”** to showcase a wide assortment of events with supervisors presenting tips and ideas for coaches and students to prepare for tournaments.

These events will be scheduled throughout the school season to provide a base of support for every coach and to maximize an early understanding of each event’s requirements.

Some of the tournament events are very technical or require considerable study and memorization. Other events involve a commitment to the building of machines or structures which can consume a time commitment that matches any of the so-called “study and memorization events.” Coaching may involve selecting a student for one event or dividing the events among the students based upon a student’s acceptance of the challenge and commitment which is entailed. Each year, the panoply of events is intended to provide a range of potential areas of interest for all students. The events planned this year are described in the Macomb Science Olympiad Schedule of Tournament Events.

**Prepare the Team through Invitational Participation**

In our region, and across the State of Michigan, many Science Olympiad regions conduct Invitational Tournaments that are organized for real competition but which don’t affect a team’s standing within a region or the state. In planning for your team, early on consider this method for shaping your team and gauging student progress. An invitational tournament provides a great opportunity for individual students to test themselves in an atmosphere with less pressure and creates a team outing which builds team spirit. An added benefit is that the volunteer participation of parents as drivers opens the door for the coach to get additional help and support for the team as the Regional tournament draws near.
SECTION B: TEAM FORMATION AND HEAD COACH RESPONSIBILITIES

Team Formation

- **Initial Invitation for Students – Packet of Information**
  Students are back to school forming routines and finding new friends. Mid to late September is a good time to create interest and invite students to a brief meeting after school. Introduce yourself as head coach and stress the commitment and time expectations. Forms should be turned in to the school office within 10 days for those students who are serious about participating (see appendix: INITIAL PACKET). Include contact information, parent and student, student availability matrix, and event ranking. The submitted forms will give a good indication of how many students are trying out. If there are 25 or more, you may want to consider registering 2 teams.

- **Students Event Assignments**
  Within the INITIAL PACKET (attached), students are asked to rank the events from 1-10 (1 being most desired, 10 being last on their list). Place 3-4 students in each event based on their rankings provided. Students who participated last year should be placed into the same events, or similar events where possible and it makes the most sense. Pair older students with younger students to set up your team for the following year in repeat events. If new students participated in elementary Science Olympiad, place them in related events.

- **Event Coaching Assignments – Parents, Grandparents, Teachers, Past Students, Other Teams in your School District, Business and Industry**
  The most difficult part of forming a successful Science Olympiad team (besides hours of practicing) is delegating event coaching responsibilities. It has been shown that students who have parents coach them do very well in the competitions, so the first request should be to the parents of students participating. The first parent/student team meeting is a good place to fill these coaching positions. Past coaches and teachers should be asked where needed. Teams within the same school district may consider sharing coaching/material resources. The official Science Olympiad rule book should have been sent to the head coach upon receipt of payment for registration fees. This is necessary for coaches and students to proceed with practices.

- **Event Coaching Tips and Expectations**
  New coaches generally need extra attention. Communicate to all coaches what is expected of them regarding meetings, meeting frequency, and time commitments required for their event(s). Provide tournament dates, schedules, and all pertinent information such as resources for coaching, rule clarifications, etc. As a general rule, they should meet with the students at least once per week and meetings should accommodate as many students as possible based on their availability (student availability matrix). Meetings should start by the middle of October. Head coaches may need to contact new coaches on a regular basis to answer questions and/or make suggestions such as lessons, practice tests, and meeting format.

- **Tryout Period 6 to 8 weeks**
  Obtain a signed permission slip from each student participating in Science Olympiad
tryouts (see attached permission slip sample). Even if there are only 15 students, it is a good idea to have tryouts for individual events and for the team. Coaches should be instructed to evaluate the students in their event(s) and after 6 to 8 weeks of meetings, recommend to the head coach the top 2 students best to participate in the event. Evaluate based on Participation, Aptitude/Ability, and Teamwork/Attitude (see sheet 1 of Initial packet).

