



SCIENCE AND ENGINEERING FAIR OF METROPOLITAN DETROIT INC.

P.O. Box 158 • Farmington, Michigan 48332-0158

September, 2023

MEMO TO: Principal/Science Fair Coordinator

As you are starting the 2023-2024 school year, we thought that you should have a ‘heads-up’ regarding some of the changes occurring for the 67th Science and Engineering Fair of Metro Detroit in 2024. At this time, the plans are for the fair to be a “**HYBRID/DUAL**” Fair, in which students may submit projects to either the **in-person fair** OR the **virtual fair**.

Three years ago we opened up the science fair to 3rd-5th graders and we have seen increasing interest each year from these elementary school students and their teachers. These projects may be done by individual students or by groups of up to 10 students. Our supporters are excited about promoting STEM to our younger students. ALL students within our seven-county area (Wayne, Oakland, Macomb, Livingston, Washtenaw, Lenawee, and Monroe) in the 3rd-12th grades are invited to participate in the Fair.

Preliminary judging will take place virtually for all projects, over several days, from March 9, 2024 through March 16, 2024. Project setup at Huntington Place (formerly Cobo Hall) will be on Tuesday, March 19, for those students participating in person. Wednesday, March 20, 2024 will be the final round of judging. Please see the enclosed calendar for additional key dates.

A number of ‘color coded’ documents exist in this packet and are identified below. Additional copies are available on the web site under ‘Forms/Documents’ or by request.

Color	Description	Action Requested
Yellow	This cover letter	Review and distribute appropriately.
Yellow (side 2)	Personalized School Affiliation OR Generic School Affiliation	Review, update and return by 12/1/23 with payment (on back of this page). Optionally, self-affiliate on web site for discount.
Green	Calendar of events	One copy for you – important dates related to SF
Green-2	Helpful Hints for Project Display & Safety	One copy for you (on reverse side of Calendar)
White/Color	SEFMD Newsletter – Numerous copies are included based on your past entries to the Science Fair.	One copy for you; please distribute the remaining copies to your science teachers.
Yellow	Facts about the 67 th Science Fair	One copy for you
Pink	Science Fair Mentoring Event Flyer – Virtual workshops available during October/November	Please post. Students must pre-register to attend any of the online sessions. Topics vary each week.
White	Generic Release Form	Each participating student must complete with all required signatures and upload with project online
Poster	Special 67 th SEFMD poster	Large and small poster for school. Please post.
Color	Highlights of 2023 SEFMD	One copy for you to post
Postcard	SEFMD Postcard-General Info	One copy for you to post
Flyer	ASHRAE Flyer for ideas	One copy for you to post

All special forms that are required are available at the web site: <http://www.sefmd.org> → Forms

We hope you will encourage your students to participate in this year’s Science & Engineering Fair! If we can be of any assistance, please do not hesitate to contact us at (248) 471-9900 or by email at sf2024@sefmd.org.

Sincerely,

Kathy Kitzmann and Tim Fino
2023-2024 Fair Co-Directors



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Kathy Kitzmann and Tim Fino
2023-2024 Fair Co-Directors

67th Science Fair-School Affiliation Agreement/Information

Please complete all information and mail with the appropriate fee to the address below.
AFFILIATION FEE: \$50.00 (reduced to \$25 if received by December 1, 2023 and completed online)

NOTE: HOME Schools or independent student affiliation fee: \$55.00

Science and Engineering Fair of Metro Detroit, PO Box 158, Farmington, MI 48332-0158
 248-471-9900 Fax :248 479-0383

School Information:

School Name		DPS School? yes/no	
School Address			
School City, St., Zip		Grades:	
School Phone #		Fax Phone:	
Approx # of INDIVIDUAL projects students to SEFMD		Approx # of team projects (max of 4 in JR div)	
Principal Name		Do you plan on having a local SF? If so, date	
Principal Email			
School Web Site:			

School Institutional Review Board (Required if your school has projects with Human Subjects)

Name of Administrator	Name of Science Tchr 1	Name of Science Tchr2	Name of Medical Person

Science Fair Contact Person Information (primary contact person) – If the school has a representative on the operating council, it should be that person. We will correspond with this person regarding most matters regarding the Science Fair. Most correspondence will be via email – sometimes via fax.

Contact Person Name			
Phone # at School		Home Phone # (important)	
Primary eMail		Alternate eMail	

AGREEMENT: School agrees to pay the Science Fair Affiliation Fee of \$50.00 (\$25.00 if by 12/1/23 and **completed online**), to pay the project entry fees when invoiced, and to abide by the rules of the SEFMD:

SIGNATURE: _____

Please specify the anticipated teachers' names who will sponsor students and their respective email addresses. Attach additional page if necessary. (may be completed later if necessary)

Teacher's Name	eMail	Teacher's Name	eMail
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2023-2024 Science Fair

MAJOR EVENTS CALENDAR (revised 9/3/2023)

