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RELEASED

DATE: APR 04 2019

BY:

Division Memorandum
No. 271 s. 2019
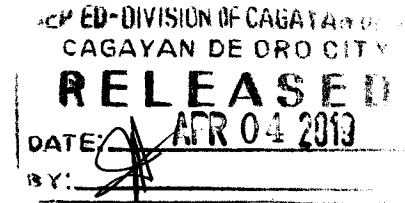
DEVCON KIDS PROGRAM

To: MARLON C. SERIÑA   Principal III-Cagayan de Oro Senior High School
    BRENDA GALARPE   Principal I-Gusa Regional Science High School
    This Division

1. Attached is a letter of Invitation from Engr. Rolando P. Cabaluna, Provincial Officer, Misamis Oriental, Department of Information and Communications Technology in partnership with Devcon Kids Philippines on the conduct of a ten (10) day workshop on Introduction to Problem Solving using Micro:bit (a pocket size computer) Robotics and app development on Aprill 22 to May 10, 2019 at DICT Misamis Oriental beside Postal Services Office, Divisoria, Cagayan de Oro City.

2. The said +School Heads are advised to send 20 grade 11 STEM students from Gusa-Regional Science High School and nine grade 11 learners from Cagayan de Oro Senior High School.

3. Transportation, meals and snacks will be charged to school funds subject to the usual accounting and auditing rules and regulations.

4. For information, guidance and compliance.

JONATHAN S. DELA PEÑA, Ph.D. CESO V
Schools Division Superintendent

To be indicated in the Perpetual Index under the following subjects:
SHS Program – Academic Track-Workshop on Robotics
cid/jsm

March 26, 2019

JONATHAN S. DELA PEÑA, Ph.D. CESO V
Schools Division President
Department of Education
Division of Cagayan de Oro City

Through: Jean S. Macasero, Education Program Supervisor

Dear Sir Dela Peña,

Devcon Kids in partnership with the Department of Information and Communications Technology Misamis Oriental will conduct Devcon Kids Program at DICT Misamis Oriental Cagayan de Oro City tentatively on April 22 to May 10, 2019. Our initial target students for the pilot activity are 30 students from the current Grade 10 students of Gusa Regional Science High School and City Highschool who are interested to take STEM education for Senior High. We would like to seek assistance in informing the schools heads of the said program, identifying the students and other assistance during the training that you are willing to provide.
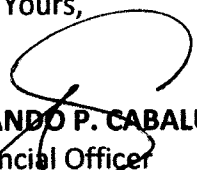
DEVCON Philippines is a national non-profit organization of computer programmers and enthusiasts that exists to promote *"IT Pinoy Talent"* to sync, support and succeed. DEVCON Kids, is the newest program offered by DEVCON Philippines to cater to the growing needs of even younger enthusiasts.

The DEVCON Kids Program aims to teach the youth a problem solving framework through an introduction to computer programming. It is composed of 10 whole day workshops with each workshop serving 30 students, beginning with an introduction to Problem Solving using Micro:bit (a pocket size computer), creating Games using SCRATCH, robotics, and app development.

We would be happy to provide the schedule of workshops, tentatively planned for the summer months.

We hope to hear a favorable response to support our activity.

Truly Yours,

ROLANDO P. CABALUNA
Provincial Officer
Misamis Oriental

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Workshop overview/schedule : Unit 1: Introduction to Problem Solving

- **No. of student learners:** 30
- **Estimated no. of small teams:** 5

Other equipment and space requirements:
- Laptop
- Projector
- Screen
- Registration area
- Whiteboard or space to put Manila paper for large group note-taking
- Smaller tables for small team activities
- Lunch and snacks area
- Trash area

Materials checklist
- Registration list
- Pens
- Flipchart paper or Manila paper for facilitator note-taking
- Large black, blue, red markers for facilitator note-taking
- DEVCON Kids standees
- Participants' workshop kit: 30 sets
  - Long brown envelope: x 30
  - Pencil: x 30
  - Crayons/colored pens: x 30
  - Scratch paper: x 30
  - Sticky notes: x 30
  - 5 worksheets: x 30
    - Aluminum Boats - Activity Guide
    - The Problem Solving Process - Activity Guide
    - My Problem-Solving Superskills Activity Guide
    - I am a Superhero Activity Guide
- Spaghetti Tower activity:
  - Pasta: 2 large packs
  - Marshmallow: 1 small pack