- **Team announcement/ Alternates**
  The last week before winter break in December, announce the top 15 students and the alternates. If there are enough students for 2 teams: Varsity and Junior Varsity, or “A” and “B” teams. The schedule for Regionals and State should be available and students placed into the events in which they will compete. For invitationals, your line-ups may not be the same due to student availability, scheduling conflicts, etc.

- **Invitational Tournaments**
  Invitational Tournaments are highly recommended, especially for schools with several alternates or enough students for 2 teams. These tournaments accomplish 2 main objectives: one is to prepare the team for Regionals by improving the overall performance of the team(s) and two, enable the alternate team members to participate in tournament(s). All students may not be able to attend, but these are practice tournaments. Make every attempt to cover all 23 events at these invitationals. Medals are awarded here as well as a team trophy for top teams. Since these tournaments occur earlier than the Regionals, the team will prepare sooner to compete for the first time.

- **Invitational, Regional, State, and National Tournaments**
  One week prior to tournaments, have a team meeting to distribute schedules, maps meeting locations and expectations for the day. Go over any notes to parents and students during this meeting. Head Coaches can provide an Equipment List for each event – a checklist for what to bring to your event. Also, assign parents to bring snacks for the team.
**Head Coach Responsibilities**

- September: Team registration for Regional and State Science Olympiad
- September: Head Coaches Meeting
- September – October: Initial team formation
- Official Rule Book – Distribution of event rules to event coaches
- October – Permission slips for student participation
- October thru December: Coaching assignments and tryouts
- December: Michigan State Coaches Clinic
- December: Macomb Regional Coaches Extravaganza
- December, January, and February: Coaches meetings, event workshops
- January: Initiate T-shirt design and ordering
- January - February: Invitational registration and scheduling
- March: Regionals scheduling – Self-scheduling
- March: State Tournament - Finalize lodging/transportation
- March: Regional Tournament lead up to final schedule/team meeting
- March: Regional Tournament
- March: State permission slip
- March: Regionals Tournament debriefing
- April: State scheduling – Self-scheduling online
- Periodic student/parent meetings
- Delegating responsibilities/tasks to parents as needed
- Periodic pizza parties and team activities
- Team picture(s)
- School announcements, school newsletter articles and community newspapers
- Organize field trips
- Fundraising activities for team
- Ongoing recruitment of future students and coaches
- May-June: Honors Night student recognition – Medals and Certificates
- End of Year Party
- School Board Recognition
SECTION C: PRACTICE & TOURNAMENT STRATEGIES

Event Rules

Every event coach should be given the SO sponsored rules for their event upon their first team meeting. Make certain that you READ AND UNDERSTAND the event rules. This means a careful and thorough scrutiny of the event rules write-up. This may seem overly simple, but can’t be overstated. The event write-ups are, in general, well written, clear and concise. After reading these rules, an event coach should meet with his/her team and spend whatever time is required to make sure the team members have a clear understanding of these rules as well. Once you have reached this point, you should have a final discussion where the team can establish questions to further clarify the event. And remember: keep in touch with the SO website. Many questions/answers about the event may get posted, keeping you up-to-date with your event. As an event supervisor, I can’t tell you how many coaches and teams show up for their event without a clear understanding of the event rules. DON’T BE ONE OF THEM!

Practice Meetings

Most first team meetings will occur in the school’s library. Each event coach now has to establish a regular meeting time for the event team members. This will be challenging because of the commitments that all the students have for other events, but establish the schedule. A good place to meet is the school library after hours, but the meeting can take place anywhere. Make sure you check with the school office for library availability (times and days). A coach will quickly see which students are most committed to the event by their presence at these established meeting times. The coach should gather telephone numbers and e-mails for each of the team members at this point, and pass this information on to each member. Attendance at these meetings may be used as one of the determining factors for tournament readiness, and “final team” or “alternate” designation.

Written Test Events

Upon perusal of event rules, the event coach should make a bulleted list of all the topics the event is going to cover. These should be the only topics that the team members are directed to study. The coach should now create a resources list (State SO websites (all states), information websites, book titles, magazine articles, etc.) that present subject matter for each of the topics. The coach should personally review these resources to determine the content. You don’t want to send your students looking at resources from which they glean little or inaccurate information (beware of Wikipedia).

