

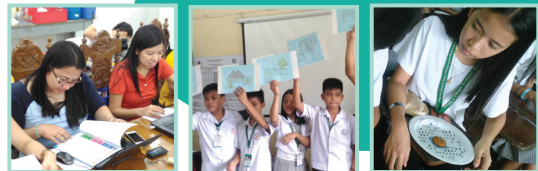


EIU Best Practices Series **No. 53**

EIU Best Practices 2019

Integrating Global Citizenship Education in Science Classroom

A Case from **Philippines**



United Nations
Educational, Scientific and
Cultural Organization

APCEIU

Asia-Pacific Centre of
Education for International Understanding
under the auspices of UNESCO

국제연합 유네스코 아시아태평양 국제이해교육원
교육과학문화기구

Foreword

The Education for International Understanding (EIU) /Global Citizenship Education (GCED) Best Practices programme is one of APCEIU's efforts to share diverse experiences, practices, and approaches to bolster EIU and GCED which can inform and inspire education professionals who wish to design and implement policies, activities, and educational programmes on EIU and GCED. A total of 49 EIU Best Practices has been published and disseminated around the Asia-Pacific region and beyond since 2006. This year, Mr. Melandro Santos' case has been added to the series with the series number 53, which includes training workshops for teachers, school administrators, staffs, and officers.

In the past few years, APCEIU has encouraged the participants of its capacity-building programmes to share their experiences and stories of promoting EIU and GCED through these series. At the end of each training workshop organized by APCEIU, participants present their own action plans to implement EIU and GCED after returning home. This publication shows the continued commitment and endeavors of APCEIU's training alumni to carry out EIU and GCED after the completion of the workshops. In fact, Mr. Melandro Santos' case is the outcome of the action plans established from his learning in the Asia-Pacific Teacher Exchange Programme 2016.

The EIU/GCED Best Practices Series is unique in that it provides insights into how EIU/GCED is interpreted and put into practice in different contexts by those who are at the forefront of education. Although each case is set in different locations and institutional backgrounds, others can draw practical ideas and observations and learn from the case contributors' experiences, challenges they faced, strategies used, and lessons learned while striving to overcome those challenges. I hope that the EIU/GCED Best Practices will continue to serve as a

useful reference for educators, policymakers and practitioners, who share a strong commitment for EIU and GCED.

Lastly, I would like to convey my deepest appreciation and congratulations to Mr. Melandro Santos for his continuing efforts to promote EIU and GCED, and creating a synergy effect among themselves by encouraging each other and sharing ideas, which I believe contributed to the successful publication of the EIU/GCED Best Practices 2019.

September 2019

A handwritten signature in black ink, appearing to read 'LIM Hyun Mook', written in a cursive style.

LIM Hyun Mook
Director

EIU Best Practices is...

APCEIU has been committed to the promotion of Education for International Understanding (EIU) since its inception, in line with one of the pillars of education “Learning to Live Together.” EIU is a UNESCO initiative to promote a Culture of Peace through education, which is central to UNESCO’s mission. EIU aims to foster global citizens with values, attitudes, knowledge and skill sets necessary for learning to live together and overcoming racial, cultural, and religious conflicts. In the recent years, this mission has been reaffirmed by the adoption of the Sustainable Development Goals (SDGs) and Education 2030. The SDG-4 and the accompanying Target 4.7^① highlights the importance of promoting global citizenship education (GCED).

APCEIU launched EIU Best Practices in 2006 to encourage and support educators, scholars and activists who wish to promote EIU and GCED by collecting and sharing success stories and lessons learned in promoting EIU/GCED in different social and cultural contexts. The EIU Best Practices aim to provide practical ideas and insights on how to design and implement EIU and GCED by sharing specific examples and practices carried out by practitioners on the ground.

The programme is conducted through the following steps: 1) Call for applications: APCEIU sends announcement letters along with application forms and guidelines to the alumni of the EIU/GCED capacity-building training programmes organized by APCEIU; 2) Screening and selection: Submitted applications are reviewed by the Screening Committee, who select the five best practices; 3) Online Monitoring: The selected applicant is required to make his or her programme/project available for online monitoring. The selected applicant

is obligated to cooperate in terms of making arrangements for APCEIU's online monitoring on his/her respective country. 4) Case presentation and award ceremony where selected applicants present their cases and receive the Global Citizenship Education Award at one of APCEIU's international events; 5) Submission of the final reports: Selected applicants submit the final reports to APCEIU based on the guidelines; and 6) Publication and dissemination: Final reports are published and disseminated on and offline.

APCEIU encourages educators, scholars, and activists to apply and share their diverse experiences and perspectives. It is hoped that the EIU Best Practices will continue to inspire and inform practitioners, generate meaningful dialogue, and serve as useful materials for those who are committed to promote EIU and GCED and contribute to building a more just, peaceful, and sustainable world.

① Target 4.7: By 2030, ensure that all learners acquire knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development.

Contributor



Mr. Melandro D. Santos

Master Teacher

Antonio Villegas Vocational High School

Division of City Schools-Manila

Department of Education, National Capital Region

Mr. Melandro delos Reyes Santos has a Master's Degree in Educational Supervision and Administration. He is a candidate for a Doctoral Degree in Educational Management and has a Certificate of Professional Education. He has been a public school teacher for the past 11 years working with students on an urban poor community in Tondo, Manila, Philippines. At present, Mr. Santos works as the school research coordinator and a master teacher at Antonio Villegas Vocational High School. As an active member of Manila Secondary Science Master Teacher Association (MSSMTA) and Korea-Philippines Teacher Exchange Program Association (KPTEP), he continues to promote global citizenship education (GCED) and education for international understanding (EIU) through in-service trainings, teaching demonstrations, seminar-workshops and learning action cell sessions.

Acknowledgement

I would like to express my sincere appreciation to the Director Wilfredo E. Cabral of the Department of Education, National Capital Region (DepED-NCR) and Director Felicino C. Trongco of Human Resource Development Division-National Educators Academy of the Philippines (HRDD-NEAP), for supporting this remarkable programme, and for encouraging us to develop capacity- building programme for secondary teachers that have a significant impact to the science education of the country and enrichment to the present K to 12 curriculum.

