Information for Teachers

We now have online registration. Each participant must log-in to this site (not active until January) to initiate the registration. The student will be asked to create an account and upon confirmation will be instructed as to what forms will be necessary to fill out for a successful registration. Forms will be filled in online, printed out, signatures obtained, 2-3 copies made, and copies and the original signed consent-release agreement sent to the District 2 office to arrive by February 23, 2015.

Buckeye Science and Engineering Fair

Currently, The Intel International Science and Engineering Fair (or Intel ISEF) is one of the largest and most prestigious science fairs in the world for pre-college students. Each year over 1,700 students compete from over 70 countries, regions, and territories around the world, and there is more than $5 million dollars in awards eligible for students at this fair. Before this year, students in almost half of the counties in Ohio could not qualify for this international fair. The Ohio Academy of Science has started the Buckeye Science and Engineering Fair to give these students an opportunity to attend the Intel ISEF.

The Buckeye Science and Engineering Fair (BSEF) will be held on April 4th of 2015. This fair will be available to all students who qualify through their District Science Days.

The BSEF will be held on April 4th and has no registration fee. If a student qualifies to go to the Intel ISEF from the BSEF, OAS will pay all of the students’ expenses (travel, lodging, food, and registration fees).

Why Should Students Participate in Science Days?

*Participation in science days helps students develop basic skills they will use daily throughout their life—to sense and clarify problems that exist, to conduct research, to find creative solutions to problems, and to communicate.
*Participation in science day gives students the opportunity to develop the skills, attitudes, and knowledge that will help them be comfortable and successful in an ever changing scientific, technological society.

*Preparing students for citizen participation in the development of science and technology policy and the utilization of science in everyday life are worthwhile goals often ignored in school curricula that are achieved through a student research project.

*Science days offer students the opportunity to define a problem and to design an experiment that will attempt to solve or investigate that problem, thus enabling the student to learn through discovery a topic of their own interest.

*Students can win special recognition for achievement, certificates, cash awards and college scholarships.

*Top students can advance to State Science Day

Suggested Calendar

**Sept-Oct**  Students should begin background work and decide on project. Fill out forms necessary for project that need to be approved before research begins: All projects need Checklist for Adult Sponsor/Safety Assessment Form (1), Student Checklist/Research Plan (1A), (be sure to include research plan attachment) and Approval Form (1B). Sign and date Form 1 and 1B and make certain other signatures and dates are on Form 1B. **Please also note that Form 1A has two parts.** For information on the forms and a form wizard that will lead you through their completion go to the Science Service site. This is for your information; all needed forms will be determined by the online registration site and registrations will not proceed if the required forms are incomplete or incorrectly filled out.

**Oct. 2**  Attend Science Star Search workshop at the downtown Toledo-Lucas County Library. Free. 5:30-8PM
Oct-Nov  Approve project and/or send to Local Scientific Review Committee or Institutional Review Board (Scroll down for information about these committees). All required forms must be signed by appropriate people **before** experimentation begins. Make duplicate copies for your files.

Keep the original forms (or make certain parents keep them). When entries are mailed in make certain original signed Consent and Release Agreement is sent in; all other submitted forms should be copies. Make copies of all forms. Advise students to make copies for display at their projects on NWDSD. Those competing at State Science Day will need a similar set of forms to complete state registration immediately after the completion of district competition. **Make certain students have copies of all forms and understand that they are to have them available at their project on Science Day.**

Nov. 1st  Deadline to pre-register your intent to participate in NWDSD 2014. This is not a deadline for entry, but simply information to help us plan for Science Day. The advantage of pre-registering is that you will receive help through the whole process. If you missed the pre-registration deadline please contact the Director, Mark J. Camp and we will try our best to help with your science day planning, etc.

Oct-Dec  After project is approved, students:

- Continue background research
- Begin experimentation
- Collect data and draw conclusions
- Write paper and reference properly
- Prepare presentation/poster board

Obtain judges for local fair

Dec-Feb  Local fair at your school, school district, county, etc. Arrange for judges for NWDSD.

Feb. 23, 2015  Deadline for receipt of registrants and entry fees for NWDSD. These should be superior projects. Make certain all necessary
forms are completely filled out and included. Every project will require an individual or team registration form, Form 1, Form 1A and attachment, Form 1B, Consent and Release Agreement, and Abstract). **Also submit a list of judges representing your school. These must be received with your entries.** Besides the name of the submitted judges we must have their area of expertise and a contact e-mail or phone. Lack of receipt of the necessary number of judges could lead to disqualification of your school’s students. Closer to NWDSD check with your judges to make certain they will be representing your school. Have emergency backups in case some have a change in plans. We can never have enough judges.

