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유네스코 아시아태평양 국제이해교육원

Co - Curricular Project Teaching Module 2024

THEME ECOBRICK, PLASTIC, AND BIOSPHERE

ECOBRICK: BEAT THE PLASTIC

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Global Citizenship Education (GCED)

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ECOBRICK: BEAT THE PLASTIC!

CO-CURRICULAR PROJECT TEACHING MODULE

MODULE THEME:

ECOBRICK, PLASTIC, AND BIOSPHERE

WRITTEN BY:

YUNI IFAYATI

MODULE TARGETED SUBJECTS:

JUNIOR HIGH SCHOOL TEACHERS

COLLABORATIONS PROGRAM

ASIA-PACIFIC CENTRE OF EDUCATION FOR INTERNATIONAL UNDERSTANDING (APCEIU)

AND

DIRECTORATE GENERAL OF TEACHER AND EDUCATION PERSONNEL, MINISTRY OF EDUCATION, CULTURE, RESEARCH AND TECHNOLOGY

2024

Acknowledgment

Since 2016, the Asia-Pacific Centre of Education for International Understanding (APCEIU) has been working on the ***Global Citizenship Education (GCED) Curriculum Development and Integration (CDI) Project*** with several countries in the Asia-Pacific region. This initiative aims to incorporate Global Citizenship Education (GCED) into national curricula and share it worldwide.

APCEIU expresses great pleasure in welcoming Indonesia as a partner country for the 3rd Round of the GCED CDI Project. Indonesia's adherence to the philosophical principles of Pancasila, which resonate strongly with the values of GCED, underscores its commitment to global diversity, collaboration, and critical thinking. We anticipated with confidence the successful implementation of the GCED CDI Project in Indonesia, and we are delighted to witness Indonesia's proactive and enthusiastic execution of the project. This effort has significantly bolstered educators' skills and fostered the development of educational resources for GCED.

We are particularly pleased with the development of four modules focused on enhancing STEM (Science, Technology, Engineering, Mathematics) literacy and numeracy competencies. This development is significant, as proficiency in these areas is increasingly vital for the future, where knowledge and skills in these fields are highly sought after.

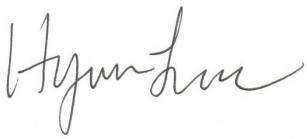
APCEIU extends sincere appreciation to the Directorate General of Teacher and Education Personnel, Ministry of Education, Culture, Research, and Technology (MoECRT), with special recognition for Prof. Dr. Nunuk Suryani, M.Pd., and Dr. Rachmadi Widdiharto. We also wish to express gratitude to the editors of this report: Sofie Dewayani, Arif Widiyatmoko, Sani Aryanto, Meliyanti, Nita Isaeni, and Ratna Nurlaila.

We commend all contributors involved in the publication of these modules, particularly Yuni Ifayati, Agnita Handayani, Kultum Afifah, and Novita Fatmasari, the teachers who authored the four modules. As well as our colleagues at APCEIU, who supported the development of this project and final report.

We hope that these materials, tailored to the Indonesian context, will serve as an effective tool and pedagogical guideline for teachers to implement the GCED Program, thereby helping students improve their problem-solving skills, practical and creative thinking, and communication abilities as inclusive and open-minded global citizens. We look forward to Indonesia's continued leadership and pivotal role in advancing GCED globally.

LIM Hyun Mook

Director, APCEIU



Acknowledgment

Praise be to God Almighty, because by His grace, we have completed the project/lesson plan module from the series of Global Citizenship Education (GCED) activities - Integrated Teaching Modules of Literacy And Numeracy For Primary Teachers In Indonesia And The Asia-Pacific Region. This project for Indonesia has been carried out in collaboration between APCEIU and the Directorate General of Teacher and Education Personnel, Ministry of Education, Culture, Research and Technology of the Republic of Indonesia (DGTEP) by Implementing an Arrangement (IA) between the Directorate General of Teachers and Education Personnel and the Asia-Pacific Centre of Education for International Understanding (APCEIU) under the auspices of UNESCO, dated 22 March 2023, No. APCEIU/C23/035 concerning GCED-Integrated Teaching Modules of Literacy and Numeracy for Primary Teachers in Indonesia and The Asia-Pacific Region.

In the Merdeka Curriculum developed in Indonesia, developing literacy and numeracy competencies is very important for improving the quality of students, so that they have a comprehensive understanding and meaningful learning. The curriculum in Indonesia also focuses on character development by strengthening the Pancasila Student Profile in the learning process. Pancasila is the philosophy of the Indonesian nation, where the characters that are developed include faith and devotion to God Almighty, Global Diversity, Cooperation, Independence, Critical Reasoning, and Creativity.

Collaboration between the Directorate General of Teachers and Education Personnel and the APCEIU is something that strengthens the competence of teachers and strengthens the competence of students in understanding GCED especially in terms of climate change. GCED values are already present in the school curriculum in Indonesia so that the development of teaching modules and project modules is very integrated.

In this activity, there are four modules related to GCED that strengthen STEM (Science, Technology, Engineering, Mathematics) based literacy and numeracy competencies written by selected teachers, including Agnita Handayani, the module entitled "Zero Waste Hero In Action module: Dealing with Waste Through 4R (Refuse, Reduce, Reuse and Recycle) at SDN Cipinang Muara 14 Pagi, East Jakarta", Novita Fatmasari, the module entitled "Avoiding Food Waste, It's Time to Share" problematizes the issue of food waste in urban areas, Yuni Ifayati, implementing the project "Ecobrick: Beat the Plastic" at Fitrah Al Fikri Islamic Junior High School, and Kultum Afifah, the module entitled "Every Drop of Water Counts" which is aimed at raising students' awareness of the water crisis as a local and global problems.

In recognizing the achievement of the zero waste program at SDN Cipinang Muara 14 Pagi, we celebrate more than just a successful waste management initiative. We acknowledge a transformative movement towards sustainable living and environmental responsibility. In this way, the program's impact extends far beyond the school grounds, contributing to a broader movement towards a more sustainable and resilient future.

We would like to thank APCEIU for the collaboration that has been established. Furthermore, these modules can become a reference for teachers in Indonesia and Asia-Pacific, especially in the implementation of Global Citizenship Education which strengthens STEM-based literacy and numeracy competencies, and superior character as world citizens.

September 2024,

Director General of Teachers and Education Personnel,

Prof. Dr. Nunuk Suryani, M.Pd.

Table of Content

Introduction

Climate change is a real threat to humanity. The impacts of climate change today consist of global temperatures, droughts, floods, species extinction, and increasing health risks. Therefore, the societal awareness of the importance of climate change education, especially in Indonesia, needs to be improved. Knowledge and real-life experience in implementing sustainable lifestyles also need to be introduced in classrooms as early as possible so that students can maximise their roles as responsible global citizens. Global Citizenship Education (GCED) should be promoted as one of the efforts to enable students to solve global problems and contribute actively to creating a more peaceful, tolerant, inclusive, and safe world (UNESCO, n.d.). This approach aligns with the Sustainable Development Goals (SDGs 13) regarding climate change.

One of the factors causing climate change, which has become a global problem, has been plastic. From production to transportation and disposal, plastic produces greenhouse gas emissions that contribute to increasing global temperatures. Furthermore, researchers estimate that the production and burning of plastics will release more than 850 million tons of greenhouse gases into the atmosphere. This amount equals 615 coal-fired power plants or a burden of 13% of the world's carbon budget (WWF Australia, 2021).

What about the issue of plastic in Indonesia? Indonesia has been one of the largest plastic waste-producing countries in the world. Based on data from the Indonesian Plastic Industry Association (Inaplas) and the Central Bureau of Statistics (BPS), in 2021, Indonesia produced as much as 66 million tons of plastic waste per year. As much as 3.2 million tons of garbage are wasted into the sea (Standardization of Environmental and Forestry Instruments Agency, 2022).

Plastic is difficult to degrade (non-biodegradable). Left in the soil or water for years, plastic will slowly become smaller pieces (microplastics), absorbed by the plants, fish, and animals we consume. This will have severe negative impacts on human health, such as cancer, genetic disorders, pneumonia, nervous system disorders, and others. For the environment, plastic also threatens habitats and damages ecosystems.

How ironic! School institutions are where students learn, but plastics used in snack packaging, plastic bags, and plastic bottles are still widely found and must be appropriately managed. This means that schools' environmental awareness still needs to be improved. One effort to raise environmental awareness among the school community is ecobricking.

Ecobrick serves as an alternative solution. In ecobrick making, we sort, store, and pack plastic into bottles. We can design building bricks or decorative products that can be used repeatedly (Global Ecobrick Alliance, n.d.). Ecobrick activities can be done anytime and do not require complicated technology or special skills. All age groups can also make ecobricks. Ecobrick plastic is obtained from plastic left over from daily consumption, such as plastic packaging, mica, mailing packages, plastic bags, gloves, plastic masks, and others. Ecobrick can be an individual effort to keep the environment green.

