

**MIRIAM COLLEGE**

**90** YEARS

**MIGHTY@NINETY**

# FROM STEM TO STEAM TO DREAMS: *Building a Culture of Innovation in a Girls' School*

**Jimmy Lapuz, *Miriam College Middle School***

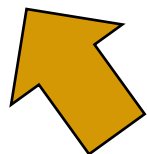
**Email: [jlapuz@mc.edu.ph](mailto:jlapuz@mc.edu.ph)**



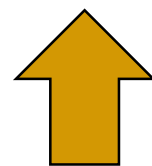
**"Our students will always be  
at the center of everything that we do."**

*Investiture Message of Dr. Rosario O. Lapus (2011)*

**new**



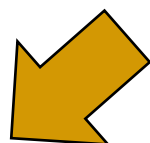
**ideas**



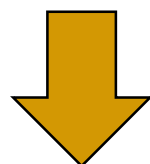
**creativity**



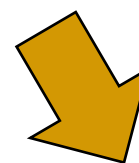
**INNOVATION**



**changes**

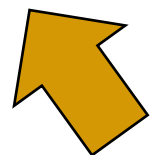


**development**



**success**

**growth**



**students**



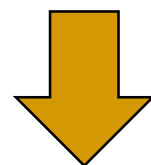
**experience**



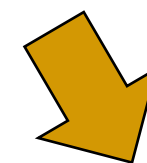
**Why innovate?**



**opportunities**



**challenges**



**goal**

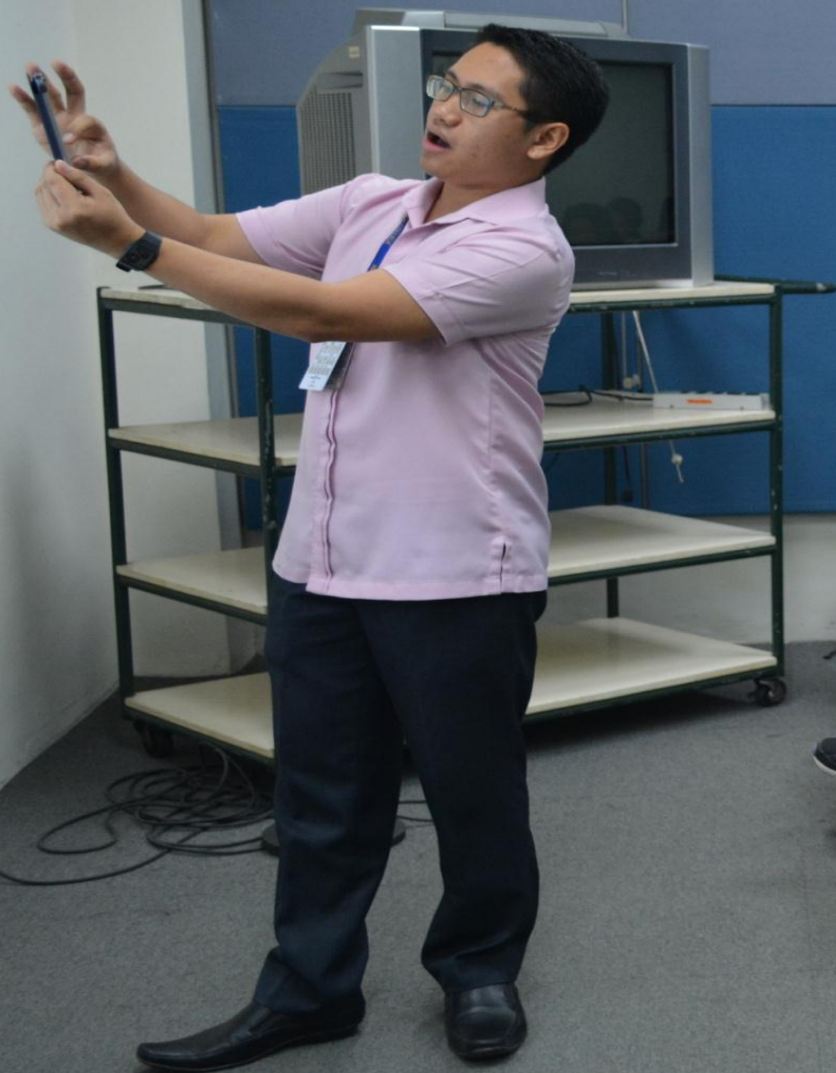
# Miriam College Middle School

- established in 2013
- focuses on the unique needs of students in pre-adolescent and adolescent age group
- recognizes the importance of student activities in developing students' educational experience

