

Republic of the Philippines  
**Department of Education**  
REGION IV-A CALABARZON




06 November 2024

**Regional Memorandum**  
No. 801, S. 2024

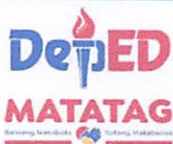
**QUALIFIERS FOR THE 2024 REGIONAL SCIENCE AND  
TECHNOLOGY FAIR (RSTF)**

To **Schools Division Superintendents**

1. Relative to Regional Memorandum No. 681 s. 2024 titled "2024 Regional Science and Technology Fair (RSTF,)" this Office thru Curriculum and Learning Management Division (CLMD), announces the qualifiers for this event. The activity will be held on November 13 to 14, 2024 at M.I. Sevilla Resort, Lucena City, Quezon Province.
2. Qualifiers are expected to bring at least 3 printed copies of their original Tuklas Research and Innovation Expo manuscripts together with the actual output which will be used for the project's actual validation, showcasing, and screening of the Judges. A project display board is also expected from each qualified entry based on the guidelines provided from the First Edition of the School, Division, Regional, and National Science and Technology Fair Guidebook.
3. Enclosed are the following:
  - a. Enclosure No. 1: Regional Qualifiers for Tuklas Life Science Category
  - b. Enclosure No. 2: Regional Qualifiers for Tuklas Physical Science Category
  - c. Enclosure No. 3: Regional Qualifiers for Tuklas Mathematics and Computational Science Category
  - d. Enclosure No. 4: Regional Qualifiers for Tuklas Robotics and Intelligent Machines Category
  - e. Enclosure No. 5: Regional Qualifiers for Science Innovation Expo
4. For questions and clarifications, please contact **PAUL GENGE L. OCAMPO**, Education Program Supervisor at [paul.ocampo@deped.gov.ph](mailto:paul.ocampo@deped.gov.ph) or the Chief of the Curriculum and Learning Management Division (CLMD), **VIERNALYN M. NAMA** at (02) 647-7487 loc. 420 or via email @ [clmd.calabarzon@deped.gov.ph](mailto:clmd.calabarzon@deped.gov.ph).
5. Immediate dissemination of this Memorandum is desired.

  
**ATTY. ALBERTO T. ESCOBARTE, CESO II**  
Regional Director

cc: clmd/ROC7



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Certificate No. PHP QMS  
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**Enclosure 1:****REGIONAL QUALIFIERS FOR TUKLAS LIFE SCIENCE CATEGORY****Individual Category**

<b>SDO</b>	<b>PROJECT TITLE</b>	<b>RESEARCHER</b>
ANTIPOLO CITY	Extraction of Golden Apple Snail ( <i>Pomacea canaliculata</i> ) Eggs as A Source of Dye for Cotton and Silk Fabrics	Marleex R. Reyes
BIÑAN CITY	Antibacterial Properties Of Tambis ( <i>Syzygium Aqueum</i> ) Leaves Against <i>Staphylococcus Aureus</i>	Akiko B. Fernandez
CAVITE PROVINCE	Assessing the Hepatoprotective Activity of Tawa-Tawa ( <i>Euphorbia hirta</i> ) Extracts Against Liver Damage Induced by Paracetamol	Edric Kevin A. Peña
LIPA CITY	SUGAR-OL: A Glycemia Stabilizing Agent Derived from Squash ( <i>Cucurbita maxima</i> ) Seeds and Aloe Vera ( <i>Aloe barbadensis miller</i> ) Gel Extract	Leander Kyle B. Katigbak
SAN PABLO CITY	Biocontrol And Plant Growth-Promoting Potential Of Rhizobacteria Isolated From The Rhizosphere Of Coconut Palm ( <i>Cocos Nucifera</i> ), Tomato ( <i>Solanum Lycopersicum</i> ), And Eggplant ( <i>Solanum Melongena</i> ) Against <i>Xanthomonas Oryza Pv. Oryzae</i> In Rice ( <i>Oryza Sativa</i> ): In Vitro And In Vivo Studies	Hannah Altheya M. Ilagan