For this reason, students need to be taught the habit of eco-bricking through project-based learning entitled Ecobrick: Beat the Plastics! (the EBTP project). The EBTP project aims to facilitate students' plastic transition journey towards new, more environmentally friendly habits.

The EBTP project will be conducted through comprehensive learning activities involving the three GCED domains: cognitive, social-emotional, and behavioural. Students are expected to critically understand why they need to make ecobrick, the underlying principles and philosophy, a broader knowledge of plastic and its production process, and recycling issues (cognitive domain). Students can also hone their social-emotional skills through a critical and intelligent understanding of the dangers of misusing plastic and its long-term negative impacts if we ignore the plastic problem. Furthermore, in the behavioural domain, ecobricking activities enable students to take concrete actions to change their lifestyle and reduce consumptive behaviour. They will gain a greater awareness of plastic waste.

Meanwhile, pedagogically, the EBTP project also aims to increase students' capacity to participate in providing solutions to the problem of used plastic as a global issue. This project involves students and all school stakeholders, including parents. They are expected to collaborate in greening their homes, schools, and the surrounding environment. This involvement is crucial because environmental education for students requires collaboration and active participation of all parties (engagement). Ecobricking can also be part of efforts to build students' character, such as being responsible, having more respect for nature, and building cooperation as skills for living together in society. Students, teachers, and parents reflect and practice being more aware of plastic consumption personally at home or school to create greener and more comfortable spaces (peace). The three pedagogical aspects that become the scope of GCED (engagement, living together, and peace) can be achieved through this Ecobrick project-based learning.

The ecobrick activity follows the project-based learning principles as a pedagogical approach. It can also be linked to STEM (Science, Technology, Engineering and Mathematics). STEM-based activities are carried out when making ecobrick modules in the form of triangles (12 ecobricks), hexagons (19 ecobricks), and Lego elements (16 ecobricks). These modules can be assembled into various functional

forms, such as chairs, tables, stages, benches, etc. Furthermore, in the context of the learning process, the activities in the EBTP project also explore students' literacy and numeracy abilities. Several sources of information, such as articles, local and international news, and other multimodal texts, become references and reading materials to improve students' insights and critical thinking skills.

Objectives, Procedures, and Targets

A. Objectives

The objectives of this module are:

1. Students are able to critically understand why it is necessary to make ecobricks, the underlying principles and philosophy, broader knowledge about plastic and its production processes, and recycling issues (cognitive dimension).
2. Students are able to increase environmental awareness, especially about the dangers of plastic, which has become a global threat that impacting on world climate change. This project seeks to foster the spirit and habit of being personally responsible for used plastic (social-emotional dimension).
3. Students are able to develop their critical thinking skills, creativity, collaboration, and communication through eco brick-making. This project aims to grow individuals with 21st-century life skills.
4. Students are able to take real action to adopt a sustainable lifestyle by reducing or even rejecting the use of plastic, replacing plastic with organically biodegradable materials, and making ecobrick (behavioural dimension).

B. Procedures

This module is structured in several stages:

1. Introduction. At this stage, students identify problems caused by excessive plastic consumption. They practise observing, reading, and concluding how far the world is affected by plastic.
2. Contextualization. At this stage, students make self and family observations about how much they use plastic daily. Students will also be presented with data and facts about plastic, its relationship to humans, its benefits, and its negative environmental impact. Students are also introduced to ecobrick as an alternative solution to plastic pollution.
3. Action. This stage invites students to take real action, making ecobricks. Students are guided to prepare the activities by collecting used plastic from home and bringing it to school to practise making ecobricks together. Furthermore, students also made eco-literacy corner designs as a follow-up to the use of ecobricks and efforts to campaign for actions to reduce the use of plastic in schools.

4. Reflection/Assessment. This stage invites students to reflect on the extent of their understanding of plastic and how the learning process is being undertaken. Students will also be asked to review their knowledge of ecobrick through a board game. Next, students will undertake a 21-day challenge to form plastic-free habits.
5. Presentation/Follow-Up. At this stage, students will create literacy works as a form of environmental action campaign. This work will be published in the school's eco-literacy corner. In addition, students will invite their parents to collaborate in making ecobricks in a work exhibition session.

C. Targets

This module's target audience includes students (grades 7, 8, and 9) and teachers at the junior high school level.

How To Use The Module

1. This module is designed to support co-curricular activities without requiring the achievement of specific subject competencies. Its implementation can adjust to the needs of students and schools.
2. The learning stages in this module consist of introduction, contextualization, action, reflection, and presentation. Each stage attempts to explore students' cognitive, social-emotional, and behavioural abilities toward the module topic, namely Ecobrick: Beat the Plastics! Training students' critical thinking is also the focus of this module. It is manifested in several learning activities that use the Visible Thinking Routine technique.

1. This module is divided into several activities:
    a. To train cognitive abilities
        1) Let's Read
        2) Let's View
        3) Let's Discuss
        4) Let's Write
        5) Let's Practise
    b. To train social-emotional skills
        1) Let's Play
        2) Let's Share
        3) Let’s Reflect
    c. To train behavioural skills
        1) Let's Research
        2) Let's be Creative

2. The teacher's role in this module is as a facilitator when students build their understanding of ecobrick, plastic, and nature. The teacher also acts as a trainer when students make ecobricks. As a trainer, the teacher must ensure that the ecobricks made by students are correct and follow the Global Ecobrick Alliance (GEA) standards. In addition, the teacher must prepare the necessary facilities and equipment.

3. This module includes several materials, namely:
    a. The Threat of Environmental Damage Due to Plastic
    b. The Story of the Origin of Plastic
    c. Human Relations with Plastic
    d. Where Did My Plastic Go?
    e. Impact of Plastic on the Biosphere
    f. What is Ecobrick?
    g. Why is it necessary to make ecobrick?
    h. The Cradle to Cradle Principle
    i. How to Make Ecobricks
    j. Inspiration from Environmental Activists
4. Learning activities in this module are structured based on literacy, numeracy, and STEM.

Project Stages Flow

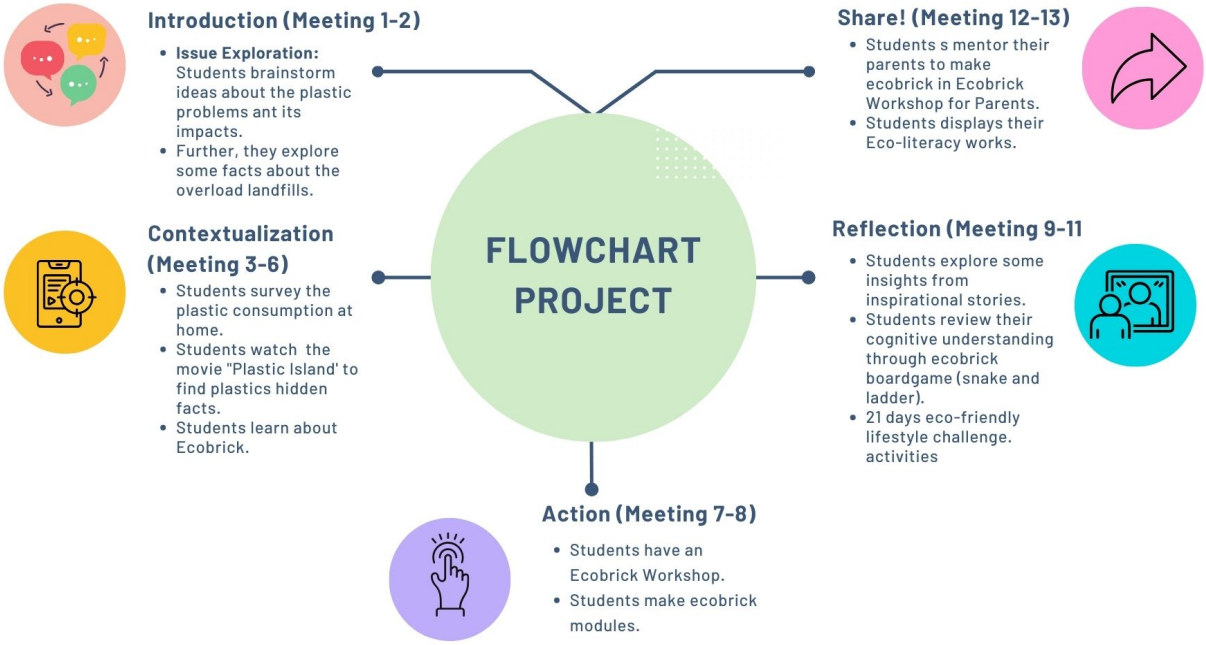
The Ecobrick: Beat the Plastic learning project module is structured based on design thinking principles. It trains students to take fundamental roles as problem solvers in their immediate environment. The module's flow consists of five steps: introduction, contextualization, action, assessment/reflection, and presentation.