September, 2023	Postcard mailed to all schools with information on how to obtain a complete school packet. Info also on web site.
September 15, 2023	On-line registration OPENS.
October & November, 2023 Thursdays, 7:30 PM	Special Science Fair Mentoring Sessions conducted on-line for students, parents, teachers. Preregistration required (on web site).
December 1, 2023	Deadline for schools to affiliate (and pay affiliation fee) with discount of 50%
December 1, 2023	Scientific Review (Sr. Div)/Financial Committee Deadline. All required SRC paperwork must be submitted ONLINE by this date (SR division).
Fri, Feb 16, 2024, 11:59 PM	On-line registration CLOSES. Personal contact info, basic project info, and parental release form are due. Invoices are emailed to contact person of school.
Mon. Feb. 19, 2024	Teachers are emailed a notice of students' acceptance or disqualifications to the Science Fair. Web site open for submission of virtual sf documents and modifications of abstract.
Mon, Feb. 26, 2024, 8:00 AM	Self-nomination for Professional Awards OPENS.
Fri, March 8, 2024, 5:00 PM	Deadline of 5:00 PM for all virtual materials to be uploaded. Display and Safety start to review projects. Deadline for payment of fees – all fees must be received by 5:00 PM
Fri., March 8, 2024, 5:00 PM	Self-nomination for Professional Awards CLOSES. Start of Judging, session 1 (virtual).
Tue, Mar 19, 2024	Project Display Board Setup at Huntington Place, 9:00 AM – 7:00 PM.
Wed, March 20, 2024	SEFMD Judging, all day, starting at 8:00 AM;
Thur, March 21, 2024	Possible ZOOM sessions with top Senior Division Finalists (to determine ISEF participants) Public Viewing/School Visitation, 9:00 AM-7:00 PM
Fri, March 22, 2024	Public Viewing/School Visitation, 9:00 AM-5:00 PM Exhibit Removal, 5:00 PM – 7:00 PM
Sat, March 23, 2024	Exhibit Removal 9:00 AM – 11:00 AM
Sat, April 6, 2024	Michigan Science & Engineering Fair, 8:00 AM – 5: 30 PM Lawrence Technological University, Southfield
May, 2024	International Science and Engineering Fair in Los Angeles, CA
TBD	Awards program at Detroit Athletic Club with Baseball game afterwards.

HELPFUL HINTS FOR PROJECT DISPLAY & SAFETY

Please read the following information regarding rules for the display and safety of your science fair project. This information is minimal. It is best to familiarize yourself with specific details located on our website www.sefmd.org. Also you may research details at the ISEF website www.student.societyforscience.org.

Some areas to consider...

Project Size

	<i>Senior Division.</i>		<i>Elementary & Junior Division</i>
Depth	30 in or 76 cm	Depth	24 in or 61 cm
Width	48 in or 122 cm	Width	36 in or 91 cm
Height	108 in or 274 cm	Height	108 in or 274 cm

- All materials must fit within the dimensions on the display table.
- Project board must be self-standing and not supported by other means.

Display Content

- Display work must reflect only work completed by the finalist.
- Display board should summarize only the current year's work if the project is a continuation of previous year(s).
- Appropriate forms must be displayed if required.
- Multimedia or audio-visual presentations must be reviewed by the Display & Safety inspector before the project is approved for display.
- Photographs must be appropriate and not offensive; credit for photograph origin must be given; signed consent forms must be obtained for use of photographs that contain a person(s) other than the finalist.
- ONCE A PROJECT HAS BEEN APPROVED FOR DISPLAY, ABSOLUTELY NO ADDITIONS OR CHANGES MAY BE MADE TO THE PROJECT DISPLAY.
- PERSONAL ITEMS SHOULD NOT BE STORED UNDER THE DISPLAY TABLE.

Safety Regulations: Read carefully and check the website for further clarifications. Please be aware the Scientific Review Committee and the Display & Safety Committee reserve the right to question any display or display item they may consider an area of concern.

Items/Materials not allowed for display

- Disks, CDs, business cards, printed materials, pins, key chains, etc.
- Awards, medals, Internet or email connections related to project topic.
- HANDOUTS to judges or the public are not allowed.
- Addresses, QR codes, phone numbers, etc.
- Name(s) may be placed on the back of the board but should not be displayed on the front (Junior/Elem.)
- Living organisms, plants, taxidermy items, preserved specimens, food, bodily fluids, chemicals.
- Hazardous items: weapons, poison, fire arms, ammunition, lasers, reloading devices, dry ice, 3-D printers, flammable materials.
- Sharp items: razors, needles, knives, pipettes, syringes, glass.

Electrical Regulations

- No electrical power will be available or permitted at SEFMD or MSEF.
- No exposed live circuits over 36 volts will be allowed.
- Electrical devices must be protectively enclosed; enclosure must be noncombustible; non-current carrying metal parts must be grounded.
- Check the website for more information.

Science and Engineering Fair of Metro Detroit

September, 2023
67th Annual Science Fair
Volume 21, Issue 1

Kathy Kitzmann & Tim Fino,
Fair Co-Directors



The **MISSION** of the SEFMD is to create student excitement for STEM (Science, Technology, Engineering, and Mathematics), inspire interest in scientific subjects and research, develop respect for the scientific method, encourage personal growth, provide recognition for student research, and broaden career opportunities across Metropolitan Detroit and the region.

What is the SEFMD?

The Science and Engineering Fair of Metropolitan Detroit (SEFMD), established in September 1956, is a nonprofit organization established to give students in southeastern Michigan an opportunity to develop and exhibit science fair projects.

What is a science fair project?

A project is an investigation of a topic requiring a student to:

- design an experiment,
- analyze observations, and
- arrive at some new conclusion.

A finished project should consist of:

- a logbook,
- a report, and
- a visual display of the student's work.

The Science Fair competition reinforces the scientific method in completing a project. The concepts of creating an initial hypothesis, developing an experiment to prove/disprove the hypothesis, keeping a 'log book', and formulating conclusions form a framework for years to come, whether a student chooses a technical field or not. Students learn to develop the art of presenting a concept and 'selling' or explaining that concept to professionals in the field. Furthermore, they can earn the recognition and awards that go with completing a project successfully.

If your school does not participate in the Science Fair, maybe you should consider adding it -- for the students!

WHO may enter the science fair?

- The SEFMD competition is open to all 3rd-12th grade students who live in or attend school in the counties of Lenawee, Livingston, Macomb, Monroe, Oakland, Washtenaw, and Wayne.