This programme was made possible by the support of the following persons: Division of City Schools-Manila, Mrs. Rebecca M. Roxas, the Education Program Supervisor of the Curriculum and Instruction (CID), Mrs. Leah Bautista, Senior Education Program Specialist of School Governance and Operations Division (SGOD), and Ms. Thelma P. Landicho, Principal of Antonio Villegas Vocational High School, who gladly approved, monitored and evaluated the implementation of our programme.

I am truly grateful to the Head Teacher of my partner school, Mrs. Vivian B. Intatano of Rajah Soliman Science and Technology High School, who has demonstrated profound passion and commitment to this programme. During the period of our memorable collaboration, we have worked together in developing and designing capacity building programme that would empower Filipino secondary science teachers of the Division of City Schools-Manila. As we successfully surpass several challenges, we are still striving hard to continue our advocacy of promoting global citizenship education in the Philippines. To

all GCED Learning Resource Material (LRM) writers, may you continue to expand your horizon by sharing your expertise with colleagues and to develop a relevant science teaching and learning material through collaboration and school partnership.

Finally, my sincerest gratitude to APCEIU who shared time and resources to promote Global Citizen Education through Korea-Philippines Teacher Exchange Program (KPTEP) and providing us Filipino Educators opportunity to share our best practice around the world. I am truly inspired by the aspirations to promote the values of “people harmoniously living together”.

Summary

In Scientia Nos Solidaritas (In Science, We are United) is a division-wide capacity-building programme created to integrate Global Citizenship Education (GCED) for sustainable development in science classroom. The programme aims to prepare the science teachers of Manila to integrate GCED on existing secondary school science subject through teaching demonstrations, writing lesson exemplars and developing a contextualized and age appropriate GCED Learning Resource Material (LRM) suited to Filipino learners.

Given the limited content knowledge and pedagogy of the Filipino teachers on GCED, the programme was designed and conceptualized tailored to the national and local context to develop key competencies needed for promoting GCED. In 2017, *In Scientia Nos Solidaritas* was conducted to a group of secondary science teachers of the Division of City Schools-Manila. The participants are head teachers, master teachers and school heads who are considered educational leaders in their respective schools. These public school educators, selected by a Schools Division Office, are dedicated to work collaboratively with their colleagues to improve their content knowledge and pedagogical skills related to GCED. Until today, the localized GCED LRM are being utilized in science teaching inside the classroom. Mr. Melandro Santos, the programme leader, continues to promote the concept of Education for Sustainable Development (ESD) using science hands-on, manipulative explorations and discovery activities.

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ACRONYMS

EIU	Education for International Understanding
GCED	Global Citizenship Education
KPTEP	Korea-Philippines Teacher Exchange Program
LRM	Learning Resource Material
MOU	Memorandum of Understanding
REAP	Re-entry Application Projects
SDGs	Sustainable Development Goals
UNDESD	United Nations Decade of Education for Sustainable Development

Integrating Global Citizenship Education in Science Classroom

1. Introduction and Background

With the commencement and implementation of K to 12 curriculum under Republic Act 10533 also known as the “Enhanced Basic Education Act of 2013”, the Philippines created a functional basic education system that develops productive and responsible citizens, equipped with competencies, skills and values for both lifelong learning and employment. The Department of Education clearly defined its mission to give every student a quality education that is globally competitive based on a pedagogically sound curriculum that is at par with international standards. Based on these standards, the curriculum should be relevant, culture sensitive, contextualized and global. The teachers are mandated to develop teaching and learning materials complimented by appropriate locally relevant topics. The production and development of these teaching materials is encouraged. The regional and division education units have the authority to approve these materials.

In cognizant with the mandate of the state to enrich the K to 12 curriculum and to utilize collaborative and integrative pedagogical approaches, it is timely and relevant to emphasize the integration of Global Citizenship Education (GCED) and Education for International Understanding (EIU) in classroom teaching. Filipino teachers are challenged to develop and utilize appropriate educational learning resources that will help to achieve the envisioned curriculum. GCED is a relatively new term to many professionals in the field of education such as curriculum developers, teachers and education leaders, there is a necessity to create awareness and provide teachers with pedagogical guidance. Specifically, Filipino teachers are not fully aware of the global guidance document on the overall teaching and learning objectives of GCED. It is the responsibility of educators to initiate programmes and projects that enhance the present science curriculum and its implementation. Moreover, model exemplary practice in the application of content knowledge and pedagogy showing integration of science across all learning areas should be incorporated.



▲ An amazing and life changing experience as an Exchange Teacher at Jeongeup Suseng Elementary School, Jeongeup-Si, Jullabok-do Province, September- December 2016

Over the past eight years, 170 Filipino public school teachers throughout the country have productively participated in the Korea-Philippines Teacher Exchange Program (KPTEP). The programme continues to harvest the fruit of its success through the completion of Re-entry Application Projects (REAP) of the participants. REAP is an exclusive feature of the KPTEP, which enables the programme recipients to develop and implement meaningful GCED projects that contribute to the betterment of quality education in their respective countries. Being a participant (Fig. 1) of the KPTEP 2016, Mr. Santos considers the programme as one of most rewarding experiences as an educator because it offered him an invaluable learning opportunity. He came to realize that language is not a barrier towards intercultural understanding and awareness. He learned to appreciate cultural diversity and established good relationships with Korean educators and learners coming from diverse cultures. With the renewed commitment and aspiration to share the same learning experience of cultivating intercultural understanding and promoting the ethics and values needed for attaining sustainable development to his fellow Filipino colleagues and students, he left no stone unturned to make this a reality.

To accomplish the goal of promoting intercultural understanding and values for sustainable development, he decided to propose a capacity building programme entitled *'In Scientia Nos Solidaritas* (In Science, We are United). The programme was inspired by the challenges of GCED integration in his country. The lack of Filipino teachers' capacity, the limited content knowledge and pedagogy about GCED and the inadequacy of a localized GCED lesson exemplars and learning resource materials encouraged him to create a capacity building program that will prepare the Filipino science teachers to integrate GCED for sustainable development in their classrooms by conducting learning resource material write shop.

2. Descriptions of the Programme

2.1. Target Groups

In recognizing the boundless influence of the teacher to the learners, Mr. Santos decided to develop a division-wide capacity building programme that will underscore the role of the teacher in empowering the learners. *In Scientia Nos Solidaritas (In Science, We are United)* was designed to integrate Global Citizenship Education for sustainable development in science classroom. The programme was conceptualized based on necessity to empower the Filipino science teachers on the content knowledge and pedagogical skills of GCED. The programme participants is expected to integrate GCED on existing secondary school science subject through teaching demonstrations, writing lesson exemplars and developing contextualized, age appropriate GCED Learning Resource Material (LRM) appropriate to Filipino learners.



