



UP ALCHEMES  
**RESEARCH  
FAIR 2025**  
**HANDBOOK**





# **G O L C O N D A**

Polishing the Innovative Facets  
of the Filipino Youth

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# SUMMARY NOTES



## A. Eligibility Guidelines

Participants must meet certain requirements in order to participate in any sub-event.

Sub-event	Participants must be
Research Competition (RC)	<b>Bonafide high school students</b>
National Science Conquest (NSC)	
Youth Science Convention (YSC)	

## B. Submissions and Deadlines

- All forms may be accessed at the [Research Fair website](#).
- All submissions must be filled out completely and correctly following the sample format.
- All required attachments must be included following the file name format and file type.
- A response from the organizers will be sent to confirm the submission. Late submissions will not be entertained.

### 1. Research Competition

- A school may send a maximum of three (3) research entries per category for the Journal Entry Round. Out of the entries submitted for the Journal Entry Round, only the top 20 research entries per category would be able to participate in the Exhibit Presentation, which constitutes the face-to-face component of the stage, wherein the research's poster would be presented to a panel of at most (3) judges who are experts in the field pertaining to the poster's category. Of the 20 entries, only the Top 6 entries per category would proceed to the Closed-Door Defense Round. Ties would be broken by the Journal Entry Round score garnered by each of the teams.



- Continuing projects shall be accepted provided that they show substantial progress from their previous project.
- Resubmission of research entries will not be allowed. However, research conducted from **SY 2023-2024 to the present** is allowed as long as it was not submitted as an entry to the previous Research Fairs, and the students remain bona fide high school students.

## 2. National Science Conquest

- Only the first sixty (60) teams to submit their registration forms will be accommodated.
- A school may send up to three (3) teams for the National Science Conquest composed of 3 members each.
- Each team may opt to have an alternate member.
- In case a registered participant fails to be present on the competition date due to valid reasons (sickness, death in the immediate family, etc.), a substitute from the same school will be allowed to compete, provided that:
  - The replacement satisfies the eligibility guideline.
  - A document validating the excuse is to be submitted during registration before the Opening Program of NSC.
  - No replacements shall be allowed thereafter. Failure to comply with the provisions will result in the team competing with fewer members.
  - The registered alternate may replace a main team member without submitting a document of excuse.

## 3. Youth Science Convention

- Only the first 150 students to submit their registration forms will be accommodated. Only fifteen (15) participants (excluding the adviser) per school will be allowed to join. In case the 150 slots are not filled by **December 6, 2024**, the organizers shall accept more participants from schools on a first-come, first-served basis.



- Each school may send up to two (2) groups (three (3) members in each group) for the case study competition. Only the participants registered to attend the talks may participate in the case study competition.

Sub-event	Deadline		Requirements
ALL	To be submitted along with the registration form.		<ul style="list-style-type: none"> <li>o Scanned copy of proof of enrollment</li> </ul>
RC: Journal Entry Round	November 22, 2024	11:59 PM	<ul style="list-style-type: none"> <li>o Soft copy of Journal Entry</li> <li>o Extended Abstract</li> </ul>
RC: Exhibit Presentation	December 20, 2024	11:59 PM	<ul style="list-style-type: none"> <li>o Soft Copy of Poster</li> </ul>
RC: Closed-Door Defense Final Defense	January 6, 2025	11:59 PM	<ul style="list-style-type: none"> <li>o PowerPoint Presentation</li> <li>o Backup PDF Presentation</li> </ul>
YSC: Case Study Phase I	December 6, 2024	11:59 PM	<ul style="list-style-type: none"> <li>o Soft copy of Case Study Paper</li> <li>o Digital Poster</li> </ul>
YSC: Case Study Phase II	January 10, 2025	11:59 PM	<ul style="list-style-type: none"> <li>o PowerPoint Presentation</li> <li>o Backup PDF Presentation</li> </ul>



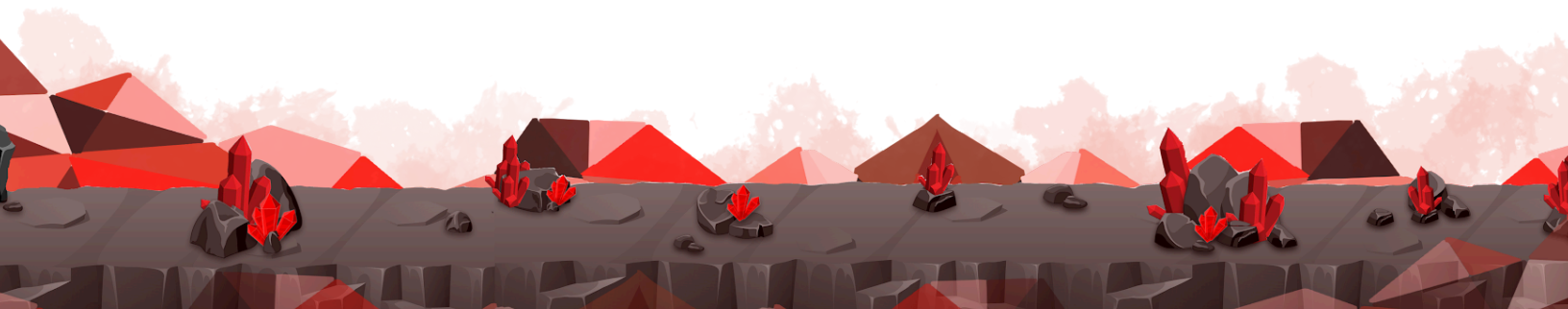
## C. Reminders and Sanctions

### a. General

1. Incomplete Proof of Enrollment (PoE)
  - o A student lacking a submitted copy of his or her Proof of Enrollment, through the registration form online, three (3) days before the event will not be allowed to join.
2. Walk-ins
  - o Walk-ins are allowed for YSC Talks. For participant substitution, kindly contact us through the contact details in Section H.
3. The organizers reserve the right to change rules/mechanics if deemed necessary. Rest assured that any changes would be in favor of the participants. Participants will be notified regarding the matter.

### b. RC

1. Incorrect file name and format
  - o 1% will be deducted from the overall score in the Research Competition for every incorrect file name and format.
  - o 1% will be deducted for papers that exceed the page limit or do not follow the specified guidelines.
2. Late submissions
  - o 2% will be deducted from the Journal Entry Round score per day of late submission. Entries sent more than one week after the deadline will not be accepted.
3. Plagiarism
  - o Deductions will be proportional to the amount of plagiarized content in the paper. A similarity score will be decided for each research entry through a plagiarism checker. Entries garnering a similarity score greater than 10% will receive a deduction equal to the similarity score less 10%.
4. Exhibit Stage
  - o 5% will be deducted should the team occupy more than the provided space for their setup.



- o Non-compliance to the guidelines would automatically result in disqualification.
5. Closed Door Defense
    - o 5% will be deducted for incomplete teams upon holding room attendance checks prior to and after the event. A total of 10% deductions could be incurred should team members be incomplete at both.
    - o 2% will be deducted for presentations exceeding the time limit provided per minute, or a fraction thereof, from the total CDD score.
  6. Final Defense
    - o If it's the team's turn and at least one of them is missing, they will be given two (2) minutes to complete themselves. Failure to do so will result in a deduction of 2% per minute (or a fraction thereof) to their final defense score. The same rules apply to individual research.
    - o 2% will be deducted for presentations exceeding the time limit provided per minute, or a fraction thereof, from the total FD score.

### **c. YSC (Case Study Competition)**

1. Incorrect file name and format
  - o 1% will be deducted from the overall score (either of Phase I or Phase II, whichever is appropriate) for every incorrect file name, and format and every 150 exceeding words.
2. Presentation overtime (Phase II)
  - 2% will be deducted from the overall score per minute in excess of the presentation. Strictly 10 minutes will only be the allotted time per team.
3. Powerpoint presentation changes (Phase II)
  - 1% will be deducted from the overall score for every change made in the PowerPoint Presentation, relative to the one which will be presented on the competition day.





4. Missed Workshop
  - Team/s who fail to attend the workshop before the Case Study showcase will be automatically disqualified.
5. Late submissions
  - o 2% will be deducted from the Phase I overall score per day of late submission. Phase I entries sent more than five (5) days after the deadline will not be accepted.
  - o 0.75% will be deducted from the Phase II overall score per hour (or a fraction thereof) of late submission.

## D. Activity Matrix

<b>Day 1</b>	Opening + Mixer
	Research Competition: Exhibit Presentation
	Youth Science Convention: Lab Tours
	Youth Science Convention: Talks
<b>Day 2</b>	National Science Conquest: Qualifying Round
	Research Competition: Closed-Door Defense
	Youth Science Convention: Case Study Competition
<b>Day 3</b>	National Science Conquest: Championship Round
	Research Competition: Final Defense
	Closing + Awarding





## E. File Formats

Requirements	File Name	Type	Example
Scanned proof of enrollment <sup>1</sup> (all participants)	[Subevent] PoE_[Name of School*]	.pdf	RC PoE_University of the Philippines.pdf
Digital Poster (RC)	RC Poster_[Name of School]_[Category Code <sup>2</sup> ][Entry Number]	.jpg or .png	RC Poster_University of the Philippines_AS1.png
Journal Entry <sup>2</sup> (RC)	RC Journal Entry_[Name of School]_[Category Code][Entry Number]	.pdf	RC Journal Entry_University of the Philippines_AS1.pdf
Extended Abstract (RC)	RC Extended Abstract Entry_[Name of School]_[Category Code][Entry Number]	.pdf	RC Extended Abstract Entry_University of the Philippines_AS1.pdf
Presentation <sup>3</sup> (RC)	RC PPT_[Name of School]_[Category Code][Entry Number]	.ppt or .pptx	RC PPT_University of the Philippines_AS1.ppt
Backup of Presentation <sup>3</sup> (RC)	RC Backup PPT_[Name of School]_[Category Code][Entry Number]	.pdf	RC Backup PPT_University of the Philippines <sup>4</sup> _AS1.pdf

Case Study Phase I <sup>4</sup> (YSC)	YSC Phase I_[Name of School]_[Team Number]	.pdf	YSC Phase I_University of the Philippines _1.pdf
Case Study Presentation <sup>5</sup> (YSC)	YSC Phase II Presentation_[Name of School]_[Team Number]	.ppt or .pptx	YSC Phase II Presentation_University of the Philippines _1.pptx
Case Study Backup of Presentation <sup>5</sup> (YSC)	YSC Phase II Backup Presentation_[Name of School]_[Team Number]	.pdf	YSC Phase II Backup Presentation_University of the Philippines _1.pdf

<sup>1</sup> Proof of enrollment can be a) certificate of matriculation, b) certificate of enrollment, or c) school ID for SY 2021-2022. For scanned copies of IDs (front and back), they must be colored and must have good resolution (clearly scanned) for the inside information to be readable and recognizable.