- Students may be from public, private, parochial, charter, or home schools.

- Competition is separated into three groups: Elementary Division (3rd-5th graders), Junior Division (6th-8th graders) and Senior Division (9th-12th graders).

- Students may enter as an individual or as part of a team (2-3 people; up to 10 people for Elementary).

- School Quota: For the 67th SEFMD, all schools may send up to 60 PROJECTS to the Science Fair. A school in the Junior Division may enter up to FOUR team projects, as part of its quota.

- A student may compete in one of 4-22 different categories. There are four categories in the Elementary Division. There are twelve categories in the Junior Division and there are twenty-two categories in the Senior Division. A student should select his or her project category

carefully. A complete description of the categories is available on the science fair website. (Entry Form Info → Category Descriptions)

- Students enter the competition through the schools they attend. Each school completes the School Affiliation Form on the science fair website (Schools → School Self Affiliation) and pays the school affiliation fee of \$50 (discounted to \$25 if paid before 12/1).

- After a school is affiliated, students complete the on-line entry form (Entry Form Info → Online Entry). See additional information in the next article on "how to enter the science fair"!

- The 2024 Fair will be a "hybrid/dual fair". All students will upload various project components, including a pdf file of the essential elements that would be on their display board. Students who choose to participate virtually will also submit a 2:00 minute video. Students who choose to participate in person will prepare a display board for final round judging. See "What's Due When" on the home page of the website for details.

Major Events

Calendar

October/November -
Mentoring Sessions via
Zoom

Dec 1, 2023 - SRC
deadline; school
affiliation deadline

Feb 16, 2024 - All
entries due ON LINE

Feb 19 - Teachers
emailed notices

Mar 8 - All additional
uploaded information
due

Mar 9-16 - Preliminary
judging occurs for
virtual fair

Mar 19 (9AM-7PM)
Project Set-up

Mar 20 (8AM-5PM)
Final Judging

Mar 21-22 (9AM-7PM)
Public Viewing

Mar 22 (5PM-7PM)
Project Removal

Mar 23 (9AM-11AM)
Project Removal

May, 2024
ISEF, Los Angeles, CA

HOW to enter and compete in the science fair

(1) The student (or team) develops a research plan (planned experiment). Senior division students complete a Research Plan, Checklist for Adult Sponsor (1), Student Checklist (1A), and Approval Form (1B). These forms can be found on the website under the Forms/Documents heading.

(2) The student (or team) completes additional required SRC (Scientific Review Committee) paperwork (if needed) by the deadline on the calendar.

(3) The school affiliates on-line. The cost is \$50/school (discounted to \$25 if paid by 12/1).

(4) The student (or team) completes the on-line entry form. The cost for a senior division project (individual or team) is \$20/project, which is billed to the school. The cost for an elementary or junior division project is \$15/project, which is billed to the school. As part of the entry form the student must write an abstract, summarizing their project. See the website under General Info → How to write an abstract.

(5) A pdf of the project display must be uploaded online. A video is required from students choosing to participate virtually only.

(6) Students and teachers are notified if projects are accepted for competition.

(7) Students complete experimentation work and prepare their reports and project displays. Follow the Display and Safety Guidelines found on the website, under the Forms/Documents heading.

(8) Students participating in person bring their project displays to Huntington Place on Tuesday, March 19. All online presentations and display boards must be approved by the Display and Safety Committee.

(9) Projects will be judged online and in person on Judging Day. The top Senior Division projects will be interviewed by the judges and students must be present. (Junior teams may also have interviews.)

(10) Judging results are usually posted by midnight of judging day on the website.

Do You Need Additional Forms? Animals? Humans?

Projects that use vertebrate animals, human subjects, human or animal tissue, recombinant DNA, pathogenic agents or are continuation projects require additional forms. These forms may be obtained from the web site under the Forms/Documents heading.

All of these forms must be completed before beginning your project. In addition, the student **must enter online** before submitting the forms.

Senior Division students (grades 9-12) must submit these forms online by **Dec. 1** in order

to receive **pre-approval** from the Science Fair's SRC. Projects involving human subjects must first be approved by the school's IRB, followed by the fair SRC.

Junior Division students (Grades 6-8) should submit these completed forms online by **March 8**. SRC pre-approval is not needed. School IRB approval is required for work with human subjects.

Elementary Division students (Grades 3-5) should not plan to carry out projects that use vertebrates, humans, tissues, DNA, and pathogenic agents.

2023 Senior Grand Award winners



TOP AWARDS

Elementary and Junior Divisions

Grand Award (top 6 students and top team) - medal, certificate

1st-3rd place (~20%) - certificate

Blue (outstanding) ~20%, certificates

Green/Red - all other participants

Senior Division

Grand Award (top 6 students and top team) - medal, certificate; participate in state science fair; may be sent to International science fair; scholarships; may compete for Weizmann award

1st-3rd place (~20%) - certificate, may be invited to participate in state

science fair

Various special awards are given at the Fair by technical societies, professional associations and institutions, governmental agencies, and businesses. These are in addition to the category awards given by the Fair itself.

At the 2023 SEFMD, the value of all awards given including scholarships, was close to \$100,000. The particular awards are varied: plaques, books, certificates, company dinners and recognitions, cash awards and savings bonds. A four-week trip is awarded to attend the Weizmann Institute in Israel.

MSEF/ISEF

The 30th Annual Michigan Science and Engineering Fair (MSEF) will be held on April 6, 2024 at Lawrence Technological University. All Senior Division 1st place winners and some selected 2nd place and 3rd place winners will be invited to participate in the State Fair. Students from other parts of the state may also participate in the state fair. State fair participants will be competing for state fair awards.