In Scientia Nos Solidaritas is a capacity building programme for science teachers who believe that a strong collaboration of educators plays a vital role in promoting global citizenship education for sustainable development.



In 2017, *In Scientia Nos Solidaritas* was conducted to a group of secondary science teachers of the Division of City Schools- Manila. The participants are head teachers, master teachers and school heads who are considered educational leaders in their respective schools. These public school teachers are selected by a schools division office whose aim is to work collaboratively with colleagues to improve science content pedagogical skills related to curriculum and instruction. Up to now, the localized GCED LRM are being utilized in science teaching inside the classroom. The programme leader continues to promote the Sustainable Development Goals (SDGs) using science hands-on, manipulative exploration and discovery activities.



▲ GCED Demonstration Lesson Integrating SDG on Clean Water and Sanitation

2.2 Goals and Objectives

The programme's general objective is to strengthen the capability of the science teachers to integrate GCED for sustainable development in their respective classrooms using the localized GCED LRM developed during the workshop. The localized GCED LRM incorporates ten selected UNESCO SDGs in Grade 7 science lessons namely:

1. Zero Hunger
2. Clean water and sanitation
3. Good health and well-being
4. Quality education
5. Affordable and clean energy
6. Responsible Consumption and Production
7. Sustainable cities and communities
8. Climate action
9. Life below water
10. Life on land

Specifically, the programme aims to achieve the following objectives:

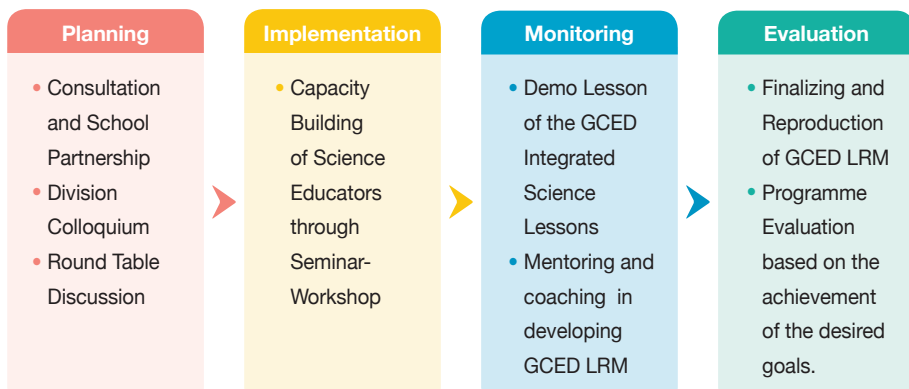
1. To develop a localized learning material that integrates and contextualizes GCED and EIU in science lessons through writeshops;
2. To conduct science lessons that utilizes the developed GCED LRM promoting GCED and EIU inside the classrooms;
3. To promote the concept of GCED and EIU through teaching demonstration, in-service trainings, seminar workshops, learning action cells and other professional learning sessions.

Aside from enhancing the teacher's capability to integrate GCED to the curriculum-mandated teaching and learning, the programme also intends to instill the importance of non-cognitive learning such as social responsibility, concern for the environment and commitment to sustainable development.

2.3 Structure of the Programme

The programme is composed of four phases: planning, implementation, monitoring and evaluation (see Fig 3). The planning phase includes the collaboration and consultation with the involved school principals, head teachers and education program supervisor. This phase also deals with the conduct of the round table

discussions and orientation of selected teacher-participants. The signing of MOU with the partner school and the release of memorandum from the Schools Division Office of Manila ends the planning phase of programme.



▲ Phases of the Programme

The second phase, the implementation, involves the conduct of capacity- building workshop entitled “1st Division of Manila Seminar-Workshop on Strategic Intervention Material Integrating Global Citizenship Education and Intercultural Understanding in Science Curriculum”. In this phase, GCED and EIU are introduced to the secondary science teachers who are tasked to create lesson exemplars and LRM. The monitoring phase entails the continuous online mentoring and coaching of the programme participants in writing the localized GCED LRM. A pilot lesson demonstration of the said LRM was also performed during this phase. Finally, the evaluation phase includes the programme presentation (see Fig 4) and finalization of outputs and the programme evaluation based on the achievement of the desired goals.



▲ Presentation of "In Science Nos Solidarietas" during 1st Teacher Exchange Annual Forum, Department of Education

2.4 Activities in Detail



▲ Colloquium on Programme Proposal
Conducted by Schools Division Office of Manila, January 26-27, 2017

During the planning phase, Mrs. Leah Bautista, the Senior Education Program Specialist of the School Governance and Operations Division, conducted a colloquium for consultation and evaluation of the proposal. Through a division memorandum signed by the Schools Division Superintendent, Mr. Wilfredo E. Cabral and Science Education Program Supervisor of Curriculum and Instruction Division Mrs. Rebecca M. Roxas, the proposed programme was finally approved and set for implementation and information dissemination.



▲ Programme Orientation of participants, February 17, 2017

During the programme orientation of the participants, "*In Scientia Nos Solidaritas*" successfully gathered the support of my fellow science teachers of the

Division of City Schools-Manila towards GCED. Lastly, the two collaborating schools signed a Memorandum of Understanding (MOU) and agreed to work together for the true spirit of partnership. Both schools demonstrated their administrative and managerial commitment to the programme by means of providing manpower services and allocating necessary resources. The proponent school is represented by Thelma P. Landicho, School Principal and Melandro D. Santos, Master Teacher of Antonio Villegas Vocational High School; while, the partner school is represented by Dr. Imelda Mendez, School Principal and Mrs. Vivian B. Intatano, Head Teacher of Rajah Soliman Science and Technology High School.



▲ GCED Learning Resource Material Writers
*During the 1st Division of Manila Seminar-Workshop on Strategic Intervention
Material Integrating Global Citizenship Education in Science Curriculum*

The seminar workshop was conducted during the summer break from May 10 to 12, 2017, bringing together the selected secondary science teachers of the Division of City Schools Manila. These teacher-participants were chosen by the science education program supervisor based on their teaching experience, educational background and writing skills. They were also recognized as writers of several strategic intervention materials for slow learners. This group was selected to comprise the writing team for the contextualized GCED LRM. The task of the team is to integrate the present science curriculum to GCED curriculum and create a contextualized GCED learning resource material. The science program supervisor and school principal of the partner school also attended the training programme.