**Around NWDSD** make certain participants know the calendar of the day's events and where to sign in..

**Mar 14, 2015**  NWDSD at UT Support your students by judging at NWDSD or attending as a spectator.

Make certain students are reminded to:

- Bring poster board, research report, data logs, and copies of registration forms
- Not bring experimental equipment, specimens, materials, chemicals, plants, animals, bacteria, etc.
- Attend awards ceremony to qualify for State Science Day and receive special awards.

Make certain qualifying students know how to register for State Science Day. We will mail your school's certificates after Science Day.

**May 16, 2015**  State Science Day at OSU

**Newer Rules and Updates**

Online Registration now in use.

To meet the District’s quota 5th and 6th graders will be granted eligibility to State Science Day. The procedure to select these
students is:

All 6 to 5th graders with 40 points, in descending order will be chosen first. These will be followed by those with 39, 38, 37, and 36 until the quota is filled.

Schools sending students from grades 5-6 to District 2 Science Day must also send one teacher for every 5 students to serve as a judge for 5th-6th grade projects from schools other than the home school.

• Each display board must exhibit the following form in 14 pt. font on the front. “Outside sources” below means the student did not personally create the graphics. They came from or were modified from computer clip art, the internet, books, journal articles, or other printed or digital sources.

Photographs taken by: ____________________________

Graphics from outside sources are from: ____________

Photographic permissions were obtained and are located: ____________

Local Scientific Review Committees and Institutional Review Boards

In order to properly oversee science project research each participating school should have a Scientific Review Committee (SRC) and/or Institutional Review Board (IRB). The SRC is a group of at least one biomedical scientist, science teacher, and other qualified individual that is responsible for evaluation of student research, certifications, research plans, and exhibits for compliance with NWDS/ISEF rules and guidelines. An IRB is a committee of
at least one science teacher, one school administrator, and one psychologist, psychiatrist, medical doctor, physician's assistant, or registered nurse that reviews research plans involving human subjects to determine potential physical or psychological risk. Please note that teachers or adult sponsors cannot serve as Chair of these committees to avoid obvious conflict of interest scenarios. These committees must meet to review and approve or reject research plans before experimentation begins and again before NWDSQ. Projects that do not comply will be ineligible for participation at NWDSQ. If your school does not have ready access to the above committee members they may consider combining with other schools and forming joint SRC's and IRB's or contacting the NWDSQ Director Mark J. Camp for help.

You may act as the SRC assuming projects do not present any recognized research risks or issues. When in doubt however, contact the NWDSQ Director.

The District level SRC and IRB will review the projects upon registration to NWDSQ. Failure to comply to ISEF standards will result in disqualification.

Typical, and some non-typical, SRC/IRB Violations—What not to do!

From NWDSQ 2003-2014, in no particular order:

- Written reports and log books failed to disclose and cite where appropriate the specific source(s) of the idea for the project. Citations must be fully documented with references such as author(s), date, publication, and URL, if website.
- Projects involving human subjects failed to include Human Subject Form (4A) and Informed Consent Form (4B). Many lacked approval of local IHB. **If humans are used in any way Form 4A must be included.**
- Projects involving use of household products that could be hazardous, like cleaning fluids, lacked Designated Supervisor Form (3) (now Risk Assessment Form).
- Checklist for Adult Sponsor (1) lacking checks for human subjects for some behavioral science projects
• Checklist for Adult Sponsor (1) lacking checks for hazardous substance, chemicals for projects involving certain household products
• Checklist for Adult Sponsor (1) incomplete and Designated Supervisor Form (3) (now Risk Assessment Form) not included for project involving burning clothing.
• Research Plan (1A) filled out, but second page (Research Plan Attachment) missing.
• Dates of approval on Approval Form (1B) obviously back-dated for some projects. These signatures need to take place before experimentation begins.
• Lack of parent, teacher, and student signatures on some forms.
• Equipment, specimens, etc. brought in and at some display sites. Remember only the backdrop poster and supporting paper documents should be at a student's site.
• Teachers and/or adult sponsor serving as Chair of SRC/IRB. This is a conflict of interest.
• Using outdated forms. The current year forms must be downloaded. ISEF usually modifies their forms each year. Do not use left over forms you have in your files. Generally the new versions of forms will be available by September.
• Use the official forms. If you have your own forms; the official forms still have to be filled out and submitted.
• Do not submit entire research reports; just the parts called for on the Research Plan Attachment.
• Improper abstracts; sometimes confused with Research Plans. Abstracts should be one or two paragraph narratives, not entire pages or part of the Research Plan Attachment.
• Lack of copies of the registration forms at project site on Science Day. Judges may ask to see these. Copies must be present.
• Missing Individual/Team Registrations and Consent and Release Agreements.
• Missing Abstracts
• Misuse of photos on display boards.
HOW DO I ENTER STUDENTS IN DISTRICT SCIENCE DAY?