**Team Category**

<b>SDO</b>	<b>PROJECT TITLE</b>	<b>RESEARCHER</b>
ANTIPOLO CITY	The Effect of Classical Music on Physicochemical Parameters of Red Onion ( <i>Allium Cepa</i> )"	Aliyah Erik J. Paa, Rajah Nouvelle F. Luzon
BACOR CITY	Synergistic Effects Of <i>Oreochromis Niloticus</i> (Nile Tilapia) Scale And Cyanobacteria (Blue-Green Algae) To The Growth And Yield Performance Of Brassica Napus L. Var. Black Behi (Pechay)	Bernard C. Bayonito, Aaliyah Chyn S. Arcena
BATANGAS CITY	Curblastic: Squash ( <i>Cucurbita Maxima L.</i> ) Starches And Eggshells (Calcium Carbonate) Wastes Transformed Into Sustainable Eco-Friendly Bioplastic	Heart C. Cueto, Frank Alvince A. Lontoc
CAVITE PROVINCE	Molecular Docking of Selected Phytochemicals from <i>Eucalyptus globulus</i> (Tasmanian blue gum) Against Pneumolysin of <i>Streptococcus Pneumoniae</i>	Elle Rheign Maxeen P. Padilla, Jacqueline T. Ureta, Izabelle B. Cargullo, Haniway A. Cafe
IMUS CITY	Effects of Temple Tree ( <i>Plumeria rubra L.</i> ) Leaves Ethanolic Extracts on the Diuretic Activity and Blood Pressure Levels of Dietary Sodium Hypertension-Induced Albino Rats ( <i>Rattus norvegicus</i> )	Longos, Gerald Liam L. Raloso, Emijim S. Tacazon, Julijo Cedric S

## Enclosure No. 2:

**REGIONAL QUALIFIERS FOR TUKLAS PHYSICAL SCIENCE CATEGORY****Individual Category**

<b>SDO</b>	<b>PROJECT TITLE</b>	<b>RESEARCHER</b>
IMUS CITY	Fabrication Of Dye-Sensitized Solar Cells (Dssc) Using Guinea Grass (Megathyrus Maximus) Chlorophyll And Recycled Indium Tin Oxide (Rito)	Mica G. Ciples
LAGUNA	Freshwater Snail Shells (Jagora Asperata) With Bamboo (Bambusa Vulgaris) Activated Charcoal As Filter Pellets For Jeepney Exhaust Pipe	Arlo Gian C. Aguinaldo
LIPA CITY	Mantinika: Development Of An Oil-Water Separation Device For A Potential Remediation Of Oil Spills	Sofia Nayeli D. Espiritu
STO. TOMAS CITY	Smartmed: Implementing Assistive Technology To Enhance School Clinic Efficiency For Sto. Tomas Senior High School Students	Jundel Gabriel E. Reyes
TAYABAS CITY	Corn Stover Wash Tea Bag Against Chicken Intestine Eschericia Coli (E. Coli)	Winslet B. Calabano

**Team Category**

<b>SDO</b>	<b>PROJECT TITLE</b>	<b>RESEARCHER</b>
BATANGAS PROVINCE	Corrosion Inhibition Of Kakawati (Gliricidia Sepium) Leaves Extract On Carbon Steel In Saline Environment	Bolo, Jhomar S. Cabrera, Mary Bernadette D. Cabrera, Rovelyn C.
CAVITE PROVINCE	Epilepstop: Microcontroller based Active Light Blocking System Using Photodiode And Electrochromic Lens For Photosensitive Epileptic Patients	Sarah A. Saclolo Shamira Johanne L. Danganan Christian Gabe C. San Pedro
CABUYAO CITY	A.L.I.E.S.: A Solar-Energy-Driven Automated Irrigation And Environmental Surveillance With Solar Tracker For Sustainable Agriculture	Gian Karl B. Macabutas Keane Uziah U. Monleon John Kevin B. Villanueva
DASMARINAS CITY	The Potential Of Paspalum Conjugatum Paper As A Charge Generating Layer In Triboelectric Nanogenerators	Qwncy Noreen L. Nadong, Francine Jewel L. Narvaez
LAGUNA	Oregano (Plectranthus Amboinicus (Lour.) Spreng.) Leaves Methanol Extract As An Ultraviolet Absorption Enhancer In Glass Window Coating Applications	Arienne Chanelle V. Rivera Ayesshia Jenica D. Mendoza Mekayla Sabria F. Mercado
LIPA CITY	Sone: Arduino Soil Neutralizer Robot With Ph Sensor Utilizing Pulverized Eggshell And Liquid Fish Bone Meal's Calcium Composition As A Buffer For Soil Acidity For Rice (Oryza Sativa) Crop	Hanz Rainier R. Sabellina, Annika Celine T. De Castro, Shierjaneena Landicho

