

SSEF 2018 Briefing

24 May 2017 (Wed)
NJC

Jointly organised by:



Ministry of Education
SINGAPORE



Agency for
Science, Technology
and Research



Overview

- Introduction to SSEF / Intel ISEF
- Form Filling
- Common Issues from SSEF 2017
- Updates from Intel ISEF 2017
- Registration for SSEF 2018
- Matters Relating to H3 Science Research

INTRODUCTION

Singapore Science and Engineering Fair (SSEF) 2018

- Organised by MOE, A*STAR and Science Centre Singapore
- Open to all students studying in MOE schools, who are between 15 – 20 years old as of **1 May 2018**
- **7 & 8 Mar 2018 (Wed & Thu)**

Intel International Science and Engineering Fair (Intel ISEF) 2018

- **SSEF is affiliated to Intel ISEF**
- Top SSEF projects will be selected to represent Singapore at **Intel ISEF 2018**
 - **Pittsburgh, Pennsylvania, USA**
 - **13 – 18 May 2018**
- Singapore Citizens or PRs
- Official Website:
<https://student.societyforscience.org/intel-isef>

Team Singapore at Intel ISEF 2017



A*STAR Talent Search (ATS) 2018

- To recognise students who have excelled in scientific research
- Must take part in SSEF 2018
- <http://www.science.edu.sg/ats>

SSEF/Intel ISEF Rules and Regulations

[https://student.societyforscience.org/
international-rules-pre-college-science-research](https://student.societyforscience.org/international-rules-pre-college-science-research)

- To be updated after 1 June
- Schools can use 2017 forms first and update later if necessary



SSEF/Intel ISEF Rules and Regulations

- Scientific fraud and misconduct are not condoned at any level of research or competition.
- Plagiarism, forgery, using other researchers' work as one's own and fabrication of data will result in immediate disqualification.
- [newspaper article]

Rules and Regulations

- Research done between **1 Jan 17 – 31 Dec 17**
- Continuation projects will only be judged on work done from 1 Jan 17 – 31 Dec 17 (Form 7 required)
- Individual or team projects
- 1 project per student
- Maximum of 3 members for team project

Project Categories

Animal Sciences	Biochemistry	Biomedical and Health Sciences
Biomedical Engineering	Cellular and Molecular Biology	Chemistry
Computational Biology and Bioinformatics	Earth and Environmental Sciences	Embedded Systems
Energy: Chemical	Energy: Physical	Engineering Mechanics
Environmental Engineering	Materials Science	Mathematics
Microbiology	Physics and Astronomy	Plant Sciences
Robotics and Intelligent Machines	System Software	Translational Medical Science

For more info on the categories and subcategories, refer to:

<https://student.societyforscience.org/intel-isef-categories-and-subcategories>

NOTE: Behavioral and Social Science is NOT offered at SSEF.

Junior Scientists

- Open to students below 15 as of 1 May 2018
- Period of research – 1 Jan to 31 Dec 2017
- Different forms from SSEF, hard copy submission
- Projects in Bio / Phy / Chem / Math / Engineering
- **Individual / team submissions allowed**
- **Maximum of 3 members for team project**

Junior Scientists

- 1 student* represents Singapore at the Broadcom MASTERS International 2018
- Held in conjunction with Intel ISEF 2018

**In the case of team project, school to decide which student to attend Broadcom MASTERS*

FORM FILLING

SSEF/Intel ISEF Forms

SSEF/Intel ISEF forms serve to:

- ensure safe laboratory practices and adherence to regulations
- protect the rights and welfare of the
 - student researcher(s)
 - human participant(s)
 - vertebrate animal subject(s) [newspaper]
- protect the environment

It is **NOT** an additional administrative burden but a necessary part of scientific research.