- o Masking tape: 5 rolls (1 per group)
- Aluminum Boat-Making activity: 5 sets
  - o 2 aluminum foil sheets 5x5: x 5
  - o 1 container that can hold 3-5 inches of water: x 5
  - o 15 x 0.25 centavo coins (small ones): x 5
  - o 1 towel/rag to place under container: x 5
- Signed certificates: For each participant
  - o Editable Canva file of workshop certificates, HERE
- Lunch and snacks for participants
- Lunch and snacks for volunteers
- Trash bags
- Paper napkins

TIME	ACTIVITY	MATERIALS	OTHER NOTES
8:30 - 9:00	**Registration**	**For the whole group** • Registration sheet and pen • DEVCON Kids Standees **Workshop kit participant:** • Long brown envelope with the following: • Pencil • Crayons/colored pencils • Scratch paper • Sticky notes? • 5 worksheets *(identified in succeeding activities)*	
9:00 - 9:30 AM	**Introductions and Ice Breaker** • Welcome to DevCon Kids • About the program • What to expect • House rules	• Pasta: 1-2 packs, divided among the no. of groups • Marshmallows: 1 pack • Masking tape: 1 roll	

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	• **Morning icebreaker: Spaghetti Tower**		
9:30 - 11:00	**Lesson 1: What is problem-solving?** • What are problems? • What are the different kinds of problems? • How do you typically solve problems? • Introduction to D-P-A-R • **Activity: Aluminum Boat-Making**	**Per small team:** • 2 aluminum foil sheets 5x5 • 1 container that can hold 3-5 inches of water • 15 x 0.25 centavo coins (small ones) • 1 towel/rag to place under container • one copy of **Aluminum Boats - Activity Guide**	
11:00 - 12:00	**Lesson 2: The Problem-Solving Process** • Processing of Aluminum Boat-Making Activity • D-P-A-R problem-solving process	**For the whole group:** • Post-It notes • Pencils • Colored pencils **Per person:** • One copy of **The Problem Solving Process - Activity Guide** each	
12:00 - 1:00 PM	**Lunch**	• Lunch for pax • Lunch for teaching staff, volunteers	
1:00 - 1:15	**Icebreaker** • **Suggestion: "Stranded"** HERE might be a good warm-up for the afternoon activities	**For the whole group:** • Whiteboard or Manila paper/flipchart • Markers	

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Time	Activity	Materials	
1:15 - 2:15	**Lesson 2 Bridge: More D-P-A-R examples and activities** • <Tins, Pam suggested this, so I've removed the Superhero League to accommodate this. We'll need your help to create other examples and activities to help the learners better understand D-P-A-R>		
2:15- 3:45	**Lesson 3: I am a Superhero!** • Identifying problem-solving Superskills • I am a Superhero!	Per person: • Paper • Pencils • Crayons/colored pencils • **My Problem-Solving Superskills Activity Guide** • **I am a Superhero Activity Guide**	
3:45 - 4:15	**Snack break**	• Snacks for pax • Snacks for teaching staff, volunteers	
4:15 - 4:45	**Wrap-Up** • Processing and final insights	• Manila paper • Markers for note-taking	
4:45 - 5:00	**Closing** • Awarding of certificates • Photo op	• Signed certificates	

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Workshop overview/schedule : Unit 2: Microbits

TIME	ACTIVITY	MATERIALS
	Lesson 1: Micro:pet 1 **Overview:** Now that we have a process for solving problems (Define, Plan, Act, Reflect), we will take our problem-solving skills further by learning how to build code to serve a purpose and fill a need. We can only learn to identify and **define** real needs by learning how to **Empathize:** "To put yourself in someone else's shoes, and understand what they are thinking and feeling. This is done by observing, asking questions, and listening." In this activity, students will interview their partner and create a sketch of their partner's ideal pet, based on their understanding of their partner's need.	Pairs of students, papers, pens, colored pencils/crayons, activity guide and worksheet
	Lesson 2: Making a Micro:pet This activity is a continuation of the Micro:pet lesson. With the pet sketches from last week's lesson as a base, students now create a physical 3D representation of that sketch using ordinary household items and art supplies. This representation must make room for installation of the Micro:bit circuit board and battery pack.	Assorted boxes, scrap cardboard, colored construction paper, colored duct tape, scissors, pipe cleaners, stickers, feathers, string, markers, googly eyes, glue, popsicle sticks, pencils, paper, micro:bit and battery pack
	Lesson 3: Micro:pet 3: Installing a Program **Overview:** After an introduction to the Micro:bit Block Editor, students will create a simple program in Microsoft MakeCode and download it to their Micro:bit using a USB cable.	For every 2 students: a Micro:bit, a micro-USB cable, a battery pack, a laptop, and (internet connection), activity guide.

