



Republic of the Philippines  
Department of Education  
REGION IX, ZAMBOANGA PENINSULA  
SCHOOLS DIVISION OF DAPITAN CITY

Office of the Schools Division Superintendent

October 19, 2023

**DIVISION MEMORANDUM**

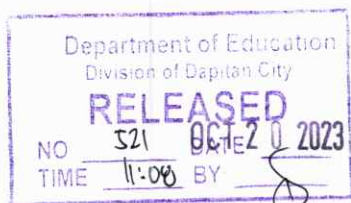
No. 521 s. 2023

**DIVISION TRAINING OF SCIENCE TEACHERS TO STRENGTHEN THE LEARNING OF SCIENCE WITH ROBOTICS**

To: Education Program Supervisor  
Elementary School Heads  
Secondary School Heads  
Elementary/Secondary Science Teachers

1. In connection with the implementation of the Strengthening the Learning of Science with Robotics in collaboration with Local Government Unit, there will be a training of Science Teachers on October 21-22, 2023 at 8:00 o'clock in the morning in Dapitan City Government Center.
2. As an efficient co-curricular program for learners' development, the training aims to integrate robotics curriculum in the learning of Science for Grade School, Junior High Schools in Dapitan City and prepare Dapitan City Grade School and Junior High Schools to compete locally in robotics competitions and select the most qualified teams for higher competitions.
3. The participants of the said training are the selected Science Teachers and Head Teachers (The list of participants is found in Annex A).
4. Immediate and wide dissemination of this memorandum is desired.

**DANNY B. CORDOVA, EdD., CESO VI**  
Schools Division Superintendent



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Republic of the Philippines  
**Department of Education**  
 REGION IX, ZAMBOANGA PENINSULA  
 SCHOOLS DIVISION OF DAPITAN CITY

**DIVISION TRAINING ON STRENGTHENING THE LEARNING OF SCIENCE  
 WITH ROBOTICS**

**VENUE:** DAPITAN CITY GOVERNMENT CENTER  
**DATE:** October 21-22, 2023  
**REQUIREMENTS:** EACH PARTICIPANT MUST BRING A LAPTOP,  
 SMART PHONE and FOUR AA BATTERY ENERGIZER

**LIST OF PARTICIPANTS**  
**Elementary**

NAME/SCHOOL	NAME/SCHOOL
<b>Dapitan City Central School</b>	<b>Barcelona Central School</b>
1.MARLON S. EGUIA	1.IVY JANE A. HAMOY
2. RUHDA C. TEJANO	<b>Polo Elem. School</b>
3. DELIA DUBAL	1.MAROSE N. JAMAROLIN
4. MARIO P. TANQUIS	<b>Dapitan City Experimental</b>
<b>Sulangon Central School</b>	1.ROSANNE T. EGUIA
1. JADE RUIZ	<b>Sigayan Elem. School</b>
2.STEPHANIE ALEGARBEZ	1. CRIZELLE GAY P. JAPON
3.JELLGA GAHISAN	<b>Larayan Elem. School</b>
4.BOBBIE E. GURABOT	1.GENEVIEVE C. BAEL
<b>Baylimango Central School</b>	<b>Talisay IS</b>
1.MARICAR A. RECAMARA	1. BERNADETTE C. PON
2.WILLER P. AGUM	<b>Yabo Elem. School</b>
3.CRISTITO G. ELUMBA Jr.	1.GERARDO J. RUIZ Jr.
4. IMELDA F. TAN	<b>Sicayab Elem. School</b>
<b>Dapitan City SPED</b>	1.JUNMARK L. PADAO
1.JERLINA O. ENGUIO	<b>Ilaya Elem. School</b>
2.AUBREY GLEER C. POTOY	1. CLARISSE B. ELCAMEL
3.MERLYN A. NARVAEZ	<b>Hilltop Elem. School</b>
4.HELEN T. CALAGUIAN	1.CAMILLE B. LAZARTE
<b>San Francisco Elem. School</b>	<b>Dampalan Elem. School</b>
1. JUNE BILL BAGASINA	1. SHARON A. DAGANASOL





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**LIST OF PARTICIPANTS**  
**Secondary**

NAME/SCHOOL	NAME/SCHOOL
<b>Barcelona NHS</b>	<b>Potungan NHS</b>
1.EMMANUEL A. VERANO	9.MA. MANUELLA S. SUELLO
2. MA. BENJIE CALAGO	10.IVAN ROY G. RABE
3.ARNIN PANGILINAN	11.JILLORD FIL SUMALPONG
4.JESSICA ABELLON	12.SUNSHINE B. SABANAL
<b>Sulangon NHS</b>	<b>Dakak NHS</b>
5.LADIEMYRIS F. CUENTO	1.RUEL CAMAZO
6.JADE L. DURITAN	<b>Aseniero NHS</b>
7.JUNVEL T. BOLIGAO	1.JULIE P. LABOR
8. EVELYN E. ESPERANZA	<b>Oro NHS</b>
<b>Dapitan City NHS</b>	1.MARVIN A. RECAMARA
1.RONEL L. JAMAROLIN	<b>Baylimango NHS</b>
2.ERLINE B. NICDAO	1.MERCEDES E. DUYAGUIT
3.DON DAVID B. CABILIN	<b>Talisay Integrated School</b>
4. CHRISTI D. ADJAIN	1. AILYN HAMPAC
5. REGIE E. BAIT-IT	<b>Kauswagan Integrated School</b>
6.SHERRIE MAE J. FERNANDEZ	1.JAMAICA GUIRA
7.MARY LYNDIE G. BORGONIA	<b>Ilaya NHS</b>
8.MA. ALONA C. EGUIA	1.FEBRAH LOU B. ACOYMO
9. AMY B. POTENTE	
10.NENA B. HOYOHOY	<b>FOCAL PERSON-SCIENCE</b>
11.SHAYNE ADASA	JENNIE T. NAVAJA
12.SALOME SHARON C. YAP	<b>EPS-MATHEMATICS</b>
13.MARIVIC P. TOME	ESMERALDA A. BAGAIPO