Once your team members have their resources list, the coach must establish time lines for students to gather information and study the given subject matter. This will, of course, be a moving target; but without specific targets for the students to meet, your team will find itself behind the competition.

At each of the scheduled meetings, the coach should be quizzing the students on the subject matter they should be up to date with. This can be done with quick-firing verbal questions, or
written questions. Another venue for presenting questions to the students is to e-mail each of the students a written question sheet, and then review these “tests” at the scheduled practices.

At this point, you must be saying to yourself that this sounds like a lot of work. Well, you’re right. If you want your team to win, it is just a matter of how much time the team (coach and students) puts into the event.

Build Events

As the name implies, the team is responsible for building a device (usually to be impounded) which will be used in competition. This means that to practice, the team must (should) build AT LEAST one device. And the best way to build any device is to build the device from a drawing or sketch. My practice was to have the students make the drawing or sketch with my guidance. With a drawing/sketch, the team can make more meaningful changes to the device once testing begins. And you will make changes. So plan for them.

Another good practice for these events is to build a “jig”, a set-up that allows the students to assemble a device more quickly and repeatedly. These require some thought, but can be a useful practice.

To become competitive in these events, the team will wind up building more than one device, or making many changes to the one. Don’t let this discourage the team. It really is the only way to become successful.

For those events where the device will have to be capable of different target ranges, the successful team will have tested their device through the entire range of course set-ups that they might see, and recording the results in a consistent format. These results can then be used the day of the competition to set up the device to its best advantage for that particular configuration. Practices for these events must consist of running the device along tournament guidelines so that all team members get a feel for how the event will be run. My advice is that all members run the device along these lines until they can almost do it in their sleep.

As for the actual building of the device, let the students do all the work while you guide them. The more they know about the quirks of their particular device, the better they will be when they have to do some “Kentucky Windage” to get a successful run. I’ve seen many winners make the right adjustment to their device based on a good guess; it’s a feel they get when they are comfortable running their device.
SECTION E: FINANCIAL MATTERS

Expenses of Running a Science Olympiad Team

There are two registration fees that are mandatory. These include the registration fee for the regional tournament and the state registration fee. By registering your team with the state organization, you are able to obtain the rules booklet and are registering with the national organization as well. In addition, if you would like your team to practice for the tournament at a local invitational tournament, there will be a registration fee for that too.

State Registration Fee $175
Regional Registration Fee $125
Invitational Registration Fee $75 each

While teams are not required to have team shirts on competition day, most teams are dressed in matching shirts. Typically an inexpensive silk screen t-shirt will suffice.

T-Shirts $225

The events can be easily broken down into study events and building events. Each event has its own unique cost. Many study materials can be found on the Internet or in the public library but you may wish to purchase some materials. Keep a collection of binders, books and assorted materials from year to year as events tend to rotate in and out of the competition over several years.

Books $200
Photocopying/Printing $100
Misc Study Materials (Rocks, Minerals, Fossils) $200
Training CD’s $200

Building events are the most expensive. The materials tend to be consumed and because the rules and parameters change form year to year it is difficult to reuse a device. It is advisable to seek donations or a sponsor for many of these events.

Supplies for Building Events (Varies depending on event)
  Mission Possible $400
  Sumo Bots $700
  Tower/Bridge Building $200
  Trajectory/Storm the Castle $100
  Mousetrap Vehicle $100
  Helicopters/Wright Stuff $100

Building a competitive team involves more than having the students work hard at their events. They will enjoy the experience more is there is a certain amount of team building outside of preparing for the competition. It is advisable to get the whole team together at least once a month for some social activity. Light snacks are suggested. A year end party is a perfect ending to a great year.

Snacks $200

© Secondary Head Coaches’ Guide Region 7 Science Olympiad
Party Food $ 150

Should your team qualify for the state competition, travel and hotel in East Lansing will be required. Both are variable expenses depending on the choice and quality of the hotel and how travel is handled. A school-sponsored bus may be a possibility, or transportation by private auto.