	Lesson 4: Making a Digital Fidget Cube **Overview:** Students will apply the Input-Process-Output concept for thinking of a computing device as something that processes one or more inputs and produces output as results. **This activity is designed to develop students' view of computers as tools for solving problems.**	premade boxes, glue, tape, glue gun with glue sticks, scissors, feathers, pompoms, crayons/colored pencils/markers, Activity Guide: My Fidget Cube

Workshop overview/schedule : Unit 3: Scratch

TIME	ACTIVITY	MATERIALS
	Lesson 1: Hour of Code Workshop **Overview:** At this point, students have learned that computers can be used to solve problems. They will take part in the Hour of Code, be inspired and recognize how computer science impacts every part of our lives.	Laptops, internet connection
	Lesson 2: Introduction to Scratch Programming *Sprites, Sound/Note/Event/Control Blocks* **Overview:** At this point, students have learned that computers can be used to solve problems. They will now begin to understand how computer programming plays a central role in how computers do this. Using the Scratch platform, students will be guided to learn new blocks and concepts.	Laptops, internet connection, Self-Assessment Rubric, Student Guide

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Workshop overview/schedule : Unit 4: Robotics

TIME	ACTIVITY	MATERIALS
	Robotics with micro:bit YahBoom Smart Robot **Overview:** In this activity, you and your partner will build your **micro:bit YahBoom Smart Robot**, learn to program the micro:bit with Yahboom, and build on the lessons to program micro:bit to compete in a maze solving robotics competition.	Smart Robot

Workshop overview/schedule : Unit 5: CSS

TIME	ACTIVITY	MATERIALS
	Unit 5 Workshop Day #2: How can we use Web Technologies to address a specific need? **Overview:** Building on the HTML Workshop, this 8 hour workshop will introduce students to the basics of styling their webpage using CSS. They will learn the fundamentals of reading and writing CSS to enhance their first webpages.	Laptop with Brackets Code Editor and Goggles installed, internet access, CSS Cheat Sheet, Pixlr Online Photo Editor, Bootstrap Framework

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Workshop overview/schedule : Unit 6: HTML

TIME	ACTIVITY	MATERIALS
	Unit 5 Workshop Day #1: How can we use Web Technologies to address a specific need? **Overview:** This 8 hour workshop will introduce students to the basics of website creation using HTML. They will learn the fundamentals of reading and writing HTML, and create their first webpages.	Laptop with Brackets Code Editor and Goggles installed, internet access, printed tags with definitions on back, projector and teacher laptop.

Workshop overview/schedule : Unit 7: WEB DEV + ROBOTICS

| TIME	ACTIVITY	MATERIALS
	Unit 5 Micro:Bit Robotics Mini-Workshop **Overview:** In this activity, students will be able to show mastery in programming the Micro:bit, and build on the lesson to program a Micro:bit robot to solve the "Maze Solver" challenge.	15 Laptops with Flash, internet access, 1 projector, and teacher laptop, 1 cardboard maze, rolls of 1 inch black non-shiny tape, 1 prize for a pair, 1 timer, 15 Yahboom Smart Robots, 15 Micro:bit, Magic Controller (with hidden programmed Microbit inside)
	Unit 5 Workshop Day #3: Coding Day **Overview:** This 5-6 hour workshop will provide students an opportunity to explore even more HTML and CSS	Laptop with Brackets Code Editor, internet access, projector and teacher laptop.