▲ *Orientation and Introduction of Global Citizenship Education For Sustainable Development held on May 10, 2017*

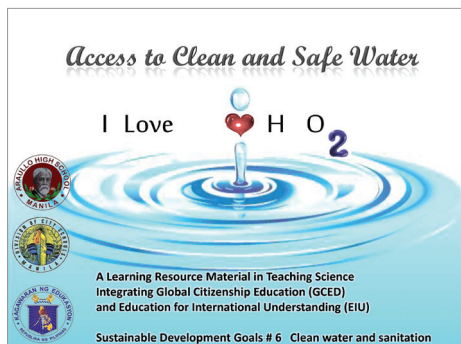
On the first day of training, morning session, the participant-teachers were oriented and introduced about the concept of GCED and UNESCO SDGs. During the GCED introduction, several learning techniques were employed such as brainstorming, group discussions, guest speaker, video analysis and global and local problem analysis. During the afternoon session, GCED learning process and writing lesson exemplar were discussed thoroughly. Queries on the guidelines on writing GCED LRM were made clear at this point of the training. And throughout the second day, participants- teachers created the contextualized GCED LRM based on content standards of the K-12 Science Curriculum Guide and GCED Curriculum Guide. (See annex 1).



▲ *GCED LRM Writing Workshop held on May 11, 2017*

On the third day of the training, the participants presented the lesson exemplars and GCED LRM to their colleagues for analysis and evaluation. The coaching of participants was simultaneously performed during this period. Due to the limited time allotted to revise the GCED LRM after the write shop, the participants requested to extend the time of submission to further improve their work based on the comments and suggestions. As a result, the programme leader presented a new schedule of submission to accommodate the participants request. Moreover, the programme leader decided to continue the mentoring process of the

2.5.1 List of Localized GCED Learning Resource Materials



Title

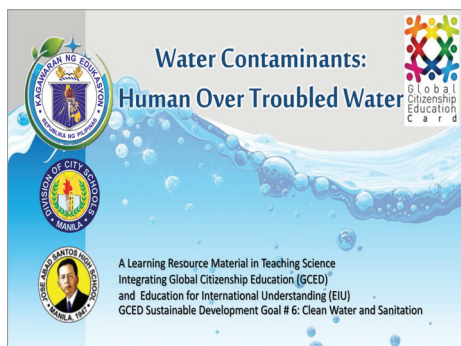
I Heart H₂O

Grade 7 Lesson on Chemistry:
Methods of Separating Mixtures
SDG # 6 Clean water and sanitation

Writer

Maria Cecilia A. Santiago, Master Teacher
Araulho High School

This GCED science lesson aims to develop students' understanding of the importance of a clean, accessible and safe drinking water by designing and building their own water filtering system.



Title

Water Contaminants: Human Over
Troubled Water

Grade 7 Chemistry Lesson on Solutions
SDG # 6 Clean water and sanitation

Writer

Edward B. Jamorabo, Science Teacher
Jose Abad Santos High School

This GCED science lesson teaches water conservation and develops understanding of the effects of adding contaminants to clean water and realization of the impacts of improper throwing of waste materials to waterways and rivers.



Title

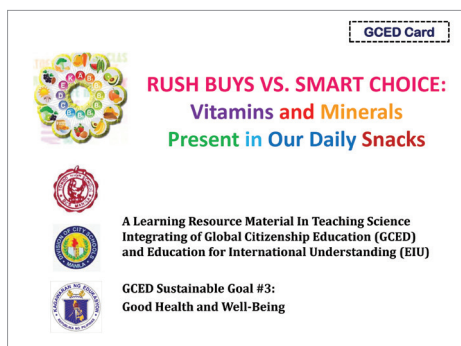
Popular Asian Cuisine

Grade 7 Chemistry Lesson on Types of Mixtures
SDG # 2 Zero Hunger

Writer

Marinet C. Soriano, Science Teacher
Jose Abad Santos High School

At the end of this lesson, students will be able to investigate on the food conservation and properties of mixtures by preparing some popular Asian food and their equivalent to local delicacies.



Title

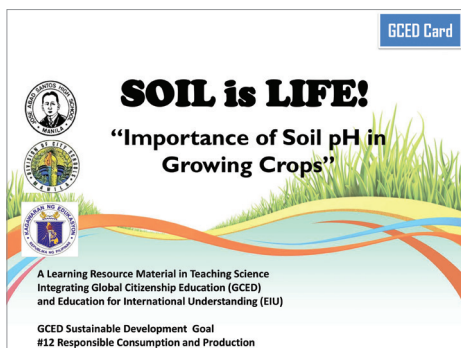
Rush Buys VS Smart Choice

Grade 7 Chemistry Lesson on Elements and Compounds
SDG # 3 Good Health and Well Being

Writer

Editha E. Barrozo, Science Teacher
Tondo High School

This GCED science lesson will teach students to take care of themselves by leading a healthy lifestyle and planning healthy snacks every day. At the end of the lesson, students will be able to identify and value the common vitamins and minerals in our food.



Title

Soil is Life!

Grade 7 Chemistry Lesson
Acids and Bases
SDG #12 Responsible Consumption and Production

Writer

Sixta Sales, Master Teacher
Jose Abad Santos High School

This GCED science lesson teaches on the agriculture practices that do not harm the environment. It also teaches students on testing acidic and basic soils, importance of soil pH in growing crops and various techniques that are used to modify the quality of soil.



Title

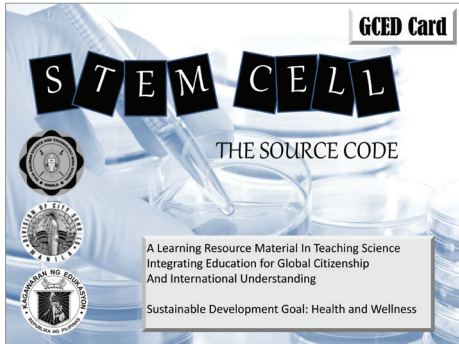
Megastructures: Building Around the World

Grade 7 Chemistry Lesson on Metals and Non- Metals
SDG # 11 Sustainable Cities and Communities

Writer

Mitzy Latina, Master Teacher
Rajah Soliman High School

This GCED science lesson aims to develop students' understanding of the properties of metals and non-metals as materials used in building construction and realization on how engineering and architecture helps society's challenges.