Prepared by:

  
**JENNIE T. NAVAJA**  
 HTII/Focal Person-Science

Approved by:

  
**DANNY B. CORDOVA, EdD.,CESO VI**  
 Schools Division Superintendent



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## Teachers' Training for Robotics

**Program Content Focus**

### Content Matrix

Topics/ Time Allotment per topic/ Resource Person	Expected Learning Outcomes	Activities to Achieve Learning Outcomes	Assessment Strategies /Tools	Outputs
<b>Day 1 (Mbot 1 and MakeX Starter)</b>				
<b>09:00 -12:00 PM</b> <b>Introduction to Robotics</b> <b>Trainer:</b> <b>Engr. Girlie R. Malijan</b>  <b>Topics:</b> a. Robotics b. Basic Parts of a Robot c. Input and Output Devices of a Robot d. Functions of Every Part of a Robot f. Manual Control of Robots g. Basic Robotics Programming	1. Assemble and test a Robot.  2. Control a robot remotely using a mobile device  3. Program a robot to display lights, generate sound, move and avoid obstacles	Lecture / workshop	<b>Activity 1</b> Assembling and testing a robot  <b>Activity 2</b> Basic Robotics Programming  <b>Activity 3</b> Obstacle Avoidance	Assembled robot  Programmed Robot
<b>10:00 AM – 10:15 AM</b> <b>Health Break</b>				
<b>12:00 PM – 01:00 PM</b> <b>Health Break</b>				
<b>1:00 PM – 4:00 PM</b> <b>MakeX Starter Introduction and Expansion Parts</b>				
<b>Topics:</b> a. Introduction to MakeX Starter b. Different Missions on MakeX Starter c. Task Switching in Robotics d. LED Matrix e. Bluetooth Controller f. RGB Line Follower g. Servo Motor h. Smart Camera	1. Gain knowledge on MakeX Starter's requirements, mechanics, and missions 2. Program a robot to execute two or more different tasks. 3. Program a robot to display characters and texts, Follow lines, generate precise motion, and recognize colors.	Lecture / Workshop/ demonstration of output	<b>Activity 4</b> Executing commands for  a. LED Matrix b. advanced line following robot c. Servo Motor d. Smart Camera	Program execution of <ul style="list-style-type: none"> <li>• <b>Displaying Texts and Characters</b></li> <li>• <b>Advanced Line-Following</b></li> <li>• <b>Precise Motion</b></li> <li>• <b>Color Recognition</b></li> </ul>



## Teachers' Training for Robotics

**Program Content Focus**

### Content Matrix

Topics/ Time Allotment per topic/ Resource Person	Expected Learning Outcomes	Activities to Achieve Learning Outcomes	Assessment Strategies /Tools	Outputs
<b>Day 2 (MakeX Explorer)</b>				
<b>09:00 -12:00 PM</b> <b>Introduction to mBot 2</b> <b>Trainer:</b> <b>Engr. Girlie R. Malijan</b>  <b>Topics:</b> a. Parts of mBot 2 and its functions b. Basic structure of robots in MakeX Explorer c. Manual control of a robot d. Basic programming of mBot2	1. Assemble and test a Robot.  2. Control a robot remotely using a mobile device  3. Program mBot2 to display lights and texts, generate sound, and move	Lecture / workshop	<b>Activity 1</b> Assembling and testing a robot  <b>Activity 2</b> Basic Robotics Programming	Assembled robot  Programmed Robot
<b>10:00 AM – 10:15 AM</b> <b>Health Break</b>				
<b>12:00 PM – 01:00 PM</b> <b>Health Break</b>				
<b>1:00 PM – 4:00 PM</b>				
<b>MakeX Explorer Introduction and Expansion Parts</b>				
<b>Topics:</b> a. Bluetooth Controller b. Mechanical Gripper c. Quad RGB Line Follower d. Obstacle Avoidance e. Introduction to MakeX Explorer: * Requirements * Arena * Missions	1. Program a robot to be controlled using a Bluetooth controller, follow lines, avoid obstacles.  2. Create and program a mechanical gripper  3. Gain knowledge on MakeX Explorer's requirements, mechanics, and missions	Workshop/ demonstration of output	<b>Activity 3</b> Executing commands for  a. Bluetooth Controller b. Mechanical Gripper c. Quad RGB Line Follower d. Ultrasonic Sensor	Assembled robot with mechanical gripper.  Program execution of <ul style="list-style-type: none"> <li>• Bluetooth Controller</li> <li>• Advanced Line-Following</li> <li>• Mechanical Gripper</li> <li>• Obstacle Avoidance</li> </ul>