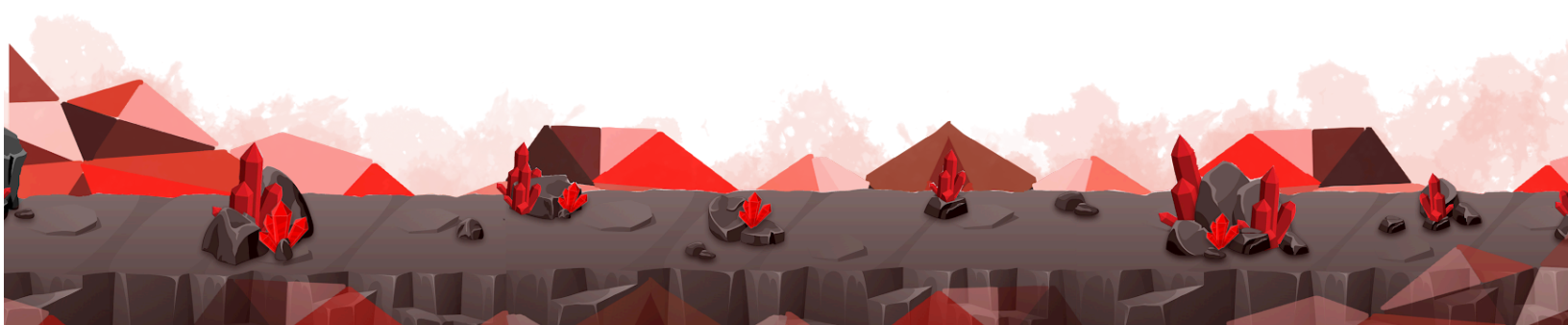
<sup>2</sup> Category code corresponds to AS, LS, and PS, representing Applied Science, Life Science, and Physical Science, respectively. Entry Number refers to the entry number per category per school, should a school send more than one entry per category. If a school sends only one (1) entry in a category, Entry Number is "1".

<sup>3</sup> For Closed-Door Defense Round qualifiers only.

<sup>4</sup> For schools with more than one (1) submission for the YSC Case Study Phase I, team numbers shall be assigned by the adviser of the school. Schools with only one (1) submission should still indicate the team number as "1".

<sup>5</sup> For Phase II qualifiers only

\* The name of the school should be complete. Abbreviations will not be accepted.



## F. Advisers

Only a faculty member of the school will be considered as an adviser. Only one adviser per category per school is allowed for the Research Competition. Only one adviser per school is allowed for the National Science Conquest. Only one adviser per school is required for the Youth Science Convention. A teacher can only be the adviser of one of the events their school is joining. Therefore, a school may send exactly one adviser if they are only joining YSC, a minimum of two advisers if they are joining YSC along with one for RC if they have one qualified entry in one of the categories, and a maximum of 5 advisers, provided that they have qualified entries in the three categories of Research Competition, and have joined the National Science Conquest and the Youth Science Convention. All advisers may attend the Youth Science Convention.

## G. Payments

- Payments must be made upon registration as proof of payment will be required upon filling out the registration form.
- Participants who are planning to join the sub-events offered must take note of their respective deadline of registration which also serves as the deadline of payment.
- Payments made after the deadline or payments made before the deadline without the accompanying registration form will not be accepted and will not secure the participant a slot for their chosen sub-event.
- Alternates for the National Science Conquest do not need to pay the registration fee for the sub-event.
- Participants who are only planning to join the Youth Science Convention Talks have the option to register and pay on the day of the event; thus, they need not register for the said event online to avoid multiple registration of the same participant. However, walk-in registration would depend on the availability of slots after the online registration.
- Participants who will register under the National Science Conquest and YSC Case Study Competition as well as participants who successfully qualify for the Journal Entry Round and will proceed to the next sub-event of the Research Competition need not register and pay for the YSC Talks as respective registration fees are inclusive of this sub-event.
- Participants and advisers must note that ALL payments made cannot be refunded

Category	Fee	Inclusions	Deadline of Payment
<b>RC Journal Entry Round</b> (per team)	₱150	Certificate of Participation	November 22, 2024
<b>RC Qualifiers<sup>1</sup></b> (per participant)	₱550	Certificate of Participation  Registration Kit  Guaranteed seats to YSC Talks	January 06, 2025
<b>NSC</b> (per participant)	₱450		December 27, 2024
<b>YSC Case Study Competition</b> (per participant)	₱500		December 06, 2024
<b>YSC Talks</b> (per participant)	₱150	Certificate of Participation  Registration Kit	January 06, 2025

**Notes:**

1. The inclusions mentioned are in addition to the prizes and tokens given to the winners.
2. Only the top 20 entries per category from the Journal Entry Round will proceed to the rest of the competition, and participants will need to pay the RC Qualifiers fee to continue. Results of the Journal Entry round will be released at least one (1) month before the event proper.



- Payment Procedure
  - All registration fee payments must be paid by deposit to any of the following accounts:

Bank: GCash  
 Account Name: Jymarie Limpiado  
 Account Number: 0933 130 7747



Bank: BPI  
 Account Name: Jymarie Limpiado  
 Account Number: 0609975178



Bank: Maya  
 Account Name: Jymarie Limpiado  
 Account Number: 0933 130 7747



Bank: Landbank  
 Account Name: Jymarie Limpiado  
 Account Number: 4827 0220 77

## H. Lodging

For schools that will need lodging assistance, our School Affairs representatives may send a lodging guide upon request.

## I. Contact Information

For questions or clarifications, please do not hesitate to contact us through the following:

Email	<a href="mailto:researchfair.sa@upalchemes.org">researchfair.sa@upalchemes.org</a>
Website	<a href="http://researchfair.upalchemes.org">researchfair.upalchemes.org</a>
Facebook	<a href="https://facebook.com/upalchemesresearchfair">facebook.com/upalchemesresearchfair</a>

*School Affairs Head*

Ira Noelle C. Concepcion

+63 945 137 8082



## J. RF 2025 Steering Committee

Project Managers:	Kamia Mikaela T. Bontuyan Krexan Emmanuel E. Bulosan
Publicity and Creatives Heads:	Rorielle G. Inefable Avril S. Simbol
External Resource Head:	Chelsea Reine S. Martinez
Finance Head:	Jymarie S. Limpiado
Logistics Heads:	Grant Sethrey S. Balingit Rod Vincent G. Morada
Marketing Head:	Erin Christen L. Noceda
Programs (RC) Head:	Pia O. Timaan
Programs (NSC) Head:	Roxanne D. Bangsil
Programs (YSC) Head:	Julianna E. Angeles
School Affairs Head:	Ira Noelle C. Concepcion
Secretariat Head:	Jade Althea I. Manangan
Technicals Head:	Paul Ivan P. Tupaz

## K. Data Privacy Clause

At the start of the registration forms, a data privacy statement shall be read, understood, and agreed on by the participants, and their adviser, should they decide to provide their information and submissions upon participating in Research Fair.

## L. Equity Policy

### I. Equity

Equity exists to maintain a safe space for all participants of Research Fair 2025. These policies promote a positive and constructive environment, where individuals can focus on showcasing their skills and knowledge while maintaining respect and consideration for others.

### II. Scope

The Equity Policy applies to all participants and organizers, who are expected to familiarize themselves with the contents of this Equity Policy prior to the start of the event.





This includes but is not limited to:

- Participants
- Advisers and Parents
- Judges and Speakers
- Members of the Organising Committee and volunteers

It is to be observed during the entire duration of the event, which includes, but is not limited to:

- During all programs for each sub-event
- The time between programs including meals organized as part of the event
- During any formal event organized as part of RF
- During any social event organized as part of the RF
- All interactions between participants in the context of RF, including online conduct and communications

### III. Minor Protection Policy

#### a. Parental/Guardian Consent

Schools must secure consent from the parents or guardians of students to attend and compete in the event. The adviser must sign a conforme stating that the parents or guardians of all participants have been informed and consented to the participation of their children.

#### b. Interactions

Minors may only interact with the following people:

- Their respective advisers
- Other minor participants
- Event Organizers
- Speakers during question and answer sessions

Interactions between a minor participant and a judge, speaker, adviser of another team, or any other adult are prohibited. Any important matters (i.e. getting feedback from a judge) must be settled by their adviser.





c. Code of Conduct

The following actions are strictly prohibited between minors and adults:

- Private interactions
- Physical contact
- Unauthorized conversations
- Exchange of information
- Personal invitations
- Taking of pictures and videos together

The organizing team will closely monitor compliance with this policy, and any violations should be promptly reported to the complaints desk. Advisers are accountable for the safety and well-being of their students and must maintain vigilant supervision at all times.

#### IV. Prohibited Behavior

Any instances of the behavior listed below are strictly prohibited and will be duly punished by the organizers.

- Loitering:** Staying in unauthorized areas in a manner that disrupts the intended use of the area, poses safety risks, or contributes to disorderly conduct.
- Bullying:** Repeated, unreasonable behavior by an individual or group, directed towards another individual or group that intimidates, offends, degrades, humiliates, undermines, or threatens. This includes pressuring another person or group of people to do something that they are uncomfortable with.
- Intimidation:** Threatening behavior towards any individual who is part of this competition (including volunteers and support staff) such as: yelling, harassing, threatening, or acting in a physically or verbally aggressive fashion.
- Direct Discrimination:** Unreasonably treating an individual or group less favorably than another individual or group on the basis of a protected attribute in the same circumstances or circumstances not materially different.
- Indirect Discrimination:** Unreasonably imposing, or proposing to impose, a requirement, condition, or practice that has, or is likely to have the effect of



disadvantaging an individual or group with a particular protected attribute, and which is not reasonable in the circumstances.

- f. **Harassment:** Any unwelcome, offensive, abusive, belittling, or threatening behavior that humiliates, offends, or intimidates an individual or group on the basis of a protected attribute. Behavior that might constitute intimidation includes, inter alia:
- Degrading public tirades
  - Deliberate insults related to a participant's person, identity, or competence
  - Threatening or insulting comments, whether oral or written (including by e-mail or any form of social media)
  - Deliberate desecration of religious and/or national symbols
  - Malicious and unsubstantiated complaints of misconduct, including harassment, against others
- g. **Sexual Harassment:** Any unwelcome sexual advance, request for sexual favors, or any other unwelcome conduct of a sexual nature that humiliates, offends, or intimidates a person and which a reasonable person, having regard to all the circumstances, would anticipate making the person humiliated, offended or intimidated.
- h. **Vilification:** The public incitement of hatred, contempt, or severe ridicule of another individual or group.

## V. Courses of action

Any violation of the Minor Protection Policy or instances of prohibited behavior will be duly investigated by the organizers. The team may or may not decide to pursue further action, depending on the magnitude of the offense.

If following the investigation of the organizers, the equity policy is found to have been breached, the team may do any/all of the following:

- Explain the complaint to the offending participant and have a discussion with them about why their remark or action was inappropriate



- Issue a warning to the offending participant
- Request that the offending participant provide an apology
- Bring the relevant participants together to conciliate the dispute

In serious cases, the organizers may be prompted to take further action. Such action may include:

- Removal from events hosted by UP ALCHEMES, including social events
- Disqualification from their respective competitions
- Expulsion from the event
- Involvement of law enforcement agencies



# RC

# Research Competition



## A. Objectives

The Research Competition aims to:

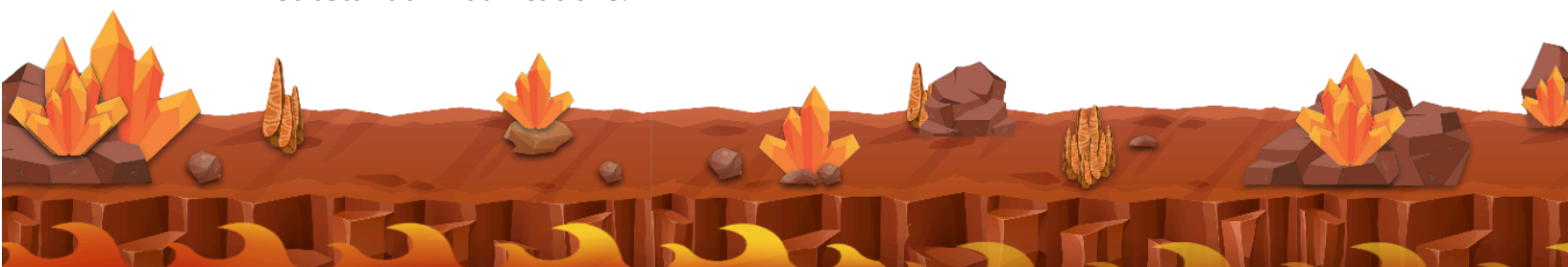
1. Provide an avenue for high school students to promote their talents and scientific discoveries to their fellow peers, teachers, and the scientific community.
2. Showcase what Filipino high school students can achieve through science and technology (S&T).
3. Encourage healthy discourse between students and professionals.
4. Promote scientific professionalism and appreciation of S&T among the youth.
5. Develop the capabilities of high school students in discovery and innovation through exposure to the field of research.