**Enclosure No. 3.****REGIONAL QUALIFIERS FOR TUKLAS MATHEMATICS AND COMPUTATIONAL SCIENCE CATEGORY****Individual Category**

<b>SDO</b>	<b>PROJECT TITLE</b>	<b>RESEARCHER</b>
BATANGAS CITY	KAIN-TEEN: RFID Based Canteen Payment Machine and Application	Raimar Lanz A. Buhay
CAVITE PROVINCE	OPTIMAP: A Machine Learning System for Automated Route Assessment Utilizing the Revised Chinese Postman Algorithm on Bipartite Graph Models for Optimal Rescue Operations	Irvin Wayne A. Digo
LIPA CITY	In Silico via Molecular Docking, Pharmacokinetics Profiling, and PASS Prediction of Selected Phytochemicals from Moringa oleifera Plant as Potential Inhibitors of Human Epidermal Growth Factor-2 (HER2) Protein for Breast Cancer Treatment	Samiel Rentino A. Manguiat
QUEZON PROVINCE	Computational Fluid Dynamics Modelling of Hydrocyclone Separator for High-Density Polyurethane and Polystyrene Microplastic Removal in Aquaculture Systems	Joshua Albert R. Ricohermozo
TAYABAS CITY	SPIDAR System: A Mathematical Framework for Stem-borer Egg Mass Pixel Intensity Detection Analysis and Recognition	Kobe James L. Sayat

**Team Category**

<b>SDO</b>	<b>PROJECT TITLE</b>	<b>RESEARCHER</b>
CALAMBA CITY	PASAHERO: calculating Pasa(transmission) of Airborne diseases Spread for Awareness and understanding the Hinders and factors: duration of Exposure, Rate of ventilation, infectious particles Occupying public transportation	Arlene Jane M. Timpug Jaehanne Miel A. Tarrosa
CAVITE PROVINCE	POLYCAL: A Raspberry Pi-based Portable Calculator for Factoring and Graphing	Kianne Rich C. Lubigan, Rachelle M. Nazareno, Ron Laurence Martin, Jerilimlie D. Zapico
QUEZON PROVINCE	Evaluation of Cube and Hexagonal Prism-shaped Bio-Briquettes out of Dried Mango (Mangifera indica) Leaves and Rice (Oryza sativa) Straw: An Analysis of the Physical Property and Combustion Performance of Polyhedron-shaped Briquettes	John Arcel C. Nazareno, Angel Nicole B. Cadacio , Althea Nicole A. Saguid
RIZAL	Analysis of Loss Curves and Classification Metrics of the YOLOv10 Model for Detecting Coffee Plant Diseases and Pests intended for an AI-Powered Sprayer	Kristine I. Butaran Dustin Eduvala Kurt Ison
TAYABAS CITY	Application of Hexadecimal Conversion and Range Inequalities on iSCAGAP: Intelligent Suggestive Crop Analyzer and Guidance for Agronomic Plantation	Jamila Blessie P. Bunzo Ivan Jhay C. Pasaksak Princess Bea A. Tesaluna

## Enclosure No. 4:

**REGIONAL QUALIFIERS FOR TUKLAS ROBOTICS AND INTELLIGENT  
MACHINES CATEGORY**

**INDIVIDUAL CATEGORY**

<b>SDO</b>	<b>PROJECT TITLE</b>	<b>RESEARCHER</b>
ANTIPOLO	Arduino-Based Smoke Detector to Combat Teenage Smoking in School Restrooms	Yohannn E. Delos Santos
BATANGAS CITY	SEGRE-BIN (SEGREGATION BIN): AN AI-TRAINABLE TRASH BIN FOR IMPROVED WASTE SEGREGATION	Ayesha M. Ferrer
CABUYAO CITY	Smart Assistive Bot for Hazard Detection and Safety in Public and High-Risk Spaces	Jon Bennet D. Deyto
RIZAL	Detection of Petechial Rash for Efficient Clinical Diagnosis of Dengue Through AI Image Processing Technology (DAITECH)	Alesha Marie L. Wilson
IMUS CITY	NEUTRA: IoT-Enabled Smart Solution for real-Time Water Quality Monitoring in Aquatic Environments	Allene Zena Nicole A. Ramos
CAVITE PROVINCE	W.A.V.E.S. (Water Automated Vessel for Environmental Scavenging)	Yelena Beatriz V. Ledesma