Hotel at the State Competition $ 1,400
Travel to the State Competition varies

Running a Science Olympiad team can result in expenses totaling over $ 4500. Consider that this is an estimate and expenses will vary widely.

<table>
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<th>Review of Expenses</th>
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<tr>
<td>State /Regional Registration Fees $ 300</td>
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<td>Invitational Registration Fee $ 75 each</td>
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<tr>
<td>T-Shirts $ 225</td>
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<td>Study Materials $ 500</td>
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<td>Training CD’s $ 200</td>
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<td>Supplies for Building Events $ 1600</td>
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<td>Food $ 350</td>
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<tr>
<td>Hotel at the State Competition $ 1,400</td>
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<td>Travel to the State Competition varies</td>
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Total of Anticipated Expenses $4650
2010-2011 __SCHOOL NAME__
SCIENCE OLYMPiad

Welcome to Science Olympiad!

My name is _____________ and this is my ___ year as head coach at __________. We are looking forward to another great year for __________ and Science Olympiad. In Feb 2010, __________ placed ___ in the Macomb Regionals (out of 32 schools). In May 2010, we placed ___ at the State competition (out of 48 middle schools). Go _____________! If you are interested in participating in the 2010-2011 ___________ Science Olympiad, please fill out the following forms and return it to the school office by Sept ____, 2010.

Sheet 2: This is where you provide contact information for me. Please make sure you indicate at least (1) email address because this will be the primary way I will communicate with students and parents. Make sure you fill out your name, phone number, grade level, and email information, and other questions. Fill in the Day/Time Matrix. Please indicate other activities you are participating in this fall and winter (days and times please).

Sheet 3 and 4: Sheets 3 and 4 have a list of the 23 events and their descriptions. Please mark your top ten (1-10) choices in order of interest/preference (1 best, 10 least) next to the event.

Tryout practices will begin in October, and the team and alternates will be selected by the holiday recess in December. I would like each event to have a coach assigned by the parent meeting so these practices can begin. Parent Meeting: October ____, 2010. We will discuss coaching assignments, student event assignments, and expectations for all during the tryout period.

New Coaches: Please call me if you have questions about coaching and the time commitment required.

Alternates: There will also be Alternates who will prepare for competitions and may be called to compete. This year, I would like every student to have a parent/relative coach for at least one event. In the middle of December, Coaches will provide me with grades for each student using the following formula:

Aptitude/Ability – 50%
Attendance/Participation – 25%
Teamwork/Attitude -- 25%

The team and alternates will be announced before the holiday break. (Note: 15 students are allowed to compete at each competition. There can be only (5) 9th graders on the roster per competition for schools with 7, 8 and 9th graders).

Important Dates:
Parent/Student Meeting: October _____________ - Media Center
State Coaches Workshop: Saturday December 4, 2010 at MSU.
Regionals Coaches Workshop: December ____, 2010 (South Lake High School)
Macomb Regional Competition: Saturday March 26th, 2011 (Macomb South Campus, Warren)
Michigan State Competition: Saturday April 30th, 2011 (Michigan State University, East Lansing)
National Competition on Saturday May 19-20, 2011 (Madison Wisconsin)

If you have any questions, please contact __________________
My email address is ___________________
Please fill out the following information:

Student’s Name____________________________________________  Grade ______________

Phone# ____________________ Student Email: __________________________

Parents’ Names ____________________________________________________________________________

Parents’ Emails _________________________________________________ ____________________

Please list your Coaching preference(s)- Please list Event(s):
______________________________________________________________________________________

(Parents, older siblings, aunts/uncles: we really need your help to make this successful. I encourage
you to get involved – there is no team without committed coaches!)