The International Science and Engineering Fair (ISEF) will be held in May, 2024, in Los Angeles, CA, and will be an in-person fair. Students participating at the ISEF must be vaccinated for COVID. Up to six individual Division Projects and one team project will be selected at the Metro Detroit Fair to compete at the ISEF. Over \$2 million in awards and scholarships will be presented.

Senior Grand Award Winners for 2023

The following students were Grand Award winners at the 2023 SEFMD and were able to participate in the virtual ISEF. (See the back page for ISEF results). We congratulate them for their success at the SEFMD!

Austin Feng (grade 12), Cranbrook Kingswood School, Cellular & Molecular Biology

Vikram Goddla (grade 11), Detroit Country Day School, Computational Biology and Bioinformatics

Omaree Ishmael (grade 12), Davis Aerospace Technical High School, Environmental Engineering

Ashwin Mahendran (grade 11), Dakota High School, Computational Biology and Bioinformatics

Akshaj Sharma (grade 11), International Academy - East Campus, Engineering Technology, Status & Dynamics

Fuga Takahashi (grade 11), Novi Senior High School, Translational Medical Science

Anirudh Venkat (grade 11), Huron High School, Systems Software

Olivia Xu, Anthony Li, Lillian Jing, (grade 10), Troy High School, Biomedical Engineering

The following students were Grand Award winners at the 2023 MSEF, held simultaneously with the 2023 SEFMD, and also participated in the ISEF.

Michelle Hua (grade 12), Cranbrook Kingswood School, Systems Software

Connor Kalkanis (grade 11), Detroit Country Day School, Translational Medical Science

CONGRATULATIONS to all of these students!!

Judging - 3 Phases

1-Entry Form

- is received on time
- is completed correctly
- is a project-not a book report
- complies with SRC/IRB pre-approvals (if necessary)

2-Judging - Preliminary Round & Prof. Awards

- Online for all divisions

3-Judging - Final Rounds

- Interviews (Sr)
- Possible Interviews (top Jr. Teams) - TBD
- Stand alone (Jr/Elem)
- Selection of ISEF Finalists (Sr)
- Selection of Jr Grand Awards

Scoring/Judging

- 10%-Research Question
- 15%-Design/Methodology
- 20%-Execution
- 20%-Creativity
- 35%-Presentation
 - 10%-Board
 - 25%-Interview

SEFMD VALUES - S.E.A.R.C.H.

Scientific method
Empowering Experience
Access for All
Recognition
Creativity and Confidence
Highest Integrity and Ethical Behavior



GRAND AWARD - Winning SCHOOLS (2020-2023)

Our 'virtual' office is:

SEFMD
PO Box 158
Farmington, MI
48332-0158

Phone:
(248) 471-9900

Fax:
(248) 479-0383

E-mail:
SF2024@sefmd.org

Website
www.sefmd.org
OR
www.sciencefair.info

Academy of the Americas H.S. (2020)
Allen Park High School (2022)
Bloomfield Hills HS (2020)
Boulan Park MS (2022)
Clague M.S. (2020-2022)
Clippert Academy M.S. (2020-2022)
Cooke Elementary (2020)
Cranbrook Kingswood Upper (2020-2023)
Dakota High School (2023)
Davis Aerospace Technical HS (2022-2023)
Dearborn Center for Math, Science, and Technology (2022)
Detroit Country Day Upper School (2020-2023)
DPSCD Virtual School (2022)
Gompers Elementary/MS (2020)

Huda School and Montessori (2020, 2023)
Huron H.S. (2020, 2022-2023)
International Academy (2020-2023)
Larson Middle School (2020-2023)
Nolan Elementary/M.S. (2020-2021)
Novi Senior H.S. (2020, 2023)
Novi Middle School (2021)
Pasteur Middles School (2023)
Pioneer H.S. (2021)
Plymouth Scholars MS (2022)
Roeper Elementary School (2023)
St. Patrick Elementary (2020, 2023)
Tawheed Center School (2023)
Troy High School (2021, 2022-2023)
West Bloomfield H.S. (2020, 2021)

INTERNATIONAL SCIENCE FAIR RESULTS

The Regeneron International Science and Engineering Fair (ISEF) was held in May, 2023, in Dallas, TX, and the senior grand award winners from SEFMD and MSEF (whose names are given on the previous page) participated in ISEF.

The awards received at the ISEF were as follows.

Vikram Goddla, 3rd place (\$1000) category award in Computational Biology and Bioinformatics

Michelle Hua, 1st place (\$750) from the Air Force Research Laboratory, 3rd place (\$600) from the Acoustical Society of America, and 4th place (\$500) from the Association for Computing Machinery.

Anirudh Venkat, 1st place (\$1000) from the Central Intelligence Agency.

(The photo at the right includes the three students from the SW Michigan Science Fair in Kalamazoo: Sreya Mulakkayala, Ashika Gullapalli, and Fayyaz Razi. Also pictured are SEFMD Fair Directors Tim Fino and Kathy Kitzmann.)



Additional Middle School Recognition

Brandon Holmon (grade 8, Foreign Language Immersion and Cultural Studies, DPSCD): “The effect of water quality on the color of aquatic plants.” Brandon received a trip to Dallas and participated as an observer at the ISEF. (Brandon is included in the photo with the ISEF Finalists.)

Pratyush Inturi (grade 6, Larson M.S.): “Track Your Pet.” Pratyush received a Broadcom Coding with Commitment Award from the Broadcom Foundation.