<table>
<tr><th colspan="2">INTRODUCTION STAGE</th></tr>
<tr><td>MEETING 1 (60 MINUTES)</td><td>MEETING 2 (60 MINUTES)</td></tr>
<tr><td>EXPLORATION OF ISSUES: THE THREAT OF ENVIRONMENTAL DAMAGE CAUSED BY PLASTIC
Students brainstorm ideas about plastic waste and problems that arise in their surroundings
(Visible Thinking Routine)</td><td>EXPLORATION OF ISSUES: THE THREAT OF ENVIRONMENTAL DAMAGE CAUSED BY PLASTIC
Students brainstorm ideas about plastic waste and problems that arise in their surroundings
(Visible Thinking Routine)</td></tr>
<tr><th colspan="2">STAGES OF CONTEXTUALIZATION</th></tr>
<tr><td colspan="2">MEETING 3 (HOMEWORK)</td></tr>
<tr><td colspan="2">PLASTIC SURVEY: HOME ASSIGNMENT (ONE WEEK).
Students record the family's daily use/consumption of plastic for one week as outlined in a table. Students are guided to collect data on how much plastic they consume. This activity is intended to open their awareness that the producers of plastic waste are us humans.</td></tr>
<tr><td colspan="2">MEETING 4 (120 MINUTES)</td></tr>
<tr><td colspan="2">VIDEO TIME: THE PLASTIC KINGDOM
Students watch the documentary Kingdom of Plastics to learn about plastic problems.</td></tr>
<tr><td colspan="2">MEETING 5 (60 MINUTES)</td></tr>
<tr><td colspan="2">READ AND DISCUSS!
Students understand the story of plastic, discuss the relationship between humans and plastic, identify where plastic eventually goes, and how it impacts the biosphere.</td></tr>
<tr><td colspan="2">MEETING 6 (60 MINUTES)</td></tr>
<tr><td colspan="2">READ AND DISCUSS!
Students discuss things that can be done to take part in the solution.
Students were introduced to ecobrick techniques to reduce plastic use.</td></tr>
</table>

ACTION
MEETING 7 (180 MINUTES)
1. Ecobrick introduction workshop: Introducing ecobrick as a plastic transition towards an eco-friendly lifestyle. Students learn to understand the principles of ecobricking and why it is necessary to ecobrick. This session can be guided by a teacher or (highly recommended) an ecobrick trainer nearby. 2. Making ecobricks 3. Creating Ecobrick Modules
MEETING 8 (60 MINUTES)
LET'S BUILD OUR ECOBRICK! Designing Eco-Literacy Corner with ecobrick modules. Students design functional objects that can be made using ecobricks in the Eco-Literacy Corner.
ASSESSMENT/REFLECTION/FOLLOW-UP
MEETING 9 (60 MINUTES)
INSPIRATION: **Stories from environmental activists.** Students read and seek inspiration from environmental activists. **REFLECTION FOR ACTION:** Students answer cognitive and reflective questions related to ecobrick and write down the experience of making at the previous stage (testing cognitive and social-emotional aspects).
MEETING 10 (40 MINUTES)
ECOBRICKS BOARD GAME Students play board games in groups. This board game tests understanding plastic and ecobrick issues as alternative solutions (tests on cognitive and social-emotional aspects).
MEETING 11 (21 DAYS AT HOME)
21 DAYS ECOBRICK CHALLENGE This challenge trains students' socio-emotional and behavioural aspects through 21-day challenge activities.

PRESENTATION	
MEETING 12 (60 MINUTES)	**MEETING 13 (180 MINUTES)**
1. Ecobrick Campaign: Students promote ways to reduce plastic consumption, which is the goal of ecobricking in everyday life. They will display this literacy work in the Eco-literacy Corner at school. 2. Infographics 3. Short story 4. Comic 5. Inspiring story 6. Poster 7. Comic	1. Student Work Exhibition (Ecobrick Open Space) 2. Ecobrick Introductory Workshop for Parents. Parents are involved because they are role models for students' sustainable lifestyles. Students also share experiences and techniques with parents to make good ecobricks from used plastic at home.

In another way, the flow of this project procedure can be depicted in the following chart:



A. Introduction

The following is a detailed lesson plan:

<table>
<tr><th colspan="2">TOPIC: THE THREAT OF ENVIRONMENTAL DAMAGE DUE TO PLASTIC</th><th>MEETING: 1</th></tr>
<tr><td rowspan="3">OBJECTIVE:
Students identify plastic problems that cause environmental damage.</td><td>TIME:
60 minutes</td><td rowspan="3">PREPARATION:
1. Before the meeting, a pre-survey can be conducted to determine the extent to which learners have an eco-friendly lifestyle. Click here or scan the barcode below to get a sample online survey. Teachers can also print out the survey sheet in the appendix of this module.
2. Prepare three pictures and show them through the TV/projector so the pictures will look big.</td></tr>
<tr><td>MEDIA:
Student Worksheet - Meeting 1</td></tr>
<tr><td>TEACHER'S ROLE:
Source person, Facilitator</td></tr>
<tr><td colspan="3">LEARNING RESOURCES: Student Module</td></tr>
<tr><td colspan="3">IMPLEMENTATION
PRE-ACTIVITY
The teacher gives eliciting questions to connect student experience and material, for example:
1. Have you ever found a pile of trash in your neighbourhood? How do you feel?
2. Where did the trash come from?
MAIN ACTIVITY
7. Three pictures of plastic problems are shown:
a. The overload landfill.
b. A herd of cows looking for food at the landfill and eating plastic.
c. Marine animals trapped in plastic.
8. Students explore what happened and brainstorm with students about the phenomenon.
9. At this stage, brainstorming activities can be carried out using the Visible Thinking Routine—Interview the Picture! Method.
10. Through pictures, students are encouraged to ask questions of the characters in the pictures and make role-plays about what happened in the pictures.</td></tr>
</table>

POST ACTIVITY After observation and roleplaying, students reflect on their daily behavior in dealing with plastic.
TIPS Roleplay can be done in pairs. The brainstorming technique used is the Visible Thinking Routine – Interview the Picture! Make sure the image shown is seen clearly.

TASK -	**ENRICHMENT -**

<table>
<tr><th colspan="2">TOPIC: THE THREAT OF ENVIRONMENTAL DAMAGE DUE TO PLASTIC (JIGSAW READING)</th><th>MEETING: 2</th></tr>
<tr><td rowspan="3">OBJECTIVE:
Students identify plastic problems that cause environmental damage.</td><td>TIME:
60 minutes</td><td rowspan="3">PREPARATION:
Prepare students’ reading materials. These reading materials are also provided in the student worksheets in the attachment section.</td></tr>
<tr><td>MEDIA:
Student Worksheet - Meeting 2</td></tr>
<tr><td>TEACHER’S ROLE:
Facilitator</td></tr>
<tr><td colspan="3">LEARNING RESOURCES:
News Articles
Text A: Tempat Pembuangan Akhir Overload, Depok Darurat Sampah
(Landfill Overloaded, Depok in Waste Emergency)
Text B: TPA Pesalakan Overload, Warga Demo Tutup Akses Masuk
(Pesalakan Landfill Overload, the Residents Protested to Close the Access)
Text C: TPA di Sumenep Overload, Per Hari Sampah Mencapai 33,32 Ton | Media Jatim
(Landfill in Sumenep Overloaded, Trash Reaches 33.32 Tons Per Day | East Java Media)
Text D: TPA Overload, Volume Sampah di Atam 40 Ton/Hari
(Landfill Overload, Waste Volume in Atam reaches 40 Tons/Day)</td></tr>
</table>

IMPLEMENTATION

PRE-ACTIVITY

The teacher asks eliciting questions related to the learning activities to be carried out, for example:

1. Do you know what TPA (landfill term in Indonesia) stands for?
2. Is there a TPA around your neighbourhood? If so, how far is it from your house? If not, where does the trash in your home go?

MAIN ACTIVITY

1. Students are grouped. Each group consists of 4 members (Homegroup)
1. Students get one different text related to plastic problems.
2. Students who get the same text form a new group as an expert group. They will discuss the news they read more deeply.
3. Students return to their home groups to convey information/results of discussions they have carried out in the expert group. The teacher guides this activity.

POST ACTIVITY

Students conclude the phenomenon of plastic problems that have been discussed in both the original and expert groups.

TIPS -

TASK -	**ENRICHMENT -**

B. Contextualization

TOPIC: PLASTIC SURVEY		**MEETING: 3 (HOME ACTIVITY)**
OBJECTIVE: Students calculate the amount of plastic their family uses weekly.	**TIME:** 1 Week	**PREPARATION** Prepare a survey sheet.
	MEDIA: Student Worksheet - Meeting 3 (Survey Sheet)	
	TEACHER'S ROLE: Facilitator	
LEARNING RESOURCES: Attitudes of family members at home towards plastic.		