What activities (sports, clubs, church etc.) do you think you will participate in during the fall,
winter and spring?
______________________________________________________________________________________

Have you participated in Science Olympiad before? _____yes  _____no

If yes, what school and what events? (elementary and/or middle school)
______________________________________________________________________________________

Please indicate the days/times and reasons below that you will be unavailable to come to meetings
from Oct through December:

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2010-2011 Science Olympiad Interest Form  DIVISION B

Please mark your top ten (1-10) choices in order of interest/preference (1 best, 10 least) next to the event.

_____ Anatomy (B) - Teams will be tested on their knowledge of anatomy and health concepts including respiratory and muscular systems.

_____ Awesome Aquifers (B) – Teams will be tested on concepts related to ground water topics, build an aquifer onsite and demonstrate these concepts.

_____ Battery Buggy (B) - Teams will construct a vehicle that uses electrical energy as its sole means of propulsion, quickly travels a specified distance around an obstacle, and stops as close as possible to the center of the finish line.

_____ Can't Judge a Powder (B) - Students will test and characterize one pure substance and then, based only on data they collect, answer a series of questions about that substance.

_____ Compute This (B) - Teams will be presented with a problem which requires quantitative data capture from the Internet and the presentation of data in a graphical format.

_____ Disease Detective (B) - This event requires students to apply principles of epidemiology to a published report of a real-life health situation or problem. (This year: Food borne illness)

_____ Dynamic Planet (B) - Teams will work at stations that display a variety of earth science materials and related earth science questions. (This year: Earth’s fresh waters)

_____ Ecology (B) - Students will answer questions involving content knowledge and process skills in the area of ecology and adaptation by examining different ecosystems. (This year: Tundra/Taiga)

_____ Experimental Design (B) - Given a set of unknown objects, teams will design, conduct, analyze and write-up an experiment.

_____ Fossils (B) - Students will identify, describe, and classify various specimens.

_____ Junkyard Challenge (B) - Students will partially pre-construct a device with final construction and adaptation on site to complete a published challenge.

_____ Meteorology (B) - This event involves the use of process skills as applied to meteorology (This year: Severe storms).
____ Microbe Mission (B) - Teams will demonstrate biology laboratory skills related to selected topics cell structure and biology.

____ Ornithology (B) - This event will test knowledge of North American birds on the official list.

____ Optics (B) - Teams will demonstrate physics laboratory skills related to selected topics including light reflection/refraction, colors of light. Timed stations with test questions, and “Laser shoot” challenge.

____ Road Scholar (B) - Requires the accurate interpretation and understanding of various map features using a variety of road and topographic maps.

____ Science Crime Busters (B) – Teams will identify the perpetrators of a crime or crimes by using paper chromatography and analysis of unknown solids, liquids, and plastics found at the scene of a crime.

____ Shock Value (B) - Students will compete in activities involving basic understanding of electricity, magnetism and simple electrical devices.

____ Solar System (B) - Teams will demonstrate knowledge of the sun, planets and their satellites, dwarf planets, comets, asteroids, the asteroid belt, meteoroids, Oort Cloud and the Kuiper Belt.

____ Storm the Castle (B) - Teams will design, construct, calibrate and operate a device (trebuchet) capable of launching a projectile into a target using energy provided by nonmetallic elastic solids.

____ Towers (B) - Teams will design, build & test the lightest tower to carry a maximum load.

____ Water Bottle Rocket (B) – Teams will construct a rocket using a 2 Liter pop bottle prior to competition and launch with pressurized water launcher. Longest time aloft wins.

____ Write It Do It (B) - Technical writing exercise where students write a description of a contraption given to them at competition, and their teammates will attempt to recreate it using that written description and materials provided.
2010-2011 Science Olympiad Interest Form  DIVISION C

Please mark your top ten (1-10) choices in order of interest/preference (1 best, 10 least) next to the event.

____ Anatomy & Physiology (C) - This event encompasses the anatomy and physiology of selected body systems, this year limited to respiratory, muscular and endocrine systems.

____ Astronomy (C) - Teams will demonstrate an understanding of the basic concepts of math and physics relating to galaxies.