“LEARNING TO THINK”

For over a half century, the Science and Engineering Fair of Metropolitan Detroit, Inc. (SEFMD) has provided tens of thousands of young people an incentive to plan, prepare, and present science and engineering projects. The Fair process is lauded by educators as an important “learning to think” experience for the 25,000 to 30,000 sixth through twelfth grade students from Wayne, Oakland, Macomb, Washtenaw, Lenawee, Livingston, and Monroe counties who participate in inner-school competitions each year. Over 3,000 of these students then enter the regional fair, with 2,000+ chosen to bring their projects to the Metro Fair at Huntington Place (Detroit), where fairs centering on the physical and life sciences in 22 different categories (e.g. chemistry, physics, biology, environmental science, engineering,...) are held under one roof. Throughout the years, 606 students have won Grand Awards, enabling them to compete in the International Science and Engineering Fair. Southeast Michigan students have distinguished themselves at the ISEF by winning major awards among their peers from 49 states and 63 nations. Many Fair participants have pursued careers in science and engineering and have distinguished themselves in their respective professions.

Another equally important benefit of the fairs is the increased interest of students in the Detroit Public Schools Community District in areas of science and engineering. This welcome renewal is strengthened by a strong commitment to the Fair from Detroit Public Schools Community District (DPSCD), Detroit Public Schools Foundation, and DAPCEP (Detroit Area Pre-College Engineering Program). Organizers and educators were thrilled to see more than 79% of the entries in 2012 coming from Detroit Public Schools.

The SEFMD should be a source of great pride for Southeast Michigan -- as it is for those who staff it and those who fund it. SEFMD remains one of the largest such Fairs in the country, and, judging by the results, one of the best!

HOW IT BEGAN

The Special Activities Committee of the Engineering Society of Detroit (ESD) proposed to the ESD Board of Directors in September 1956 that the society sponsor a Metro Science Fair to encourage and support education and the future of the related professions, in conjunction with the Detroit Board of Education and the Detroit Science Teachers Clubs. The Board granted approval, the cooperation of The Detroit News was obtained, and the first Fair was held in 1958. There were 2,550 entries which produced 1,097 exhibits in the fair held at the State Fair Grounds. A fund drive netted \$46,000, the fair cost \$35,000, and attendance was estimated at 45,000 people. To quote a report to the ESD Board, it was a “smashing” success. The Board agreed to continue sponsorship.

INCORPORATION

The Fair operated under the direct auspices of ESD until 1962 when it became evident it should become a separate entity to ensure non-profit status for tax purposes. The Metro Detroit Science Fair, Inc. was incorporated on October 23, 1962 to “stimulate an active interest among young people in the several fields of scientific study and to give recognition to talented science students.” In 1970 the name was changed to The Science and Engineering Fair of Metropolitan Detroit, Inc., to accurately reflect its educational scope. ESD and The Detroit News continued to cooperate in sponsorship of the Fairs through 2001. In September of 2001, the inauguration of the renovated and expanded Detroit Science Center and a refocus of the engineering society on other programs resulted in a new home at the spectacular museum and an independent stature for the Fairs. The Detroit Science Center and the Detroit News continued support of the Fair until 2003.

STAFFING

The SEFMD is:

- governed by a Board of Directors (made up of representatives from top corporations and educational institutions);
- operated by an Operating Council;

- judged by over 520 volunteers who are experts in their fields; and
- funded with monies raised by an Executive Council.

The Fair Directors serve as liaison between the Board and Operating Council and oversee day-to-day operations. All other functions are staffed by the nearly 700 volunteers who participate each year.

OTHER ACTIVITIES

In 1995, SEFMD launched the first Michigan Science Fair. The top forty to fifty students from the tri-county area compete annually with a similar number of students from other regional fairs throughout the state for additional recognition and awards. In May 2000 the preeminence of Detroit’s Fair was recognized when the City was chosen to host the International Science and Engineering Fair. Over 1,100 students and 1,500 teachers and mentors from 46 countries were in Detroit for the weeklong event. In excess of 1,000 judges, mostly Ph.D. or equivalent, were used to judge the entries. Over \$2,000,000 in awards and scholarships were distributed to the top winners of this prestigious competition.. This event highlighted Detroit while showcasing the SEFMD to the global community as a world-class organization.

FUNDING

Funding for the Fair is provided by corporations, industries, utilities, technical societies, health and medical groups, financial institutions and individual contributions. SEFMD is recognized by the IRS as a non-profit 501(c)(3) organization and is licensed to solicit Charitable Contributions from the State of Michigan – MICS 5290.

To date, SEFMD has a restricted endowment to ensure the long-term financial stability of the fair. The dividends and interest from this endowment provide an annual income of \$40,000 (at 5% interest) to support the annual \$156,000 operating budget. The balance is made up of individual, corporate, and foundation support.

THE 2023-2024 FAIR

The 2024 Fair will be a “Hybrid/Dual” Fair, with projects being judged both online (preliminary round) and in person OR virtual (final rounds). The full calendar is available at the science fair website.

SEFMD regional fair	March 19-22, 2024
Huntington Place (lower level), Detroit	
Project setup	Tues., March 19
Judging (final round)	Wed., March 20
Public Viewing	Thur.-Fri., March 21,22
Tear down	Fri., March 22 (5-7 PM)
	Sat., March 23 (9-11 AM)
Michigan Science Fair	Sat., April 6 (all day)
Lawrence Technological University, Southfield	
International Fair	May, 2024
Los Angeles, CA	

Senior Division Grand Award winners will participate in the International Science and Engineering Fair (ISEF) where their projects will be evaluated, providing these students an opportunity to compete for additional awards, scholarships and increased recognition. Up to six individual awardees, plus a two or three-person team project, and two winners of the Michigan Science Fair will represent metro Detroit and the State of Michigan in the International Fair.

Each Grand Award Winner will be given preferential status on receiving a four-year paid merit scholarship from one of the following universities: Lawrence Technological University, Oakland University, and University of Detroit Mercy. The scholarship and amounts are subject to the rules of the individual universities.