Title

Stem Cell: Cell Code

Grade 7 Biology Lesson on Cell
SDG # 6 Good Health and Well Being

Writer

Catherine R. Santos, Master Teacher
Rajah Soliman High School

This GCED science lesson aims to develop students' understanding of the importance of stem cells of the body and how these types of cells used for regenerating and repairing damaged tissue.



Title

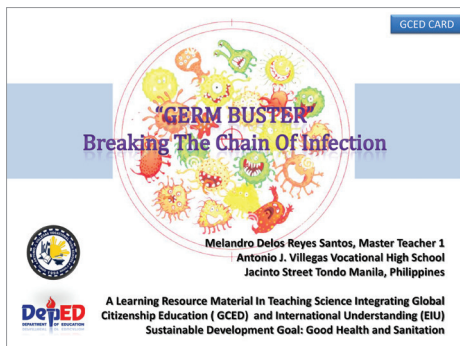
Fungi: Prevention of Fungal Skin Diseases

Grade 7 Biology Lesson on Other Living
Things in the Environment
SDG # 6 Good Health and Well Being

Writer

Helen Ferrancullo, Head Teacher
Juan G. Nolasco High School

This GCED science lesson introduces students on the different types of disease causing fungus and teaches them on ways to prevent acquiring fungal skin diseases.



Title

Germ Buster Breaking the Chain of Infection

Grade 7 Biology Lesson on Other Living things in the Environment
SDG # 6 Good Health and Well Being

Writer

Melandro D. Santos, Master Teacher
Antonio Villegas Vocational High School

This lesson teaches the ways to prevent common communicable diseases brought by bacteria. At the end of the lesson, the students will be able to identify disease causing microorganisms, understand the ways of breaking the chain of infection and perform proper hand washing technique and disinfection.



Title

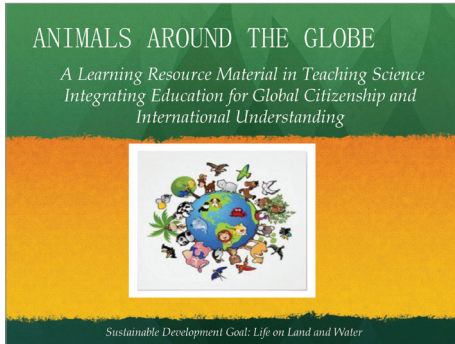
Extinction: Ang Huling Lipad

Grade 7 Biology Lesson on Reproduction
SDG # 15 Life on Land

Writer

Reyneth Renan Matta, Master Teacher
Manuel L. Quezon High School

This GCED science lesson teaches students to know how organisms get into the brink of extinction and help them to create a consequence chart on what to do to help these endangered organisms.



Title

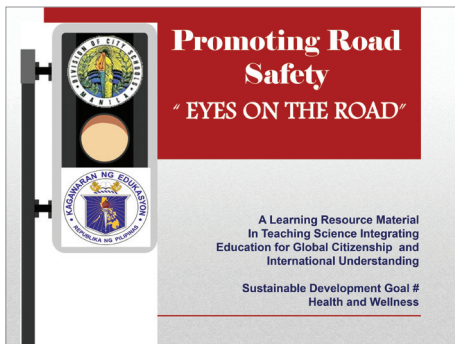
Animals Around the Globe

Grade 7 Biology Lesson about Interaction
SDG # 15 Life on Land

Writer

Vivian Intatano, Head Teacher
Rajah Soliman High School

At the end of this lesson, the learners will identify and describe the animals that are found in specific countries and explain the local and global efforts to take care of these animals.



Title

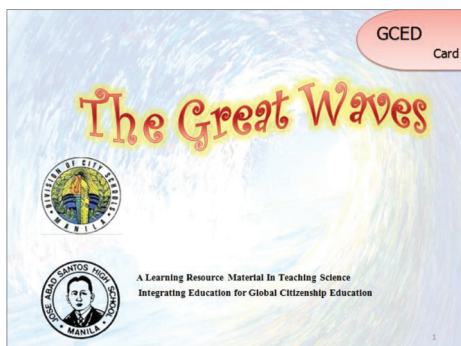
Eyes on the Road: Promoting Safety on the Road

Grade 7 Physics Lesson about Describing Motion
SDG # 3 Good Health and Well Being

Writer

Cristy G. Lamor, Master Teacher
Jose P. Laurel High School

This GCED science lesson promotes road safety measures to minimize and prevent the wide range impact of road accidents. At the end of the lesson, students identify the causes and effects of road accidents and the ways to prevent it.



Title

The Great Waves: Tsunami Versus Storm Surge

Grade 7 Physics Lesson about Waves
SDG #11 Sustainable Cities and Communities

Writer

Nerissa Colasito, Head Teacher
Jose Abad Santos High School

This GCED Science lesson promotes local disaster risk management. The students will describe and compare tsunami and storm surge, realize the impact in the community and prepare themselves on what to do during such calamities.



Title

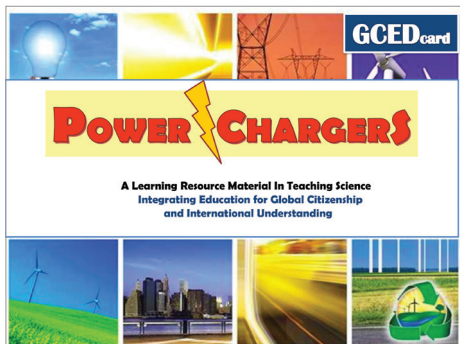
Let Heat Go: Global Warming

Grade 7 Lesson about Heat
SDG # 13 Climate Action

Writer

Melinessa P. Añabieza, Master Teacher
Rajah Soliman High School

This GCED Science lesson aims to promote shared responsibility and commitment as steward to Mother Earth in mitigating global warming. At the end of the lesson students will be able to understand how greenhouse effect results to global warming and engage them in a campaign on awareness and action to help minimize global warming.