1. Read the information included on the Ohio Academy of Science and NWDSDB web pages including: the Ohio Academy of Science Standards, which contains instructions, judging criteria, and research reports. Be sure to review the following:
   a. The Rules for the Northwest Ohio District 2 Science Day
   b. Rules for Research Involving Live Vertebrate Animals, Human Subjects, hazardous substances, pathogenic organisms, etc.
   c. Sponsored Awards List (this list often is not finalized until Jan.)
   d. Abstract Writing

If you do not have Internet access please contact Director Mark J. Camp (419-530-2398) and information will be mailed to you. Please request this early in the school year, so adequate time remains.

2. Have students identify a topic or problem to study and begin the research project as soon as possible. Place the research project in one of the following categories: behavioral science, biochemistry, botany, chemistry, computer science, earth & space science, engineering science, environmental science, mathematics, medicine & health, microbiology, physics, or zoology. Be sure to complete Checklist for Adult Sponsor/Safety Assessment Form (1), before experimentation begins. Then complete Student Checklist/Research Plan (1A), (individual or team version) and Approval Form (1B). Note that Form 1B must pass review from the District Scientific Review Committee (SRC). Later complete the registration by filling out forms as specified by the online registration. Make certain students keep the originals of all except the Consent-Release Agreement. They should make 3-4 copies; one to be sent to NWDSDB, one to be at their project on NWDSDB, one to be used for State Science Day entry if they qualify and another for your files, if you so desire. The original signed Consent-Release Agreement form must be sent to NWDSDB.
3. If a project involves research at a registered research institution or industrial setting and/or involves research with nonhuman vertebrate animals, human subjects, pathogenic agents, controlled substances, recombinant DNA, human and nonhuman animal tissue, and/or hazardous substances and devices additional forms must be completed and submitted with each registration. Check Science Service for a guide to what forms are required for different research areas. These forms may include **Registered Research Institutional /Industrial Setting Form (1C), Qualified Scientist Form (2), Risk Assessment Form (3), Human Subjects and Informed Consent Form (4), Vertebrate Animal Form (5), Potentially Hazardous Biological Agents Form (6A), and Human and Vertebrate Animal Tissue Form (6B)**. If a project is a continuation of research from a previous year, Continuation Form 7 will need to be included. These forms are detailed, require certain signatures, have time restraints, and must be carefully adhered to. **Online registration will guide the participant through what forms are needed.** If you have any questions or problems please contact the Director Mark J. Camp at 419-530-2398 or mark.camp@utoledo.edu It is assumed that participating teachers will be familiar with these requirements due to attending the several workshops that have been offered. If you are a new teacher and are not familiar with the requirements please contact the Director. Failure to complete forms will lead to disqualification. Classroom teachers may approve research plans in lieu of review by a Local Scientific Review Committee, if the proposed research does not involve recognized research risks or issues.

4. Have student write a detailed report. The report usually includes a title page; table of contents; abstract; introduction (problem and hypothesis to be investigated); methods and materials of investigation; analysis of collected data; conclusions or implications; graphs, tables, and diagrams; and references. **The entire report is not to be sent in; just a copy of the one page abstract and the summary report as prescribed on Form 1A Attachment Plan.** The student(s) must submit an abstract containing no more than 250 words. **The abstract is now completed online.** A heading must contain the project title and name(s) of the author(s). The heading does not contribute to the word count. The purpose of the abstract is to provide a summary of your project that will inform interested individuals of
the contents. The wording must be written in a manner that any scientifically-minded individual, who may not be familiar with the topic, can understand the project's important points. The following should each be summarized in a few sentences:

a) Background information necessary to understand the abstract and its importance.

b) The problem that was investigated and the hypothesis.

c) Outline of the materials and methods used in the experimentation.

d) Summary of the results obtained from the experimentation.

e) The conclusions drawn from the results.

f) The importance or potential applications the research offers.

Make certain the abstract is a true abstract. Abstracts should include the key points, be brief and concise and contain complete sentences. Abstracts should only provide necessary information needed to understand the project's basic points and importance. Abstracts and Research Plans are not one the same; they are separate forms.