IMPLEMENTATION

PRE-ACTIVITY

The teacher gives eliciting questions, for example:

1. Have you ever counted how much plastic you use daily?

MAIN ACTIVITY

1. The students complete the survey sheet by completing the column of the day/date, the type of plastic used, for example, plastic bags, straws, packaging, styrofoam, cigarette butts, cosmetic products, household products, etc.
2. Students weigh the used plastic that has been collected.
3. Students elaborate on the survey result and analyse its connection to the fact that Indonesia is the world's second-largest waste contributor.

POST ACTIVITY

Students share their survey conclusions – how they and their families contribute to world plastic pollution.

TIPS

1. Be sure to mention that they must work with family members to clean, dry, and store used plastic.
2. Teachers can confirm parents to help students conduct daily plastic surveys at home.

TASK -	**ENRICHMENT -**

TOPIC: VIDEO TIME **PULAU PLASTIK (THE PLASTIC ISLAND)** **KERAJAAN PLASTIK (THE PLASTIC KINGDOM)**		**MEETING: 4**
OBJECTIVE: After watching a documentary film, students get an overview of the facts about plastic waste problems.	**TIME:** 120 minutes **MEDIA:** Student Worksheet **TEACHER'S ROLE** Source person, Facilitator	**PREPARATION** 1. Students and teachers discuss survey assignments. What are the results? This discussion became a connecting activity with current activity, watching a documentary video about Indonesian plastic waste. 2. Prepare the film and other devices (projector, etc.).

LEARNING RESOURCES:

Documentary films that the teacher can choose, entitled:

1. Pulau Plastik *(Plastic Island)*
2. Kerajaan Plastik *(Plastic Kingdom)*

IMPLEMENTATION

PRE-ACTIVITY

The teacher gives eliciting questions, for example:

1. Did you know plastic is difficult to decompose? It doesn't disappear, but its form changes to microplastic. To what extent do you know this?
2. Why is plastic dangerous for health? How did it happen? Can plastic get into the human body?

MAIN ACTIVITY

1. Students watch a documentary film entitled “Pulau Plastik” or “Kerajaan Plastik.” This video invites us to see the journey of plastics, from the beginning of its creation to its end, becoming a threat to the environment.
2. While watching the film, the students individually work on the student worksheets provided.

POST ACTIVITY

After observation and roleplaying, students reflect on their daily behaviour in dealing with plastic.

TIPS

Teachers can access this film on Netflix or contact Instagram Plastic Island to confirm sponsorship to watch the film.

TASK -	**ENRICHMENT -**

TOPIC: WHERE DID MY PLASTIC GO?		**MEETING: 5**
OBJECTIVE: 1. Students understand the history and journey of plastics. 2. Students explore the negative impacts of plastic waste and its contribution to climate change.	**TIME:** 80 minutes **MEDIA:** Student Worksheet - Meeting 5 **TEACHER’S ROLE** Facilitator	**PREPARATION** Prepare and download the videos: 1. Where does my trash go? (Click here) 2. How plastic ends up in the oceans (Click here)

LEARNING RESOURCES:

Ecobrick Vision Guide

Ecobricks.org

IMPLEMENTATION

PRE-ACTIVITY

The teacher gives eliciting questions, for example:

1. Do you know where the plastic comes from?
2. Then, where did it end up?

MAIN ACTIVITY

READ AND DISCUSS!

1. Students understand the story about plastic and where it comes from.
2. Students discuss the relationship between humans and plastic. This activity invites students to compare past and present human activities to determine how far human life is 'dependent' on plastic.
3. Students identify where plastic ends and how it impacts the biosphere through reading and watching video activities. This identification activity uses the Visual Thinking Routine learning method: See, Think, Wonder.

POST ACTIVITY

Students conclude the initial question about where the plastic we have used ends up and how it impacts the environment.

TIPS

The discussion activity guide is in the student worksheets. This activity can be done in pairs or groups. When identifying the impact of plastics in class, simply draw a table on the board in three columns (What I see, What I think, What I wonder). Give students a post-it sheet to answer each column. Ask students to attach the sheet to the appropriate column. Do it gradually.

TASK -	**ENRICHMENT -**

<table>
<tr><th colspan="2">TOPIC: ECOBRICKS: BEAT THE PLASTICS!</th><th>MEETING: 6</th></tr>
<tr><td>OBJECTIVE:
1. Students understand that ecobrick is an alternative solution to plastic pollution.
2. Students understand the reasons why making ecobrick is necessary.
3. Students understand how to make ecobricks.</td><td>TIME:
60 minutes
MEDIA:
Student Worksheet - Meeting 6
TEACHER'S ROLE
Facilitator</td><td>PREPARATION
1. Prepare the supporting videos that need to be displayed in class as learning resources.
2. What is ecobrick? Download here.
3. How to make ecobrick, download here.</td></tr>
<tr><td colspan="3">LEARNING RESOURCES:
Ecobrick Vision Guide
Ecobricks.org</td></tr>
<tr><td colspan="3">IMPLEMENTATION
PRE-ACTIVITY
While carrying an ecobrick as a realia, the teacher gives eliciting questions, for example:
What is this thing? What's in it? What is this thing for?
MAIN ACTIVITY
READ AND DISCUSS!
Students read about ecobricks, the reasons for the importance of making ecobricks, and how to do them correctly. They can create a mind map to summarize the info.
POST ACTIVITY
From the reading results, students are led to conclude that ecobrick is a plastic transition that helps people raise awareness of reducing plastic consumption.</td></tr>
<tr><td colspan="3">TIPS
To enhance the meeting's effectiveness, this activity can be used as a home activity (flipped learning), and students can be guided to report reading results in the Padlet.</td></tr>
<tr><td colspan="2">TASK -</td><td>ENRICHMENT -</td></tr>
</table>

C. Action

<table>
<tr><th colspan="2">TOPIC: WORKSHOP: AN INTRODUCTION TO ECOBRICKS</th><th>MEETING: 7</th></tr>
<tr><td rowspan="3">OBJECTIVE:
Students are able to make ecobrick correctly and precisely.
Students are able to analyze the link between ecobrick and climate change mitigation actions.</td><td>TIME:
180 minutes</td><td rowspan="3">PREPARATION:
1. Remind students to bring used plastics that are collected at home.
2. Other tools to bring are scissors, a cloth (to wipe off wet plastic), and a wooden stick.
3. The school can provide the wooden stick. Choose materials that are easy to get, such as bamboo. They are about 40 cm long and make the ends flatter but blunt so they can slide into the bottle and not damage it. These sticks can be used in the subsequent ecobrick activities</td></tr>
<tr><td>MEDIA:
1. Short story script about Moby Dick and Plastic Waste
2. Presentation Slides about Ecobrick
3. Used plastic that has been collected before
4. Ecobrick sticks
5. Scissors
6. Used bottles of the same brand</td></tr>
<tr><td>TEACHER'S ROLE:
Facilitator</td></tr>
<tr><td colspan="3">LEARNING RESOURCES: www.Ecobricks.org</td></tr>
<tr><td colspan="3">IMPLEMENTATION
PRE-ACTIVITY
The teacher gives eliciting questions, for example:
In your opinion, is making ecobrick easy or difficult?
MAIN ACTIVITY
READ AND DISCUSS!
1. Students listen attentively and participate actively in the teacher's explanation (slide provided).
2. Students make ecobricks.
3. Students register for the ecobrick
4. Students make ecobrick modules
POST ACTIVITY
From the reading results, students are led to conclude that ecobrick is a plastic transition that helps people raise awareness of reducing plastic consumption.</td></tr>
<tr><td colspan="3">TIPS</td></tr>
<tr><td colspan="2">TASK -</td><td>ENRICHMENT -</td></tr>
</table>

<table>
<tr><th colspan="2">TOPIC: LET'S BUILD OUR ECOBRICK! - ECO-LITERACY CORNER</th><th>MEETING: 8</th></tr>
<tr><td rowspan="3">OBJECTIVE:
Students are able to design functional objects from ecobricks.</td><td>TIME:
60 minutes</td><td rowspan="3">PREPARATION:
1. Students are grouped according to the previous grouping.
2. The teacher shows examples of ecobrick modules: triangle, hexagon, and lego.
3. Prepare a video about module creation (download here). Teachers can also directly give examples.
4. The teacher demonstrates how these modules can be formed into various functions.</td></tr>
<tr><td>MEDIA:
Ecobrick modules in a triangle, hexagon, and lego elements.</td></tr>
<tr><td>TEACHER'S ROLE:
Facilitator</td></tr>
<tr><td colspan="3">LEARNING RESOURCES: www.Ecobricks.org</td></tr>
<tr><td colspan="3">IMPLEMENTATION
PRE-ACTIVITY
The teacher gives eliciting questions, for example:
How do we make use of these ecobrick bottles? Is it just a module, or can we function as something else?
MAIN ACTIVITY
READ AND DISCUSS!
1. The teacher demonstrates how ecobrick modules can be installed or disassembled according to their function.
2. Students in groups make designs of functional objects arranged from the ecobrick modules they have made.
3. The teacher and all students discuss choosing a design that fulfils functional and creative elements.
POST ACTIVITY
Students present the selected design.</td></tr>
<tr><td colspan="3">TIPS
To make a module with a rubber inner tube, use a wooden stick to make it easier.
The teacher first studied the tutorial on making modules.</td></tr>
<tr><td colspan="2">TASK -</td><td>ENRICHMENT -</td></tr>
</table>