# Miriam College Middle School Initiatives

## Learning with Technology

- E-learning program was piloted in 2013. It was fully rolled out in all of the Middle School grade levels in 2014
- E-learning program allows students to use selected apps to enhance topics taught in each subject area





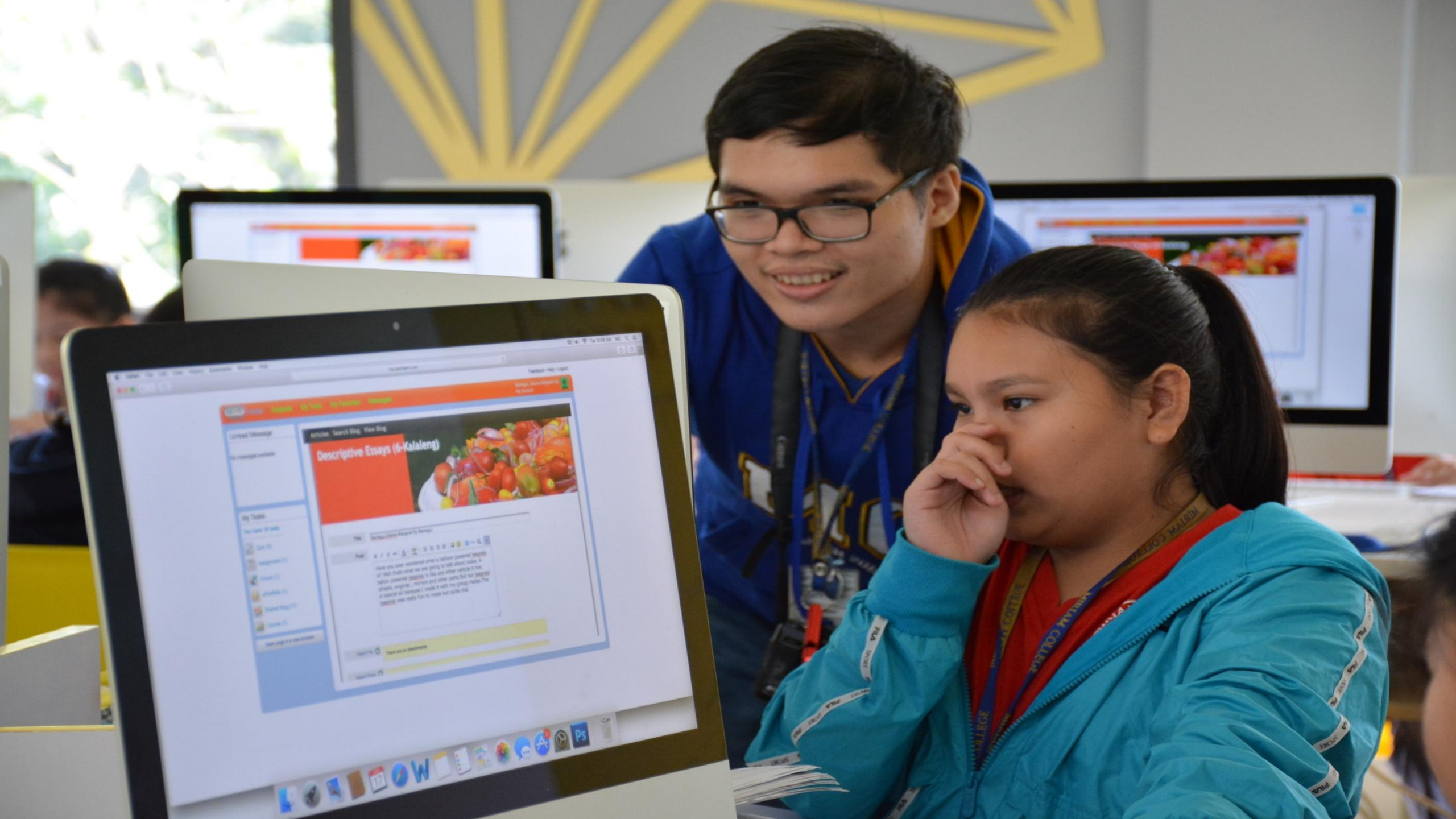


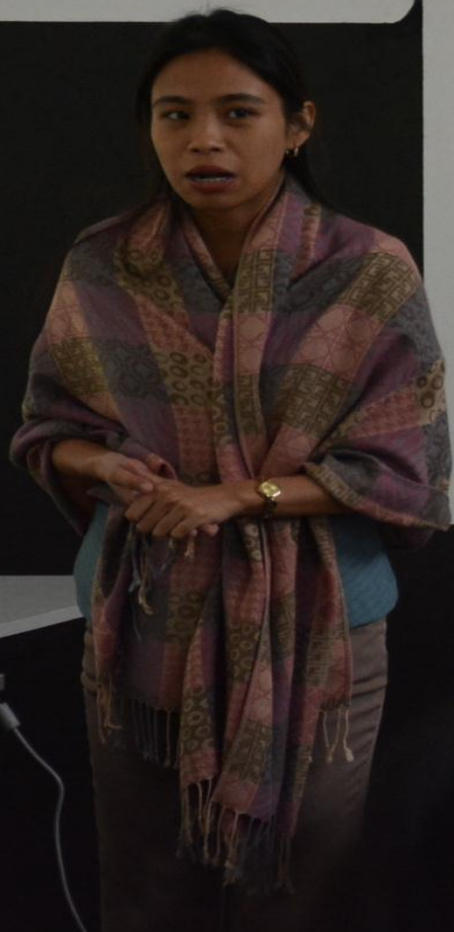




00:48

# Technology at Henry Sy Sr. Innovation Center (HSSIC)









GUIDELINES IN USING THE MEDIA LAB

1. Please keep the computer clean and free from any clutter.
2. The computer system is an expensive item. Please handle it with care and avoid any damage to the hardware and software.
3. Do not use the computer for any unauthorized activities.
4. Do not use the computer for any illegal activities.
5. Do not use the computer for any activities that may cause damage to the hardware or software.
6. Do not use the computer for any activities that may cause damage to the data.
7. Do not use the computer for any activities that may cause damage to the system.
8. Do not use the computer for any activities that may cause damage to the network.
9. Do not use the computer for any activities that may cause damage to the internet.
10. Do not use the computer for any activities that may cause damage to the school.

# Program for Enrichment (ProEn) and Pool of Students Exemplars (POSE)

- ProEn was restructured to enable students to focus on STEAM-related activities including simple engineering and building projects, as well as technology-infused tasks
- POSE was an additional program for students who have shown marked achievement and aptitude in Science and Mathematics