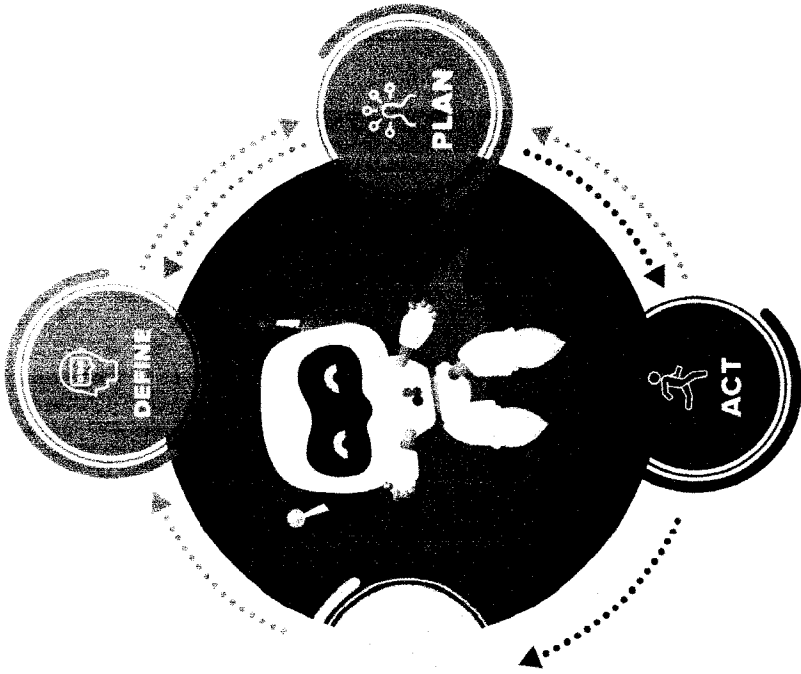|	concepts using a prepared guide.	