D. Reflection/Assessment

<table>
<tr><th colspan="2">TOPIC: WORKSHOP: INSPIRATION: STORIES OF ENVIRONMENTAL ACTIVISTS AN INTRODUCTION TO ECOBRICKS</th><th>MEETING: 9</th></tr>
<tr><td rowspan="3">OBJECTIVE:
Students get inspiration from environmental activists.</td><td>TIME:
120 minutes</td><td rowspan="3">PREPARATION:
The teacher prepares pictures of environmental activist figures.</td></tr>
<tr><td>MEDIA:
The inspirational stories of environmental activists (student worksheets).</td></tr>
<tr><td>TEACHER'S ROLE:
Facilitator</td></tr>
<tr><td colspan="3">LEARNING RESOURCES:
• www.ecobricks.org
• www.byebyeplasticbags.org
• www.ecoton.or.id/tag/aeshnina-azzahra/</td></tr>
<tr><td colspan="3">IMPLEMENTATION
PRE-ACTIVITY
The teacher gives eliciting questions, for example:
1. Who are the environmental activists you know?
2. Is there a community that cares about the environment in the area where you live?
MAIN ACTIVITY
1. Inspiration: Stories of environmental activists. Students read and seek inspiration from environmental activists.
2. Reflection for Action: Students answer cognitive and reflective questions about ecobricks and write down their experiences making ecobricks.
POST ACTIVITY
Students summarise the inspiration they get from the activists.</td></tr>
<tr><td colspan="3">TIPS
1. Apart from reading independently and doing reading reflections, this activity can also be done using the Read-Pair-Share strategy.
2. Students read an inspirational figure and then explain their values to their partner. Then, student representatives present the inspirational figure they read or told by their friends in front of the class.</td></tr>
<tr><td colspan="2">TASK -</td><td>ENRICHMENT -</td></tr>
</table>

<table>
<tr><th colspan="2">TOPIC: WORKSHOP: LET'S HAVE FUN:
ECOBRICK BOARD GAME</th><th>MEETING: 10</th></tr>
<tr><td rowspan="3">OBJECTIVE:
Students review their understanding of ecobrick as an alternative solution to reduce the impact of climate change.</td><td>TIME:
120 minutes</td><td rowspan="3">PREPARATION:
The teacher prepares an ecobrick board.</td></tr>
<tr><td>MEDIA:
Ecobrick Board Game</td></tr>
<tr><td>TEACHER’S ROLE
Facilitator</td></tr>
<tr><td colspan="3">LEARNING RESOURCES: www.ecobricks.org</td></tr>
<tr><td colspan="3">IMPLEMENTATION
PRE-ACTIVITY
The teacher gives eliciting questions, for example:
What do you understand about ecobricks?
MAIN ACTIVITY
ECOBRICKS BOARD GAME
Students play board games in groups. This board game tests understanding of plastic and ecobrick issues as alternative solutions (tests on cognitive and social-emotional aspects).
POST ACTIVITY
Students conclude their ecobrick vision! This ecobrick vision is the steps you will take to keep the earth green.</td></tr>
<tr><td colspan="3">TIPS
Ask the students to prepare dice and pawns. The teacher can also prepare them.</td></tr>
<tr><td colspan="2">TASK -</td><td>ENRICHMENT -</td></tr>
</table>

<table>
<tr><th colspan="2">TOPIC: WORKSHOP:
21 DAYS ECO-FRIENDLY LIFESTYLE CHALLENGE</th><th>MEETING: 11</th></tr>
<tr><td rowspan="3">OBJECTIVE:
Students practise getting used to an eco-friendly lifestyle as a concrete step to reduce the use of plastic.</td><td>TIME:
30 minutes</td><td rowspan="3">PREPARATION:
1. The teacher explains how this challenge will be implemented.
2. The teacher prepares the challenge sheet.</td></tr>
<tr><td>MEDIA:
Challenge Sheet</td></tr>
<tr><td>TEACHER’S ROLE:
Facilitator</td></tr>
<tr><td colspan="3">LEARNING RESOURCES: Challenge Sheet</td></tr>
<tr><td colspan="3">IMPLEMENTATION
- HOMEWORK -
21 DAYS ECO-FRIENDLY LIFESTYLE CHALLENGE
1. This challenge trains students' social-emotional and behavioural aspects through 21-day challenge activities.
2. Each student completes one challenge at a time in the column and documents it. Students can check their completed challenges.
3. Students choose the three best photos and describe them.</td></tr>
<tr><td colspan="3">TIPS
Confirm to parents that students need support in carrying out the 21-day challenge.</td></tr>
<tr><td colspan="2">TASK -</td><td>ENRICHMENT -</td></tr>
</table>

E. Presentation

<table>
<tr><th colspan="2">TOPIC: WORKSHOP: ECOBRICKS CAMPAIGN!</th><th>MEETING: 12</th></tr>
<tr><td rowspan="3">OBJECTIVE:
Students write/compile/create literacy works in the form of infographics, short stories, illustrated stories, stories of inspirational figures, posters, and comics.</td><td>TIME:
30 minutes</td><td rowspan="3">PREPARATION:
1. Students observe several choices of literacy works.
2. Students determine the literary work they want to make.
3. Students make a work plan.</td></tr>
<tr><td>MEDIA:
1. Examples of media for environmental campaigns include infographics, short stories, illustrated stories, posters, and comics.
2. Canva, PicsArt, etc.</td></tr>
<tr><td>TEACHER'S ROLE:
Facilitator</td></tr>
<tr><td colspan="3">LEARNING RESOURCES:
• www.Literacycloud.org
• Let's Read</td></tr>
<tr><td colspan="3">IMPLEMENTATION
PRE-ACTIVITY
The teacher gives eliciting questions, for example:
1. Is nature preservation only the responsibility of some people?
2. How do we invite others to have a sustainable lifestyle?
MAIN ACTIVITY
1. Ecobrick Campaign: Students promote ways to reduce plastic consumption, which is the goal of ecobricking in everyday life. They will display this literacy work in the Eco-literacy Corner at school.
a. Infographics
b. Short story
c. Comics
d. Inspiring story
e. Poster
2. Students are given a choice of whether to use digital media or paper-based.
POST ACTIVITIES
After completing the work, students decorate the Eco-Literacy Corner with their completed work.</td></tr>
<tr><td colspan="3">TIPS: At the previous meeting, the teacher should ask students to draft their literacy work.</td></tr>
<tr><td colspan="2">TASK -</td><td>ENRICHMENT -</td></tr>
</table>

<table>
<tr><th colspan="2">TOPIC: ECOBRICK WORKSHOP WITH PARENTS</th><th>MEETING: 13</th></tr>
<tr><td rowspan="3">OBJECTIVE:
1. Students publish their work and present the process of ecobricking
2. Students communicate the efforts they can make to mitigate the effects of climate change.</td><td>TIME:
30 minutes</td><td rowspan="3">PREPARATION:
1. The teacher explains the purpose of parents being invited to attend school.
2. Ecobrick Open Space - Students demonstrate the arrangement of ecobrick modules to make furniture and some possible objects. If the number of ecobricks is not yet possible for a module function demo, download the open space video here.
3. Students share stories about their activities with parents (teacher's guide).</td></tr>
<tr><td>MEDIA:
1. Student ecobrick bottles
2. Presentation Slides about Ecobrick
3. Used plastic that has been collected before
4. Ecobrick sticks
5. Scissors
6. Used bottles of the same brand</td></tr>
<tr><td>TEACHER’S ROLE
Facilitator</td></tr>
<tr><td colspan="3">LEARNING RESOURCES: www.ecobricks.org</td></tr>
<tr><td colspan="3">IMPLEMENTATION
PRE ACTIVITY
The teacher gives eliciting questions, both to parents and students, for example:
1. How do you manage plastic at home?
2. Are you involved?
MAIN ACTIVITY
1. The teacher presents a GEA trainer to guide the main workshop with parents.
2. Students guide their parents to make ecobricks.
3. Students accompany their parents to record ecobricks that have been made to gobrik.com.
POST ACTIVITY
Students and their parents make an ecobrick pledge to reduce plastic consumption and begin to switch to environmentally friendly materials.</td></tr>
<tr><td colspan="3">TIPS: Provide guidelines for what story points need to be conveyed to parents.</td></tr>
<tr><td colspan="2">TASK -</td><td>ENRICHMENT -</td></tr>
</table>

In carrying out the above learning activities, there are several things that teachers may question.

Q : How is the timing used for each activity?