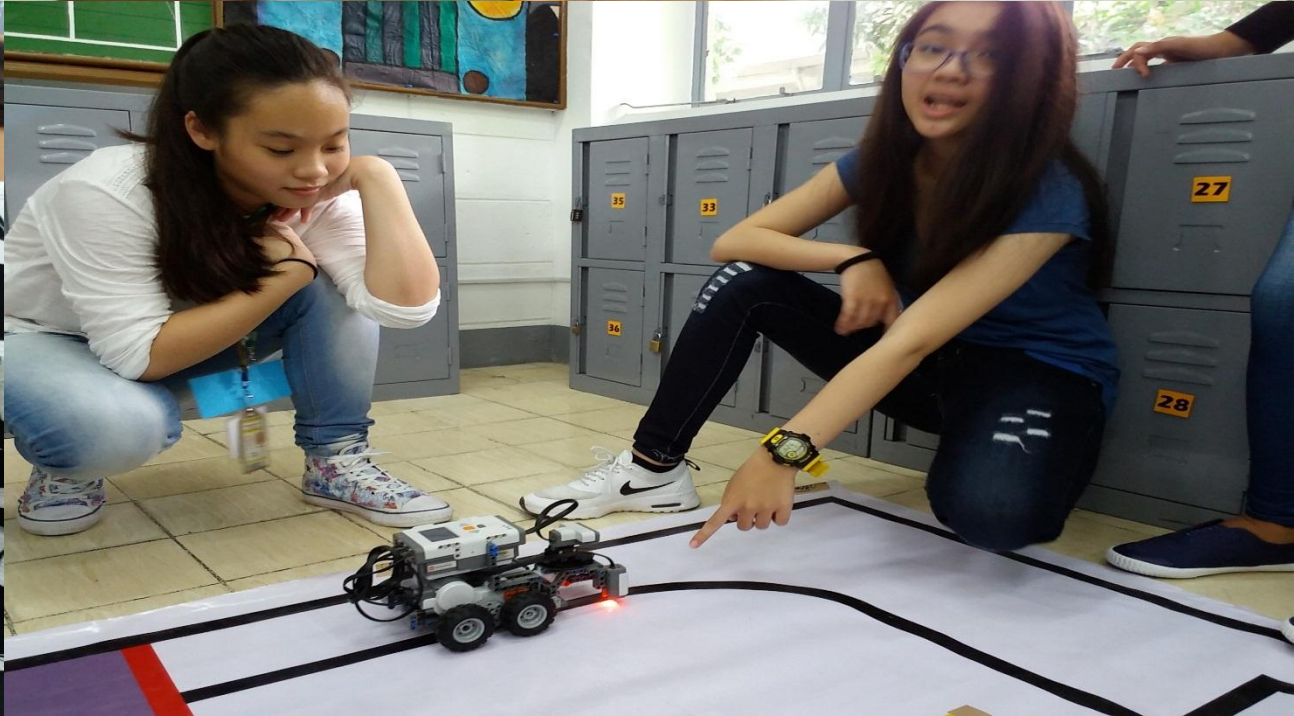
# Learning with Robotics

- Robotics was included in the Computer curriculum in all grade levels in SY 2014-2015
- Basic skills focused on building and programming robots are taught through their computer classes
- RoboCamp happens within the school year
- Students join Robotics competition to enhance their skills and critical thinking further









# Doing STEAM@Home

- STEAM@Home started as a simple science project in 2013
- These are home-based projects given to Grade 6-8 students every quarter
- a project based on the theme for the quarter or current lessons of student is given for them to work on at home with a parent-partner