The abstract should be a brief synopsis of the pertinent techniques used and a summary of the findings, it is not the same as the report which goes into greater detail of the research process and results.

5. Have students set up a physical display. This is a poster display (36" wide x 30" deep) exhibiting data tables, diagrams, graphs, models, reports, etc. No equipment is to be displayed at the exhibit site; only the poster setup and supporting paper documents.

6. Conduct a local science fair at your school or at the school district or county level. This allows students to practice their oral presentations before NWDSD. As a general rule schedule this event sometime in January. The NWDSD date varies because of space utilization, but we’ll always have enough time to process your entries if you hold your local fair early. You
should have your local fair no later than Feb. 19, 2015 because entry forms will be due on Feb. 23, 2015. [Please mail them (or deliver them to The University of Toledo, Bowman-Oddy Laboratory, Room 3022 or 1235 Wolfe Hall) so that they arrive by this date. Entries must be in by this date. No exceptions!]

7. Enter winners (Superior rated projects) of your local science fair in the Northwest Ohio District 2 Science Day by downloading forms from the NWDS and ISEF websites. If you use the ISEF site the forms may be filled out online and then printed and signed. Include all necessary forms plus an individual or team registration form.

a. Have students complete online registration.

b. **Have students choose one sponsored award category** in which they wish to be judged. To view available sponsored awards [http://www.utoledo.edu/nsm/envsciences/camp/pdfs/2014_Anticipated_Sponsored_Awards.doc](http://www.utoledo.edu/nsm/envsciences/camp/pdfs/2014_Anticipated_Sponsored_Awards.doc) This is not part of the online registration. Please submit a list of student participants and assign a sponsored award as applicable. Teachers please sign. All qualified students, if so interested, may sign up for the **BGSU District Science Day Scholarship** and/or the **Tillotson UT District Science Day Scholarship** in addition to another award. All projects may also be considered for a number of overall awards.

c. **Each school is required to provide one judge per five students** entered in Northwest Ohio District 2 Science Day. These must be sent in with student entries. Please use the on-line judging form at our website or provide Director Mark J. Camp, (419-530-2398 mark.camp@utoledo.edu with names. **We count on these judges!** We also need any individuals who would like to judge in selected fields of interest. **PLEASE, VOLUNTEER!**

d. Remind students to send in registration fees with their registrations. **The entry fee for NWDS is $20.00 per student.** The entry fee for team projects (see below) is $20.00 per individual student i.e. $40 for two person team and $60 for three person team. **Checks made out to Northwest Ohio District Science Day must accompany entries.** Send entries to:
Can Teams of Students Enter District and State Science Day?

The Junior Academy Council of OAS endorses the concept of team projects at District and State Science Days. The International Science and Engineering Fair (ISEF) has also adopted the idea.

Rules for team projects for grades 5-12 at NWDSD are as follows:

a. A team is limited to three (3) students. All students on a team must play an active role in the science experiment. Individuals should not be used solely for writing reports, making displays, etc.

b. A 50 point rating scale is used for teams including a category for teamwork.

c. Each student on a team, and in attendance, will receive the district’s usual recognition.

d. Points will be deducted for non-appearance of any team member on the day of judging.

e. Teams will be eligible for local sponsored awards; monetary awards will be divided among team members.

How are Students Judged in Northwest Ohio District 2 Science Day?

Professionals in the fields of science, mathematics, engineering, and education, volunteer their time to judge on Science Day. The judge’s use the criteria set by the Junior Academy Council of the Ohio Academy of Science, and all judges’ decisions are final. The criteria are:

- Knowledge Achieved
- Effective Use of Scientific Method
- Clarity of Expression
- Originality and Creativity
Students receive between 1 and 10 points for each of the four categories. The points are summed to form a rating category. The minimum number of points for each rating is:

- Superior 36
- Excellent 24
- Good 12
- Satisfactory 4

Team projects are judged in the four above categories plus a fifth category, teamwork.

In order for a participant to have a reasonable chance of qualifying for state competition he/she/ must score some combination of 10s and 9s in each of the four judging categories -- knowledge achieved, use of scientific method, clarity of expression, and originality & creativity -- totaling a 36-40 or equivalent team point total. i.e. a higher superior rating. In order to assure quality student performances at State Science Day please note that judges will be looking for the following:

1. A Student Research Plan (1A) displayed with an 8-10 page research report. Report must be neat and well organized. Although in most cases judges will not be able to critically review all aspects of the report, any spelling and grammatical errors, notable lack of scientific method, and absence of pertinent references will lower ranking.

