

Science and Engineering Fair of Metro Detroit

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67th Annual Science Fair
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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 **A**ll
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
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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)
Boulton 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 Middle 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.