Republic of the Philippines
Department of Education
REGION IV-A CALABARZON
GATE 2, KARANGALAN VILLAGE
1900 CAINTA, RIZAL

DEPED-4A-06-RM-21-257

14 June 2021

Regional Memorandum

SUBMISSION OF LIST OF NAMES OF STEM TEACHERS TO ONLINE STEM TEACHING FACTORY

To **Schools Division Superintendents**
(SDOs Antipolo City, Batangas City, Batangas Province
Cabuyao City, Calamba City, Cavite City, Cavite Province
Dasmarinas City, Laguna Province, Lipa City, Lucena City
Quezon Province, Rizal Province, Tanauan City, Tayabas City)

1. The Center for Integrated STEM Education, Inc. (CISTEM), Unilab Foundation, Inc., Unilab Pharma Academy, Amherst Laboratories, Inc., and Belmont Softgel Pharma Corporation, in partnership with HRDD-NEAP Region IV-A shall conduct its second year of Virtual Teacher Immersion Program for STEM teachers through Online STEM Teaching Factory on July 20-23 and 26, 2021 for the first batch and November 23-26 and 29, 2021 for the second batch. The virtual activity shall be conducted via Zoom and Google Classroom. The link shall be provided to all the registered participants before the start of the activity through email.

2. The program aims to:

   a. establish mutual knowledge communication between schools and industries;
   b. provide real-life career environment for STEM teachers;
   c. expose STEM teachers to challenges involved in everyday industrial practice; and
   d. build STEM teachers capacity.

3. Participants to this virtual training are teachers from Junior High School offering STEM curriculum and Senior High School offering STEM track. Hence, this Office requests the identified SDOs to nominate **one junior** and **one senior** STEM teachers from the same identified schools and submit their names on or before June 25, 2021 via email @ hrd.calabazon@deped.gov.ph.

4. The identified STEM teachers are requested to register online using the link **http://bit.ly/OSTF2021-4A** They are also requested to secure a GCash number for their internet allowance. For further information regarding the program, please refer to the attached documents and the list of names of SDOs and the identified schools.

5. This Office through the HRDD-NEAP R shall likewise release a separate Regional Memorandum on the list of participants who previously attended the STEM Factory Teaching for a virtual meeting.

6. Should there be questions/clarifications regarding the activity, please email hrd.calabarzon@deped.gov.ph attention Nadina Gaton.

7. Immediate dissemination of this Memorandum is desired.

FRANCIS CESAR B. BRINGAS
Regional Director

hrdd/ngg

LIST OF IDENTIFIED SDOS TO SUBMIT NAMES OF STEM TEACHERS TO ONLINE STEM TEACHING FACTORY

(July 20-23 and 26, 2021- First Batch)

No	Name of School	SDO	No. of Pax (JHS)	No. of Pax (SHS)
1	Mayamot NHS	Antipolo City	1	1
2	Pinamukan Integrated School	Batangas City	1	1
3	Bauan Technical High School	Batangas Province	1	1
4	Southville I Integrated National High School	Cabuyao City	1	1
5	Cavite National High School	Cavite City	1	
6	Gen. Mariano Alvarez Technology High School	Cavite Province	1	1
7	Tanza National Comprehensive High School	Cavite Province	1	1
8	Dasmariñas Integrated High School	Dasmarinas City	1	1
9	Lipa City Science Integrated National High School	Lipa City	1	1
10	Gumaca National High School	Quezon Province	1	1
11	Lopez National Comprehensive High School	Quezon Province	1	1
12	Morong National High School	Rizal Province	1	1
13	Angono National High School	Rizal Province	1	1
14	Tanauan City Integrated High School	Tanauan City	1	1
15	Luis Palad Integrated High School	Tayabas City	1	1
		Total	**15**	**15**

LIST OF IDENTIFIED SDOS TO SUBMIT NAMES OF STEM TEACHERS TO ONLINE STEM TEACHING FACTORY

(November 23-26 and 29, 2021- Second Batch)

No	Name of School	SDO	No. of Pax JHS	No. of Pax SHS
1	Dr. Juan A. Pastor Memorial National High School	Batangas Province	1	1
2	Alupay National High School	Batangas Province	1	1
3	Bigaa Integrated NHS	Cabuyao City	1	1
4	Camp Vicente Lim Integrated School	Calamba City	1	1
5	Bulihan Integrated National High School	Cavite Province	1	1
6	Tanza National Trade School	Cavite Province	1	1
7	Cristobal S. Conducto Memorial National High School	Laguna Province	1	1
8	Dayap National Integrated High School	Laguna Province	1	1
9	Fernando Air Base Integrated National High School	Lipa City	1	1
10	Bolbok Integrated National High School	Lipa City	1	1
11	Lucena City National High School	Lucena City	1	1
12	Dr. Maria D. Pastrana National High School	Quezon Provine	1	1
13	Quezon National High School	Quezon Province	1	1
14	Teresa National High School	Rizal Province	1	1
15	Morong National High School	Rizal Province	1	1
		Total	**15**	**15**