____ Chemistry Lab (C) - Teams will demonstrate chemistry laboratory skills related to selected topics.

____ Disease Detective (C) - This event requires students to apply principles of epidemiology to a published report of a real-life health situation or problem. (This year: Food borne illness)

____ Dynamic Planet (C) - Teams will work at stations that display a variety of earth science materials and related earth science questions. (This year: Earth’s fresh waters)

____ Ecology (C) - Students will answer questions involving content knowledge and process skills in the area of ecology and adaptation by examining different ecosystems. (This year: Tundra/Taiga)

____ Experimental Design (C) - Given a set of unknown objects, teams will design, conduct, analyze and write-up an experiment.

____ Forensics (C) - Students will identify polymers, solids, fibers, and other materials in a crime scenario.

____ Fossils (C) - Students will identify, describe, and classify various specimens.

____ Helicopters (C) - Students will construct and test free flight rubber-powered helicopters prior to the tournament to achieve maximum flight times.

____ Microbe Mission (C) - Teams will demonstrate biology laboratory skills related to selected topics cell structure and biology

____ Mission Possible (C) - Prior to the competition, participants will design, build, test and document a "Rube Goldberg-like device" that completes a required Final Task using a sequence of consecutive tasks.
_____ Mousetrap Vehicle (C) - Teams will design, build, and test a vehicle that uses one or two snap mousetraps as the sole propulsion energy source to travel a specified distance and return as quickly as possible.

_____ Optics (C) - Teams will demonstrate physics laboratory skills related to selected topics including light reflection/refraction, colors of light. Timed stations with test questions, and “Laser shoot” challenge.

_____ Ornithology (C) - This event will test knowledge of North American birds on the official list.

_____ Protein Modeling (C) - Students will use computer visualization and online resources to guide them in constructing physical models of proteins. For 2011, students will model proteins involved in reprogramming adult cells to become stem cells.

_____ Remote Sensing (C) - Teams use maps and remote sensing technology to explain human impact on the Earth.

_____ Sounds of Music (C) - Prior to the competition, students will build one wind instrument and one percussion instrument based on a 12 tone tempered scale, prepare to describe the principles behind their operation and be able to perform a major scale, a required melody and a chosen melody with each.

_____ Sumo Bots (C) - Teams will design and construct a robot that will attempt to move an opponent's robot from the ring.

_____ Technical Problem Solving (C) - Teams will gather and process data to solve problems.

_____ Towers (C) - Team members design and build the most efficient tower.

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

_______ Write It Do It (C) - Technical writing exercise where students write a description of a contraption given to them at competition, and their teammates will attempt to recreate it using that written description and materials provided.
Science Olympiad Permission Slip

I give permission for my daughter/son to participate with ________________ in the 2011 Science Olympiad Tournaments:

Saturday, ______________ at Bishop Foley High School in Madison Hts.

Saturday, ______________ at International Academy in Troy.

Saturday, __March 26th, 2011__ at Macomb College – South Campus, located at 14500 E. 12 Mile Rd., Warren.

I understand that if ________________ qualifies for the State Competition, that I give my permission for my child to participate on Saturday April 30th, 2011 in the Michigan Science Olympiad competition at Michigan State University in East Lansing.

I understand that adequate and appropriate supervision will be provided. I recognize, however, that unanticipated situations and problems can arise on any trip, school-sponsored or otherwise, which are not reasonably within the control of the supervising coaches or volunteers. In such instances, I agree that the school, coaches and volunteers are not to be held responsible in the event of an accident or injury and we will hold the school, coaches, and volunteers harmless from any costs, liability, or expenses related thereto.

Please fill out this permission slip and return to ______________ or the school office by ____________.

Student’s Name ___________________________________________

Address _________________________________________________

Home Phone #________________  Student Cell #________________

Parent’s Name: ___________________________________________

Parent’s Cell # ___________________________________________

Parent’s Signature: ___________________________ Date: ___________

Emergency Contact Person, in case parent is unavailable:

_________________________________________ Phone # _______________

Please list any medical conditions, allergies, or medications that we need to be aware of:

____________________________________________________________________