# Doing STEAM@Home

*reinforce  
concepts*



*distribute  
activity  
sheets*



*students share their  
experiences through  
video / pictures*



*students together  
with their parents  
do STEM@Home*



**Materials**



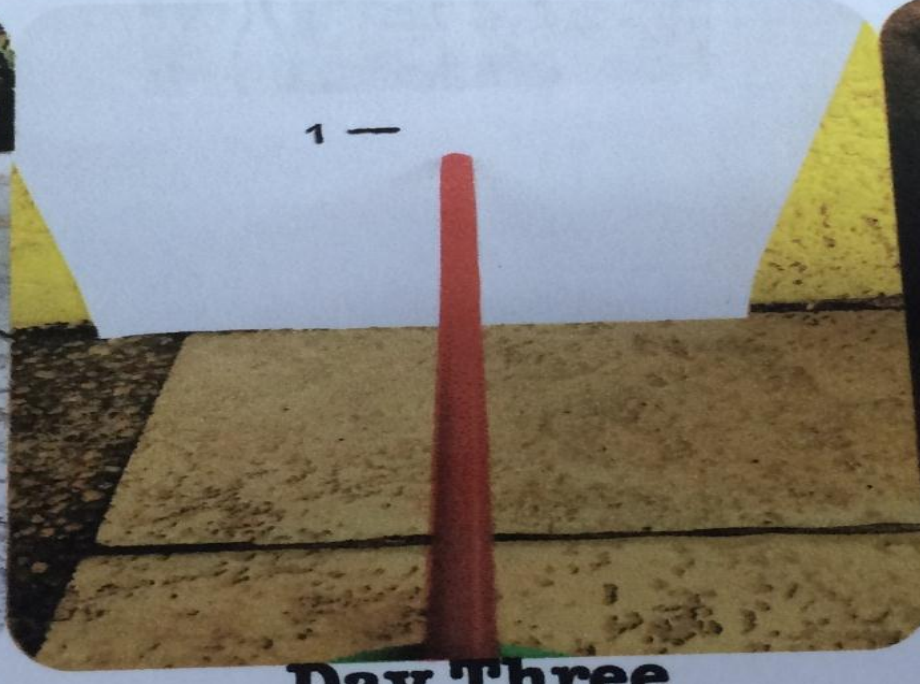
**Creating the barometer**



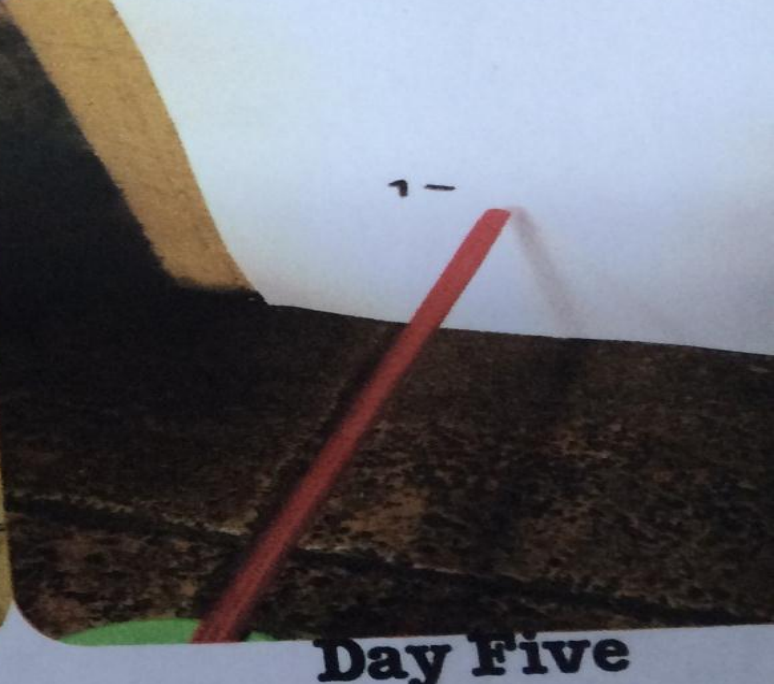
**Labeling**



**Day One**



**Day Three**



**Day Five**



Partner and I

Me

Material







# Lifelong Learning and Learning from Others

- Continuous training is provided for teachers
- Middle School teachers join colloquium to present their researches
- MEET THE EXPERTS ACTIVITY