A : The student worksheet allows teachers to suit their learning environment. Each activity is organised through stages, and the teacher can modify the stages.

Q : What is the role of the teacher in this student worksheet?

A : The role of the teacher in this module is various. The teacher is a facilitator that helps students to understand the connection between ecobricks, plastic, and the biosphere. The teacher also acts as a coach when students make ecobricks. The teacher is also a coach who ensures the ecobricks the students make are correct and follow the *Global Ecobrick Alliance (GEA)* standards. Furthermore, the teacher inspires by example for students to practice and make ecobrick a lifestyle. The teacher needs to understand that ecobricks are not about making crafts, but they are a medium for plastic transition. Ecobricking is an effort to raise awareness and a responsible way of life, where we become more aware of how we consume plastic so that we gradually reduce the use of plastic in our daily lives.

Q : How can teachers learn more comprehensively about ecobricks?

A : Teachers can understand ecobricking in-depth and get all the official ecobrick information on the website -ecobricks.org. Teachers can also take advantage of the opportunity to become official *Global Ecobrick Alliance* trainers by attending a *Training of Trainer (TOT)* so that teachers understand ecobrick knowledge and the principles of the ecobrick movement and community. To connect with the *Global Ecobrick Alliance (GEA*), teachers can contact the author of this module by emailing her at *yuniifayati@alfikri.sch.id.*

Q : What should be prepared when a teacher conducts an ecobrick workshop for students or parents?

A : Below is the preparation list:

1. The workshop is done in an open space.
2. Projector and screen for presentations.
3. Bamboo or wooden sticks for all participants.
4. Dry and clean used plastic that the students/parents have collected. Make sure that it is not the new one!
5. Give the students/parents time (around two weeks) to the students/parents to collect their used plastic, clean and dry it, and bring it to the workshop.

6. One empty plastic bottle per participant (all the same brand, same size). If necessary, collaborate with waste bank management to prepare the empty bottle.
7. Scissors for each student.
8. Silicone gun and two tubes of silicone glue**.**

Q : Where did the plastic used in the workshop come from?

A : Two weeks before the workshop, inform parents that students will make ecobrick. Ask parents to help students collect, clean, and dry the plastic the whole family uses (see activity meeting 3, *plastic survey).*

Q : What does the wooden/bamboo stick used to pack the plastic into the ecobrick bottle look like?

A : Ideally, the wooden stick should be 40 cm long and 6mm wide. Flatten the end, but keep it blunt so it will not damage the bottle.

Q : How long do the students make ecobricks?

A : The workshop is about 3 hours long. Students can be paired or grouped to share cutting and packing tasks.

Q : What is the recommended bottle size for workshops with students?

A : The 330 ml bottle volume is enough to provide students with a good eco-bricking experience. They can also work in groups for larger bottle volumes.

Q : How can ecobricks reduce plastic use? What does the best ecobrick practice look like?

F. Appendix 1

PRE - SURVEY (Students' Eco-friendly Lifestyle)

This survey aims to determine the extent of your eco-friendly lifestyle practices. Fill the column, honestly!

NO	STATEMENTS	1	2	3	4	5
		NEVER	SELDOM	SOMETIMES	USUALLY	ALWAYS
1	I sort out organic and non-organic waste.					
2	I refuse to use plastic straws.					
3	I have my shopping bag when shopping in a market.					
4	I refuse to use single-use plastics.					
5	I send my segregated waste to the waste bank management.					
6	I bring my tumbler when I travel.					
7	I use a handkerchief or a small towel to replace the tissue.					
8	I bring my container when buying food at the canteen or any food stall.					
9	My mother refills bath soap, laundry soap, shampoo, oil, and other household necessities.					
10.	Have you and your family made ecobricks from used plastic at home?					
Score per column (sum the scores per column)						
Total score = (Total gained score per column/5)*10						

G. Appendix 2

Teacher's Reflection Journal

Day/Date:

1. Which student got my attention today? Why?

   .....

   .....

2. (Write down the names of students - one or more - who make significant progress, behave uncontrollably, need guidance while doing the activity, etc.). This list of student names becomes a record for the teacher to assist, special assignments in the next activity, etc.)

   .....

   .....

3. What activities do not work effectively? What are the reasons? (Write down the activities that did not go well and explain the reasons).

   .....

   .....

4. What activities do my students like/enjoy the most? (Write down the activities that students do enthusiastically).

   .....

   .....

5. What do I need to do in the next activity?
   (Write down the modification plan, additional reinforcement activities, and the activities that will be carried out next, referring to today's activity).

   .....

   .....

6. One sentence or statement that describes today.

   .....

   .....

Ecobrick: Beat The Plastics!

A.Introduction

MEETING 1
OBJECTIVE:
Through this activity, learners can identify plastic problems that cause environmental damage and climate change.

THE THREAT OF ENVIRONMENTAL DAMAGE DUE TO PLASTIC.

Have you ever found a pile of trash in your neighbourhood? How do you feel? Of course, it was not a beautiful sight but unpleasant and uncomfortable. The pile of 'garbage' usually comes from the households, the environment, and industry in the surrounding area. In addition, the trash pile is often full of plastic, which is difficult to decompose. If not managed properly, this will become a threat.

1. Let's Observe!

INTERVIEW THE PICTURE!

a. Observe the image below!

Image source: TribunJakarta.com/Dwi Putra Kesuma

Image source: AcehJournalNationalNetwork/Sarina

Image source: https://nationalgeographic.grid.id/

b. After observing the three pictures above, ask questions to the object in each picture!

Figure 1: ……

Figure 2: ……

Figure 3: ……

c. Do a roleplay with your friends! Imagine that you and your friends are the object in the photo above!

d. After observing and roleplaying, put a tick ☑ on one of the pictures that represents how you feel!

☐ ☐ ☐ ☐

MEETING 2
OBJECTIVE:
Through this activity, learners can identify the environmental damages caused by plastic waste and how it affects climate change.

2. Let's Read!

JIGSAW READING

Is there a landfill in your neighbourhood? How full is it? It's so ironic. Many landfills in Indonesia are in an emergency because their capacity is no longer sufficient to accept the waste. The amount of residual waste in landfills is higher than the recycled waste. The longer it takes, the more waste accumulates in landfills. In this activity, you will read a text about some overloaded landfills in some cities in Indonesia and then share the information with your friends! Follow the group activity instructions below!

a. Make a group of four people (home group). Each group member will get different articles. This text guides you to identify the problem of overloaded landfills, plastic as the majority of waste in landfills, and the plastic impacts on human health and the biosphere (soil, water, and air). You can see the texts in the attachment section.

b. Join other group members who have the same text (expert group). Discuss some of the following!

   3 facts that you get from the text you read!

   .....

   2 words/phrases/sentences that you find the most interesting. Why?

   .....

   1 thing you want to know more about after reading the text!

   .....

c. Rejoin the members of your original group (home group). Present the results of your discussion to other members! And conclude the actual problems discussed by all members!

   .....

Did you know? 💡

Based on Sustainable Waste Indonesia (SWI) data, out of the 65 million tons of waste produced by the Indonesian people daily, only 7% is recycled. In contrast, the remaining 69% ends up in landfill. Data from SWI also shows that less than 10% of plastic waste is recycled, and the remaining 50% ends up in landfills (Katadata, 2019).

B. Contextualization

MEETING 3 – HOME ASSIGNMENT
OBJECTIVES:
Through this activity, learners can: 1. Calculate the amount of plastic used by their family in a week. 2. Raise awareness on daily plastic consumption.

1. Let's Research!

PLASTIC SURVEY

One of the factors causing climate change, which later becomes a global problem, is plastic. From production to transportation and disposal, plastic produces greenhouse gas emissions, contributing to increasing global temperatures. Furthermore, researchers estimate that plastic production and burning will release more than 850 million tonnes of greenhouse gases into the atmosphere (WWF Australia, 2021).

So, what are the facts about the plastic problem in Indonesia? The use of plastic is unavoidable and makes Indonesia the second largest country in the world that produces plastic waste. It is not something to be proud of, isn't it? Data from Making Oceans Plastic Free (2017) states that an average of 182.7 billion plastic bags are used each year. Of these, the total weight of plastic bag waste in Indonesia reaches 1,278,900 tons per year (Citarum Harum Juara, 2022). It's just a plastic bag! It doesn't include plastic waste in other forms.

To know how much our daily plastic consumption is, let's do a simple survey! Follow the steps below:

a. Complete the table below to survey plastic use in your family. Work with your parents to clean, dry, and store the plastic used by your family members. You will be asked to bring the plastic to school the following week!

NO	DAY/DATE	PLASTIC TYPE (Write down any types of plastic that have been used, for example, plastic bags, straws, packaging, styrofoam, cigarette butts, cosmetic products, household products, etc.)	WEIGHT (Weigh the plastic and write down the weight)*
1			
2			
3			
4			
5			
6			
7			
Total weight			

**If you don't have scales at home, you can weigh them at school.*

b. Calculate the average plastic one family member uses based on the data above!