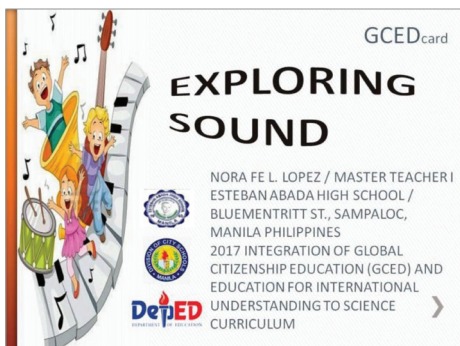
Title

Power Charge: Charging Without Electricity

Grade 7 Lesson about Electricity
SDG # 17 Affordable Clean Energy

Writer: Dulce S. Ortega, Master Teacher
Mariano Marcos High School

At the end of this GCED science lesson, students will be able to describe how to reduce electrical consumption and identify ways to conserve energy. Moreover, students will be able to identify charges and the different charging processes.



Title

Exploring Sound

Grade 7 Science lesson about sound
SDG # 4 Quality Education

Writer

Nora Fe L. Lopez, Master Teacher
Abada High School

This GCED science lesson explores on the different indigenous musical instrument of the Philippines. This lesson also aims to relate the concept of pitch and loudness of the said musical instruments.

3. Conclusion

3.1 Evaluation and Critical Reflection

Above all, the success of *In Scientia Nos Solidarietas* was made possible by several stakeholders who have fully supported, funded and participated on its implementation. Through collaboration to partner school, Rajah Soliman Science and Technology High School and to supportive offices of the DCS-Manila, the School Governance and Operations Division and Curriculum and Instruction Division, the objectives of the programme was successfully realized. By means of a division memorandum, the mandate and the information was disseminated to selected public school secondary science teachers to act as a team of writers for the development of a localized GCED LRM integrating sustainable development in teaching Grade 7 Science class.

3.2 Impact on the Target Groups

The passion and dedication of the 16 participant-writers of the Division of City School-Manila, who underwent the capacity- building programme, made the development of the GCED LRM rich and fruitful. The understanding of global citizenship education was deepened and their writing ability was enhanced in the workshop. As a result, they were able to integrate SDG to the curriculum-mandated teaching and learning for cultural competency, environmental awareness, and global citizenship. Furthermore, most of the participant-writers of the programme are master teachers and head teachers. Their role as an instructional leader is a good leverage to promote GCED and EIU to their respective schools. They could initiate GCED school-based programs targeting sustainable development and start sharing GCED and EIU themes and issues in professional meetings, learning action cell sessions (LAC) and other learning and development sessions.

As GCED is not prioritized, the programme "*In Scientia Nos Solidarietas*", caused awareness to the value of transformative pedagogy and provides science educators to focus not only in the cognitive dimension but more on the socio-emotional and behavioral dimensions of learning. Through the programme, a localized GCED lesson exemplars and learning resource materials are now available and accessible for wider implementation. The developed GCED LRM can be submitted to Learning Resource Portal of Department of Education (<https://lrmds.deped.gov.ph>) for evaluation, validation and distribution via Learning Resource Management Development System. The extensive integration of GCED in the Philippine educational system

is a long way to go. But the collective efforts of the secondary science teachers to produce localized LRM can be an avenue to build up a network of science educators committed to the promotion of GCED.

3.3 Implications and Suggestions

While the programme is limited only to selected public school secondary science teachers of Manila, I am determined to develop a comparable GCED capacity-building programme every school year through school based and division in-service training. The anticipated programme sequel aims to accommodate secondary science teachers from each grade level and develop their capability to create a contextualized GCED teaching and learning material. As I continue my journey to promote GCED and EIU, I am proposing to conduct a "Festival of Teaching Demonstrations" showcasing science lessons incorporating GCED for sustainable development in the Division of Manila. In addition to teaching demonstrations, I am calling my colleagues in the KPTEP Association to collaborate with as we study on the impact of integrating GCED in classroom teaching. To my fellow master teachers in the Manila Secondary Science Master Teachers Association, let us initiate community activities which promote global citizenship for sustainable development.

As a programme leader, I highly suggest that educators, curriculum planners, school managers and heads should maximize the use of GCED Topics and Learning Objectives (<http://unesdoc.unesco.org/images/0022/002277/227729e.pdf>) as pedagogical guidance in integrating a contextualized GCED LRM of their respective country. The book aims to guide teachers to design an age-appropriate GCED lesson based on suggested GCED topics and specific learning objectives.

If you wish to replicate such capacity -building programme, the programme leaders should create a technical working committee for the conduct of the programme and seek financial support from school administrators and local government units to facilitate efficient execution of programme activities. The efficiency of its implementation will be made possible through strong partnership of schools. Partnerships also foster the exchange of different knowledge and perspectives. Moreover, GCED programme leaders and proponents should coordinate with the Division of City Schools Offices of their respective country for programme approval. It is vital to seek consultation and guidance to the educational managers specifically to Head Teachers, Education Program Supervisors and Education Program Specialists for systematic planning, endorsements, and funding of programme.

For up scaling of the capacity building for teachers, I recommend to adopt the programme at the school level first before proceeding to division-wide implementation. In line with GCED integration inside the classroom, I highly encourage the school administrators to fully support the teacher's initiative of conducting GCED demonstration lessons utilizing the GCED LRM in teaching science. The strong commitment and determination of school managers, educational leaders and supervisors to integrate of GCED in classroom teaching will mobilize them to allocate fund for capacity building program, reproduction of learning resource materials, and utilization of other teaching materials upholding GCED.

■ References

APCEIU and UNESCO Bangkok. (2006). *Designing Training Programmes for EIU and ESD: A Trainer's Guide*. Thailand: UNESCO Asia and Pacific Regional Bureau for Education.

Philippine Republic Act No. 10533: Implementing Rules and Regulations of the Enhanced Basic Education Act of 2013. <https://www.officialgazette.gov.ph/2013/09/04/irr-republic-act-no-10533/> (Accessed August,2019)


UNESCO (2015). *Global Citizenship Education: Topics and Learning Objectives*. Paris, UNESCO.