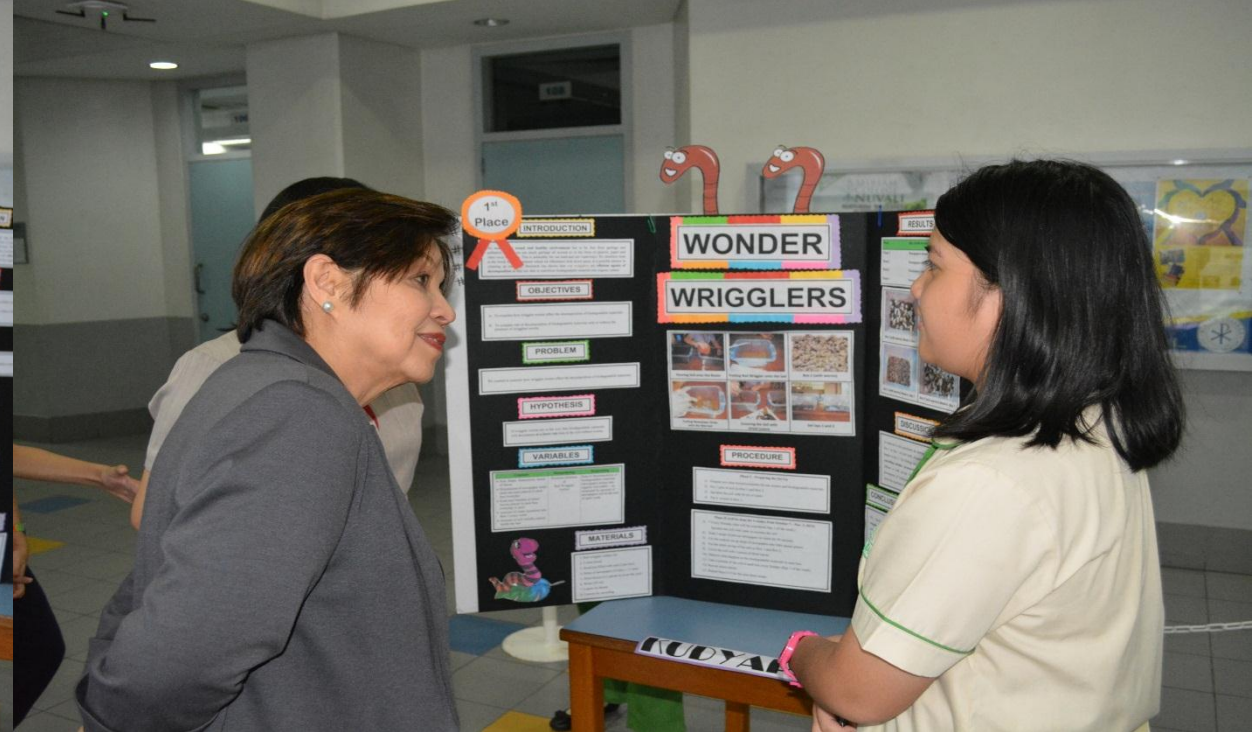




# Connecting Learning to Practice

- Students work in groups for investigatory projects in Science
- Performance tasks are given to Math classes to apply and supplement the concepts discussed in their classes











# **PODS**

## **(Perspectives, Opportunities, Discoveries, Simulations)**

# How BOARD are you?

Life-size board games will be installed in different areas of the Middle School for students and teachers to play with.

# Objectives

- Provide alternative learning experiences to students
- Develop and enhance logical-spatial reasoning, and higher-order thinking skills through game logic
- Innovate and design games meant for the whole Middle School
- Promote camaraderie and school-spirit