The Grand Award winners also compete for the Detroit Science Award, an all-expense paid study trip to the Weizmann Institute in Rehovot, Israel.

2021 FAIR HIGHLIGHT: Cranbrook Kingswood sophomore Michelle Hua won first place in Robotics (\$5000) and overall best project in the world at the 2021 Regeneron ISEF (\$75,000)! Congratulations, Michelle!

SEFMD BOARD OF DIRECTORS

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SEFMD OFFICIAL ADDRESS

SEFMD, Inc
P.O. Box 158
Farmington, MI 48332-0158
(248) 471-9900
fax: (248) 479-0383
email: SF2024@SEFMD.org
web site: <http://www.sefmd.org>

The 2024 Fund Drive has a goal of \$300,000
Gifts are Tax Deductible- IRS 501 (c)(3) & MICS 5290
Checks may be made payable to:
Science Fair - SEFMD
P.O. Box 158 – Farmington, MI 48332-0158



Facts about the 67th Science and Engineering Fair of Metropolitan Detroit, Inc. (SEFMD)



2023-2024

(Rev 8/24/2023, blue)

SCIENCE FAIR SUCCESS YOUR BEST WORK

VIRTUAL PRESENTATIONS IN OCTOBER AND NOVEMBER

(Check website for schedule/details. Registration is required to receive zoom link)



In March 2024, Detroit will host the 67th Annual Science and Engineering Fair at Huntington Place (formerly Cobo Center), providing students of southeast Michigan in grades 3 to 12 an opportunity to exhibit science fair projects, either virtually or in person. This is one of the largest and longest running science fairs in the world.

Members of the Operating Council, along with science fair judges, teachers, and past science fair participants will discuss how to execute ideas, develop science fair projects, and how to showcase them for judging. First session is Thursday, October 12, 7:30 PM (School affiliation), followed by Oct 19 (Getting project ideas).

This program is open to 3rd to 12th grade students, parents and teachers. Attendees will have the opportunities to win prizes provided they preregister.

For more information (including dates and topics of seminars), or to RSVP for this free seminar, go to: <http://www.SEFMD.org/Seminar>. Alternatively, contact the Science Fair Office at: (248) 471-9900.

SEFMD HYBRID 2023-2024 Science Fair – Release Form

This form is **REQUIRED** of all participants for the 2023-2024 Science Fair. If the form is not uploaded through the student's portal during the online registration process, the participant will be disqualified. The form must be received, and accepted before the student can complete the registration process (ie, the student will be prevented from entering project information until the form is accepted). To upload the release form, print the form, have the student, parent (or legal guardian), and teacher sign the form, take a picture of the form, and upload the image as a graphic image (photo).

NOTE TYPED OR PRINTED SIGNATURES ARE NOT VALID – MUST BE ACTUAL SIGNED SIGNATURES

The student, sponsoring teacher, and parent or legal guardian hereby agree that they accept the following conditions:

- 1) Failure to abide by all local and ISEF fair rules and procedures will result in disqualification.
- 2) The decision of the Fair officials is final, both in accepting the project for display and in the selection of the winners.
- 3) If the project is accepted, the student agrees to display it at the fair (through public viewing) and/or permit the public to view the project through the virtual science fair
- 4) The Teacher agrees to sponsor the student and assumes responsibility for compliance with all existing SEFMD and ISEF rules.
- 5) The Teacher agrees to conduct a safety review of the project.
- 6) The student and parent acknowledge that photographs and video may be taken at the Science Fair of the participant and hereby give permission for the photographs/video to be used in news and marketing related events for the SF. In addition, the students may be required to do a video of their project and the video will be available to judges and the general public.
- 7) The top Senior Division students (9th-12th graders) may be interviewed by judges via ZOOM or another application. Permission is hereby given for the participant to be part of these interviews.
- 8) Student researchers are expected to maintain the highest standards of honesty and integrity. Scientific fraud and misconduct are not condoned at any level of research or competition. Such practices include but are not limited to: plagiarism, forgery, use of presentation of other researcher's work as one's own and the fabrication of data. Fraudulent projects will fail to qualify for competition in SEFMD and ISEF.
- 9) Students selected to attend the International Science and Engineering Fair in Los Angeles in May, 2024 must be totally vaccinated against Covid-19 to participate and must participate in person.

Print Student Name/ID # and date and also provide signature on the above line

School Name and Teacher name/Signature and date

Print Parent name (or legal guardian), Date, and sign on the above line

Elementary,
Middle and
High School
Competitions

67TH
ANNUAL

2024

SCIENCE & ENGINEERING FAIR

 **of Metro Detroit**

**Huntington Place
(formerly Cobo Center),
Lower Level
Detroit, MI
March 19-22, 2024**

Online Registration Deadline: Friday, Feb. 16, 2024 (11:59pm)
Online Project Components Deadline: Friday, March 8, 2024 (5 pm)
Setup: Tuesday, March 19, 2024 (9am-7pm)
Judging: Wednesday, March 20, 2024 (8am-5pm)
Public Viewing: Thur & Fri, March 21-22, 2024 (9am-5pm)
Project Removal: Friday, March 22, 2024 (5-7pm)
Michigan Science Fair: Saturday, April 6, 2024 (Lawrence Tech University)
International Science & Engineering Fair: May 2024 (Los Angeles, CA)
Scientific Review Committee (SRC) forms due online by Dec. 1, 2023



The 2023-2024 SEFMD will be a "Hybrid/Dual Fair."
Projects may be submitted to either the in-person fair or
the virtual fair. Projects will be pre-judged from online
submissions.

NEW This Year: "Code Club" activity for 6th-8th
graders. See the science fair website for details.