## B. Student Eligibility Guidelines

- Any scientific research project from the three categories – Applied Science, Life Science, and Physical Science – of bona fide high school students (of any year level from **Grade 7 to Grade 12**) in the Philippines is qualified for the pre-evaluation.
- Only the selected research entries from the pre-evaluation are qualified to enter the competition.
- The research project can be the work of a single (1) student, up to a **maximum of three (3) students** coming from the same school.
- A school may send a **maximum of three (3) research entries per category**.

## C. Special Guidelines for Continuing Projects

- Any project based on the student's prior research could be considered a continuing project, as long as the project shows substantial progress from its previous project (*e.g. testing a new variable, new objectives, or focus of experimentation*).
- Projects are not considered to be continuing projects (*and are not allowed to join the competition*) if the project is proven as an exact or near copy of the previous work/s (*e.g. same methodology, same hypothesis*). Modifications in the project such as changes in hypothesis target (*such as test material, sample location, etc.*) or changes in sample size or number of replicates will not be considered as substantial modifications.





- Continuing projects are required to document the substantial progress, changes, or expansion from the previous work by filling out the Continuing Project Section in Forms RC-AS, RC-LS, and/or RC-PS.
- Continuing projects must mention years or which year the project is in their title (e.g. *“Year Two of an Ongoing Study”*, if the project is in its second year of experimentation).
- Continuing projects will be judged only on experimentation/data collection performed over 12 continuous months beginning no earlier than January 2023 and ending January 2025. Thus prior projects’ written materials (*raw data, methodology, etc.*) or visual depictions are not allowed in the Exhibit, Research Summary, Research Paper, and PowerPoint Presentations.
- Continuing projects, if qualified for Exhibit and Project Presentation, will be tagged accordingly.
- Multi-year longitudinal projects, projects that are more than one year of experimentation and longitudinal (*involving the repeated observation or examination of a set of subjects over time with respect to one or more study variables*) are considered and allowed as Continuing Projects.
- However, multi-year longitudinal projects are allowed to show in the Exhibit, Research Summary, Research Paper, and PowerPoint Presentations a summary of prior years’ data (*or collective past conclusionary data*) and its comparison to the current year data set and the overall methodology.

## D. General Guidelines

1. Author/s of a research entry – if proven upon sufficient evidence – who have committed research misconduct will automatically be disqualified.
2. See section L (Research Integrity) for an in-depth discussion of research misconduct.
3. A student is qualified for exactly one (1) research entry.
4. A research entry is qualified for exactly one (1) category.
5. All research entries will be subjected to the Journal Entry Round. Only the top twenty (20) entries per category will pass the initial round and will proceed to the Face-to-Face Exhibit.
6. Each entry must have an adviser. However, an adviser may handle several entries in the event. The authors themselves must present their project.
7. In case of sicknesses, injuries, or emergencies, a participant may be replaced by a



fellow student, with the provision of proof, as long as the Student Eligibility Guidelines outlined in this section are followed.

8. In case a research team is in a time conflict with another research competition, the team may send at least one (1) of their members to represent their research project to Research Fair 2025. The members present in RC will be considered as one (1) whole team. However, individual research projects cannot be in two (2) research competitions at the same time.
9. The organizers reserve the right to change rules/mechanics if deemed necessary. Rest assured that any changes would be in favor of the participants. Participants will be notified regarding the matter.

## E. Competition Categories

### a. Category Overview

The Research Competition is divided into three (3) categories as presented in the table below. A school may send a maximum of three (3) research entries per category.

Category	Subcategory
Applied Science	Biological Engineering
	Chemical Engineering
	Civil Engineering
	Computer Science
	Electrical and Electronics Engineering
	Energy and Transportation
	Environmental Engineering
	Industrial Engineering
	Materials Engineering
	Mechanical Engineering
	Statistics





Life Science	Agricultural Sciences
	Behavioral and Cognitive Studies
	Animal Sciences
	Biochemistry
	Cellular and Molecular Biology
	Medicine and Health Sciences
	Microbiology
	Plant Sciences
Physical Science	Astronomy and Cosmology
	Chemistry
	Earth Sciences
	Environmental Sciences
	Mapping
	Physics
	Mathematical Modeling

**b. Descriptions of Categories**  
**Applied Science**

This category involves engineering, such as chemical and civil engineering, and the application of existing scientific knowledge to solve practical problems and to develop emerging technology useful to society. Unlike the other two categories, this category focuses on practical applications rather than on theories and natural phenomena. Projects that involve invention, engineering and development of structures, machines, products, and technology belong to this category.

Subcategories of the Applied Science category include the following, but are not limited to:



- **Biological Engineering** - This relatively new field involves the integration and application of life sciences with engineering. Fields involving biological engineering include biomedical engineering (application of medical principles with engineering principles), biotechnology (use of cellular or molecular biology in food technology and industry), development of biological-based devices such as biosensors, prosthesis and orthotics, and pharmaceutical engineering (engineering of pharmaceutical products).
- **Chemical Engineering** - This involves the application of physics, chemistry, and engineering principles in solving real-world problems. Fields involving chemical engineering include environmental sustainability, chemical and material processing, and process design.
- **Civil Engineering** - This involves the design, construction, and maintenance of public works, facilities, and transportation. Fields involving civil engineering include construction and structural engineering, geosystems engineering, environmental management, public safety, and disaster risk management.
- **Computer Science** - This involves not only programming but also the study, design, development, and application of computational systems. Fields involving computer science include networking, algorithms, information security, software analysis and design, and artificial intelligence.
- **Statistics** - Involves collection, description, analysis, and inference of conclusions from quantitative data.
- **Mathematical Modeling** - This involves the use of mathematical structures and techniques to represent real-world scenarios. Fields related to mathematical modeling include optimization, simulations, and dynamical systems.
- **Electrical and Electronics Engineering** - This involves the study, design, development, and application of electrical and electronics systems such as electrical power, electronic devices, and electronic communication systems. Fields involving electrical and electronics engineering include computer engineering, power and energy, electronic design automation, sensors and circuits, signal processing, semi-conductivity and superconductivity, and electrical transportation.
- **Energy and Transportation** - This involves technology that enables society to achieve efficiency, sustainability, safety, and security in energy and transportation. Fields involving energy and transportation include



aerospace and aeronautical engineering, aerodynamics, land and water transportation, and development of fossil fuel, alternative, and renewable energies.

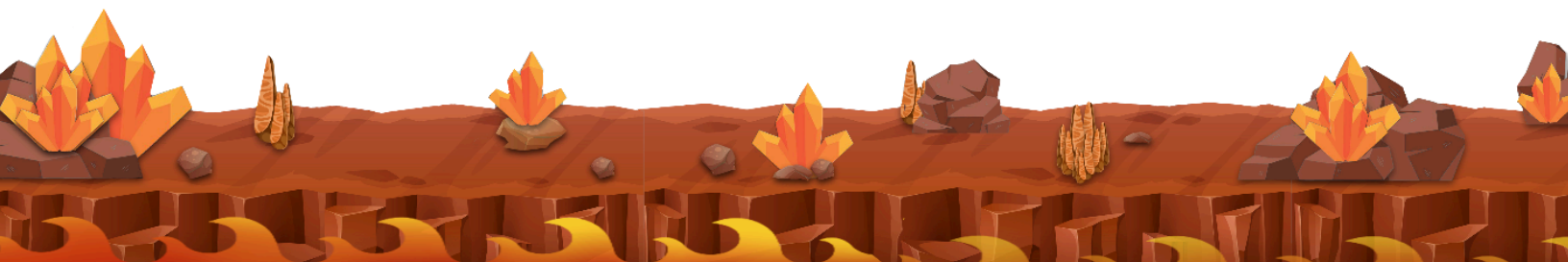
- **Environmental Engineering** - This involves engineering applications in solving environmental problems in water, land, air, and waste. Fields involving environmental engineering include pollution control, resource management, waste management, and technologies that help restore and protect the environment.
- **Materials Engineering** - This involves the design, development, and application of a material to produce a predetermined set of properties, the creation of new products or systems using existing materials and the development of new material processing techniques. Fields involving materials engineering include the processing and manufacturing of monolithic materials: metals, ceramics, plastics, composites, and advanced materials such as biomaterials, self-healing materials, nanomaterials, superconductors, semiconductors, and refractories.
- **Mechanical Engineering** - This involves the design, manufacture operation, and application of heat and mechanical power with the use of machinery. Fields involving mechanical engineering include energy, mechanics, robotics, machine construction and design, and biomechanics.

### Life Science

This category involves the natural sciences, such as biology and medicine, and deals with living organisms and life processes. Projects that involve systematic observation, experimentation, understanding, and development of living organisms and biological phenomena belong to this category.

Subcategories of the Life Science category include the following, but are not limited to:

- **Agricultural Sciences** - This involves the interdisciplinary science of agriculture, activities that use the production of animals and plants for human use. Fields involving agricultural sciences include the development of agricultural technology, biological and chemical pest control, environmental adaptability and sustainability, and crop production and management.



- **Animal Sciences** – This involves biological studies concerning animal life. Fields involving animal sciences include animal development, ecology, animal nutrition and growth, comparative animal anatomy and physiology, animal pathology, animal evolution, and animal taxonomy.
- **Behavioral and Cognitive Sciences** – This involves the study of the mind and the study of the behavior of animals and humans within themselves and the environment. Fields involving behavioral and cognitive sciences include neuroscience, cognitive and neuropsychology, and physiological psychology.
- **Biochemistry** – This involves application of chemical sciences in understanding biological processes and pathways relevant to living organisms. Fields involving biochemistry include chemical understanding of proteomics, metabolomics, genomics, microbiology, cancer, and genetics.
- **Cellular and Molecular Biology** – This involves biological studies on the molecular scale, such as cells, viruses, DNA, RNA, and proteins. Fields involving cellular and molecular biology include disease molecular biology and epigenetics, functional genomics, plant molecular biology and virology, molecular toxicology, nanobiology and protein structure, and immunology.
- **Medicine and Health Sciences** – This involves biological studies concerning human health. Fields involving medicine and health sciences include disease diagnosis and treatment, epidemiology, genetic understanding of diseases, disease molecular biology and physiology, and pathophysiology.
- **Microbiology** – This involves biological studies concerning microorganisms such as bacteria, protists, fungi, viruses, and other pathogens. Fields involving microbiology include antibiotic resistance and antimicrobial agents, bacterial microbiology and genetics, and virology.
- **Plant Sciences** – This involves biological studies concerning plant life. Fields involving plant sciences include plant growth and development, ecology, plant genetics and breeding, plant pathology, comparative plant anatomy and physiology, plant evolution, and taxonomy.