……

c. Analyse your survey results to the fact that Indonesia is the world's most significant plastic waste contributor!

……

d. What do you think that you and your family also have a role in 'contributing' plastic waste in the biosphere?

……

Did you know? 💡

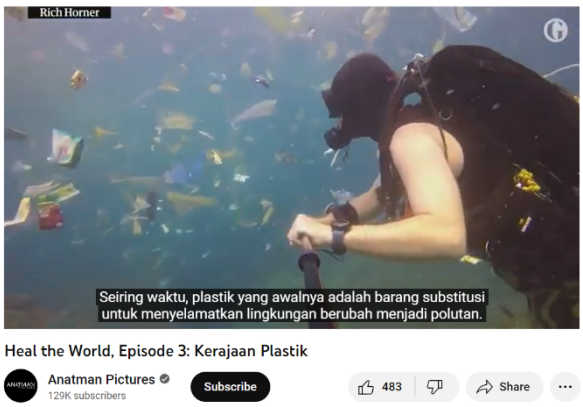
Based on data from the Indonesian Plastic Industry Association (Inaplas) and the Central Statistics Agency (BPS), in 2021, Indonesia produced 64 million tons of plastic waste per year, and as much as 3.2 million tons were dumped into the sea (Environmental and Forestry Instrument Standardization Agency, 2022).

MEETING 4
OBJECTIVE:
Through this activity, learners can explore pictures and facts about plastic waste problems through a documentary film.

2. Let's View!

THE PLASTIC KINGDOM

To get an overview of the facts about plastic, let's watch a 10-minute video entitled Plastic Kingdom. This video invites us to see the plastic journey: from the beginning of its creation, which is expected to be a solution, to becoming an environmental threat.



Before Watching

1. Have you ever littered? If so, tell us!

   .....

   .....

   .....

2. Have you ever seen a garbage pile on the side of the road? If so, tell us! Where and how much is the garbage pile?

   .....

   .....

   .....

3. Have you and your family started sorting waste?

   .....

   .....

   .....

During Watching

So, while watching, identify the following things!

1. What are the plastic problems highlighted in the video?

   .....

2. How do living things and people affected by plastic waste feel?

   .....

3. How does plastic enter the human food chain?

   .....

4. What is the government doing to reduce plastic use?

   .....

5. Why do we need to protect the environment?

   .....

After Watching

1. What good message did you get after watching this video?

   .....

2. Knowing the impact of plastic waste, as you saw in the documentary, what do you want to do to save our earth?

   .....

3. Let's Reflect

After conducting the survey and getting factual information about plastic and its impacts, let's reflect! Express your opinion, your feelings, and what steps you will take as a global citizen!

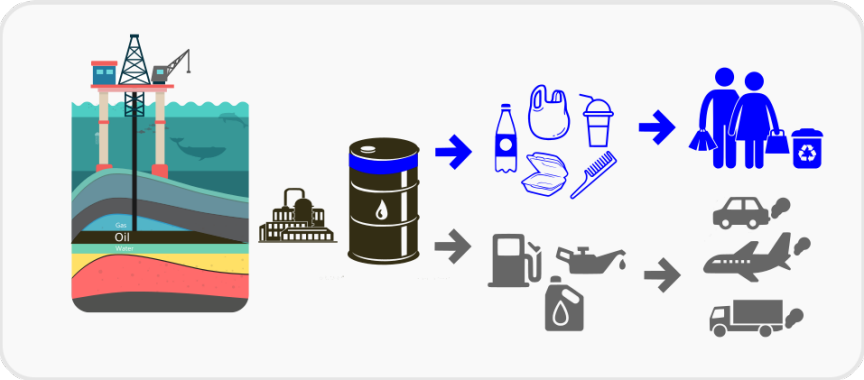
MEETING 5
OBJECTIVES:
Through this activity, learners can: 1. understand plastic's history and its journey. 2. explore its negative impacts and contribution to climate change.

4. Let's Read!

PLASTIC STORY

Did you know that, at first, plastic was created to solve the limitations of natural materials? Once upon a time, humans depended entirely on nature. One of them is paper, which comes from wood. Paper is malleable and light but not strong and durable and depletes wood supplies, which are essential for oxygen availability and environmental protection. Using other materials such as metal, stone, bone, horn, and fangs is also not easy to obtain or process, so scientists were looking for alternative materials that are light, strong, durable, inexpensive, and not completely dependent on natural resources.

In 1907, an American-born Belgian, Leo Hendrik Baekeland, created bakelite, the world's first synthetic polymer. Bakelite comes from 'fossil fuels,' which are products of the oil and gas refinery industry (Waste4Change, 2020). This refining process leaves a residue (naphtha) that cannot be converted into fuel as much as 5-15% (Global Ecobrick Alliance, n.d.). Naphtha, with a little chemical reaction, can be made into polymers. Polymers can be made into all types of new materials through other chemical reactions. One of them is plastic, which is malleable and flexible. Look at the image below to better understand where plastic comes from!



Source: https://www.ecobricks.org/sejarah-panjang-plastik/?lang=id

It takes millions of years to produce petroleum, but its derivative products are only used in a short time. Ironic, isn't it?

5. Let's Discuss!

HUMAN RELATIONS WITH PLASTIC

The need for plastic increases every year. One hundred million tons of plastic were produced in the 2000s (Apriani, 2020). The community's need for plastic is enormous because almost all materials and tools we use daily are made of plastic, such as bottles, sandals, bags, baskets, buckets, glasses, etc. Let's discuss how far we use plastic in our daily lives! Check out the examples in this table to help you discuss with your friends!

HUMAN ACTIVITY	THEN	NOW
Get dressed	 Using animal skins, animal hair, and plants (rattan, leaves, coconut, straw).	 Trousers, shoes, shirts, ties made of polyester/cotton fabrics, etc.

Discuss the human's daily activities in the past and present!

HUMAN ACTIVITY	THEN	NOW
Sleep		
....		
....		
....		
....		
....		

Wow, it turns out that our daily activities are always linked to plastic! Then, where will the plastic go after we finish using the product? What do you think?

.....

.....

WHERE DID MY PLASTIC GO?

When we throw away our trash, where is 'away'? 'Away' is always somewhere in the biosphere. We often encounter garbage drifting into waterways, rivers, and the sea. Scientists are starting to realise how much plastic and other non-biodegradable materials are in the ocean. We realise this when we visit the beach and witness so much plastic 'garbage' on the beach. Many research results show the dire impact of plastic on marine animals and ecology. It makes us worried!

So, to understand more deeply where our plastic goes, let's watch this video!

Pentingnya Memilah Sampah: Kemana Perginya Sampahku?

AQUALestari
2.57K subscribers
Subscribe

Next, discuss the following questions with your friends!

1. Have you ever found burning plastic? How do you feel when you inhale the smoke?

   .....

2. What happens when plastic is thrown away?

   .....

3. What happens when plastic is buried in the ground?

   .....

4. What happens when plastics are mixed with other unsegregated waste?

   .....

5. What happens when everyone segregates plastics from their houses?

   .....

From this discussion, have you found the answer to where your plastic goes? Yes, plastic will end up somewhere in the biosphere. It will travel the land, air or water around us. When we throw plastics away without thinking about where they go, it's the same as if we harm ourselves. Look at the picture below!

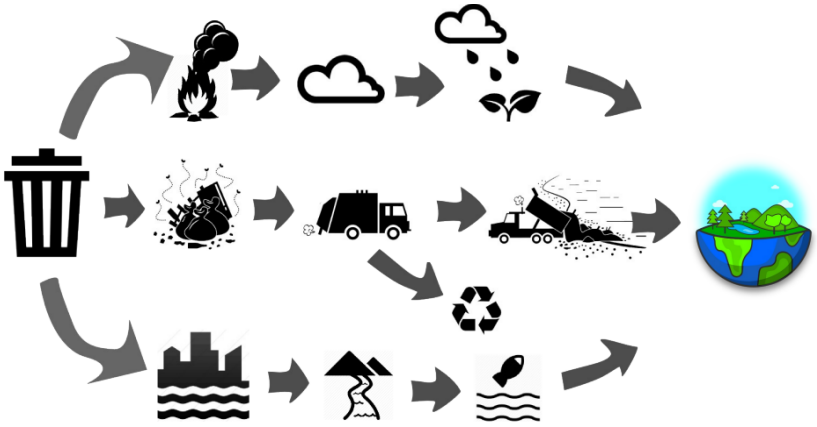


Image Source: https://www.ecobricks.org/

6. Plastics continue to be mass-produced. In 2015, its production increased to 400 million metric tons. Imagine where these 400 million metric tons will end up. The fact is that plastic didn't disappear from the biosphere. In the documentary film The Story of Plastic, it is stated that 32% of plastic, such as plastic packaging, remains in the surrounding environment or on land, 40% is disposed of in landfills, 14% is processed by factories to be burnt, 14% is recycled but does not become a good quality plastic product. This can't be called a recycle, but it is a down-cycle plastic. The product has lower quality. Only 2% of plastic is effectively recycled to become a product with the same value.