Register online at: www.sefmd.org For more information, e-mail: SF2024@sefmd.org or call 248.471.9900

Highlights of the 2023 66th Science & Engineering Fair of Metro Detroit, 29th Michigan Science and Engineering Fair, and Regeneron International Science and Engineering Fair

The SEFMD and MSEF were “hybrid fairs” held in March, 2023. Students (and judges) chose whether to participate in person or virtually. Over the course of several months, teachers and students in grades 3-12 from seven counties across southeastern Michigan and from other communities in the state prepared projects for entry in the regional and state science fair competitions.

For additional information about this year’s fair and the plans for 2024 visit <https://www.sefmd.org>



ISEF Finalists/Participants: Omaree Ishmael, Connor Kalkanis, Anirudh Venkat, Fuga Takahashi, Austin Feng, Akshaj Sharma, Vikram Godla, Ashwin Mahendran, Anthony Li, Olivia Xu, Brandon Holmon (Observer), Michelle Hua, Lillian Jing

During the week of May 7-12, 2023, the Regeneron International Science and Engineering Fair took place in Dallas, TX. Twelve students competed at the ISEF from the SEFMD and MSEF. The competition featured 1,700 young scientists representing 49 states and 63 countries across the world.

MSEF and SEFMD Senior Grand Award Winners and ISEF Finalists

MSEF Grand Award Winners

Michelle Hua (grade 12, Cranbrook Kingswood School): “3D Acoustic Simulation and Optimization Algorithms for Transcranial Focused Ultrasound Delivered with Robotic Systems.” **ISEF Awards:** 1st place (\$750) from the Air Force Research Laboratory, 3rd place (\$600) from the Acoustical Society of America, and 4th place (\$500) from the Association for Computing Machinery.

Connor Kalkanis (grade 11, Detroit Country Day Upper School): “Innovative Combination Therapy for Treating Brain Tumors: Using Avatar Models to Help Improve Patient Outcomes.”

SEFMD Senior Division Grand Award Winners

Vikram Goddla (grade 11, Detroit Country Day School): “Autonomous Navigation of Medical Microbots with Deep Reinforcement Learning .” **ISEF Award:** 3rd place (\$1000) category award in Computational Biology and Bioinformatics.

Anirudh Venkat (grade 11, Huron High School): “Applications of Quantum Randomness in Healthcare Informatics.” **ISEF Award:** 1st place (\$1000) from the Central Intelligence Agency.

Austin Feng (grade 12, Cranbrook Kingswood School): “Pattern of IRG1/*Acod1* Expression in the Tumor Microenvironment.” Austin was the recipient of an all-expense paid trip to the Weizmann Institute of Science in Rehovot, Israel from July 4-27, 2023.

Omaree Ishmael (grade 12, Davis Aerospace Technical High School): “Use of Arial Drone Technology to Monitor Air Quality in Urban Communities.”

Akshaj Sharma (grade 11, International Academy – East Campus): “Turbulent Jet Flow to Induce Entrainment for Atmospheric Rocket Flight.”

Fuga Takahashi (grade 11, Novi Senior High School): “A Novel Approach to Systemic In-Silico Drug Discovery Using a Machine Learning-Based Prediction of Binding Affinity.”

Ashwin Mahendran (grade 11, Dakota High School): “Novel Machine Learning Tool for Denoising and Visualizing EEG Data.”

Olivia Xu, Anthony Li, Lillian Jing (grade 10, Troy High School): “A Wearable Sensor for Continuous Heart Sound Monitoring.”

SEFMD Junior & Elementary Grand Award Winners

Allen Beachem (grade 6, Pasteur M.S.): “Sporty Drink Sensation.”

Ayesha Bhutta (grade 8, Tawheed Center School): “The C in Vitamins.”

Aaqib Farhad, Gabriel Alexander (grade 7, Larson M.S.): “Cilantro: Cheaper Ways to Filter Water.”

Jenna Gabr (grade 6, Huda Upper School): “Which City in Metro Detroit has the Safest Drinking Water?”

Miles Hall (grade 7, St. Patrick Elementary – White Lake): “Does Activated Carbon Purify and Neutralize Acidic and Basic Water-Based Solutions.”

Shiva Egan (grade 5, Roeper Elementary): “Low Density Radiation Shielding for Space Exploration.”

Additional Middle School Recognition

Brandon Holmon (grade 8, Foreign Language Immersion and Cultural Studies, DPSCD): “The effect of water quality on the color of aquatic plants.” Brandon received a trip to Dallas and participated as an observer at the ISEF. (Brandon is included in the photo with the ISEF Finalists.)

Pratyush Inturi (grade 6, Larson M.S.): “Track Your Pet.” Pratyush received a Broadcom Coding with Commitment Award from the Broadcom Foundation.

CONGRATULATIONS to all of these students and THANK YOU to all of our donors!

Elementary,
Middle and
High School
Competitions



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of Metro Detroit



Anyone in grades 3-12 (private, public, home schools) in the Lenawee, Livingston, Macomb, Monroe, Oakland, Washtenaw and Wayne counties can enter a project in the SEFMD. Schools must affiliate with SEFMD before a student may enter online.

The time to start the process is now! Registration is done online at www.sefmd.org. SRC pre-approval requires uploading of special forms, available on the website. Please let us know if you would like additional Science Fair postcards to distribute to others or if you need a complete school information packet which includes full size posters, newsletters, facts, and essential information.

Sincerely,

Tim Fino and Kathy Kitzmann
SEFMD Fair Co-Directors
248.471.9900 | SF2024@sefmd.org

Now
Open to
3rd-12th
Grades!

On Thursday evenings at 7:30 pm during October and November, special science fair mentoring sessions will be conducted on-line for parents, teachers, and students. See the website for the detailed schedule. Pre-registration required.