SSEF/Intel ISEF Forms

- Download forms from <https://student.societyforscience.org/intel-isef-forms>
- Form wizard: generate forms required for your project <https://apps2.societyforscience.org/wizard/index.asp>



SSEF/Intel ISEF Forms

- In addition to Intel ISEF forms, download SSEF entry form from Science Centre website www.science.edu.sg/ssef

SSEF/Intel ISEF Forms

Please read forms carefully before completing them:

- MM/DD/YY format for ALL dates
 - ambiguous cases could imply non-compliance with SSEF/Intel ISEF rules
- Take note whether forms should be completed **before (most forms)** or **after (Form 1C, Form 5B)** research

SSEF/Intel ISEF Forms

Every project submission must include:

- Form 1 (Checklist for Adult Sponsor)
- Form 1A (Student Checklist) + Research Plan/Project Summary
 - In the research plan (Form 1A), state very clearly which steps are carried out by students and which are carried out by qualified adults.
 - If there are deviations to the original research plan, those changes must have been approved and be recorded in the project summary.
- Form 1B (Approval Form) – 1 per **member**
- **Form 3 (Risk Assessment)****
 - **Hazardous chemicals, activities and devices**

SSEF/Intel ISEF Forms

Additional forms if applicable

- Form 1C: If work conducted in regulated research institutions (RIs)
 - **BSL2 projects must not be conducted in school labs**
- Form 7: If the project is a continuation/progression of a previous project in the same field of study
 - + previous abstract
 - + previous research plan

SSEF/Intel ISEF Forms

If projects involve

- **Human Participants**
 - **Vertebrate Animals**
 - **Potentially Hazardous Biological Agents**
-
- Additional forms required
 - Approval from school's / RI's IRB/SRC **before** **experimentation** required (Form 1B and other relevant forms)

IRB/SRC

- Institutional Review Board
 - Educator
 - Principal / Vice principal (or equivalent administrator)
 - **Medical or mental health professional**
- Scientific Review Committee
 - **Biomedical scientist with a doctoral degree**
 - Educator
 - Member

Setting up school's IRB/SRC

For schools that are interested to set up their own IRB/SRC, please seek Affiliated Fair approval by sending the necessary documents and forms to:

Science Centre Singapore

SSEF Secretariat

15 Science Centre Road

Singapore 609081

No Adult Sponsor, parent or other relative of the student(s), the Qualified Scientist, or the Designated Supervisor who oversees the project may serve on the IRB / SRC reviewing that project.

SSEF/Intel ISEF Forms

- Human Participants
 - IRB approval required (Form 1B, Form 4)
 - Qualified Scientist Form 2
 - Human Participants Form 4 + Human Informed Consent form
 - Sample Survey form (if applicable)

SSEF/Intel ISEF Forms

- Vertebrate Animals
 - SRC approval required (Form 1B)
 - Qualified Scientist Form 2
 - Vertebrate Animal Form 5A (if done at non-regulated RI) / Vertebrate Animal Form 5B (if done at regulated RI)
 - PHBAs Risk Assessment Form 6A (if applicable)
 - Human & Vertebrate Animal Tissue Form 6B (if applicable)
 - IACUC Approval (if applicable)

SSEF/Intel ISEF Forms

- Potentially Hazardous Biological Agents
 - SRC approval required (Form 1B)
 - Qualified Scientist Form 2
 - PHBAs Risk Assessment Form 6A
 - Human and Vertebrate Animal Tissue Form 6B (if tissue is involved)

Common Issues from SSEF 2017

- Form 3 (Missing) – 118
- Form 1B (Date: not before start of expt) – 42
- Form 3 (Date: not before start of expt) – 24
- Form 1C (Date: not after end of expt) – 22
- Form 1 (Incomplete) – 21

UPDATES FROM INTEL ISEF 2017

Changes

- Full IRB Review is necessary if the activities involved in testing of the invention or prototype are **more than minimal risk or involve collection of personal information from participants** (school IRB okay)
- Full IRB Review is necessary if the testing of the invention, prototype or project **involves a medical intervention and must be conducted in a Registered Research Institution with IRB approval from the institution** (school IRB is not sufficient)

Changes

- **Genome editing studies** with possible biological impact including alteration of germline cells (insertion of gene drives, use rapid trait development systems) **should be categorized as a BSL-2 study and must be conducted at an RRI (not in school) and approved by the Institutional Biosafety Committee from the institution (school SRC is not sufficient)**

Top reasons for disqualification at Intel ISEF 2017

- Human subjects with no prior IRB approval
- BSL2 work in BSL1 setting
(e.g. culturing unknown bacteria)
- Toxicity or stressful studies involving vertebrate animals