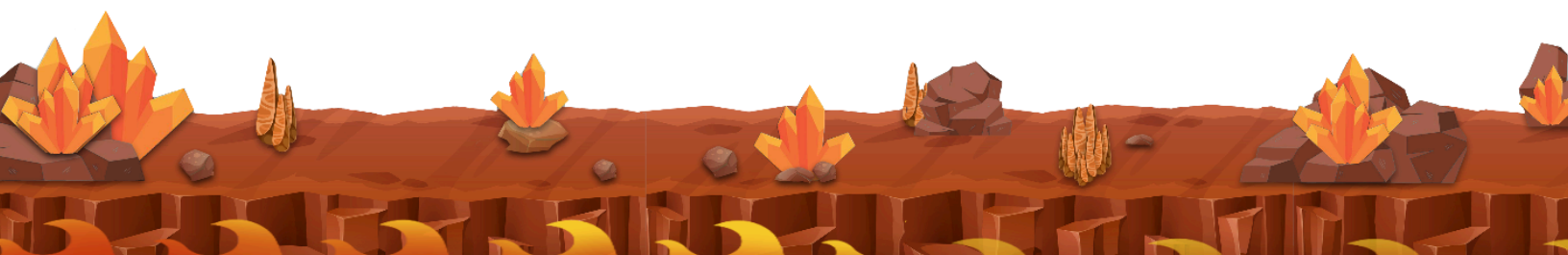


## Physical Science

This category involves natural sciences such as physics, chemistry, and earth and environmental science that deal primarily with the nature and properties of non-living or inanimate entities. Projects that involve systematic observation, experimentation, understanding, and development of non-living entities and phenomena belong to this category.

Subcategories of the Physical Science category include the following, but are not limited to:

- ***Astronomy and Cosmology*** - This involves the study of space and the universe. Fields involving astronomy and cosmology include planetary and space systems, computational astronomy, stellar astrophysics, extragalactic astrophysics, and cosmology.
- ***Chemistry*** - This involves the study of matter and its composition, structure, properties, and interaction with each other. Fields involving chemistry include analytical chemistry, environmental chemistry, inorganic chemistry, organic chemistry, and physical chemistry.
- ***Earth Science*** - This involves the sciences related to the planet Earth. Fields involving earth sciences include atmospheric sciences and meteorology, hydrospheric sciences, paleontology, geochemistry and mineralogy, geophysics, and plate tectonics.
- ***Environmental Sciences*** - This involves the study of the environment's living and non-living interactions and existing conditions caused by human impact. Fields involving environmental science include pollution prevention and analysis, treatment of water, land, and air quality, green chemistry, environmental ecology and prevention and analysis of other environmental issues such as oil spills, deforestation, severe weather, ozone holes, and climate change.
- ***Material Science*** - This involves the investigation of relationships between structures and properties of materials, and the development and synthesis of new materials. Fields involving material science include ceramography, crystallography, metallography, nanoscience, rheology, polymer and glass science, condensed matter, electromagnetic and photonic materials, and material characterization and analysis.



- **Mapping** – This involves the analysis of maps and other topographical features in order to identify problems, observe trends, monitor change, and set priorities.
- **Physics** – This involves applied physics, the application of theories and laws governing physics, and theoretical physics, the study of the fundamental principles and laws governing physics using thought experiments: mathematical models and abstractions instead of experimental processes. Fields involving applied physics include instrumentation and electronics, optics and lasers, photonics, condensed matter, electromagnetism in the plasma phase, biological physics, and physics experimentation on the atomic, nuclear, and particle scales.

## F. Category Selection

To prevent the misalignment of entries, reading and understanding descriptions of the categories and subcategories are recommended. Furthermore, it is also advised to use the category wizard.

### Category Wizard

The Category Wizard asks several questions to assist participants in determining the correct category of their research project. The Category Wizard is available on the [Research Fair Website](#).

## G. Selection Process

### a. Pre-screening

Pre-screening would be performed to ensure that all submissions follow the guidelines and technical aspects of the paper.

### b. Journal Entry Round and Exhibit Presentation

In the Research Competition, a Journal Entry Round to be concluded by an Exhibit Presentation would serve as the first stage. Participants who passed the pre-screening process would qualify for the Journal Entry Round - in which all submitted entries would be assessed by judges who specialize in their respective categories. In the case of similar acquired scores of multiple entries, ties would not be broken.

Results of the Journal Entry Round will be released at most one (1) month after the set deadline for entries, and non-qualifiers may opt to join the Youth Science Convention.





Out of the entries submitted for the Journal Entry Round, only the top 20 research entries per category would be able to participate in the Exhibit Presentation, which constitutes the face-to-face component of the stage, wherein the research's poster would be presented to a panel of at most (3) judges who are experts in the field pertaining to the poster's category. Of the 20 entries, only the Top 6 entries per category would proceed to the Closed-Door Defense Round. Ties would be broken by the Journal Entry Round score garnered by each of the teams.

**c. Closed-Door Defense**

The Closed-Door Defense Round would occur simultaneously per category. At most three (3) judges per category would be tasked to assess and evaluate the qualifying research entries. Of these entries, only the Top 2 teams per category would advance to the Final Defense Round. Ties would be broken by the Journal Entry Round and Exhibit score garnered by each of the teams. The finalists per category would be announced the night prior to the Final Defense.

**d. Final Defense**

For the Final Defense round, all qualifying research entries would be judged by a set of judges composed of at least five (5) to six (6) individuals, wherein representatives from all three of the categories would be present. Winning entries would be based on their scores in the three rounds: 20% Journal Entry Round, 30% Closed-Door Defense, and 50% Final Defense.

## H. Requirements

This section outlines the requirements to be submitted for the contest proper, on top of the registration requirements. Participants are allowed to resubmit these requirements until the intended deadlines stated in the registration.

**a. Miscellaneous Requirements**

- i. Scanned Copy of Participants' School IDs (S.Y. 2024-2025)
  1. Both the front and back sides of the ID must be included.
  2. The scanned copy of the School IDs must be colored, and must have good resolution.
  3. The content must be readable and recognizable.
  4. In the case of non-issuance of ID by the school, the participant's certificate of matriculation would be sufficient.





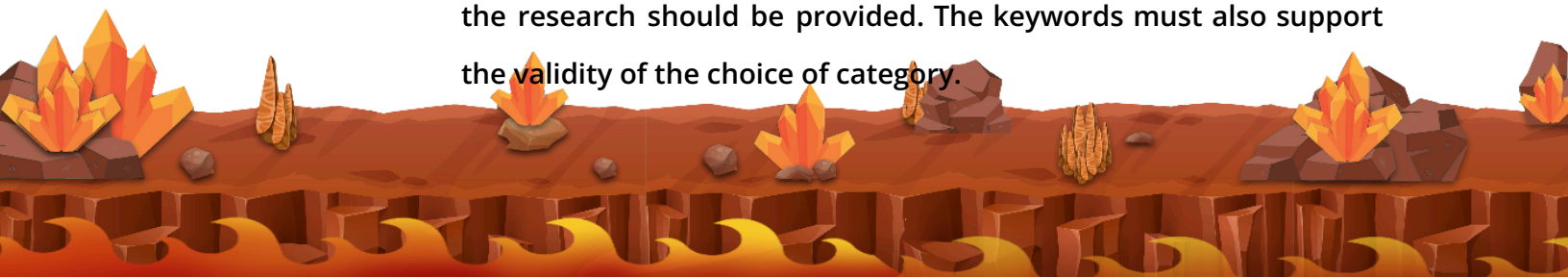
- ii. Journal Entry Round Payment
  - 1. A one-time payment for the journal entry round amounting to Php 150.00 per entry would be collected upon registration
- iii. Face-to-Face Participation Payment
  - 1. For the Top 20 teams to participate in the face-to-face exhibit component, each participant per journal entry must pay a Php 550.00 participation fee

#### b. Journal-type Research Paper

- i. The research paper must not exceed a total of ten (10) pages, excluding the following:
  - 1. Title Page
  - 2. Authors Page
  - 3. Abstract page
  - 4. Bibliography
  - 5. All appendices
  - 6. Figures (e.g. tables, charts, graphs, photographs)
- ii. Refer to the link for the format: <https://tinyurl.com/RC2025Formats>
- iii. Papers that exceed the page limit or do not follow the specified guidelines will be subject to a 1% deduction per violation from the total average score.
- iv. For Continuing Projects, written material (raw data, methodology, etc.) or visual depiction from experimentation from previous years would not be allowed.

#### c. Extended Abstract

- i. The extended abstract has a **word limit of 600** and should not exceed the given word count, excluding keywords and references
- ii. The Extended Abstract must contain the following:
  - 1. *Keywords* – Exactly three keywords pertaining to the main focus of the research should be provided. The keywords must also support the validity of the choice of category.



2. *Introduction* – The introduction should consist of the following details of the study:
  - a. Background: provides a brief introduction to the topic concerning the problem being addressed and the scientific foundation of the solution to the problem
  - b. Objective/s of the study: contains the hypothesis and the research questions to be answered, research goals to be achieved, and expected outcomes at the end of the research
  - c. Relevance of the study: explanation of how the research will be scientifically important and socially impactful.
3. *Methodology* - The methodology section provides brief details on risk and safety procedures, experimental methods and design, and data collection and analysis.
4. *Results and Conclusion* – This section contains the major set data that were gathered and analyzed. This section must provide a conclusion of the research parallel to its objective. Only important data is needed. Data charts, tables, and graphs are not allowed in the conclusion.
5. *References* - Major references used in the study must also be included in the submission

#### **d. Digital Poster and PowerPoint Presentations**

1. The Digital Poster, alongside the PowerPoint Presentations, shall be submitted in anticipation of the face-to-face presentation segments.
2. *Digital Poster*
  - a. The digital poster to be submitted would serve as the digital poster to be presented in the exhibit stage, should the team qualify.
  - b. Soft copies of the digital posters shall be submitted in PDF format.
  - c. The poster for submission should NOT include the name of the team's school and representing DepEd Division.



- d. The posters must be sized at 3 ft x 4 ft (width x height)
- e. Digital posters should contain all the essential information about the research project.
- f. All of the submitted digital posters would be part of a Facebook Reaction and Sharing Contest, whose details would be posted by the official Facebook Page of the Research Fair along with the submissions.

### 3. PowerPoint Presentation

- a. The PowerPoint Presentation will be used in the Closed-Door Defense and Final Defense if the team qualifies.
- b. It should contain the most significant and essential part of the research project. The organizers will use the powerpoints for checking unannounced changes during the competition proper. For Continuing Projects, refer to Section C (Special Guidelines for Continuing Projects) for content restrictions. See Part II (Summary Notes) for name and file format.

The organizers reserve the right to request for resubmissions when necessary. No exemptions or irregularities (e.g. failure to submit requirements on time) will be accepted for the requirements. Failure to settle such issues may result in disqualification.