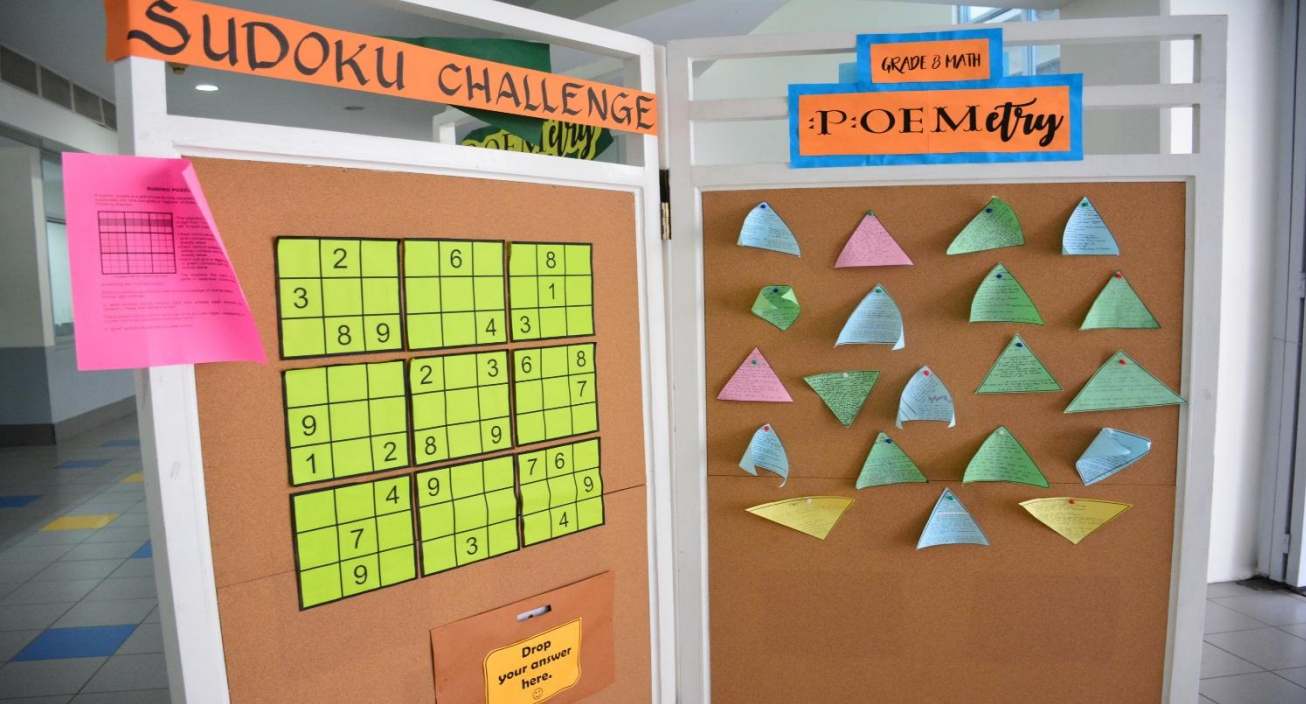




# STEAM Week Celebrations

- Exhibits creative and innovative outputs of students in STEAM classes
- Provides opportunities and learning experiences for students about the meaningfulness of STEAM
- Exposes students to real-life situations of STEAM





## Station 4:

### ANGLE THE ROOF!

**INSTRUCTIONS**

- Students will think of the best angle for the roof of a house that would keep the family safe from a volcanic eruption.
- Students will draw the angle on their activity sheet then justify the reason behind their choice.



## Station 1:

### SHAKE IT UP!

**INSTRUCTIONS**

Students will answer general trivias about earthquakes and volcanoes.

1. The tallest volcano on Earth is Mt. Mauna Kea which is found on \_\_\_\_\_  
 A. Italy B. USA C. Mexico D. Nepal

2. The tallest volcano on the Solar System, Olympus Mons, isn't found on Earth but on \_\_\_\_\_  
 A. Mars B. Jupiter C. Saturn D. Venus

5. Who is the author of the book Journey to the Center of the Earth?  
 A. Emily Dickinson B. Lary Maud Montgomery C. Jules Verne D. Mark Twain

6. What is the rank of Manila, Philippines on the cities in the world which are most prone to earthquakes?  
 A. Eighth B. Fifth C. First D. Third

9. Seismoscope, an early instrument that could register the occurrence of an earthquake, was invented by \_\_\_\_\_  
 A. Alexander Graham Bell B. Isaac Newton C. Pyroclastic D. Galileo Galilei

10. What type of cone does the Taal Volcano has?  
 A. Cinder B. Composite C. Pyroclastic D. Shield

3. The term "volcano" came from the Latin word Vulcanus who is the Roman god of \_\_\_\_\_  
 A. Anger B. Earth C. Fire D. Heat

4. The greatest volcanic eruption in human history that killed over 70,000 people came from what volcano?  
 A. Mt. Kilauwa of Hawaii, USA B. Mt. St. Helens of United States C. Mt. Santorini of Greece D. Mt. Tambora of Indonesia

7. In region IV-A (CALABARZON), which of the following provinces is NOT prone to typhoons?  
 A. Cavite B. Batangas C. Laguna D. Quezon

8. What city in Italy was buried when Mt. Vesuvius erupted on 79 AD?  
 A. Milan B. Pompeii C. Rome D. Sicily

11. Which fault system runs through the cities of Metro Manila?  
 A. Central Philippine Fault B. Marikina Valley Fault C. Eastern Philippine Fault D. Western Philippine Fault

12. How are earthquakes on the moon called?  
 A. Dequake B. Lunar Tremble C. Moonquake D. Moonsway

## Station 2:

### GRAPH IT!

**INSTRUCTIONS**

- Students will be given a data about the magnitudes of earthquakes per year in Bohol, Philippines.
- Students will create a graph using MS Excel based on the given data.
- Students will draw the line graph then answer a question about it on the activity sheet.