■ Annex

**ANNEX A: CAPACITY BUILDING WORKSHOP SCHEDULE
OF ACTIVITIES**

**Department of Education
National Capital Region
DIVISION OF CITY SCHOOLS MANILA**

**Division Seminar-Writeshop
on Strategic Intervention Material
Integrating Global Citizenship Education (GCED) and
Education for International Understanding (EIU)
in Science Curriculum**



**Global
Citizenship
Education**

**Rajah Soliman Science and Technology High School
Urbizondo, Binondo Manila, Philippines
May 10-12, 2017**

**DR. IMELDA M. MENDEZ, Principal
(An Invitation)**

Opening Programme

Prayer	Mitzy Latina Rajah Soliman Science and Technology HS
National Anthem	Melinessa Anabieza Rajah Soliman Science and Technology HS
Welcome Remarks	Dr. Imelda M. Mendez , School Principal Rajah Soliman Science and Technology HS
Statement of Purpose	Melandro D. Santos , MT 1, Project Chair Villegas Vocational High School
Inspirational Message	Rebecca M. Roxas Education Program Supervisor
Presentation of participants & House Rules	Vivian Intatano , HT VI, Project Co-Chair Rajah Soliman Science and Technology HS

Closing Programme

Prayer	Sixta Sales, MT I Jose Abad Santos High School
National Anthem	Nora Lopez, MT I Abada High School
Message of Participants Reflection:	Nerissa Colasito , HT VI Jose Abad Santos High School
Impression:	Cecil Santiago , MT I Araullo High School
Turn Over of Output	Melandro D. Santos , Villegas High School Anthony Sagundo , Arellano High School Dulce Ortega , Marcos High School
Pledge of Commitment Awarding of Certificates	

Time	Day 1	Time	Day 2	Time	DAY 3
8:00-8:30	Registration	8:00-8:30	Recap of Day 1 Writing Workshop 2: GCED Card Text Content	8:00-8:30	Recap of Day 2
8:30-9:00	Opening Programme Expectation Setting Overview of Seminar Writeshop: SESSION GUIDE	8:30-10:00		8:30-10:00	Writing Workshop 5: Coaching & Critiquing
9:00-9:15	COFFEE BREAK	10:00-10:30	COFFEE BREAK	10:00- 10:30	COFFEE BREAK
9:15-10:30	Introduction to Global Citizenship Education OPEN FORUM	9:30-11:30	Writing Workshop 2: GCED Card Text Content OPEN FORUM	9:30-11:30	Presentation of SIM Output Grade 7 First to 2nd Quarter OPEN FORUM
10:30- 1:30 11:30-12:00	GCED Learning Topics and Objectives OPEN FORUM	11:30-12:00		11:30-12:00	
12:00-1:00	Lunch Break	12:00-1:00	Lunch Break	12:00- 1:00	Lunch Break
1:00-2:00	Global Citizenship in Classroom Practice: Learning Process	1:00-2:00	Writing Workshop 3: Applying Pictures and Graphics	1:00-2:00	Presentation of SIM Output Grade 7 3rd Quarter
2:00-2:30 2:30-3:00	Introduction to LESSON EXAMPLE Workshop 1: LESSON PLANNING	2:00-3:00	Writing Workshop 4: Lay outing	2:00-3:00	Finalization of Output based on comments and suggestions
3:00- 3:30	COFFEE BREAK	3:00- 3:30	COFFEE BREAK	3:00- 3:30	COFFEE BREAK
3:30-4:00	Conti. of Workshop No. 1 : LESSON PLAN	3:30-4:00	Writing Workshop 5: Coaching & Critiquing	3:30-4:00	Submission of Output Burning of CD copies
4:00-4:30 4:30-5:00	Introduction to the GCED Card "Assessment of Learning Content Wrap Up	4:30-5:00	Wrap Up (Presentation of Output for Day 1/ Writer's Sharing of Ideas)	4:00-5:00	Closing Program Awarding of Certificates

Appendix B : TRAINING EVALUATION FORM

Name _____ Designation _____
 Area of Specialization _____ Years in Teaching _____

This instrument is designed to provide you the opportunity to assess the training based on the set criteria. Your input will receive considerations as we seek to improve future trainings. Please do not leave any statements unanswered. Below are series of questions pertaining to the seminar-writeshop. Please respond to each by checking appropriate number from 1 to 5 using indicator scale below:

5 - Outstanding 4 - Very Satisfactory 3 - Satisfactory 2 - Poor 1- Needs Improvement

A. TRAINING GOALS AND OBJECTIVES	5	4	3	2	1
1. Specific in terms of participants, expected behavior, conditions and time element					
2. Provides clear understanding of what will take place over the training period					
3. Clear, precise and consistent to training methods use and content					
4. Specific to translate training needs into training outcomes					
5. Measurable to assess learning outcomes among participants					
B. TRAINING METHODS AND DELIVERY	5	4	3	2	1
1. Learning task are appropriate and align to meet training objectives					
2. Activities are designed to provide motivation related to good learning experience					
3. Full participation of the participants are evident.					
4. Activities provide opportunities to perform learned knowledge					
5. Trainer utilize variety of instructional strategies to encourage participant's development of writing skills					

C. TRAINING CONTENT	5	4	3	2	1
1. Learning content are appropriate and aligned to meet training objectives					
2. Topics presented are logically arranged according to complexity					
3. Provides strong evidence of a new and updated information					
4. Provides factual presentation of topics in the learning episode materials					
5. In depth and thorough discussion of topics in the learning episode materials					
6. Content had a practical relevance in the actual working job					
D. TRAINING ORGANIZATION	5	4	3	2	1
1. Well defined and organized training structure					
2. Provides the amount of time needed to learn the targeted information and/or abilities.					
3. Maximize the use of school/division manpower and technological resources					
E. TRAINING FACILITY AND EQUIPMENT	5	4	3	2	1
1. Comfortable, accessible, quiet, private and free of interruption.					
2. Sufficient space for equipment needs and trainees to move and work easily.					
3. Good visibility for the trainees to see each other, displays, demonstrations and examples used/ performed in the training.					
4. Usage of technologies for training delivery					

What did you like most about this training?

What aspects of the training would you like to improve?

Would you like to have an additional training like this in the future?