## I. Contest Proper

### a. Journal Entry Round and Exhibit

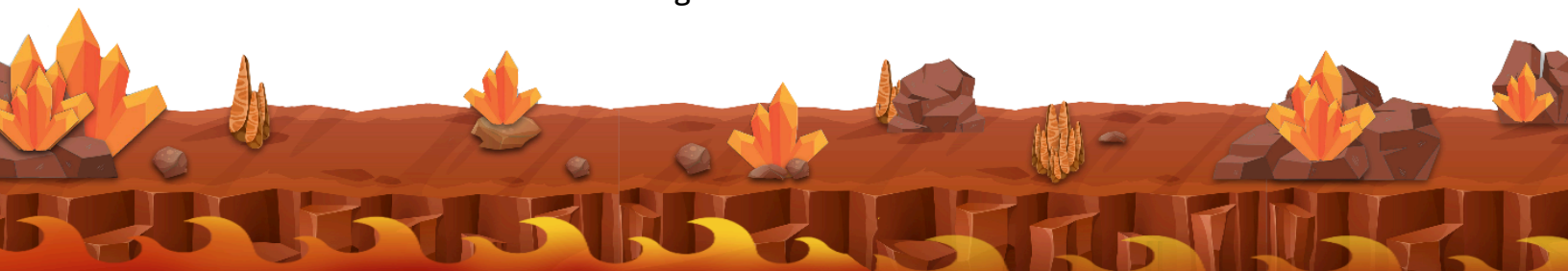
#### i. Journal Entry Round (JER)

- 1. The JER would occur asynchronously online. It involves the evaluation of the online submission of the extended abstract and journal-type research paper.



ii. Exhibit

1. The Top 20 scorers from the JER who complied with all guidelines would proceed to the Exhibit phase, which would occur on-site in a face-to-face setting.
2. The Research Competition Team would be responsible for the exhibit room set-up. Participants would be given time to familiarize themselves with the venue. However, the following should be observed:
  - a. The team must only occupy a 4x4 feet area in which all the needed materials in the project presentation will be accommodated.
  - b. Failure to comply would result in a 5% deduction for the exhibit score.
3. The exhibit would occur simultaneously across the three (3) categories. The presentation batches would be split into two (2) batches per category to give time for the participants to attend the YSC talks. Batches would be released on the day of the event during the briefing segment.
4. During the presentation proper, the following rules and guidelines must be followed:
  - a. Advisers are not allowed to be inside the Exhibit and Project Presentation.
  - b. RC participants are expected to be at their designated area at all times. They are not allowed to leave their booths unattended and roam around the Project Exhibit.
  - c. RC participants are strictly prohibited from doing the following, and doing so would result in disqualification:
    - i. Remove tags for continuing projects
    - ii. Give handouts (specified by the Guidelines for Project and Exhibit Booth) to be distributed to judges or the public. Such items will be confiscated by the organizers.



- iii. Violate any of the specified Guidelines for Project and Exhibit Booth outlined in the section below.
- d. Guidelines for Project Exhibit Booth:
- i. Participants would be given 5 minutes to present their posters, and another 4 minutes to answer questions from the judges.
  - ii. The following materials are NOT allowed to be displayed, distributed, or used in the exhibit:
    - Living organisms, including plants
    - Soil, sand, rock, and/or waste samples, even if permanently encased (e.g. by acrylic, plastic, etc.)
    - Taxidermy specimens or parts
    - Preserved vertebrate or invertebrate animals
    - Human or animal food as part of the exhibitor demonstration of the project
    - Human/animal parts or body fluids (e.g. blood, urine)
    - Plant materials (living, dead, or preserved) in their raw, unprocessed, or non-manufactured state (Exception: manufactured construction materials used in building the project or display)
    - All chemicals (organic and inorganic)
    - All hazardous substances or devices (e.g. poisons, drugs, firearms, weapons, ammunitions, reloading devices, lasers)
    - Dry ice or other sublimating solids
    - Sharp items (e.g. syringes, needles, pipettes, knives)
    - Flames or highly flammable materials
    - Batteries with open top-cells
    - Desktop computer units and peripherals (Exception: Laptop computer but no charging)



- Any apparatus deemed unsafe by the organizers (e.g. devices emitting nuclear radiation, pressurized tanks, etc.)
- Any form of endorsement such as awards, business cards, logos, CDs, DVDs, Flash Drives, brochures, etc. (Exception: Flash drives, CDs, DVDs that are an integral part of the project and used for judging only with prior approval given during inspection.)
- Endorsement addresses such as postal addresses, World Wide Web sites, email and/or social media addresses, telephone, and/or fax numbers of the student
- Give-away items (e.g. pens, key chains, etc.) will be confiscated by the organizers.
- *For Continuation Projects and Multi-Year Longitudinal Projects:* Prior years' written material, raw data, or visual depictions on the panel board are not allowed. These projects will be tagged accordingly. [Exception: For multi-year longitudinal projects, a summary of prior years' data is allowed.]
- Photographs, visual images, charts, tables, and/or graphs that are deemed offensive or inappropriate (e.g. *images/photographs showing invertebrate or vertebrate animals/humans in surgical, necrotizing, or dissection situations, improper chemical handling, etc.*) by the organizers are NOT allowed for display in the exhibit.

#### b. Closed-Door Defense





1. The Closed-Door Defense would occur simultaneously across the three (3) categories in different rooms. There will be no advisers or audiences allowed in the closed-door defense.
2. The PowerPoint Presentation submitted prior to the event would be used in the Closed-Door Defense and Final Defense rounds for qualifying teams. This will serve as their primary presentation when presenting to the judges.
  - a. Animations or complicated transitions should be kept at a minimum. A submission notice will be announced one (1) week prior to the competition proper to allow participants to make the appropriate changes to their presentations.
  - b. See Part II (Summary Notes) for name and file format.
3. Upon registration, a draw lots system would be utilized to determine the presentation order. Participants are expected to be at the venue thirty (30) minutes prior to the start of the event.
4. Participants are expected to stay in their respective holding room/s before and after their presentation.
  - a. Holding room attendance checks would be performed.
  - b. Teams with incomplete members shall incur a 5% deduction in the score for the Closed-Door Defense.
  - c. Participants are not allowed to leave their respective holding rooms without permission from the organizers. They are also not allowed to meet with their respective advisers. Such actions may result in disqualification.
5. All participating members in a research entry excluding member/s who are competing at another research competition must be present during their presentation. If a team is incomplete at the start of their time slot, they will be given two (2) minutes to complete the team. Failure to do so will result in a deduction of 2% per minute (or a fraction thereof) to their



Pre-final score (Closed-Door Defense score). The same rules apply to individual research.

6. Each team will be given ten (10) minutes to present their research study using their submitted PowerPoint Presentation file and seven (7) minutes to answer the questions from the panel of judges.
  - a. A deduction of 2% per minute excess in the presentation (or a fraction thereof) will incur to their pre-final score (Closed-Door Defense score)
7. The participants could show their prototypes/finished products during the presentation. However, prohibited items/materials from the exhibit are also not allowed to be displayed during the CDD presentation.

### c. Final Defense

1. The order of teams will be determined by draw lots.
2. All members in a research entry excluding member/s who are competing at another research competition must be present during their presentation. If it's the team's turn and at least one of them is missing, they will be given two (2) minutes to complete themselves. Failure to do so will result in a deduction of 2% per minute (or a fraction thereof) to their final defense score. The same rules apply to individual research.
3. Each team will be given a maximum of ten (10) minutes to present and ten (10) minutes to answer questions from the judges.
4. A deduction of 2% per minute excess in the presentation (or a fraction thereof) will incur to their pre-final score (Final Defense score).
5. The participants could show their prototypes/finished products during the presentation. However, prohibited items/materials from the exhibit are also not allowed to be displayed during the FD presentation.
6. Audiences are allowed to watch the Final Defense.



## J. Judging and Criteria

### a. Overview of Judges and Their Roles

- ❑ *Journal Entry Round and Exhibit Judges* – Journal Entry Round Judges will assess the technical qualities of the research by evaluating the study's Extended Abstract and Journal Type Research Paper. Exhibit and Project Presentation Judges will test the ability of the researcher to defend and support the research project and the quality and presentation of the poster.
- ❑ *Closed-Door Defense Judge* – Closed-Door Defense Judges will focus on evaluating the field knowledge of the researcher/s and the technical and analytical aspects of the research project.
- ❑ *Final Defense Judge* – Final Defense Judges will focus on evaluating the scientific importance, economic and social relevance, ingenuity, and the potentiality for marketability and future development of the research project.

### b. Journal Entry Round and Exhibit Stage

The Journal Entry Round (JER) and Exhibit Stage scores would have the following breakdown:

Component	Stage 1 Score Component
Journal Entry Round	40%
Exhibit	60%

#### 1. Journal Entry Round:

Component	Subcomponent	Percentage
Abstract	Organization Completeness Clarity	10



Introduction	Pertinent Literature Specific Objectives/Hypothesis Scope and Limitations Scientific Importance Societal Relevance	15
Methodology	Clarity and Organization Experimental Design (Data Collection Technique, Variables, Sample Sizes, etc.) Post hoc/Statistical Tests	15
Results	Graphics Consistency Correlation with Statistical Test Results	15
Discussion	Analysis and Explanations Interpretation of Prior Research Justification of Data Deviations and Weaknesses	25
Conclusion and Recommendations	Clarity and Conciseness Feasibility and Specificity	5
References	Citation and Listing Format Validity and Quality	5
Overall Quality	Organization and Cohesivity Spelling and Grammar Graphics Labeling Originality	10

## 2. Poster:

Component	Subcomponent	Percentage
Purpose	Research Problem/Objectives Hypothesis Originality and Creativity Scientific Importance	20



Research Analysis	Method Experimental Design Validity of Conclusion Practical Implications	30
Subject Knowledge	Mastery Explanation and Elaboration Answers to Questions	15
Organization	Logical Order of Presentation Flow of Presentation	15
Delivery	Elocution Poise Eye Contact	10
Poster Content	Comprehensiveness Relevance of Data Shown	10

### c. Closed-Door Defense

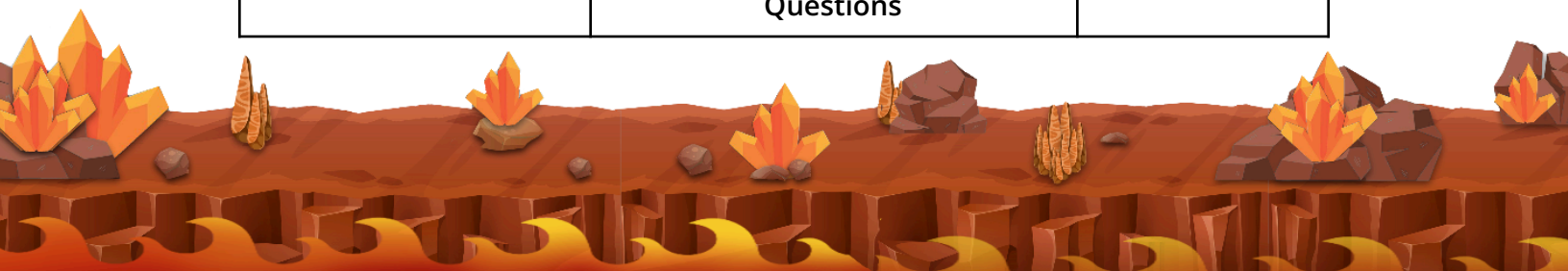
Component	Subcomponent	Percentage
Background of the Study	Pertinent Literature Specific Objectives/Hypothesis Scientific Relevance Scope and Limitations	10
Methodology	Organization Clarity and Appropriateness Post Hoc/Statistical Test	15



Results and Discussion	Graphics Consistency Interpretation and Justification of Data	25
Innovative Idea	Ingenuity Novelty/Originality Feasibility Economic and Social Impact	15
Overall Research Quality and Analytical Approach	Organization Creativity and Skill Analysis and Comprehensivity Subject Mastery and Answers to Questions Teamwork	25
Oral and Visual Presentation	Delivery Clarity Visual Aid Quality Overall Impact	10

#### d. Final Defense

Component	Subcomponent	Percentage
Background and Purpose	Pertinent Literature Attainability of Objectives Scientific Relevance	15
Experimental Design	Scope and Limitations Organization Clarity and Appropriateness Post Hoc/Statistical Test	10
Research Analysis	Graphics Comprehensiveness Interpretation of Data Subject Mastery and Answers to Questions	20





Ingenuity	Novelty Creativity Skill	20
Overall Research Significance and Impact	Economic and Social Impact Relevance and Feasibility of Recommendations Potential for Marketability/Future Development	25
Oral and Visual Presentation	Delivery Clarity Visual Aid Quality Overall Impact	10

#### e. Basis for Awarding

Round	Percentage
Journal Entry Round	20
Closed-Door Defense	30
Final Defense	50

## K. Awards and Prizes

#### a. Major Awards

The qualifiers for the Final Defense, which are the Top 2 entries per category, will receive cash and/or medals and certificates as prizes. The Category Champion and Category Runner-up will be awarded based on the scores of their Journal Entry, Closed-Door Defense, and Final Defense.

