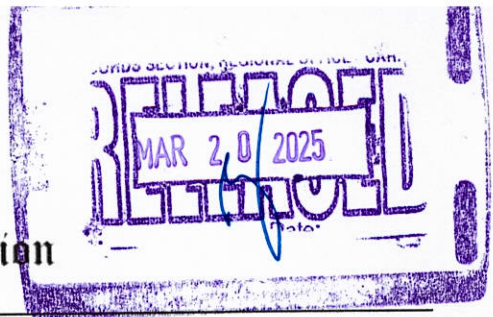




Republic of the Philippines
Department of Education
CARAGA REGION



MAR 20 2025

REGIONAL MEMORANDUM
No. **0288**, s. 2025

To: Schools Division Superintendent
All Others Concerned

2025 REGIONAL ACADEMIC AND SKILLS DEVELOPMENT-REGIONAL SCIENCE
AND TECHNOLOGY FAIR (RSTF)

1. The Department of Education-Caraga, through the Curriculum and Learning Management Division (CLMD), will conduct the 2025 Regional Science and Technology Fair (RSTF) as part of the annual Regional Academic and Skills Development (RASD). The event will take place on April 6–10, 2025, at Northeastern Mindanao State University (NEMSU)–Tagbina Campus.
2. The 2025 RASD-RSTF aims to empower the youth by cultivating innovation and creativity and showcasing competence of the learners in addressing community problems for sustainable development. It seeks to maximize their potentials to be inquisitive and creative in dealing with real life problems.
3. The RSTF 2024 features two (2) contests:
 - **TUKLAS-A Research Project Fair:** A STEM research competition that provides opportunities for Junior and Senior High School learners to showcase their research projects based on their field of interest and/or real-world problems, issues, and concerns; and
 - **STEM Innovation Expo:** A Technology Innovation competition recognizing the most creative and market viable project addressing major issues such as food safety, water conservation, renewable energy, cyber security, road safety, health, disaster mitigation, agriculture, and environmental sustainability.
4. The contest categories are:

Contest	Categories	Sub-categories	Number of participants per entry
TUKLAS-A Research Project Fair	Life Science	Individual	1
		Team	2-3
	Physical Science	Individual	1
		Team	2-3
	Robotics and Intelligent Machines	Individual	1
		Team	2-3
	Mathematics and Computational Science	Individual	1
		Team	2-3
STEM Innovation Expo	Individual		1
	Team		2-3

5. The indicative timelines for the 2025 RSTF are:

Activities	Dates
Deadline for the submission of entries	March 25, 2025
Pre-screening of entries (Plagiarism, bibliographic tracing, completeness of manuscripts and forms)	March 26-27, 2025
Announcement of qualifiers	March 28, 2025
Registration and Installation of Posters	April 5, 2025
Opening Program, and TWG-SRC Pre-contest Orientation	April 6, 2025
TUKLAS-Life Sciences and Physical Sciences (Individual and Team Categories)	April 7, 2025
TUKLAS-Robotics and Intelligent Machines, Mathematics and Computational Sciences, and STEM Innovation Expo (Team and Individual)	April 8, 2025
Consolidation of Results, Meeting with RSTF 2025 Winners, and Restoration and Retrieval of Manuscripts and Posters	April 9, 2025
Closing and Awarding Program	April 10, 2025

6. The participants for the 2025 RASD-RSTF are the qualified student-researchers and their coaches, Education Program Supervisors in Mathematics and Science, and members of the Program Management Team, and Scientific Research Committee (SRC).

7. Each Schools Division may send a maximum of two (2) entries per contest sub-category. An SDO-made link containing all the entries must be submitted to kevinhope.salvana@deped.gov.ph on or before March 25, 2025. Each entry and its attachments (e.g. International Science and Engineering Fair (ISEF) Forms and logbook) must be compiled in a folder, following the file naming conventions outlined on page 41 of the NSTF Handbook must be followed. The criteria for evaluating the qualified papers are found in Enclosure No. 1.