SEFMD MISSION Create student excitement for STEM (Science, Technology, Engineering, and Mathematics), inspire interest in scientific subjects and research, develop respect for the scientific method, encourage personal growth, provide recognition for student research, and broaden career opportunities across Metropolitan Detroit and the region.



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30TH ANNUAL 2024 MICHIGAN
SCIENCE
&
ENGINEERING FAIR



**Lawrence Technological University
Southfield, MI
April 6, 2024 (all day)**

Online Registration Deadline: Friday, Feb. 23, 2024* (11:59pm)
Online Project Components Deadline: Friday, March 8, 2024*
International Science & Engineering Fair:
May 2024, Los Angeles, CA

*March 27, 2024 if entering via an affiliated regional fair



**The 2023-2024 MSEF will be an In-Person Fair,
with online components that must be submitted.**



Open to ALL 9th-12th grade students
in the State of Michigan

Register online at: www.sefmd.org For more information, e-mail: SF2024@sefmd.org or call 248.471.9900

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ANNUAL

2024 MICHIGAN

SCIENCE

&

ENGINEERING FAIR

Anyone in grades 9-12 (private, public, home schools) in the state of Michigan (excluding students covered by Science and Engineering Fair of Metro Detroit - top students will automatically advance).
Cost of entering is \$75

The time to start the process is now! Registration is done online at <http://MSEF.ScienceFair.INFO>

SRC pre-approval requires uploading of special forms, available on the website. Please let us know if you would like additional Science Fair postcards to distribute to others or if you need a complete school information packet which includes full size posters, newsletters, facts, and essential information.

Sincerely,

Tim Fino and Kathy Kitzmann
MSEF Fair Co-Directors
248.471.9900 | SF2024@sefmd.org

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Now Open
to 3rd-5th
Grades!

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2024

SCIENCE

&

ENGINEERING FAIR

of Metro Detroit

Huntington Place (formerly Cobo Center)
Lower Level — Detroit, MI
March 19-22, 2024

- For the fourth year, students in 3rd-5th grades may enter projects
- Projects may be done individually or in groups of 2-10 students
- Complete calendar is available online
- Rules and categories are simplified for elementary students
- More information is available at www.sefmd.org



The 2023-2024 SEFMD will be a "Hybrid/Dual Fair."
Projects may be submitted to either the in-person fair or the
virtual fair. Projects will be pre-judged from online submissions.

Register online at: www.sefmd.org For more information, e-mail: SF2024@sefmd.org or call 248.471.9900

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ANNUAL

2024

S C I E N C E

&

ENGINEERING FAIR

of Metro Detroit

SEFMD is excited to include projects from students in the 3rd-5th grades in this year's science fair! Schools must affiliate with SEFMD before any students may enter online. The school affiliation fee is \$50; student processing fees are \$15/project (individual or team).

The rules and categories for 3rd-5th grade students are available on our website at www.sefmd.org. Please let us know if you would like additional Science Fair postcards to distribute to others or if you need a complete school information packet which includes full size posters, a newsletter, and other essential information.

Sincerely,

Tim Fino and Kathy Kitzmann
SEFMD Fair Co-Directors
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Open to
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The Detroit Chapter of the American Society of Heating Refrigerating and Air-Conditioning Engineers (ASHRAE) offers awards for thoughtful, best-in-class science fair projects exploring indoor environmental concerns such as comfort, indoor air quality, the impact of indoor spaces on people, and how buildings impact the environment.

Consider this science fair project idea or develop one of your own.

THE CORSI-ROSENTHAL AIR PURIFIER	QUESTIONS YOUR PROJECT MIGHT INVESTIGATE. (Choose One.)	MATERIALS
<p>Build and test a DIY Corsi-Rosenthal Air Purifier</p> <p>Air purifiers can be used to clean the air in any room. Scientists claim that cleaner air leads to:</p> <ul style="list-style-type: none"> • Improved student performance (grades) • Fewer sick day absences • Fewer asthma and allergy episodes • Improved occupant comfort 	<ul style="list-style-type: none"> • Do students & teachers with allergies or asthma have fewer symptoms or flair-ups when the air purifiers are in use? • Are their fewer student absences for illness (sick days) when the filters are in use? • Are students more alert when the filters are in use? • Are students' grades better when the filters are in use? 	<ul style="list-style-type: none"> • 1 qty box fan • 4 or 5 qty filters (MERV 13 or higher) • 1 roll of duct tape • 1 piece of cardboard

Here are some other air-conditioning related science fair project ideas that you can have fun exploring with the SCIENTIFIC METHOD:

- At what temperature, humidity level and airspeed is your classroom/house most comfortable?
- Is it really cooler in the shade?
- Is the temperature the same everywhere throughout the classroom, house or other space?
- What is the R-value (insulative value) of the clothes we wear?
- Does the room really stay cooler if we close the curtains/blinds during the day?
- Which refrigerated temperatures are best to preserve specific types of foods the longest?
- Can water really boil at room temperature?
- Build and test a mini-yakhchal to make ice.
- How does straw diameter impact the water flowrate? Can the answer be also applied to airducts?
- Does water really move faster when you squeeze a garden hose?
- What happens to a spray can (of paint or cool whip) when you spray out its contents?
- How do air temperature and humidity impact how much a can of pop or a window will sweat?
- Build and test an evaporative air cooler using a fan and a container of ice.
- Build and test a rudimentary refrigerator using soil, water, and two clay pots.
- Construct and test a psychrometer to measure dry-bulb and wet-bulb temperatures.
- Develop a wind chill chart based on your own empirical data measurements

Helpful hints and information may be found on the internet or feel free to contact the Detroit Chapter of ASHRAE at webmaster@detroitashrae.org.