Title	Team Prizes	Individual Prizes
<b>Category Champion</b> (Applied Science, Life Science, Physical Science)	Php 7,500	Medals + Certificates
<b>Category Runner-up</b> (Applied Science, Life Science, Physical Science)	Php 5,000	Medals + Certificates

### b. Special Awards

1. *JER and Exhibit Top Scorer* – This award is for the research entry with the highest average score in the JER and Exhibit Round across the three categories.
2. *People's Choice Award* – This award will go to the digital poster with the highest number of reactions and shares after being posted online by the official Facebook Page of Research Fair.
3. *Best Oral Presentation* – This award is for the research entry that garnered the highest score during the Final Defense Round.

Title	Team Prizes	Individual Prizes
JER and Exhibit Top Scorer	Php 1000	Certificates
People's Choice Award		
Best Oral Presentation		

## L. Research Integrity

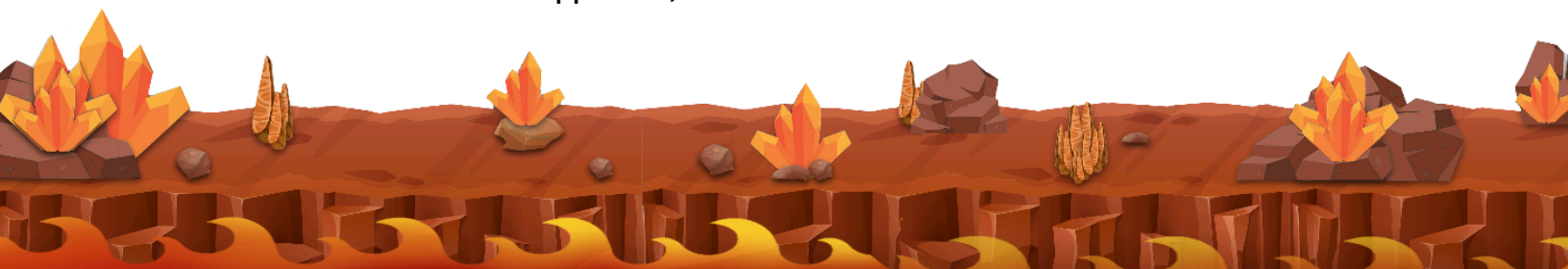
Scientific research is a disciplined practice, and it must uphold high standards of integrity. Thus, all science fairs must uphold high standards of research integrity, and any dishonest acts will not be condoned or tolerated.

Fraudulent research projects will fail to qualify for RC. The organizers reserve the right to revoke recognition of a project subsequently found to have been fraudulent.

### a. Research Misconduct

Research misconduct is defined as “fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results.” Research misconduct does not include honest error or differences of opinion. Any research misconduct committed before, during, and after the competition will not be condoned or tolerated. These acts include, but are not limited to:

- ❑ *Fabrication* – making up data and results and recording or reporting them. Including false references (references that are added for the sake of supporting an argument even though it's fake or non-supportive) is also considered fabrication.



- ❑ **Falsification** – manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented in the research record (record of data or results that embody the facts resulting from scientific inquiry, and includes, but is not limited to, research proposals, laboratory records, both physical and electronic, progress reports, abstracts, theses, oral presentations, internal reports, and journal articles).
- ❑ **Plagiarism** – appropriation of another person’s ideas, processes, results, or words without giving them credit. Intended or unintended, failure to credit sources or other discoverers is also considered as plagiarism.
- ❑ **Non-disclosure** from coaches or RC participants of knowingly committed research misconduct.
- ❑ Any actions deemed as research misconduct by the organizers.

#### b. Sources

- ❑ Federal Register. (2000, December 6). Federal Research Misconduct Policy. Retrieved from ORI - The Office of Research Integrity: <http://ori.hhs.gov/federal-research-misconduct-policy>. 2015, August 1.
- ❑ National Academy of Science and Technology. (2009, August 14). Ethical Principles and Guidelines for Filipino Scientists. Retrieved from Philippines NAST: <http://goo.gl/tNbwTu>. 2015, August 1.



# NSC

# National Science Conquest



## A. Objectives

The National Science Conquest (NSC) aims to:

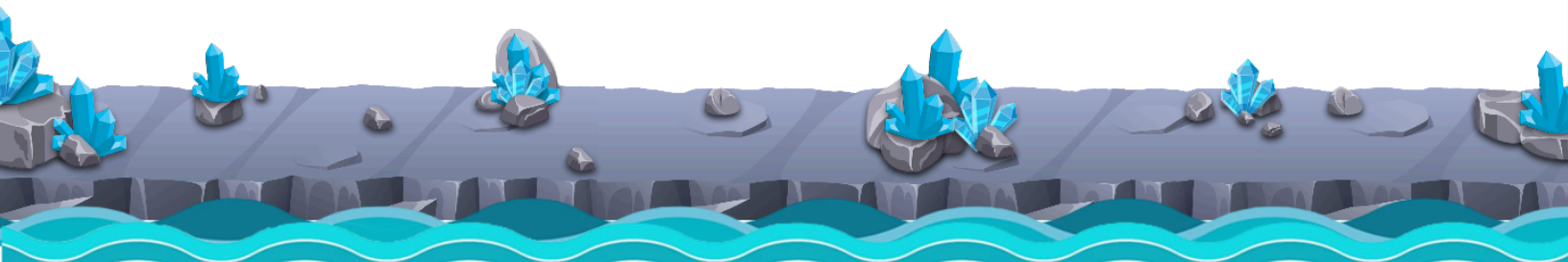
1. Recognize students with outstanding scientific proficiency
2. Foster teamwork and enhance the intellectual skills of Filipino students
3. Promote the field of science and technology to students, as well as the general public

## B. Student Eligibility Guidelines

1. NSC is open to students from Grades 9 to 12 across the Philippines. While all eligible students are welcome, the quiz is **particularly recommended for Grades 11 and 12 students**, as the content will primarily focus on senior high school topics.
2. Each school may send up to **three (3) teams** to compete, with each team consisting of three (3) eligible students and one (1) optional alternate.

## C. Requirements

1. The school must fill out the NSC Application Form which can be found at the [Research Fair Website](#). This contains necessary information from the participants.
2. A registration fee of Php 450 per participant is required. NSC participants can attend the Youth Science Convention (YSC) Talks on the first day of the Research Fair at no additional cost. Participants may also join the YSC Lab Tours for an additional fee. However, priority for Lab Tour slots is given to YSC participants, with availability for other sub-event participants depending on the laboratories' capacity.
3. The school shall send a scanned copy of participants' proof of enrollment for the school year 2024-2025 such as, but not limited to:
  - a. School ID - The scanned copy must include the front and back of each student's ID in one (1) PDF file,
  - b. Certificate of matriculation or enrollment, if no ID
4. PDFs must be colored and must have good resolution (clearly scanned) for content to be readable and recognizable.
5. The organizers reserve the right to request for resubmissions when the need arises. No exemptions or irregularities will be accepted for the requirements.





Failure to settle such issues may result in disqualification. Such exemptions or irregularities include, but are not limited to, the following:

- a. Incomplete or late submission of requirements

## D. General Guidelines

1. Each contestant must wear their **complete school uniform** during the competition and bring their respective ID throughout the duration of the Research Fair.
2. If a contestant is caught in the act and proven guilty of cheating or dishonesty, their **team** shall be **automatically disqualified** from the competition.
3. Every team member is required to bring **at least two sharpened pencils** and at most one **non-programmable scientific calculator** during the contest proper (See Section H for the list of allowed calculators). Participants may opt not to use a calculator.
  - a. All cases and covers of the calculator must be removed.
  - b. Borrowing, lending, and substitution/replacement of calculators while the competition is in progress is strictly prohibited.
  - c. All calculators must undergo a factory reset before the start of the competition.
4. Borrowing, lending, and substitution/replacement of calculators while the competition is in progress is strictly prohibited. All calculators must undergo a factory reset before the start of the competition.
5. Answer sheets, scratch papers, and other pertinent resources will be provided by the organizers. Contestants are required to turn over their scratch papers after the contest proper.
6. Usage of electronic devices other than a scientific calculator (e.g. laptop, smartphone, tablet) is strictly prohibited during all rounds of the competition.
7. In case a registered participant fails to be present on the competition date due to valid reasons (sickness, death in the immediate family, etc.), an alternate member from the same school will be allowed to compete, provided that:
  - a. The alternate satisfies the eligibility guidelines and the alternate provides the requirements.
    - i. In the case that the alternate does not satisfy the eligibility guidelines and requirements, they will not be allowed to participate in the competition.
  - b. Proof validating the excuse is to be submitted during registration before the Opening Program. The following may be used as proof:





- i. Documents (medical certificate, death certificate, etc.)
    - ii. A letter from the school administration (principal, registrar, etc.)
    - iii. Other forms of evidence that validate the excuse
  - c. If the alternate is already registered as the “alternate member”, no additional documents are required to be submitted.
8. **Coaches are not allowed** in the exam venues except during the championship round, which is open to the audience.
9. The organizing committee’s decision is final and irrevocable. The organizers reserve the right to change the rules/mechanics when deemed necessary. Participants will be duly notified regarding the said change.

## E. Contest Mechanics

1. National Science Conquest is divided into two parts: **The Qualifying Round and The Championship Round.**
2. All registered teams will participate in the Qualifying Round, held during the 2nd day of the Research Fair.
3. The Qualifying Round will be composed of two parts: the **Situational Exam** and the **Individual Exam.**
4. The Championship Round will be held during the 3rd day of the Research Fair.
5. In this iteration of the championship round, there will be two phases: The **Preliminary Phase** and the **Final Phase.**

### A) QUALIFYING ROUND

1. The Qualifying Round is the elimination phase of the National Science Conquest.
2. The participants will compete in a closed-door round, where only the participants will be allowed in the venue.
3. The team score for the Qualifying Round will determine which teams move on to the Championship Round.
4. If there are less than 25 participating teams, the **top 40% of teams** with the highest scores will move on to the Championship Round. If there are 25 or more participating teams, the **top ten (10) teams** with the highest score will move on to the Championship Round.
5. In case of a tie, the team with the **higher Situational Exam score** among the tied teams will move on to the Championship Round. If the tie is still not broken, all teams tied that share equal Situational Exam scores will move to the Championship Round.