EARTHQUAKES IN BOHOL	
DATE	MAGNITUDE
FEBRUARY 8, 1990	6.8
MAY 27, 1996	5.6
OCTOBER 15, 2013	7.2
MAY 10, 2014	4.4
NOVEMBER 4, 2014	4.5

Solve your work. Filename is: Earthquake\_Section\_ClassNumber

Location: Earthquake Agency CN 1-6



## Station 5:

### INVENT IT!

**INSTRUCTIONS**

Students will write their answers to the question on the HOTS Board.

Question:  
 "If you would make an invention that would help reduce risks caused by disasters, what would it be?"

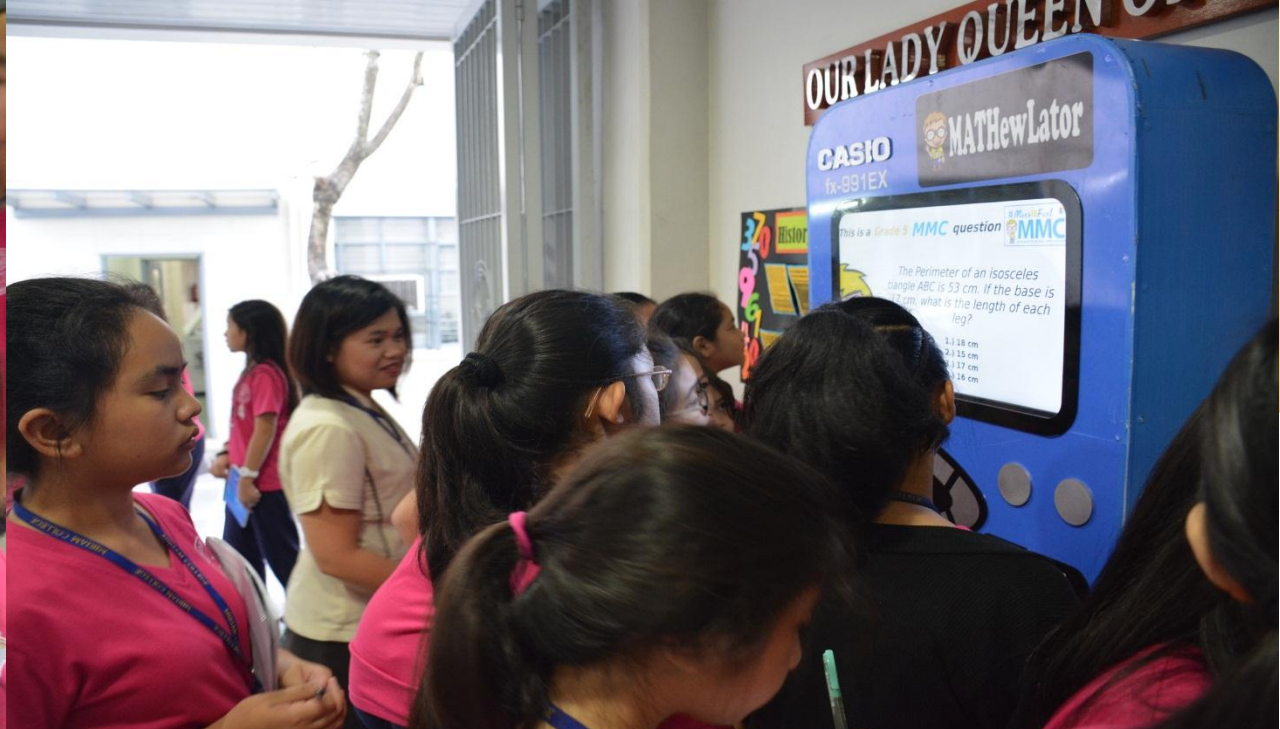
Gangsa

Kalaleng

Kudyapi









# **STEAM X**

## **(Xplore, Xperience, Xpand)**

Source: <http://philmckinney.com/>



**WE DON'T GROW WHEN  
THINGS ARE EASY; WE  
GROW WHEN WE FACE  
CHALLENGES.**



*“Always desire to learn  
something useful.”*

- Sophocles

**MIRIAM COLLEGE**



**MIGHTY@NINETY**

**[www.mc.edu.ph](http://www.mc.edu.ph)**

