Republic of the Philippines
Department of Education
Region III
SCHOOLS DIVISION OF BULACAN

September 23, 2025

DIVISION MEMORANDUM
No. 476 , s. 2025

DIVISION SCIENCE AND TECHNOLOGY FAIR 2025: ENHANCING THE 21st CENTURY SKILLS OF LEARNERS THROUGH PROJECT SCIENTIFIC RESEARCH SKILLS (PRO SCIE-RESEARCH@E4.0)

To: Assistant Schools Division Superintendent
Division Chiefs
All Public Secondary School Heads
All Others Concerned

1. This office announces the conduct of the Division Science and Technology Fair 2025: Enhancing the 21st Century Skills of Learners through Project Scientific Research (Pro Scie-Research@E4) with the theme, ***"SPATIALIZE: Surveying Societies, Sensing Solutions"*** on October 16-17, 2025 at a venue to be announced later.
2. Education 4.0 or E4.0 is a transformational learning approach aligned with the Fourth Industrial Revolution. It aims to equip learners with future-ready skills, such as critical thinking, collaboration, and digital literacy, and fosters an inclusive and adaptive educational environment to meet the evolving demands of the 21st century.
3. In alignment with the goals of the Regional Science and Technology Fair 2025 and the National Science and Technology Fair 2025, the DSTF 2025 aims to:
    a. enhance the 21st-century skills of SSES, Regular Elementary/High School, JHS STE, and SHS STEM learners specifically collaboration, communication, creativity, critical thinking, character, citizenship, and computational thinking;
    b. strengthen the implementation of Special Program in Science, Technology, Engineering and Mathematics (SPSTEM) through healthy and friendly interschool scientific research and robotics competition;
    c. underscore the hallmark of SPSTEM learning through problem-based and project-based learning;
    d. advocate the culture of research and development among the youth; and,
    e. identify the most creative and innovative projects from STE and STEM learners who shall represent the Division to the RSTF 2025.
4. The competitions/events are as follows:
    A. **RoboCom using Spike Prime/EV3** is open to all Grades 9 and/or 10 STE Learners. Each team must have 2 members. Each STE implementing school is allowed to send only 1 team. This robotics competition is designed to enhance problem-solving, programming, and engineering skills of junior high STE learners. Using LEGO Spike Prime robots, teams will program robots to complete a set of tasks within a specified field. The event fosters creativity, collaboration, and application of science, technology, engineering, and mathematics concepts through hands-on robotics challenges. **Only registered**

participants will be eligible to compete in the DSTF 2025 on **Thursday, 16 October 2025**.

B. **Tuklas** and **Science Innovation Expo Research Competition** is open to Grades 9 and 10 learners and Grades 11 and 12 learners who have not reached the age of 20 years old on or before May 1, 2025. Learners may work individually or in teams with 2-3 members from the same school. Each individual or team project is eligible to compete in only one among the four categories of **Tuklas** research competition: **Life Science, Physical Science, Robotics and Intelligent Machines, Mathematics and Computational Sciences, and Science Innovation Expo.** The deadline of submission of entries is on October 2, 2025 at Dr. Pablito V. Mendoza Sr. High School, Bustos District. The division screening and evaluation of entries will be held on October 6-10, 2025. The shortlisted entries will be announced on October 13, 2025. **Only the shortlisted entries will compete in the DSTF 2025 on Thursday, 16 October 2025**.

C. **Science Process Skills Expo for SSES** is open to SSES Grade 4, 5 and 6. Each team shall be composed of three (3) members, one (1) Grade 4 learner, one (1) Grade 5 learner, and one (1) Grade 6 learner. The Science Process Skills Expo is a collaborative and experiential contest designed for Special Science Elementary Schools (SSES) at Key Stage 2. Participants will demonstrate their ability to perform scientific investigations, apply process skills, and present experimental results. Teams will be challenged with a mystery box experiment based on Grade 4–6 Science competencies, requiring hands-on application of knowledge, creativity in execution, and effective presentation skills. **Only registered participants will be eligible to compete in the DSTF 2025** on **Friday 17 October 2025**.