**TEAM CATEGORY**

<b>SDO</b>	<b>PROJECT TITLE</b>	<b>RESEARCHER</b>
BACoor CITY	BMS: Bakawan Monitoring System Using Solar-Powered ESP32 For Sustainable Mangrove Conservation Management	Renzmel L. Monis, Mark Joseph D. Ogama, Duke Aron M. Ruiz
BATANGAS CITY	ECOSORT: An Autonomous Robot For Efficient Waste Segregation	Paolo Krystopher E. Tampol, Allana Ashley A. Jalandoni Alleah Johnhine R. Igasan, Justine M. Gupit
CALAMBA CITY	TRIO-FORCE: Tamarind, Rice husks, and Okra - Filtration System against Microplastic and Oil Spills and Residue Controlled by Arduino in Freshwater Ecosystems	Prudence Jade E. Cervantes Janelle Andrea L. Cobeng Reyzen Josh A. Remoroza
RIZAL	GrainGuard: Utilization of Convolutional Neural Network (CNN) For Visual Object Detection in Enhancing Disease Detection in Rice Crops	Anne Clarisse S. Arabit , Danie Lou Esquibel Marielle Dela Paz
TAYABAS CITY	SUNZAP : Solar Unit for Neutralizing, Zapping Insects, and Pest Control	Aron John R. Dagdag Christan Jay C. Año,so, John David S. Martizano

## Enclosure No. 5:

**REGIONAL QUALIFIERS FOR SCIENCE INNOVATION EXPO****INDIVIDUAL CATEGORY**

<b>SDO</b>	<b>PROJECT TITLE</b>	<b>RESEARCHER</b>
IMUS CITY	Innovative Use of Washing Machine Wastewater as Organic Fertilizer for Hydroponic Tomato Cultivation	Jacen Angelo D. Encina
LAGUNA	OPTI-VR (Optimal Prosthetic Technology for Individuals with Visual Restriction): Integrating OpenCV (Open Source Computer Vision Library) and TTS (Text-to-Speech for Object Detection)	John Robert A Casas
RIZAL	Shrimp Disease Detection for Mobile Devices: Leveraging Tensorflow's Real-Time Image Analysis	Pio Miguel C. Ng
TAYABAS CITY	I-REST: Innovative Rotating Equipment for Secure and Stable Transportation for People with Walking Disability	Athena Christine R. Salvatierra
QUEZON PROVINCE	Natural Dye Sensitized Compact Disc-Based Solar Panel	Geoverlyn Kim A. Pilongo

**TEAM CATEGORY**

<b>SDO</b>	<b>PROJECT TITLE</b>	<b>RESEARCHER</b>
LAGUNA	Automatic Pandan Presser And Slitter Machine	Kim Nemuel E. Meraña ; Ronnel M. Paduada ; Clarence G. Raminto
LUCENA CITY	Project AQUADROP: Advancing Quality Utilization of Aquatic Droplets Vibration for Renewable Optimization of Power	Allyza Dominique M. Asnan, Ralph Vincent T. Guerrero, Jeynird Iriz M. Aritmetica
QUEZON PROVINCE	COCOCARRY: Plantable and Water Resistant Paper Bag out of Coconut (Cocos nucifera) Coir with Beeswax Coating	Nelrhon Kerby L. Acob, Wayne Nicholas C. Allarey, Jonas S. Romasanta
RIZAL	SAGIP: Sensor-based Action and Guidance for Integrated Preparedness: Advancements in Earthquake Detection, Flood Level Monitoring, and Weather Prediction	Eihdan Zovia C. Belarmino , Briana Marie C. Del Mundo , Grichelle Khate V. Gumangan
SAN PABLO CITY	LeafiNa: Cultivating Sustainability Through Transforming Organic Waste into a High Impact NPK Compost Soil Amendment for Improved Soil Water Holding Capacity	Dwane Lloyd K. Garcia, Cassandra Julian L. Gatchalian, Erica Liezl P. Guevarra
TAYABAS CITY	Auto Drip: A Smart Dripping Mechanism for Vertical Garden	Turiano C. De Ramos, IV, Hiasmen P. Oriasel Temharie, Jean R. Pagana