Online STEM Teaching Factory

(Virtual Teacher Immersion)

TARGET DATE:
July 20-23 and 26, 2021

TARGET NUMBER OF PARTICIPANTS:
60 STEM Teachers

ONLINE PLATFORM:
Zoom
Google Classroom

ADVANTAGES:

- Simultaneous implementation of the program for both Amherst and Belmont.
- Larger number of participants covered by a single run. This would allow us to hit our target number of participants for 2020.
- Opportunity to reach farther areas in Region III and Region IV-A.

OBJECTIVES:

- Establish mutual knowledge communication between schools and industries
- Provide real-life career environments for STEM teachers
- Expose STEM teachers to challenges involved in everyday industrial practice
- Build STEM teacher capacity

ABOUT STEM TEACHING FACTORY:

The STEM Teaching Factory is a joint program of the Center for Integrated STEM Education, Inc. (CISTEM), Unilab Foundation, Inc., Unilab Pharma Academy, Amherst Laboratories, Inc., and Belmont Softgel Pharma Corporation. It is a career immersion program that has four components: (1) conceptual lectures on STEM and good manufacturing practices (GMP), (2) experiments and hands-on operation of modern laboratory and industrial-grade equipment, (3) plant tours, (4) career talks. The knowledge and skills gained by the teachers are expected to boost their capability to teach STEM subjects to their students.

EXPECTED PROGRAM OUTPUTS:

The STEM Teaching Factory is expected to equip the STEM teachers with necessary knowledge and skills that they can use for teaching STEM subjects to their students. The students, on the other hand, are expected to develop more interest in science, technology, engineering, and mathematics that would lead them to take STEM-related courses and eventually become STEM professionals. During the extensive 5-day virtual career immersion, the teachers are expected to actively participate in the webinars, watch the virtual plant tours, and listen attentively to the career talks. The teachers will be asked to take quizzes, and accomplish daily reflections, exit reports, and evaluations. Ultimately, the teachers are expected to duplicate our efforts by applying the STEM Teaching Factory concept to their students.

PARTICIPANTS AND PARTICIPATING SCHOOLS:

Priority schools targeted by the STEM Teaching Factory are STEM-offering public high schools. As of now, the program was able to graduate 63 STEM teachers coming from 15 public high schools from Region III (Central Luzon) and 15 public high schools from Region IV-A (CALABARZON). The goal is to start from schools near the Amherst Laboratories in Biñan, Laguna and the Belmont Softgel Pharma Corporation in Floridablanca, Pampanga then extend the program to farther schools within Region III and Region IV-A.

OUTPUTS MONITORING:

- Attendance: Attendance will be monitored through Zoom Usage Reports.
- Quizzes: 20 test questions will be collected from the facilitators/speakers and incorporated in Google Forms as online quizzes. A quiz will be given to the participants per day just after the session.
- Daily reflections: Each participant will be asked to accomplish a reflection per day about the successes, challenges, AHA moments, and questions pertaining to the program. The reflection will be accomplished and monitored through Google Forms. It should be submitted before the end of the day.
- Exit report: Participants will be grouped according to division. Each division will then be asked to accomplish an exit report about their expectations, learnings, challenges, and recommendations of the program. The report will be accomplished through Google Forms and will be submitted within a week after the program.
- Evaluation: Evaluation will be through Google Forms and should be accomplished before the end of the last day of the program.
- All daily reflections, exit report, and evaluation shall be accomplished by each participant before he/she can claim his/her e-certificates of participation and attendance.

SUPPORT FROM DEPED:

- List of teachers: 60 STEM Teachers should come from 30 STEM-offering public high schools in Laguna, Pampanga, and other neighboring provinces within Region III and Region IV-A. The program requires two teachers per school – one senior teacher and one junior teacher.
- Letter of authority to participate and other supporting documents for the teachers

SUPPORT FROM CISTEM AND UNILAB FOUNDATION:

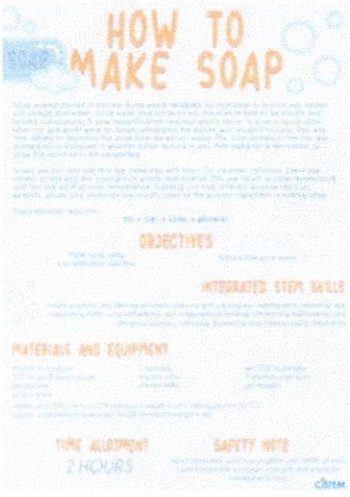
- Program design
- Speakers and facilitators: Speakers and facilitators will be coming from the University of the Philippines System (UP Diliman, UP Manila, and other UP campuses)
- Learning materials: Activity sheets, presentations, and video clips will be provided online
- Online platforms: Zoom, Google Classroom, Google Forms
- Internet data for the teachers