D. **Young Tech Creators** is open to all Grades 4-6 Elementary School learners. Each team must have 3 members. Each school may send a maximum of 1 team. This contest is a hands-on activity where Grade 5 and Grade 6 students will work in teams to create and program a simple project using QuidBots Little Bits or Arduino Uno starter kits, 3 sensors, and 1 or more actuators. They will receive the instructions on the day of the event. The goal is to build a small working system that solves a problem or performs a task. **Only registered participants will be eligible to compete in the DSTF 2025 Friday 17 October 2025**.

5. School Coaches/Participants of the contest(s) are required to register using official DepEd E-mail on/before October 2, 2025 to the link below:

   For Elementary: bit.ly/DSTF_ELEM

   For High School: bit.ly/DSTF_SPSTEM

6. Transportation and incidental expenses to be incurred by the qualified participants with their coaches for the said competition shall be charged to their school's Maintenance and Other Operating Expenses (MOOE) and/or local funds subject to the usual accounting and auditing rules and regulations.

7. This Division Memorandum serves as the travel order of the participants with their respective coaches and the DSTF 2025 team. Attached herewith is the activity matrix and list of contest organizers and TWG.
8. Wide and immediate dissemination of this memorandum is earnestly desired.

[redacted]

CECILIA E. VALDERAMA, PhD
Assistant Schools Division Superintendent
Officer-in-Charge
Office of the Schools Division Superintendent

Encl: As Stated

Enclosure No. 1 of DM no. 476, s. 2025

I. DSTF 2025 Schedule of Activities

Day 1 (Thursday, 16 October 2025) – Secondary Schools Competition

Time	Activity	Facilitators
7:30 – 8:00 AM	Registration of Participants ▪ Robocom using Spike Prime/EV3 for JHS STE ▪ Tuklas Research Competitions for Grades 9-12	TWG
8:00 – 8:45 AM	Opening Program for Day 1	TWG
9:00 – 4:00 PM	▪ Robocom Contest Proper ▪ Tuklas Contest Proper	BOJ & TWG
4:00 – 5:00 PM	Closing Program and Awarding of Winners for Day 1	TWG

Day 2 (Friday, 17 October 2025) – Elementary Schools Competition

Time	Activity	Facilitators
7:30 – 8:00 AM	Registration of Participants ▪ Science Process Skills Expo ▪ Young Tech Creators	TWG
8:00 – 8:45 AM	Opening Program for Day 2	TWG
9:00 – 4:00 PM	▪ Science Process Skills Expo ▪ Young Tech Creators	BOJ & TWG
4:00 – 5:00 PM	Closing Program and Awarding of Winners for Day 2	Organizers & TWG

II. DSTF 2025 Proponent, Judges, and TWG

Name	Position	Station
Proponent		
Marinella T. Pengson, PhD	EPS	SDO
Panel of Judges		
1. Luisito V. De Guzman	Principal IV	Norzagaray NHS
2. Rico Paulo G. Tolentino, PhD	Principal III	Sta. Peregrina HS
3. Odette V. Espiridion	Principal II	Maronquillo NHS
4. Jeffrey DC. Basilio	Principal II	Catmon NHS
5. Fancisca T. Salvador	Principal II	Minuyan National HS
6. Jaypee Armenion	Principal II	Aguinaldo J. Santos NHS
7. Monaliza D. Casquero	Principal II	Sta. Cruz HS
8. Brenda 'Lea A. Caranto, PhD	Principal I	Dr. Pablito V. Mendoza, Sr. NHS
9. Shineth C. Novera, PhD	Principal I	Bulualto ES
10. Meriam H. Roldan, PhD	Principal I	Julian Sumbillo HS
11. Daisy DJ. Miranda	Principal I	Gat Francisco Balagtas HS
12. Rhos Marie R. Ramos, PhD	Asst. Principal II	Norzagaray NHS