8. All entries for the 2025 RSTF must align with the research themes derived from recent national and international winning papers, vetted by all Education Program Supervisors in Science. The complete list of themes is provided in Enclosure No. 2.

9. The SRC will conduct a virtual pre-screening to all submitted entries on March 26-27, 2025, 9:00 a.m. at <https://bit.ly/2025RSTFsrcPrescreening>. The members of the SRC, and their terms of reference are found in Enclosure No. 3. SRC members shall be present in the venue from April 5 (Day 0) to 10, 2025. Their meals and accommodation (billeting room) will be covered by the host division.

10. Ground for disqualification may include:

- Incomplete parts and required forms relative to the guidelines set in the NSTF Handbook;
- Inconsistency in dates across manuscript sections (continuation projects from previous years will be verified using past RSTF databases);
- Late submission of entries;
- Plagiarism exceeding 0% in the manuscript proper (excluding research plan, logbook, forms, and references); and
- Discrepancies in citations and bibliographies.



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Effectivity	02.01.23	Page	2 of 10



11. Qualifiers to the 2025 RSTF must bring a research poster (36 inches wide and 67 inches high, portrait orientation). Poster stand will be provided by the host division. The poster display format is found in Enclosure No. 4.

12. First, second, and third placers will be declared during the awarding program and will receive medals and certificates. Certificates for the Best Poster and Best Presenter will be selected from the top three placers only. Only the first placers will be endorsed to the Central Office for the NSTF SY 2025-2026.

13. Research paper formats and the list of forms and documents required for submission are found in the NSTF Handbook downloadable at <https://bit.ly/NSTFhandbook>.

14. All expenses for the conduct of RSTF 2025 will be charged against the 2025 CLMD MOOE and OSEC-13-24-0749. Travel expenses of all SRC members and qualifiers including the printing of their manuscripts and poster displays will be charged to their respective local funds, subject to government accounting and auditing rules and regulations.

15. For queries and information, please contact Mr. Kevin Hope Z. Salvaña, Education Program Supervisor of the Curriculum and Learning Management Division, at kevinhope.salvana@deped.gov.ph

16. Immediate dissemination of this Memorandum is highly desired.

MARIA INES C. ASUNCION
Director IV
Regional Director

Encl.: As stated

Reference: DepEd Memorandum (No. 016, s. 2025)

To be indicated in the Perpetual Index

under the following subjects:

CONTESTS RESEARCH OR STUDIES

SCIENCE EDUCATION

CLMD/khzs
03/17/2025

(Enclosure No. 1 of Regional Memorandum No. 0282, s. 2025)

CRITERIA FOR EVALUATING TUKLAS PROJECTS

Components	Weight
Creative Ability	30%
Scientific Thought	30%
Thoroughness	15%
Skill	15%
Clarity (basis for Best Presenter)	10%
TOTAL	100%

CRITERIA FOR EVALUATING STEM INNOVATION EXPO PROJECTS

Components	Weight
Originality and Creativity	30%
Community Connection and Impact	20%
Market Attractiveness	20%
Project Pitching (basis for Best Presenter)	15%
Utilization of Patent Information	10%
TOTAL	100%

CRITERIA FOR EVALUATING POSTER DISPLAYS (TUKLAS AND STEM INNOVATION EXPO)

Components	Weight
Local Organization of Materials	45%
Clarity of Visual and Format Adherence	40%
Supporting Documentation Displayed	15%
TOTAL	100%

(Enclosure No. 2 of Regional Memorandum No. 0288, s. 2025)