Workshop overview/schedule : Unit 8: Web Dev Summative Assessment

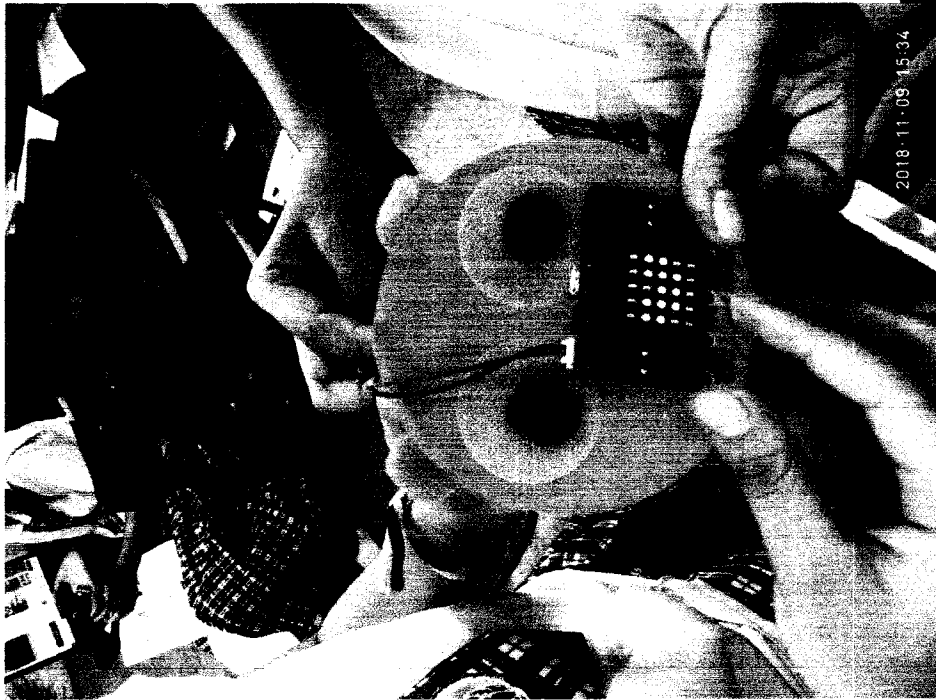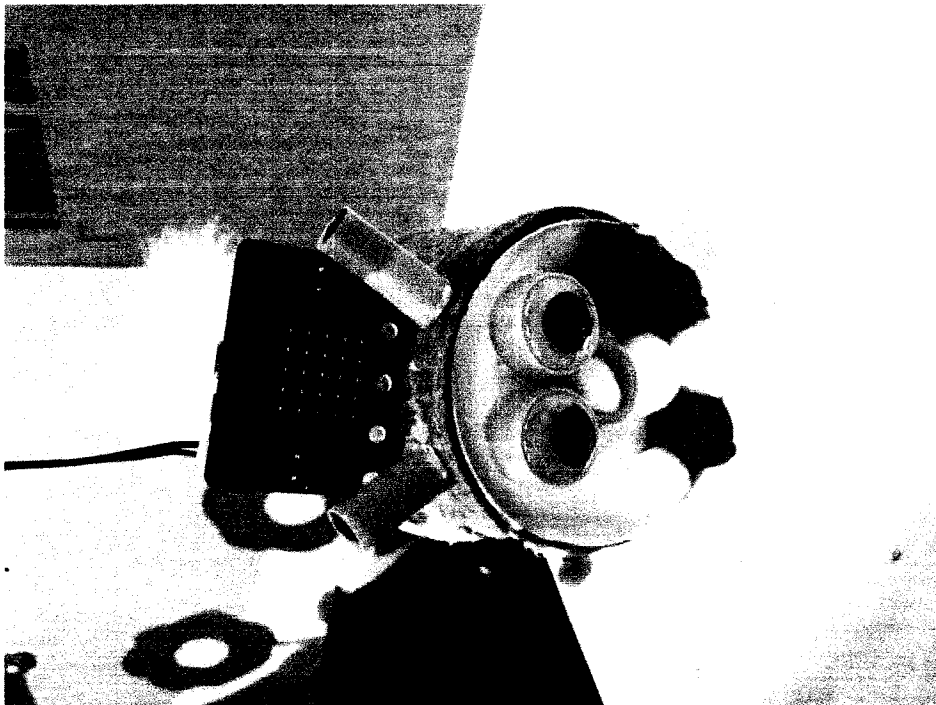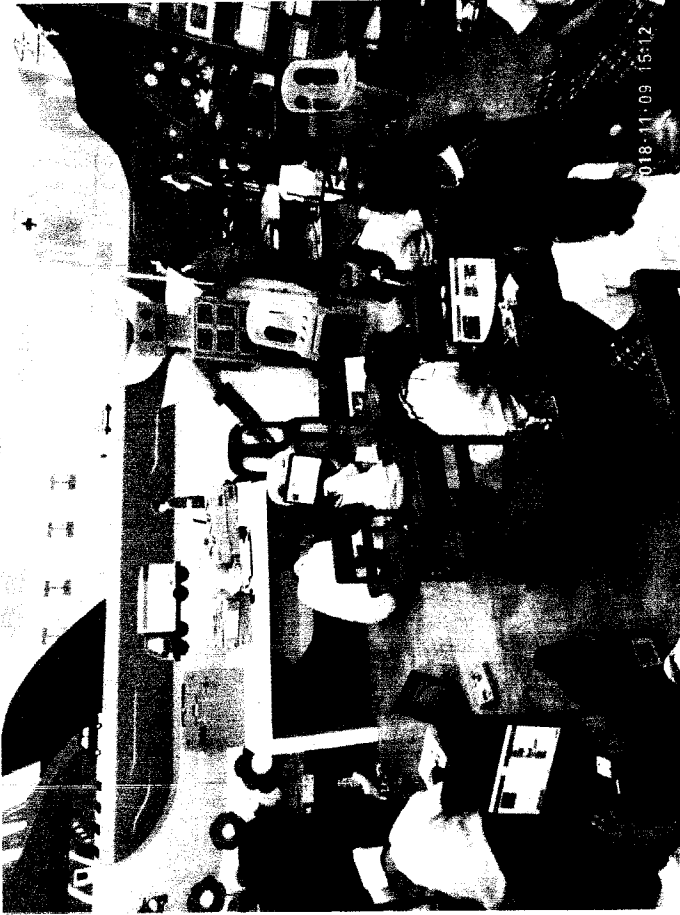| TIME	ACTIVITY	MATERIALS
	Unit 5 Workshop: How can we use Web Technologies to address a specific need?	Laptop with Brackets Code Editor installed, internet access, projector and teacher laptop, Post-it Notes, pencils
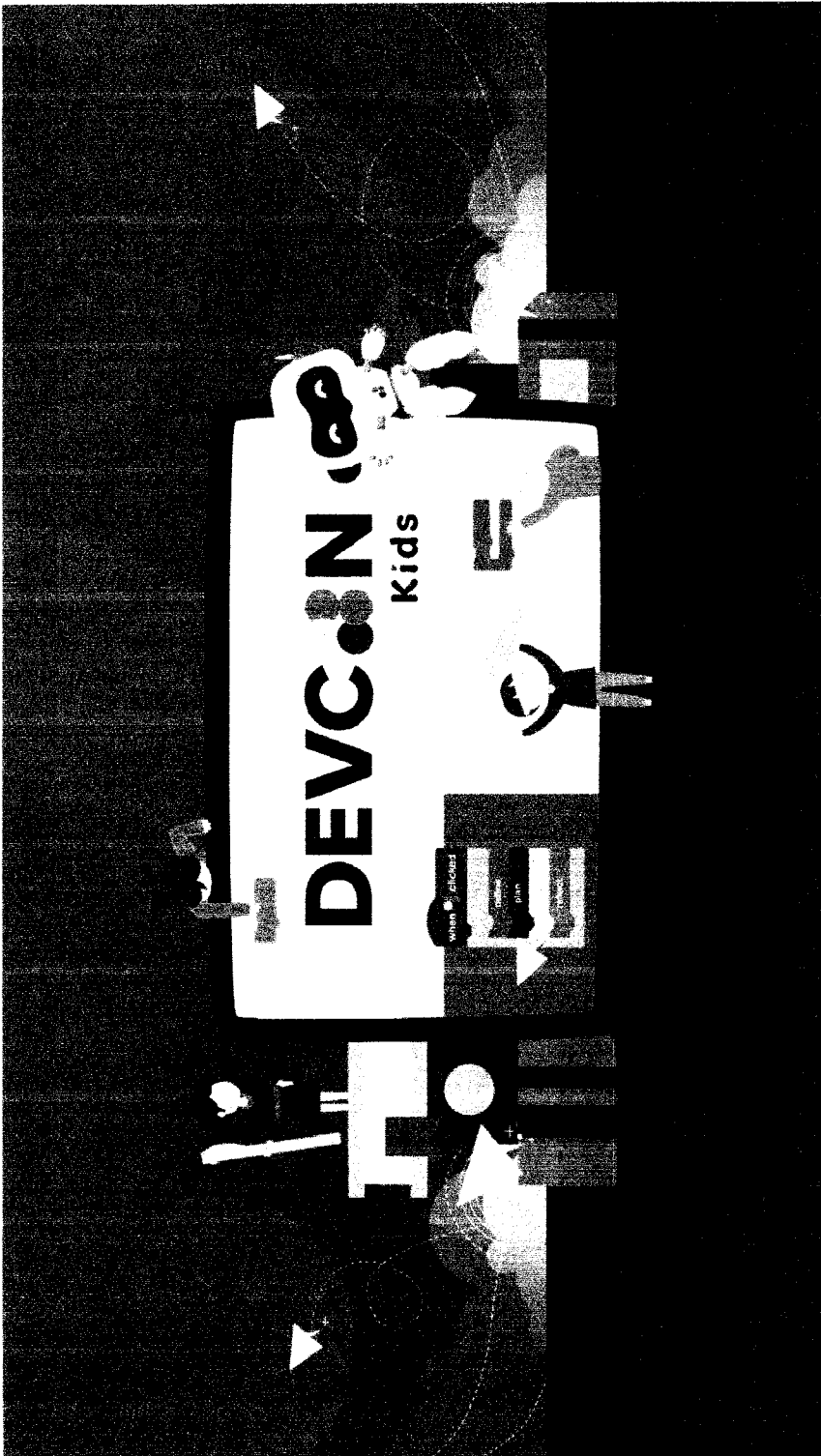
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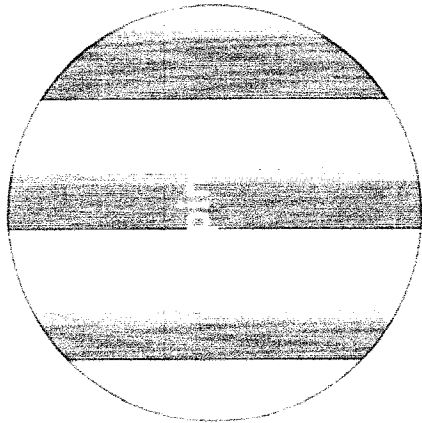
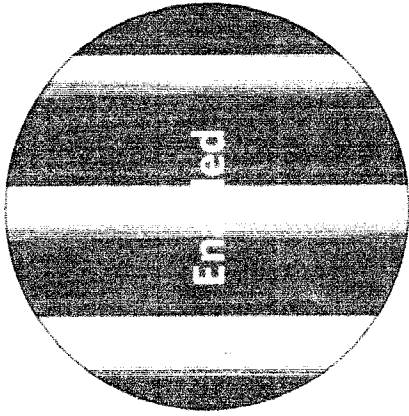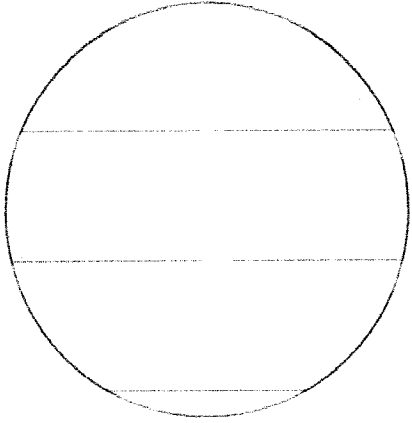DEVC**N** Kids