13. Gleynes R. Cruz	Asst. Principal II	Alexis G. Santos NHS
14. Nica Marie B. Magisa, PhD	Head Teacher III	Parada NHS
15. Guest Judge A	Guest Judges	Bulacan Power Generation Corporation
16. Guest Judge B		
17. Guest Judge C		
Technical Working Group		
18. Florida P. Tolentino	Head Teacher III	Carlos F. Gonzales HS
19. Maricel M. Sosa	Head Teacher III	Maronquillo NHS
20. Mervin G. Lucas	Head Teacher III	Sta. Maria NHS
21. Ma. Teresa E. Mendoza	Master Teacher II	Taliptip NHS
22. Jayson B. Eugelio	Master Teacher I	San Miguel NHS
23. Espy S. Balbuena	Master Teacher I	AFG Bernardino Memorial TS
24. Roy Ivan M. Reyes	Teacher III	Virginia Ramirez-Cruz NHS
25. Ian L. Bustamante	Teacher III	Parada NHS
26. Conrad A. Populi	Teacher III	Bunsuran NHS
27. Phoebe Grade D. Biol	Teacher III	Prenza NHS
28. School Principal, Head Teacher, and Science Teachers for the preliminary judging of Tuklas Research Competition entries		Dr. Pablito V. Mendoza, Sr. NHS

III. Contest Mechanics

A. RoboCom using Spike Prime and EV3

COMPONENT AREA	**Science**
KEY STAGE	Key Stage 3: Grade 9 & 10
EVENT TITLE	**RoboCom using Spike Prime/EV3**
NO. OF PARTICIPANT/S	2 Participants from STE 9 and/or 10
TIME ALLOTMENT	4 to 6 hours
21ST CENTURY SKILL/S	Critical Thinking, Problem-solving Skills, Collaboration & Teamwork, Communication Skills, Digital Literacy & ICT Proficiency
DESCRIPTION	RoboCom provides a dynamic platform where learners develop essential **21st century skills** through hands-on robotics challenges. By programming robots, participants enhance their **critical thinking and problem-solving abilities**, while fostering **creativity and innovation** in approaching real-world tasks. The competition also emphasizes **collaboration and teamwork**, as students work in pairs to share ideas, divide responsibilities, and achieve common goals. Moreover, learners strengthen their **digital literacy** by applying coding and engineering concepts, and practice **effective communication** by explaining their program and strategies. With time-bound challenges, participants learn **adaptability, productivity, and accountability**, preparing them to thrive in an ever-changing technological world.

EVENT RULES AND MECHANICS

1. Robots must be built exclusively from LEGO Spike Prime kits.
2. Only official LEGO electronic components (motors, sensors, hub) are allowed.
3. Robots must fit within a 30cm x 30cm x 30cm cube at the start of the match.
4. A Color/Light Sensor is required for line detection.
5. Any programming environment supported by Spike Prime (e.g., LEGO Education Spike App, Python for Spike) is allowed.
6. Teams must create their own code. Pre-made or borrowed programs are not allowed.
7. Programs may be modified during practice periods but must remain **finalized before official runs**.
8. The course consists of a **white mat with a continuous black line** forming curves, angles, and intersections.
9. The path may include straight sections, sharp turns, and loops.
10. The starting line and finish line will be clearly marked.
11. Each team will have **two official runs**. The **best score/time** will be considered.
12. Robots must start behind the **designated start line**.

13. Human intervention (touching or adjusting the robot during a run) will result in **disqualification of that run**.
14. If a robot goes off the line, it may attempt to recover automatically using its programmed logic.
15. Maximum run time: 2 **minutes per attempt**.
16. **Completion of the full course:** 100 points.
17. **Partial progress:** Points awarded based on distance covered or checkpoints reached.
18. Teams will be ranked based on **highest score**.
19. In case of a tie, **fastest completion time** will be used as a tiebreaker.
20. Awards: **Champion, 1st Runner-up, 2nd Runner-up**.
21. Coaches/teachers are not allowed to assist during the official run.
22. Teams must show **sportsmanship and professionalism**.
23. Any form of cheating or unfair play will result in **disqualification**.

RESOURCE REQUIREMENTS			
Event Supplies, Tools, and Equipment	**Participants**	**Venue Host**	**Contest Organizers**
A. Tools/ Equipment	- Laptop - Extension Cord - Spike Prime/EV3	- Tables - Chairs - LCD Projector	- Game Mat - Timer
B. Materials			- Medals - Certificates - Office supplies

B. Tuklas Research Competitions

COMPONENT AREA	Science
KEY STAGE	**Key Stage Three and Four (3&4): JHS STE 9-10 and SHS STEM 11-12**
EVENT TITLE	**Tuklas Research Competition**
NO. OF PARTICIPANT/S	Individual Category: 1 Team Category: 2-3
TIME ALLOTMENT	4 to 6 hours
21ST CENTURY SKILL/S	Critical Thinking, Problem-solving Skills, Creativity and Innovation, Collaboration & Teamwork, Communication Skills, Information, Media, & Technology Literacy, and Global & Environmental Awareness
DESCRIPTION	**Tuklas** is 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. **Science Innovation Expo**

	A Technology Innovation competition which aims to recognize the most creative and market viable project addressing crucial issues in food safety, water conservation, renewable energy, cyber security, road safety, health, disaster mitigation, agriculture, and environment.