## I. Situational Exam

- a. The Situational Exam will commence on **Day 2 (Morning)**.
- b. The main 3 representatives from each team will collaborate to accomplish this phase of the Qualifying Round with their teammates.
- c. Each team will be receiving a questionnaire containing **worded problems** under any of the given scientific disciplines. Teams shall be given **2 hours** to answer the problems.
- d. Participating teams will be required to **submit their answers, along with their solutions** to the problems, before the time limit. Specific rubrics shall be implemented per problem to provide partial and full points whenever necessary.
- e. In calculating the scores, a specific rubric to be provided in the questionnaire will be followed for scoring.
- f. Constants required for certain questions will be provided as needed.
- g. For computational problems, the entire, complete, and comprehensive solution must be written down for full credit.
- h. Rules on significant figures will apply to Earth Science, Biology, Chemistry, and Physics exams. For Mathematics, exact answers are required, except for answers with decimal places, which must be rounded to 2 decimal places.
- i. Answers will still be accepted with deductions beyond the submission time, up to a **maximum of 15 minutes**. A **50-point deduction** will be applied immediately to the **total score** after the submission time. An **additional 5-point deduction per minute** will be applied for every minute beyond the time limit. Submissions beyond the maximum allowable extension will not be recognized.
- j. Scores in the percentage of each team will be computed by dividing the sum of the scores by the maximum total score:

$$\text{Situational Exam Component Score} = \frac{\text{Sum of item scores}}{\text{Maximum total score}} \times 100\%$$

## II. Individual Exam

- a. The Individual Exam will be held after the Situational Exam, following a short break.
- b. The main 3 representatives will individually take a **multiple-choice exam** under any of the given scientific disciplines. Participants shall be given **1 hour and 20 minutes** to answer and submit the exam. If two or more letters are shaded for a single item, the answer will be considered incorrect and shall incur a penalty of 0.25-point deduction.



- c. The participants must properly shade the letter that corresponds to their answer. The participants will also be free to leave blank answers.
- d. Each correct answer will merit **1 point**. There shall be a **0.25-point** deduction for each wrong answer and no penalty for unanswered questions.
- e. Participants are strongly encouraged to minimize changes to their answers. Excessive or unclear erasures that affect answer legibility may result in a 0.25-point deduction per affected item.
- f. The participants must ensure their answer sheets are free from smudges, or any unnecessary marks outside the designated answer areas. Stray markings that interfere with the readability of answers or the scoring process shall result in a 0.25-point deduction per mark.
- g. Constants required for certain questions will be provided as needed.
- h. Submissions beyond the exam time limit **will not be recognized**.
- i. Scores in the percentage of each team will be computed by dividing the sum of the scores of the main 3 representatives over the maximum total team score:

$$\text{Individual Exam Component Score} = \frac{\text{Sum of individual scores}}{\text{Maximum total team score}} \times 100\%$$

### III. Qualifying Round Team Score

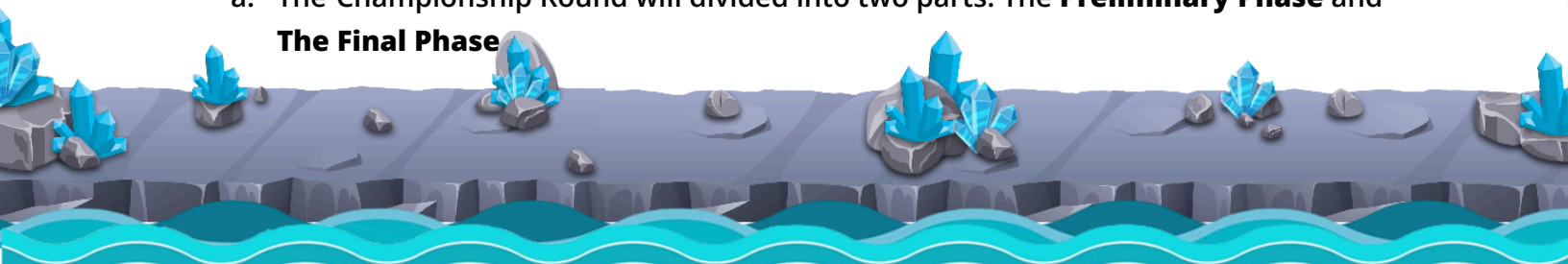
The **Qualifying Round Team Score** of each participating team will be computed by the following:

Component	Weight
Situational Exam	60%
Individual Exam	40%
Qualifying Round Team Score	100%

The top scorers for both components of the Qualifying Round shall be announced along with the qualifiers.

### B) CHAMPIONSHIP ROUND

- a. The Championship Round will be divided into two parts: The **Preliminary Phase** and **The Final Phase**



- b. Answer boards and markers will be given to each team. Scratch papers will also be provided by the organizers. Participants must bring their own writing materials for computations and the like.
- c. For multiple-choice type of questions, participants must write the letter of their answer in **UPPER CASE**. Correct answers written in lowercase will be considered incorrect. For identification questions, misspelled answers will be considered incorrect.
- d. Rules on proper units and significant figures are to be observed for the problem-solving questions unless otherwise stated. Improper units or wrong significant figures will be considered incorrect.
- e. A buzzer will indicate that the time is up. Upon hearing the buzzer and the cue from the quizmaster, the teams must stop writing and submit their answer boards to the assigned official usher. Writing after time is up will result in the answer being considered void. The answer written on the answer board is considered the final answer.
- f. Constants required for certain questions will be provided as needed.
- g. The use of calculators shall only be allowed for problem-solving type of questions.
- h. Participants will not be allowed to exit the premises once the competition proper has started.
- i. Participants may request additional scratch papers and the like before the reading of the next question.
- j. A protest may be raised **only by the contestants**. They will be referred to the Board of Judges.
- k. To protest, the contestant shall give a signal to their assigned official usher.
- l. During the protest, the contestant is permitted to consult any reference material under the supervision of the designated official and the Board of Judges, provided the materials are relevant to the subject of the protest.
- m. The Board of Judges shall be given full jurisdiction over the validity of the protest.
- n. The board will only act on concerns regarding the questions and answers.
- o. The decision of the Board of Judges is final and irrevocable.**
- p. Protests may only be raised before the next question is read. **Once the next question is presented, no protests about the previous question may be raised.**



## I. Preliminary Phase

- a. The Preliminary Phase of the Championship Round will be a quiz bee on different topics concerning science and technology. The questions will have varying levels of difficulty and corresponding point values (e.g., 10, 15, 20, and 25 points).
- b. Teams will take turns selecting the category and point value of questions. A random draw before the start of the competition will determine the order the teams select a question.
- c. Once a question is selected, it will be displayed for all teams to see. Questions will only be read ONCE. The participants may start writing their answers as soon as the question is projected.
- d. All teams must write down their answer on the provided boards within the allotted time for each question. The time limit for each question shall be announced before the question is read.
- e. Correct answers will earn points for the team, and no deductions will be made for incorrect answers.
- f. The chance to select the next question will rotate among the teams.
- g. The Preliminary Phase shall end once all questions have been finished.
- h. After the Preliminary Phase, the **top three (3) teams** will then proceed to the Final Phase.

## II. Final Phase

- a. The Final Phase of the Championship Round will be a quiz bee with **15 questions** randomly taken from topics in science and technology.
- b. The pointing system will be 10, 15, and 20 points for easy, average, and difficult questions, respectively.
- c. Points accumulated from the preliminary phase will not carry over to this round.
- d. Questions will have different time durations allotted to answer. The time allotted for each question will depend on its degree of difficulty. The time limit for each question shall be announced before the question is read.
- e. Questions will be projected on the screen and will be read TWICE. The participants may start writing their answers as soon as the question is projected.
- f. The Final Phase shall end once all questions have been finished.
- g. The **top three (3) teams** shall be awarded depending on their placement in the final phase of the championship round. The top scorer shall be declared the National Science Conquerors of 2025.
- h. In the event of a tie, clincher questions will be answered by the tied teams. This will be a do-or-die round.
  - Questions will be read **TWICE** but will not be shown on the screen.





- The clincher round is not a race; all answers will be acknowledged after the time runs out.
- The participants may begin writing as soon as the question is being read.
- If both or no teams got the correct answer, additional questions will be asked until the tie is broken.

## F. Coverage of Topics

### a. Biology

- i. Human Anatomy and Physiology
- ii. Cell Biology and Histology
- iii. Biological Molecules
- iv. Botany and Zoology
- v. Microbiology
- vi. Genetics
- vii. Evolution

### b. Chemistry

- i. Atoms and the Atomic Theory
- ii. Chemical Bonding and Reactions
- iii. Stoichiometry
- iv. Chemical Equilibrium
- v. Gases and Solutions
- vi. Thermochemistry
- vii. Electrochemistry
- viii. Organic Chemistry

### c. Earth Science

- i. Geology
- ii. Oceanography
- iii. Meteorology
- iv. Astronomy
- v. Paleontology
- vi. Environmental Science
- vii. Ecology

### d. Mathematics

- i. Algebra
- ii. Business Mathematics
- iii. Logic and Proofs
- iv. Statistics and Probability





- v. Geometry and Trigonometry
- vi. Combinatorics and Matrices
- vii. Basic Calculus

**e. Physics**

- i. Classical Mechanics
- ii. Electricity and Magnetism
- iii. Thermodynamics
- iv. Waves and Optics
- v. Relativity
- vi. Quantum Mechanics

**f. Current Events in Science and Technology**

NSC may cover topics relevant to recent scientific breakthroughs and the latest technologies (e.g. Nobel Prize winners and emerging technologies in fields such as biotechnology, renewable energy, and artificial intelligence).

## G. Awards and Prizes

The following awards shall be given for National Science Conquest.

**a. Major Awards**

Title	Team Prizes	Individual Prizes
<b>National Science Conquerors</b> (determined by the scores in the Final Phase)	Php 7,500.00	Medals + Certificates
<b>NSC 1st Runner Up</b> (determined by the scores in the Final Phase)	Php 5,000.00	
<b>NSC 2nd Runner Up</b> (determined by the scores in the Final Phase)	Php 3,000.00	

**b. Special Awards**

<b>Situational Exam Top Scorer</b> (awarded to the team with the highest score in the Situational Exam)	Php 500.00	Certificates
<b>Individual Exam Top Scorer</b> (awarded to the individual with the highest score in the Individual Exam)	Php 500.00	



## H. List of Allowed Calculators

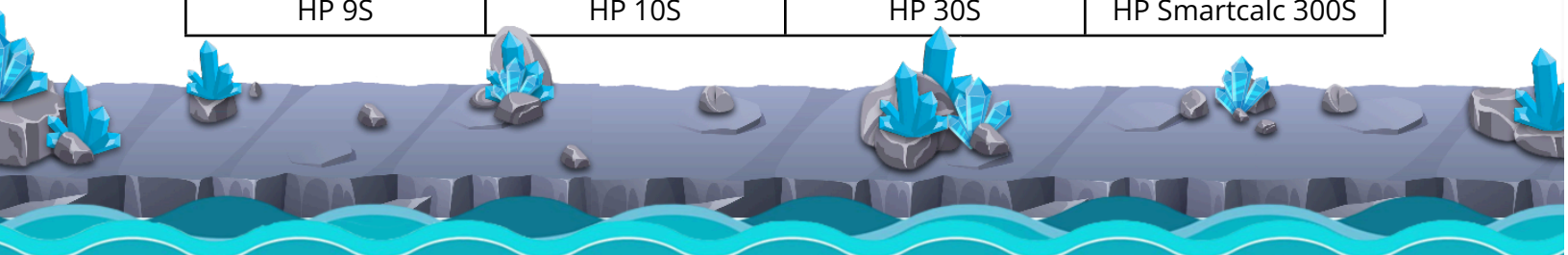
The following are the only scientific calculator models that are allowed to be used during the competition proper of the National Science Conquest. The second editions of the models are also allowed. Calculators **will be checked** upon the onsite registration of participants.