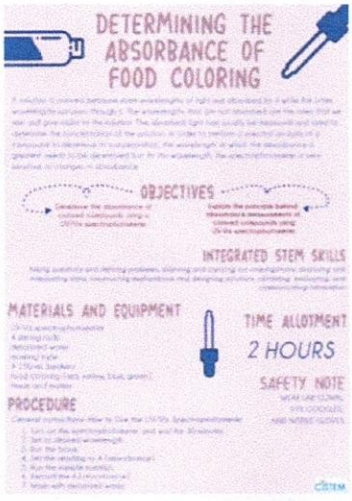
SUPPORT FROM AMHERST LABORATORIES AND BELMONT SOFTGEL PHARMA CORPORATION:

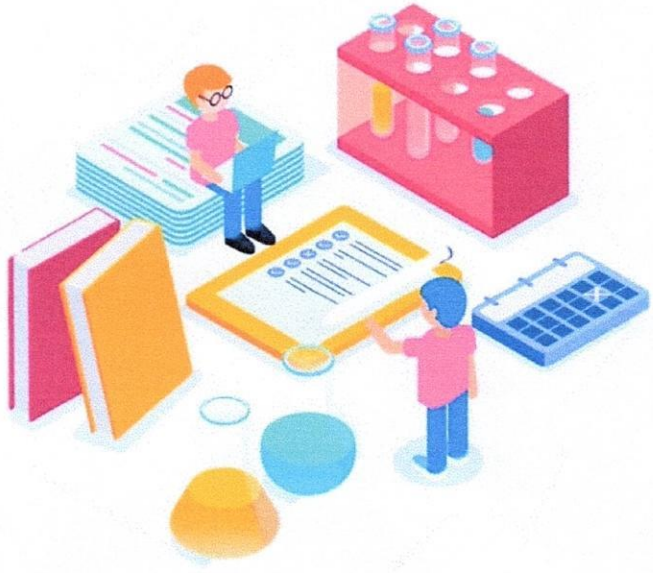
- Venue that will be used for recording videos
- Materials, chemicals, and laboratory instruments that will be used for demonstration

- Trainers: Trainers are mostly professionals working for Unilab, Amherst, and Belmont

LEARNING MATERIALS







STEM Teaching Factory AT A GLANCE

The First Online STEM Teaching Factory

With DepEd Region IV-A Regional Director Cabral, NEAP Chief Osmeña, and DepEd Region III Representative Dr. Nuesca

Regions III and IV-A Teacher-Participants with CISTEM, Unilab Pharma Academy, and Amherst Lab Family

IMPLEMENTATION PLAN

Program

DATE	TIME	ACTIVITY	SPEAKER/FACILITATOR	ONLINE PLATFORM
July 20, 2021 Tue	8:00 am - 9:30 am	Opening Program	Dr. Sheryl Lyn C. Monterola (CISTEM; UP Diliman)	MS Teams (Synchronous)
		Introduction to STEM Teaching Factory	Dr. Edwehna Elinore S. Paderna (CISTEM; UP Diliman)	
		Message from DepEd	DepEd Region III, DepEd Region IV-A	
		Welcome Message	Engr. Limuel Z. Razo (Corporate Vice President, United Laboratories Manufacturing Network)	
	9:30 am -12:00 pm	Introduction to Unilab and Manufacturing Network	Unilab Pharma Academy	
		ALI as Toll Manufacturer of Choice	Amherst Laboratories, Inc.	
		Brief History		
		Business Philosophies (VMV)		
		Organizational Structure		
		Nature of Business (ALI)		
		ALI Business Process Overview		
		ALI World-Class Manufacturing Framework		
		Quality System (GMP Compliance, Regulatory Certifications, ESH Policies)		
		ALI AVP - Production - Laboratory - FPDI		Google Classroom (Asynchronous)
	12:00 pm - 1:00 pm	LUNCH		
	1:00 pm - 3:00 pm	Safety Orientation: Best Practices on COVID-19 Awareness		MS Teams (Synchronous)
	3:00 pm - 11:59 pm	Online Quiz and Reflection Paper		Google Forms (Asynchronous)
July 21 Wed	8:00 am - 9:00 am	GMP Orientation	Unilab Pharma Academy	MS Teams (Synchronous)
	9:00 am - 10:00 am	Basic PMO	Wrianeile V. Abuel (Dean, Unilab Pharma Academy)	
	10:00 am - 11:00 pm	6s	Amherst Laboratories, Inc.	
	11:00 am - 12:00 pm	A3 Problem Solving Workshop	Engr. Elhner C. Jimenez (Amherst Laboratories, Inc.)	
	12:00 pm - 1:00 pm	LUNCH		
	1:00 pm - 2:00 pm	A3 Problem Solving Workshop	Engr. Frederick Ryan C. Domingo (Amherst Laboratories, Inc.)	MS Teams (Synchronous)