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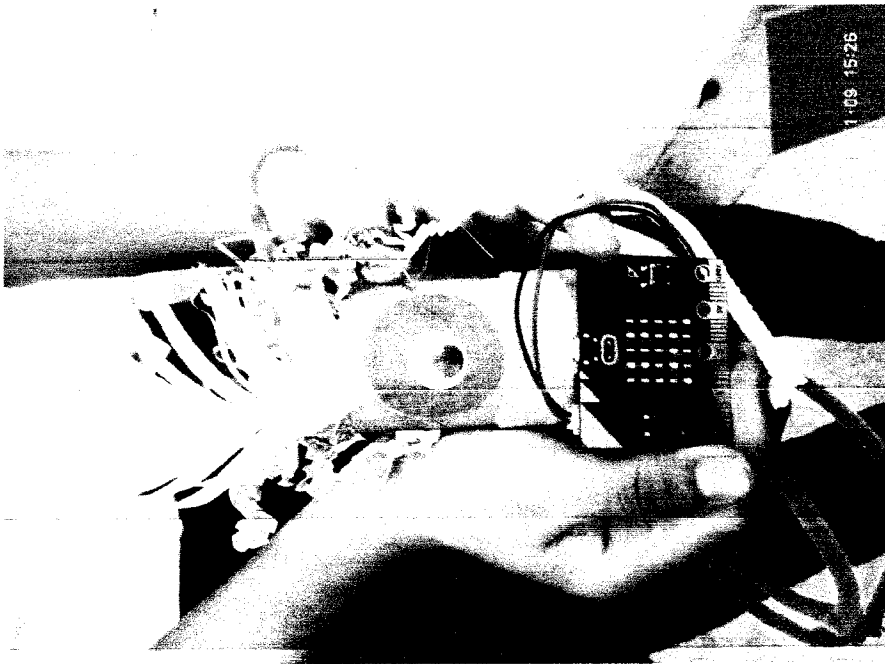
DEVCON Kids is made possible thru:

Core Volunteers:

Pam Ros Damarillo, Shumate Royo, Joel Bautista, Nina Terol, Tins Gonzales and Liza Fernandez,

Winston & Pam Ros Damarillo

Capital Expensies:

	# units	Cost/Unit PHP	Total Cost PHP	Cost in $	
Laptops	0	0	0	$0	DICT
Microbit	0	0	0	$0	DICT
Micro:bit Smart Car with Microbit (Yahboom)	16	3,750	60,000	1,120	DEVCOM
Venue + INTERNET			0		DICT

Operational Expenses:

	# units	Cost/Unit PHP	Total Cost PHP	Cost in $
Basins, Tinfoil, art supplies, glue gun, glue, tape, cardboard		5000	5,000	100
Maze (Vinyl)	4	167	800	10
Printing Paper, ream	6	300	1,800	$30
Printer Ink, color + B/W	5	700	0	0
Teacher Stipend	10	2000	20,000	400
Food for Volunteers (200 per, 5 max)	5	1000/day	10,000	200
Transporation Stipend for Volunteers (200 per, 5 n	0	0	0	
DEVON Kids Standees			6,500	
Students Meals 250/day x 10 days	30	2500	75,000	
			(44,100)	
			119,100	762

Possible Local Sponsors

April 22 or 29