CASIO SCIENTIFIC CALCULATORS			
fx-95ES PLUS	fx-220	fx-350TL	fx-85EX
fx-95MS	fx-250HC	fx-570AD	fx-85ES PLUS
fx-100D	fx-260	fx-570ES	fx-85MS
fx-100MS	fx-300W	fx-570ES PLUS	fx-85W
fx-100S	fx-350D	fx-570MS	fx-901
fx-100W	fx-350ES	fx-570S	fx-911W
fx-115MS	fx-350ES PLUS	fx-570W	fx-991ES PLUS
fx-115S	fx-350EX	fx-82EX	fx-991S
fx-115WA	fx-350HA	fx-82ES PLUS	fx-991W
fx-122S	fx-350MS	fx-82MS	fx-991MS

CANON SCIENTIFIC CALCULATORS			
F-502	F-710	F-718SGA	F-730SX
F-502G	F-718S	F-720	F-788DX
F-604	F-718SA	F-720i	F-789SGA
F-605	F-718SG	F-760S	

SHARP SCIENTIFIC CALCULATORS			
EL-500W	EL-506W	EL-510R	EL-531XH
EL-501V	EL-509D	EL-520G	EL-531W
EL-501W	EL-509R	EL-520VA	EL-546L
EL-501X	EL-509V	EL-520W	EL-546VA
EL-506P	EL-509W	EL-520X	EL-556G
EL-506V	EL-509X	EL-531VH	EL-W531

HEWLETT-PACKARD (HP) SCIENTIFIC CALCULATORS			
HP 9S	HP 10S	HP 30S	HP Smartcalc 300S



### CITIZEN SCIENTIFIC CALCULATORS

SR-135N	SR-260N	SR-270N	SR-270X
SR-281N			

### AURORA SCIENTIFIC CALCULATORS

AX-501	AX-528BL	AX-595TV	AX-597W
AX-600S			

### OLYMPIA SCIENTIFIC CALCULATORS

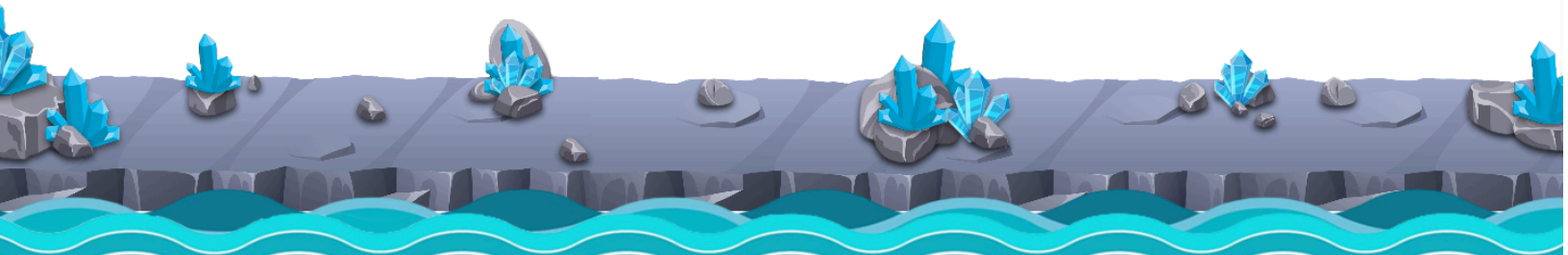
LCD 8110	LCD 9210	ES-570MS	ES-570ES PLUS
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### TEXAS INSTRUMENTS SCIENTIFIC CALCULATORS

TI-30XA	TI-30XIIS	TI-30XS	TI-34
TI-36X PRO			

### OTHER BRANDS OF CALCULATORS

KARCE KC-S991	PORPO YH-105	TAKSUN TS-98MS
KARCE KC-S3500	PORPO YH-106	TAKSUN TS-2000



# YSC

# Youth Science Convention



## A. Objectives

The Youth Science Convention (YSC) is a series of TALKS, TOURS, and CASE STUDY designed to enrich the experience of the participants of the Research Fair. The following objectives are expected to be achieved through this event:

- a. To enkindle in the participants a love and passion for research and science
- b. To explore what it means to conduct research and its application in the industry and in different scientific fields
- c. To help the youth develop practical skills that will not only aid them in future research, but in multiple facets of their daily lives.

## B. Eligibility Guidelines

YSC is open to **all high schools (Grade 7 to Grade 12)** in the Philippines. However, it is highly **recommended for students of grades 9, 10, 11, and 12** in preparation for their research subjects, investigatory projects, and future submissions to the Research Competition.

A school may send **at most fifteen (15) students to attend YSC, excluding the participants of the Research Competition (RC)**, who may sit in at the convention during their free time subject to the availability of seats. Schools shall be informed if there are remaining slots for the convention, should they wish to send more students.

## C. Requirements

1. Accomplished YSC Form
2. Clear scanned copy of participants' proof of enrollment for the school year 2024-2025 such as, but not limited to:
  - a. School ID - The scanned copy must include the front and back of each student's ID in one (1) PDF file.
  - b. Certificate of Matriculation or Enrollment, if no ID.
3. Registration fee of Php 500 (per participant, YSC Case Study Competition and Talks) or Php 150 (per participant, YSC Talks only).

The organizers reserve the right to request for resubmissions when the need arises. No exemptions or irregularities will be accepted for the requirements. Failure to settle such issues may result in disqualification.





## D. Registration

1. Registration forms must be duly accomplished and may be accessed through the [Research Fair Website](#). Registration must have also been confirmed by the organizers prior to the Research Fair.
2. A registration fee of **Php 500** must be paid per participant, which includes a Certificate of Participation, a Certificate of Appearance (for advisers), a Registration Kit (including an RF Eco Bag, a Souvenir Program, a Personalized ID for participants, or a Generic ID for advisers), and guaranteed seats to YSC Talks. Alternatively, there is a registration fee of Php 150 for YSC Talks only. Details on registration for the YSC Lab Tours only will be announced soon.
3. Each participating school may only be accompanied by one (1) YSC adviser who may or may not be the same adviser for RC.
4. **Walk-in participants will be accommodated for the YSC Talks ONLY.** Only registered and paid participants may participate in the convention.

## E. Event Proper Guidelines

1. The doors to the venue will be closed during the event. Participants are therefore advised to go to the comfort room before the event starts or during the break.
2. Participants will be given nametags before entering the venue. These must be worn within the venue at all times.
3. Participants are urged to pay strict attention and show utmost respect to the speakers. Unnecessary noise must be avoided.
4. There shall be an open forum at the end of every talk, tour, and workshop. Participants and advisers are free to raise questions and/or concerns to the speaker.
5. Mobile phones must be turned off or kept on silent mode.

## F. Research Fair 2025 YSC Case Study Competition

The Research Fair 2025 YSC Case Study Competition (CSC) aims to foster ingenuity and creativity by allowing the participants to provide their own solutions to real-world problems. Highlighting both teamwork and the ability to think of unique solutions, the CSC is a stepping stone for the participants as they look toward the future. Its goal is to bring to perspective the problems that the various fields of science encounter today with the students' output being possible future solutions that can be implemented.





From the selected students that will attend YSC, each school may then form **two (2) groups, composed of a maximum of three (3) students each**. These groups will represent the school in the CSC.

## Mechanics

### a. Phase I

1. On October 7, 2024, registration for Research Fair 2025 YSC CSC will open.
2. On November 4, 2024, registration will close. On the same day, the case study, along with the rubrics and guidelines, will be released to the registered participants.
3. The participants will then have FOUR (4) weeks to send their papers on their proposed solutions to the case study. These will then be evaluated by the Phase I judges.
4. A few weeks before the Research Fair, the top 8 teams will be announced as winners and will advance to the final phase of the YSC CSC, taking place on the second day of the Research Fair. As part of their recognition, they will be registered as **participants in the YSC Lab Tours** on the first day of Research Fair 2025, with no additional registration fee required.

### b. Phase II

1. On the morning session of the second day of Research Fair 2025, the top 8 teams will participate in a workshop where they will refine their ideas and presentations, with the opportunity to consult with the resource speaker.
2. The afternoon session of the second day will be dedicated to presentations, during which each team will have 10 minutes to present their ideas to the panel of Phase II judges. Following the presentations, a 7-minute period will be allocated for questions from the judges and, if time permits, the audience.
3. Culminating the Youth Science Convention, the major and special awards will be awarded during the closing event of the third day of Research Fair 2025.
  - The mechanics of the Case Study Competition are subject to change. Any deviations from the aforementioned mechanics will be immediately reported to all participants.



## G. Judging and Criteria

### Phase I Rubrics

Component	Subcomponent	Subcomponent Percentage	Overall Percentage
Introduction	Background	10	20
	Rationale	10	
Way of Production	Methodology	15	15
Creativity	Ingenuity	15	15
Feasibility	Practicability	10	15
	Economics	5	
Implications	Environment	5	20
	Health	5	
	Community Involvement	10	
Writing	Organization	5	10
	Grammar and Word Choice	5	
References	Quality of Sources	5	5
<b>Total</b>			<b>100</b>

### Phase II Rubrics

Component	Subcomponent	Subcomponent Percentage	Overall Percentage
Introduction	Background	5	12.5
	Rationale	7.5	

Creativity	Ingenuity	7.5	7.5
Plan of Action	Methodology	15	15
Feasibility	Practicability	10	15
	Economic Analysis	5	
Implications	Environment	7.5	25
	Health	7.5	
	Community Involvement	10	
Presentation	Delivery	15	20
	Visual Aids	5	
References	Quality of Sources	5	5
<b>Total</b>			<b>100%</b>

## Awards and Prizes

### 1. Major Awards

Title	Team Prizes	Individual Prizes
CSC Champion	Php 7,500.00	Medals + Certificates
CSC 1st Runner Up	Php 5,000.00	
CSC 2nd Runner Up	Php 3,000.00	

### 2. Special Awards

Title	Description	Team Prizes	Individual Prizes
<i>Best in Digital Poster</i>	Case Study entry with the highest average Digital Poster score	Php 500.00	Certificates



<i>People's Choice Award</i>	Digital Poster with the highest number of reactions and shares after being posted online by the official Research Fair Facebook Page		
<i>Best in Presentation</i>	Case Study entry that garnered the highest presentation score during the Phase II of the Case Study Competition		

## H. Line-up of Sub-events

### YSC Talks

YSC presents three (3) insightful talks designed to equip, expand, and enable the skills and knowledge of its participants, each with a distinct focus:

1. **Equipping:** This talk will equip the YSC 2025 participants with the essential tools and mindset needed in their pursuit of innovation.



**CARAT** - A talk focused on cultivating the qualities and skills that are fundamental to innovation. Like a diamond's carat, the session will emphasize the importance of developing a solid core for impactful ideas.

2. **Expanding:** This talk will help expand the perspectives of YSC 2025 participants with regards to their view on innovation, encouraging them to think beyond conventional boundaries.

**SPECTRUM** - A talk on the full range of possibilities in innovation. Like the spectrum of colors reflected through a gemstone, the session aims to inspire students in exploring diverse ideas.



3. **Enabling:** This talk will enable the YSC 2025 participants to recognize the crucial role of research and innovation in driving progress.



**LUSTER** - A talk on bringing innovation to life through application. Reflecting the brilliance of a gem's luster, the session will guide students in translating their innovative ideas into practical yet potent actions.

### **YSC Lab Tours**

Research Fair 2025 proudly reintroduces the YSC Lab Tours, designed to provide an immersive and inspiring experience for the young minds. The tours offer participants an exclusive look into the operations of the country's top laboratories, showcasing cutting-edge research and innovation in action.

### **LUMINANCE: The Research Fair 2025 YSC Case Study Competition**

Like a finely cut gem, Research Fair 2025 YSC CSC aims to showcase the illuminating ideas and multifaceted perspectives that participants bring in their case studies. This sub-event marks the culmination of YSC, where participants demonstrate not only their creative thinking and adaptability but also share their unique perspectives on significant challenges and issues within the country. Initially, a workshop will precede the final presentation of the case study for the CSC Phase II Finalists.







# UNIVERSITY OF THE PHILIPPINES

ACADEMIC LEAGUE OF CHEMICAL  
ENGINEERING STUDENTS, INC.