	2:00 pm - 3:00 pm	Design of Experiments	Eugene H. Cunanan (Amherst Laboratories, Inc.)	
	3:00 pm - 11:59 pm	Online Quiz and Reflection Paper		Google Forms (Asynchronous)
July 22 Thu	8:00 am - 9:00 am	GLP, Safety, Lab House Rules / Overview of QC Lab Processes & Equipment	Mariel Kandace P. Sigaya, R.Ch. (Amherst Laboratories, Inc.)	Google Classroom (Asynchronous)
	9:00 am - 10:30 am	Basic Lab Techniques and Instruments (Weighing, Measuring Volume, and Pipetting)		
	10:30 am - 11:30 am	Glassware Management		
	11:30 am - 12:00 pm	Weighing, Pipetting & Cleaning of Glasswares		
	12:00 pm - 1:00 pm	LUNCH		
	1:00 pm - 1:30 pm	Lab Activity 1: How to Make Soap (Pre-Lab)	Mariel Kandace P. Sigaya, R.Ch. (Amherst Laboratories, Inc.)	Google Classroom (Asynchronous)
	1:30 pm - 2:00 pm	Lab Activity 1: How to Make Soap (Lab)		
		Alternative Activity: How to Make Soap Using Used Cooking Oil		
	2:00 pm - 3:00 pm	Lab Activity 1: How to Make Soap (Post-Lab)		Zoom (Synchronous)
	3:00 pm - 4:30 pm	Context-Based Learning	Dr. Edwehna Elinore S. Paderna (CISTEM; UP Diliman)	
	4:30 pm - 11:59 pm	Online Quiz and Reflection Paper		Google Forms (Asynchronous)
July 23 Fri	8:00 am - 10:00 am	Lab Activity 2: Growing and Observing Bacteria (Pre-Lab)	Labster	Google Classroom (Asynchronous)
	10:00 am - 10:30 am	Lab Activity 2: Growing and Observing Bacteria (Lab)		
	10:30 am - 11:00 am	Lab Activity 2: Growing and Observing Bacteria (Post-Lab)	Kris Angeli R. Torres (Amherst Laboratories, Inc.)	Zoom (Synchronous)
	11:00 am - 12:00 pm	LUNCH		
	12:00 pm - 1:00 pm	Lab Activity 3: Disso Principles, HPLC Principles (Pre-Lab)	Labster	Google Classroom (Asynchronous)
	1:00 pm - 2:00 pm	Lab Activity 3: Dissolution Test and HPLC Analysis of Acetaminophen (Lab)		
	2:00 pm - 2:30 pm	Alternative Activity: Paper Chromatography of Gel Ink Pens	Mariel Kandace P. Sigaya, R.Ch. (Amherst Laboratories, Inc.)	
		Lab Activity 3: Dissolution Test and HPLC Analysis of Acetaminophen (Post-Lab)		MS Teams (Synchronous)
	2:30 pm - 3:30 pm	Career Talk	Amherst Laboratories, Inc.	
	3:30 pm - 11:59 pm	Online Quiz and Reflection Paper		Google Forms (Asynchronous)
July 26 Mon	8:00 am - 9:00 am	Lab Activity 4: Determining the Absorbance of Food Coloring (Pre-Lab)	Labster	Google Classroom (Asynchronous)
		Lab Activity 4: Determining the Absorbance of Food Coloring (Lab)		
	9:00 am - 10:00 am	Alternative Activity: Homemade Spectrophotometer	Dr. Voltaire G. Organo (UP Manila)	Zoom (Synchronous)

		Lab Activity 4: Determining the Absorbance of Food Coloring (Post-Lab)		
	10:00 am - 12:00 pm	Design Thinking Process	Dr. Sheryl Lyn C. Monterola (CISTEM; UP Diliman)	
	12:00 pm - 1:00 pm	LUNCH		
	1:00 pm - 3:00 pm	Culminating Activity: Presentation of Expectations, Learnings, Challenges, and Recommendations	Unilab Pharma Academy, CISTEM, Unilab Foundation, Inc.	Zoom (Synchronous)
	3:00 pm - 11:59 pm	Online Quiz and Reflection Paper		Google Forms (Asynchronous)

Post-Program

TASK	ACCOMPLISHMENT DATE
Submission of Compiled Quizzes and Reflections	July 27, 2021
Submission of Evaluations and Exit Reports	July 30, 2021
Sending of e-Certificates	August 6, 2021