2. All completed forms including special forms for live vertebrate animals, human subjects, recombinant DNA, controlled substances, hazardous substances and devices, human and nonhuman animal tissues, or pathogenic agents..

3. A well written complete concise abstract.

4. All superior projects must be free of errors in spelling and grammar on the display board
5. Verbal presentations of participants receiving 38-40 or team equivalent superiors must be completed without reading from note cards or reports or presenting memorized speeches. Appropriate questions from judges must be adequately answered. Participants must be comfortable with terminology and have a thorough knowledge of their research.

6. If project involves experimentation, a control or controls must be present and explained. A minimum of 3 sets of data must be part of the analysis.

**What About Re-judging?**

Two judges will judge each project following Ohio Academy of Science standards. If each judge grants a total score within any one rating category (Superior, Excellent, Good, or Satisfactory), that specific rating (Superior, Excellent, Good, Satisfactory) will be granted to the student and no rejudging is permitted. Rejudging is automatic and is permissible only if all three of the following conditions apply:

a. the judges' final ratings are in different categories,

b. the average of the judges' scores is in the lower category, and

c. if the judges differ in their total points by more than five points.

**How are Students Chosen to Attend State Science Day?**

Each district in the state of Ohio has a quota for students who can participate in the State Science Day at the Ohio State University in Columbus, OH. The **quota for our district is** . The procedure for choosing students to fill this quota is:

1. All 7 to 12th graders with 40 points, in descending grade order (i.e. 12, 11, 10, 9, 8, 7) are chosen first.
2. All 7 to 12th graders with 39 points, in descending grade order are chosen next.
3. Next, students with 38 points are chosen in descending class order (grade 12,11,10,9,8,7).
4. Then, students with 37 points are chosen in descending class order (grade 12,11,10,9,8,7).
5. Finally 7 to 12th graders with 36 points in descending grade level are chosen.
6. If there are more qualifiers in the final grade/numerical score division than quota positions, the final group will be determined by random draw (i.e. If there are 5 positions and 8 freshmen with 37’s, the 5 participants will be determined by random draw of these 8 students). Alternates will be selected via random drawing following the same guidelines as above.
7. **To meet the District’s quota, 5th and 6th graders will be granted eligibility to State Science Day. The procedure to select these students is:**
8. All 6 to 5th graders with 40 points, in descending grade order are chosen first.
9. All 6 to 5th graders with 39 points, in descending grade order are chosen next.
10. Next, students with 38 points are chosen in descending grade order.
11. Then, students with 37 points are chosen in descending grade order.
12. Finally 6 to 5th graders with 36 points in descending grade level are chosen.

- All students intending to complete at State Science Day must attend the Awards Ceremony in Memorial Field House 100 (Auditorium) or have someone representing them attend in their place. State qualifiers will be given an entry packet at the awards ceremony and must mail this in with respective fees as instructed in the packet. Please tell students to read the instructions included with each entry packet immediately as there are important deadlines given forms must be postmarked by March 17, 2015.

**State Science Day for 2015 will be held at Ohio State University,**
Columbus, Ohio, May 16, 2015. For information on State Science Day go to http://www.ohiosci.org/ssd.htm

WHERE CAN I GET HELP SETTING UP A SCIENCE FAIR PROGRAM?

Materials including books, pamphlets, and videos about conducting science fairs are available from:

The Ohio Academy of Science
1500 W. third Avenue
Columbus, OH 43212
Telephone: (614) 488-2228
Email: OAS@IWAYNET.net
Website – http://www.ohiosci.org

Also check the following websites for more information on science fairs and just a small sample of the numerous sites available:

Agricultural Ideas for Projects

http://physics.usc.edu/~gould/ScienceFairs a library of links to hundreds of science fairs around the country and world

Other Important Dates

May 16, 2015 State Science Day - Ohio State University, Columbus

Summary Check Sheet for Teachers

- Make certain students have access to forms early in the school year.
- Pre-register by Nov.1, 2014. Not required, but recommended so that we may stay in touch with participating teachers.
- Begin looking for judges for your local fair and NWDSD early in the year. You must send in a list of your judges with addresses, phone numbers and/or e-mails, and areas they will judge with your student registration. Registrations will not be processed and risk the chance of disqualification if the appropriate number of judges with proper information is not included with the registrations. Judges may choose
to register on-line, but these forms must also be in possession of NWDS by the registration deadline February 23, 2015. Such on-line judge registrations must clearly indicate what school they represent.