Please share your comments or expand on previous responses here

*Your comments are greatly appreciated.
Thank you for completing the form.*

Appendix C : TRAINING EVALUATION RESULT

Criteria	Scale					Mean	Verbal Interpretation	
	5	4	3	2	1			
	Outstanding	Very Satisfactory	Satisfactory	Poor	Needs Improvement			
1	Goals and Objectives	58	17	0	0	0	4.773	Outstanding
2	Methods and Delivery	63	12	0	0	0	4.840	Outstanding
3	Content	76	14	0	0	0	4.844	Outstanding
4	Organization	38	6	1	0	0	4.822	Outstanding
5	Facility and Equipment	47	13	0	0	0	4.783	Outstanding
Over all mean							4.81	Outstanding

Feedback from the Participants

Most like about the training

- Cooperation and brainstorming among participants
- Sharing of ideas / constructive criticisms
- Cooperation and collaborative ideas from the speaker
- Collaboration and unity is observed
- Highly challenging writeshop participation
- Writing and creating your own activity
- Workshop enhances the creativity of the teacher
- Very timely training which address local and global issues
- Creation of awareness on peace respect and understanding of world diverse culture

Areas of Improvement

- Lack of time for writing task/more time needed to accomplish task
- Provide faster and reliable internet connection to facilitate downloading of materials
- Improving the format of PowerPoint presentation of GCED SIM

Recommendations and suggestions

- Extended to one week writing training
- The training is highly commended/willingness to attend in Grade 8 GCED SIM
- Additional number of days for the training

Most useful part of the training

- Writeshop participation
- GCED integration in Science Lesson
- GCED Lesson Planning
- Brainstorming among participants and discussion of GCED

Lesson Topic/ Title	Prevention of Common Communicable Diseases: "GERM BUSTER"
GCED Sustainable Goal	#3 Good Health and Well-Being
Lesson Duration	60 minutes
Grade Level	Grade 7
DepEd Module	Living things other than Plants and Animals
K-12 Basic Education Learning Competency	Identify beneficial and harmful microorganisms Code: S7LT-If-6

GCED Domains of Learning	LESSON Learning Objectives
Cognitive	Students will be able to identify common microorganisms that cause communicable diseases and understand the ways of breaking the chain of infection through hand washing and disinfection.
Socio Emotional	Students will be able to realize the impact of preventing communicable diseases at home and to the community.
Behavioural	Students will be able to perform proper hand washing technique and disinfection.

GCED TOPIC (UNESCO, 2015)	Upper secondary (12-15 years old): Issues affecting interaction and connectedness of communities at local, national and global levels. Getting engage and taking action
GCED learning Objectives (UNESCO, 2015)	Upper secondary (12-15 years old): Assess the root causes of major local, national and global issues and the interconnectedness of local and global factors. Develop and apply skills for active engagement and take action to promote common good
Learning Methodology	Group Learning Active and Experiential Learning
Materials	Student worksheets: "BREAK FREE": Breaking the Chain of Infection Glitters, spoon, fork, handkerchief Liquid/ bar soap, towel, basin, dipper, pail, toothpick
Cross Curriculum Integration	Health, Social studies

Learning Stage	Activity
<p style="text-align: center;">ENGAGE</p>	<p style="text-align: center;">Activity 1: Mayors Challenge</p> <p>PERFORMANCE TASK: You will act as a mayor of your city. You are called by the Department of Health (DOH) because of a health problem spreading in your city. Your task is to watch a short video about a communicable disease and identify the cause of the health problem. You will also explain how the disease was transmitted to another person and suggest ways to prevent the spread of infection. But before the meeting starts, let us divide the class into four to five groups with three to five members. Your teacher will act as the Secretary of DOH.</p> <p>Guide Questions:</p> <ol style="list-style-type: none"> 1. In the video, what are the common disease causing microorganisms that cause communicable diseases? 2. What are the ways to get these diseases? 3. Suggest ways to prevent the spread of infection <p>In relation to the video presented, the teacher will explain that at end of the lesson, the students will be</p> <ol style="list-style-type: none"> a. to able to identify common microorganisms that cause communicable diseases and understand the ways of breaking the chain of infection through hand washing and disinfection. b. realize the impact of preventing communicable diseases at home and to the community. c. prevent communicable diseases by learning the proper way of hand washing
<p style="text-align: center;">EXPLORE</p>	<p style="text-align: center;">Activity 2: Hello! How are you?</p> <ol style="list-style-type: none"> 1. Form a circle with group members. Cover your eyes using handkerchiefs. Ask some assistance from your seat mates if needed. 2. After covering the eyes, the teacher will assist the first group member in the circle to dip the palm of his/her hands to glass plates with two colour glitters. 3. Shakes hands with the next member beside you following the circular pattern. 4. The teacher will initiate the handshaking activity by singing a “song of peace”. 5. After singing the “song of peace”, uncover your eyes. 6. Observe again the amount of glitters on your hand. Compare the amount of glitters in each member’s hands by showing each other’s palm. 7. 5. Let the students answer the guide questions and discuss the outcome of activity. <p>Guide Question:</p> <ol style="list-style-type: none"> 1. After shaking hands with group members, what do you observe on your hands. 2. What do you think represents the glitters after doing the hand shaking? 3. What do you feel during the handshaking while covering of the eyes? 4. How do you relate the handshaking activity in spreading the communicable disease?

<p>EXPLAIN</p>	<p style="text-align: center;">Activity 3 : Breaking the Chain of Infection</p> <ol style="list-style-type: none"> 1. Again, form a circle per group. 2. Let one member of the group to hold and pass a handkerchief. 3. Wipe your hands as you pass the handkerchief. Next to pass is the mobile phone. 4. Ask the student to observe the surface of the handkerchief and mobile phone 5. Demonstrate how bacteria are spread in inanimate objects. 6. Discuss and explain simple ways to break the chain of infection. <p>Guide Questions:</p> <ol style="list-style-type: none"> 1. What can you observe in the handkerchief and mobile phone after all of the members of the group touch the objects? 2. If the glitters represent germs, how can germs can be transmitted in this activity? 3. Is it healthy to touch inanimate objects with your hands unclean? Why? 4. Aside from handkerchief and mobile phone, what other objects or parts of the house is considered dirty and needs to be disinfecting every now and then?
<p>ELABORATE</p>	<p style="text-align: center;">Activity 4: Let's Do It!</p> <p>The Proper Hand Washing Technique</p> <ol style="list-style-type: none"> 1. Discuss the importance of proper hand washing. 2. Perform the proper hand washing technique. 3. Let each student-leader will perform a return demonstration on proper hand washing technique after the teacher demo. 4. Let the students make a pledge of commitment to break the chain of infection.
<p>EVALUATE</p>	<p>COGNITIVE : The teacher will evaluate students understanding of using the worksheet "BREAK FREE": Breaking the Chain of Infection</p> <p>SOCIO-EMOTIONAL: The teacher will instruct the students to make a pledge of commitment to break the chain of infection.</p> <p>BEHAVIOURAL: The teacher will utilize a checklist/rubric in assessing student's performance in proper hand washing.</p> <p>Prepared by: Melandro D. Santos Antonio Villegas Vocational High School Manila Philippines</p>