REGISTRATION FOR SSEF 2018

Registration & Project Submission

Online Registration

1 Nov to 1 Dec 2017

<http://www.ssef.com.sg/ssef/student.html>

Projects not registered by 1 Dec 2017 will not be considered

Acknowledgement and project code will be emailed to participants and teacher ICs



Submission of

- **Project Documents** (soft copy) to SSEF portal
 - **Entry Forms and Project Documents** (hard copy) to Science Centre Singapore
- 02 Dec 2017 to 10 Jan 2018**

Late entries will not be accepted

Projects that do not comply with safety & ethical guidelines will be disqualified

Enhancement of Online Security

- WoG IT security measures put in place
- Manage security of online data
- Protect students' and teachers' personal information
 - Online registration system only collects **email and school**
 - Other personal information will be collected via excel through teachers

Project Submission

- Deadline – 10 Jan 2018 (Wednesday)
- Both hardcopy and softcopy submissions
- Items to be submitted with entry form
 1. Cover Page
 2. Project Abstract (not more than 250 words)
 3. Project Report
 4. Research Plan
 5. SSEF/Intel ISEF Forms 1, 1A, 1B + additional forms where applicable
- Details of submission requirements and forms can be found at: <http://www.science.edu.sg/ssef>

H3 SCIENCE RESEARCH

Guidelines on the use of H3 Science Research Projects for SSEF

- H3 Science Research examination documents are **not** permitted for exhibition, competition or publication without the authorisation by the Chief Executive, SEAB

Time Frame

- Candidates must submit the H3 science research papers to the examining agencies and clear the Oral Defence of the science projects **before** the start of the SSEF in March.
- Candidates **should not** have any further contact with NUS/NTU/equivalent examination authority upon submission to the examining agencies when preparing for SSEF.

Guidelines on the use of H3 Science Research Projects for SSEF

Materials

- Candidates **should not** use the same H3 examination documents submitted to the examining agencies for the SSEF.
- The written report submitted for the SSEF is different from the H3 Science research paper submitted as an examination work.
- The mode used for the SSEF's oral presentation (poster) is different from the H3 Oral Defence (e.g. PowerPoint).
- Candidates **should not** make reference to the work submitted for the SSEF as having been an examination submission (e.g. by removal of examination labels, candidate index, title of H3 programme and examining agency).

Guidelines on the use of H3 Science Research Projects for SSEF

Results

- Candidates **should not** use the results obtained from the SSEF as a basis to contest the results awarded by SEAB for the H3 science research programmes.

Guidelines on the use of H3 Science Research Projects for SSEF

Declaration (Teachers to note)

- Candidates in the H3 Science research programmes are required to submit a **declaration form** to Curriculum Policy Office and acknowledge the conditions and implications for participation in the SSEF.
- Schools will collate and submit the declaration forms by first week of December 2017.

PREPARING FOR THE FAIR
**(2ND BRIEFING IN 2018 FOR SHORTLISTED
PARTICIPANTS)**

Judging Criteria

SSEF 2017 Pre-Judging criteria	Weighting (%)	SSEF 2017 Final Judging criteria	Weighting (%)	
Research Question/Problem	10	Research Question/Problem	10	
Design and Methodology	20	Design and Methodology	20	
Execution	25	Execution	25	
Creativity	20	Creativity	20	
Presentation (based on written report)	25	Presentation (Total – 25%)	Poster Interview	7 18

Project Display

- Only shortlisted projects from the pre-judging round will be displayed at the fair
- Project Log Book
- Poster, A0 size, portrait
- Laptop (Optional)
- Experimental Setup (Optional)

- Comply with Intel ISEF Display and Safety Regulations

Activity Schedule

Online registration of projects

1 Nov - 1 Dec 2017

Submit project by

10 Jan 2018

Prejudging Results
Mid-Feb 2018

SSEF judging
7 & 8 Mar 2018

ATS and SSEF Joint Award Presentation Ceremony

April 2018

SSEF top winners go to Intel ISEF
13 – 18 May 2018

ATS short-listing

March 2018

SSEF Winners

ATS Winners

ATS finalists

ATS final judging

April 2018

Contacts

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Thank you!

Q&A time

For updates on SSEF and ATS, please
visit www.science.edu.sg/ssef