RESEARCH THEMES FOR THE 2025 RSTF

Life Science

- **Environmental Toxicology** – Studies on how pollutants affect ecosystems, biodiversity, or human health.
- **Genetic Engineering for Disease Resistance** – Modifying genes in plants or animals to resist diseases.
- **Microbiome Research** – Exploring the role of microorganisms in human health and ecosystems.
- **Bioremediation** – Using organisms like bacteria to clean up pollutants in the environment.
- **Conservation Biology** – Research on preserving endangered species and habitats.
- **Plant Growth Optimization** – Investigating ways to improve crop growth and yield in varying environments.
- **Drug Discovery from Natural Products** – Finding potential medicinal compounds from plants, fungi, or marine life.
- **Neuroscience and Behavior** – Studies on the brain's role in human or animal behavior and learning.
- **Cancer Biology** – Investigating molecular and cellular mechanisms that cause cancer, as well as potential treatments.
- **Regenerative Medicine** – Research on stem cells or tissue engineering to repair or replace damaged tissues or organs.

Physical Science

- **Renewable Energy Efficiency** – Improving solar, wind, and bioenergy technologies for higher energy output.
- **Nanomaterials in Medicine** – Applying nanotechnology to enhance drug delivery and medical diagnostics.
- **Quantum Computing** – Theoretical and experimental work on next-generation quantum computing systems.
- **Material Science Innovations** – Developing materials with enhanced properties for construction, electronics, or aerospace.
- **Superconductors** – Exploring new superconducting materials for applications in energy and transport.
- **Astrophysics and Space Science** – Research on phenomena like black holes, exoplanets, or cosmic radiation.
- **Plasma Physics** – Investigating high-energy states of matter for applications like fusion energy.
- **Photovoltaic Materials** – Developing new materials to improve solar energy capture and conversion.
- **Hydrodynamics** – Research on the movement of fluids and its applications in engineering or environmental science.
- **Acoustic Physics** – Studies on sound propagation, noise control, and the development of new acoustic technologies.

Robotics and Intelligent Machines

- **Autonomous Systems for Disaster Response** – Creating robots for search and rescue in hazardous environments.
- **AI in Healthcare Diagnostics** – Applying AI to improve medical diagnosis and patient care.
- **Robotic Exoskeletons for Mobility Enhancement** – Designing robots to assist individuals with disabilities.
- **Swarm Robotics** – Investigating the coordination of multiple robots for tasks like environmental monitoring.
- **Human-Robot Interaction** – Researching ways to improve collaboration between humans and robots.
- **Self-Learning AI** – Developing robots with machine learning algorithms that allow them to improve their performance over time.
- **Agricultural Robotics** – Designing robots for tasks like planting, harvesting, and crop monitoring.
- **Robotics for Elderly Care** – Creating assistive robots to help elderly people with daily activities.
- **Industrial Automation** – Research on robots for factory automation, improving efficiency and safety.
- **Robotic Prosthetics** – Developing advanced prosthetic limbs that mimic natural movement.

Mathematics and Computational Sciences

- **Cryptography and Data Security** – Creating new encryption methods for secure communication.
- **Algorithms for Big Data Analysis** – Developing mathematical tools to analyze large datasets.
- **Computational Models in Epidemiology** – Using mathematical models to predict and control disease outbreaks.
- **Optimization Algorithms** – Improving algorithms for solving complex problems in logistics or transportation.
- **Mathematical Modeling of Climate Change** – Using equations to predict climate change impacts.
- **Quantum Algorithms** – Research into algorithms that work specifically on quantum computers.
- **Graph Theory and Networks** – Studying the properties of networks, with applications in biology, computer science, and social networks.
- **Game Theory** – Analyzing strategic interactions in economics, biology, or computer science.
- **Machine Learning Algorithms** – Developing new ways to improve AI through more efficient learning algorithms.
- **Topology and Geometry in Data Science** – Applying advanced mathematical concepts to solve problems in data analysis and machine learning.

Science Innovation Expo

- **Sustainable Packaging Solutions** – Designing biodegradable or reusable packaging materials.
- **Smart Agriculture Technologies** – Innovations in precision farming, including automated irrigation and monitoring systems.