EVENT RULES AND MECHANICS

1. **Tuklas** and **Science Innovation Expo Research Competition** is open to Grades 9 and 10 STE learners and Grades 11 and 12 STEM learners who have not reached the age of 20 years old on or before May 1, 2025.
2. Learners may work individually or in teams with 2-3 members from the same school.
3. Individual or team project is eligible to compete in only one among the four categories of **Tuklas** research competition: Life Science, Physical Science, Robotics and Intelligent Machines, and Mathematics and Computational Sciences and **Science Innovation Expo.**
4. The deadline of submission of entries (manuscript only) is on October 2, 2025 at Dr. Pablito V. Mendoza Sr. High School, Bustos District. The division screening and evaluation of entries will be held on October 6-10, 2025. Please refer to the list below for the color of the folder to be used.

Codes	Color Coding
LS-I	Green
LS-T	Yellow
PS-I	Dark Blue/Navy Blue
PS-T	Orange
RIM-I	Pink
RIM-T	Brown
MCS-I	Red
MCS-T	Purple
SIE-I	Black
SIE-T	Light Blue/ Sky Blue

5. The shortlisted entries will be announced on October 13, 2025. **Only the shortlisted entries will compete in the DSTF 2025 on October 16, 2025**.
6. First placers in each category in the Division Science and Technology Fair (DSTF)will be screened by the regional SRC. The qualifiers will advance to the RSTF.

RESOURCE REQUIREMENTS

Event Supplies, Tools, and Equipment	Participants	Venue Host	Contest Organizers
A. Tools/ Equipment	- Laptop - Extension Cord	- Projector - Chairs and Tables - Timer	

	- Physical Project (if applicable)	- Sound System	
B. Materials			- Medals - Certificates - Office supplies

D. Science Process Skill Expo

COMPONENT AREA	**Science**
KEY STAGE	**Key Stage Two (2): Grades 4-6 SSES Program**
EVENT TITLE	**Science Process Skill Expo**
NO. OF PARTICIPANT/S	- Each team shall be composed of three (3) members, one (1) Grade 4 student, one (1) Grade 5 student, and one (1) Grade 6 student - One (1) coach
TIME ALLOTMENT	2 hours and 50 minutes - **30 minutes** – Orientation & Topic Reveal - **1 hour** – Experimentation and Set-up - **30 minutes** – Exhibit of Output and Shortlisting/Selection of Top 10 - **50 minutes (5 minutes per team)** – Presentation Round of the Shortlisted Team (per team)
21ST CENTURY SKILLS	Critical Thinking, Problem-Solving, Communication, Creativity, Innovation, Collaboration, Teamwork, Productivity and Accountability
DESCRIPTION	The Science Process Skills Expo is a collaborative and experiential contest designed for Special Science Elementary Schools (SSES) at Key Stage 2. Participants will demonstrate their ability to perform scientific investigations, apply process skills, and present experimental results. Teams will be challenged with a mystery box experiment based on Grade 4–6 Science competencies, requiring hands-on application of knowledge, creativity in execution, and effective presentation skills.

EVENT RULES AND MECHANICS

Eligibility

- Open to all Special Science Elementary Schools (SSES) under Key Stage 2 (Grades 4-6).
- Each team shall consist of three (3) students (one from Grade 4, one from Grade 5, one from Grade 6) and one (1) coach.
- Participants must bring the following:
  - School ID
  - Laboratory Gown
  - Gloves
  - Goggles

Contest Mechanics

1. Each team will receive a *mystery box* containing:
   - Materials and items required to conduct the experiment.

- A set of procedures to follow.
- An unknown experiment aligned with the Science learning competencies of Grades 4–6.

2. Time Flow:
   - **Orientation & Topic Reveal (30 minutes):** Teams will be oriented on the mechanics, safety reminders, and mystery box contents.
   - **Experimentation and Set-up (1 hour):** Teams will perform the experiment and construct their experimental set-up using the provided materials and based on the given procedure.
   - **Exhibit and Shortlisting (30 minutes):** Completed outputs will be displayed for evaluation. Judges will select the Top 10 best outputs.
   - **Presentation Round (5 minutes per team):** Shortlisted teams will explain and present their set-up and findings to the panel.

Judging and Selection

- All teams will be evaluated based on criteria set by the judges (e.g., accuracy, creativity, teamwork, communication, and scientific process).
- The **Top 10 teams** will be shortlisted for the presentation round.
- Judges will rank the finalists from **Top 1 to Top 10**.
- The decision of the judges is **final and irrevocable**.

Judging Criteria:

Criteria	Description	Percentage
Scientific Process & Accuracy	Correctness in following procedures, application of science process skills, and accuracy of results	40%
Creativity & Innovation	Originality, resourcefulness, and inventiveness in the experiment and output	20%
Teamwork & Collaboration	Cooperation, equal participation, and effective time management	15%
Presentation & Communication	Clarity, confidence, organization, and ability to explain the process and results	15%
Exhibit & Output Quality	Orderliness, completeness, and scientific relevance of the final output	10%
	Total	100%

RESOURCE REQUIREMENTS

Event Supplies, Tools, and Equipment	Participants	Venue Host	Contest Organizers

A. Materials/ Supplies	- Lab gown - Rubber gloves - Goggles - Face masks	- Utilities - Electrical outlets	- Contest Materials - Office supplies - Medals - Certificates
B. Tools/ Equipment		- First Aid Kit - Tables - Chairs	- Laptop - LCD projector

E. Young Tech Creators

COMPONENT AREA	**Science**
KEY STAGE	Key Stage 2: Grades 4-6
EVENT TITLE	Young Tech Creators
NO. OF PARTICIPANT/S	2-3 participants per Grade level
TIME ALLOTMENT	30 minutes – Orientation & Theme Reveal 2 hours – Project building and coding 30 minutes – Presentation and judging
21ST CENTURY SKILL/S	Critical Thinking, Problem-solving Skills, and Mastery of Core Concepts
DESCRIPTION	Assessment of learners' knowledge and skill through creating, designing a simple project using either QuidBots Little Bits kits or Arduino Uno starter kits, 3 sensors, and 1 or more actuators.

EVENT RULES AND MECHANICS

A. The Young Tech Creators is open to Grades 4-6 learners from SSES and Regular Elementary Schools.
B. Each school may send a maximum of 1 team composed of 2-3 members from Grade 4-6 learners accompanied by one coach.
C. The team will bring either the QuidBots Little Bits kits or Arduino Uno Starter kits and the following materials:

Components	Sensors	Actuators	Other Materials
1 × Arduino Uno board with cable	Light sensor (LDR)	Buzzer	Printed guides and sample codes
1 × Breadboard	Temperature sensor (DHT11)	Servo motor	Laptop or computer with Arduino IDE installed
Jumper wires	Ultrasonic sensor		Extension Cord
LEDs and resistors			

D. The team will work to create and program a simple project using QuidBots Little Bits kits or Arduino Uno starter kits, 3 sensors, and 1 or more actuators. They will receive the instructions on the day of the event. The goal is to build a small working system that solves a problem or performs a task.
E. Teams must create a working prototype based on the theme.
F. The project must use at least 2 different sensors and 1 actuator.
G. It is imperative that students carry out the programming on-site. Ready-made projects or internet code copying is not allowed.
H. Only Available Materials before the start of the contest are allowed.

I. Each team can be assisted by a coach (teacher or facilitator) but only during planning, not while building or coding.
J. The specific theme will be announced on the day of the contest.

Judging Criteria:

Criteria	Percentage
Creativity and Originality	25%
Project Functionality	25%
Use of Sensors and Actuators	20%
Relevance to Theme	10%
Team Presentation	10%
Time Management	10%
Total	100%

RESOURCE REQUIREMENTS

Event Supplies, Tools, and Equipment	Participant	Host School/ Venue	Host Region/ Division
A. Materials/ Supplies	- Pen - Pencil - Eraser		- Questionnaires - Answer Sheets - Office supplies
B. Tools/ Equipment		- First Aid Kit - Tables - Chairs	- Laptop - LCD projector