- **Biomedical Devices for Remote Healthcare** – Developing low-cost, portable devices for diagnostics and treatment in underserved regions.
- **Water Purification Technologies** – Creating new filtration systems for safe drinking water in remote areas.
- **Wearable Health Devices** – Developing wearables that monitor vital signs and health conditions.
- **3D Printing for Construction** – Innovations in 3D printing technology for building affordable, sustainable homes.
- **Electric Vehicle Innovations** – Research on improving battery life and energy efficiency in electric cars.
- **Smart Home Systems** – Creating integrated systems that use AI and IoT to manage energy, security, and appliances in homes.
- **Waste-to-Energy Technologies** – Designing systems that convert waste products into usable energy.
- **Patenting New Biomedical Innovations** – Turning cutting-edge biomedical research, such as new diagnostic tools or therapies, into patentable technologies.

(Enclosure No. 3 of Regional Memorandum No. 0220, s. 2025)

2025 RASD-RSTF SCIENTIFIC RESEARCH COMMITTEE

Members		Terms of Reference
Chairman:	RD Maria Ines C. Asuncion, CESO III	Oversee the overall preparation and conduct of the 2025 RASD
Vice-chairman:	ARD Pedro T. Escobarte, Jr., CESO IV	
Contest Convener:	Bernabe L. Linog, CLMD Chief	
Contest Manager:	Kevin Hope Z. Salvaña	Prepare activity proposal, logistic requirements, memoranda, communication letter, and certificates necessary for the activity
Members:	Ressil L. Tersona Kris Carlo R. Buloron Ian O. Cinco Xe Mc Kevin B. España Mark Joseph S. Ariola Kent Yzra G. Dela Cerna Nneka Jean A. Pangapalan Kim Estrebella Jeremiah A. Atenta Ryan D. Gomez	- Pre-screen entries in terms of alignment to research themes, completeness and veracity of ISEF Forms, use of bibliographies, and plagiarism using the Review and Recommendation Report of the NSTF Handbook - Prepare contest venues and holding areas - Facilitate the installation and restoration of research poster displays - Ensure completeness of participants' attendance throughout the activity - Assist in the sorting and distribution of medals and printing of certificates - Serve as contest hosts and facilitators for the 2025 RSTF.
Consultants and Evaluators:	Invited expert-judges from Research Universities and Institutes	- Evaluate projects of all qualifiers - Provide technical guidance for the improvement of the research projects

(Enclosure No. 4 of Regional Memorandum No. 0228, s. 2025)

POSTER DISPLAY SPECIFICATIONS

The project display using tarpaulin summarizes the research project and must focus on the proponent's work for this year's study, with only minimal reference to previous research, if applicable. Tarpaulins will be used at this level of Science Fair competition to ensure durability regardless of the weather condition during the contest period. All posters will be displayed outside the venue for the opening program. A wooden frame will be provided by the host. Contestants, however, are advised to bring tacking materials.

Relative to of the government's environmental advocacy in reducing the consumption of non-biodegradable or non-recyclable materials, contestants are advised to retrieve all posters and reuses them as scientific posters in their respective laboratories or science learning spaces.

Poster Display Format and Dimension for TUKLAS

The dimensions of the project poster display should be 36 inches wide and 67 inches in height (portrait).

PROJECT TITLE	
ABSTRACT	
BACKGROUND	RESULT AND DISCUSSION
OBJECTIVES	CONCLUSION
SIGNIFICANCE	RECOMMENDATION
METHODOLOGY	BIBLIOGRAPHY
	PHOTO CREDITS

Poster Display Format and Dimension for STEM Innovation Expo

The dimensions of the project poster display should be 36 inches wide and 67 inches in height (portrait).

<i>TITLE</i>	The title should be short but would capture the essence of the product/invention
<i>PICTURE</i>	Picture of the product/invention only
<i>OVERVIEW</i>	What problem is solved by the invention? What are the existing solutions and what limitations do these solutions have?
<i>KEY FEATURES</i>	What are the novelty features of this invention?
<i>BENEFITS AND IMPACTS</i>	What are the benefits/impact of this invention?
<i>DEVELOPER'S NAME</i>	Who is/are the inventors?