Did you know? 💡

When plastic is burned, the petrochemicals are mixed. It produces dioxins. Dioxin is a type of poison that has a bad impact and pollutes the air through its smoke. It also pollutes the soil and water through the ashes that turn into microplastics.

6. Let's Read

IMPACT OF PLASTIC ON THE BIOSPHERE

When plastic ends up in the biosphere, what negative impacts will it have? Look at this image and identify what you see, think, and wonder!

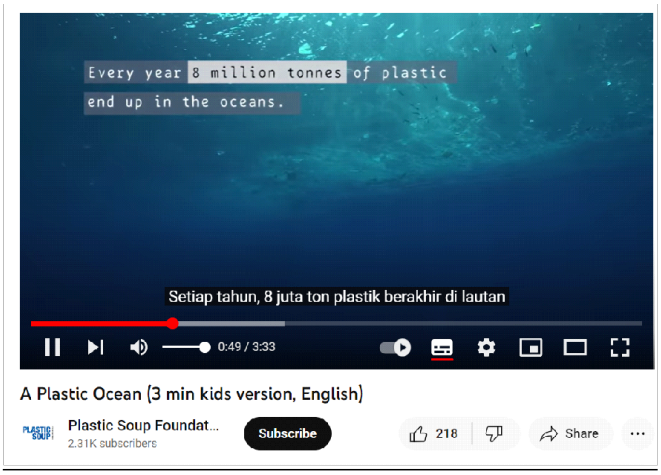
Image source: Media Indonesia/Kaisar Rajagukguk

WHAT DO I SEE?	WHAT DO I THINK?	WHAT DO I WONDER?

Have you ever seen people throwing their trash in the river? If plastic is thrown carelessly into waterways, the waste will follow the river's flow and arrive at the sea. These plastics are ingested by sea creatures and get into their digestion, poison them, and even kill them. Not only that, plastic can also injure and entangle the bodies of marine animals. Gradually, the population became threatened.

Image source: https://plastic-pollution.org/

Another impact is damage to coral reefs. Coral reefs that come into contact with plastic waste tend to have diseases and disrupt photosynthesis (Lamb JB, 2018). Fish, as sea creatures and a source of human food, are also threatened. When humans eat fish contaminated with microplastics, the poison will get into the human body and cause health problems. You can watch this video to get a detailed explanation of how plastic ends up in our oceans.



Have you ever seen people disposing of their plastic waste by burying it in the ground? Plastics in the soil will block water absorption and air circulation and limit the movement of underground creatures that can enrich the soil's humidity, such as worms and other microorganisms. This is because they need help obtaining food on the ground. As a result, soil fertility is reduced. If soil fertility is reduced, the possibility of trees to live is also reduced. Remember, trees need nutrients to live. Reduced trees will result in a decreased supply of oxygen (O2). While living things, humans, for example, need oxygen to breathe.

Furthermore, have you ever seen plastic waste being burned? Burning plastic waste does not necessarily eliminate its traces. Burning garbage will produce new substances, such as smoke and ash containing microplastics. How does it smell when inhaled? It stings, doesn't it? The process of burning plastic produces dangerous dioxin. This dioxin can cause health problems, such as respiratory (lung) problems, heart disease, and even cancer. The smoke produced is also one of the causes of air pollution and increases the potential for global warming.

Did you know? 💡

A 10-year-old sperm whale was found washed ashore on Luskentyre Beach, Harris Island, located in the northwest of the Western Isles in Scotland, on Thursday, 28 November 2019. The Scottish Marine Animal Strandings Scheme (SMASS) performed a necropsy to determine the cause of death of the whale. The results were shocking because much plastic waste was found in its stomach. A Dugong fish was also found in Sapa Village, South Minahasa Regency, North Sulawesi Province, in March 2020. Plastic waste was found in its mouth, and it is suspected that there was plastic waste in its stomach, which was accidentally swallowed.

MEETING 6
OBJECTIVES:
Through this activity, learners can: 1. Understand the connection between plastic and climate change. 2. Understand ecobrick as an alternative solution to world plastic pollution. 3. Understand how to make ecobrick.

7. Let's Discuss!

WHAT CAN BE DONE?

Knowing the harmful effects caused by plastic, we need to find a solution. Change is possible, and we must initiate it! How can we contribute? Discuss with your friends—come on!

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Great! And the most important of what you wrote above is to start doing it. Right now! Without waiting for tomorrow!

1. Let's Read

WHAT ARE ECOBRICKS?

An ecobrick is a PET bottle packed solid with clean and dry used plastic. Ecobrick bottles must reach a certain density (bottle volume x 0.33). Ecobrick bottles can also function as building blocks that can be used repeatedly. To understand more clearly what ecobricks are, let's watch this video! (click).

Ecobrick is a solution everyone can do anywhere, anytime, and at any age. Why? Because ecobrick uses simple technology, without machines and particular skills or high capital. By 'packing' plastics into ecobrick bottles, we keep them from becoming poison to our biosphere. Ecobrick encourages us to be personally responsible for the plastic we consume. Then, what are the types of ecobricks?

a. Regular Ecobricks

Normal ecobricks are made with transparent PET plastic bottles of any size. Bottles and plastic packaging are clean and dry to prevent bacterial growth. Usually, ecobrickers use wooden or bamboo sticks to pack plastic manually into plastic bottles.

The plastic is cut into small pieces and then packaged piece by piece –adding plastic and compacting it layer by layer. The bottle is rotated with each pressure to ensure the plastic is compacted evenly throughout the bottle. This helps prevent voids in the bottle. It also helps reach the standard density required for building block applications.

The ecobricks are packed with enough density so they will be strong to be made into modules that can hold one person's weight. The density also functions to maximize their durability.

b. Cigbrick/Cigarette Brick

Cigbrick is made exclusively from acetate filters packaged from cigarette butts after the paper and ash have been completely removed. Acetate is one of the most common and damaging plastic pollutants.

c. Ocean Ecobricks

Ocean Ecobrick is an ecobrick designed for plastics found in beaches, rivers, and oceans. These plastics are large, thick, dirty, wet and unsuitable for making regular ecobricks. The Ocean Ecobrick technique allows this plastic to be easily converted into practical, functional, and reusable building blocks.

WHY IS IT NECESSARY TO MAKE ECOBRICKS?

Plastic continues to be mass-produced and has become a favourite choice because it is light, practical, strong, and durable. However, these characteristics cause problems when plastic becomes waste that pollutes the environment. Its non-biodegradable characteristic makes it difficult for plastic to decompose in the biosphere, which will threaten ecosystems in the future.

The graph below illustrates how long plastic will decompose in the biosphere (WWF, 2021).

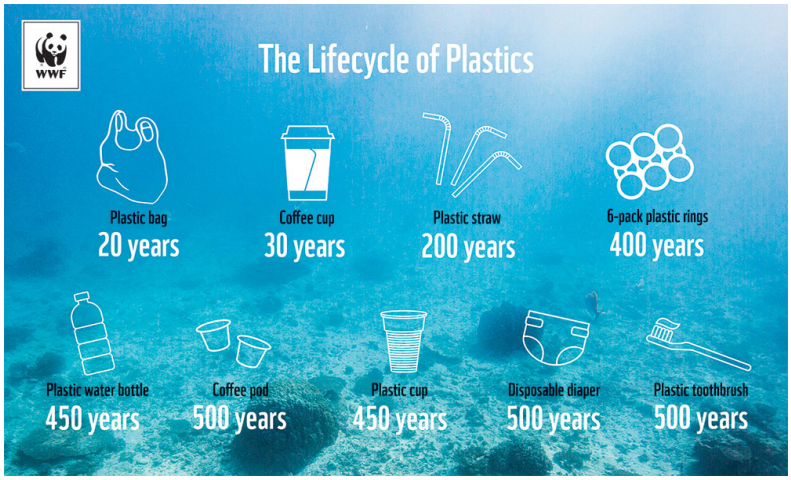


Image source: wwf.org

Imagine that plastic bags, straws, bottles, and all the other plastic you use and ignore will pollute the biosphere for hundreds of years.

Not only that, plastic also triggers climate change. How could it be? According to a report released by the Center for International Environmental Law, "Plastic & Climate: The Hidden Costs of a Plastic Planet," carbon emissions from the production cycle to the disposal of plastics will continue to increase and will reach 2.8 Million Metric Tonnes of CO2 by 2050. This is equivalent to the carbon emissions produced by 500 Coal-fired Power Plants (Center for International Environmental Law, 2019). The more carbon emissions produced, the more greenhouse gases are in the atmosphere. The high concentration of greenhouse gases in the atmosphere increases the earth's temperature, thus causing the climate crisis we are currently experiencing.

Through ecobricking, we segregate and secure plastic so it doesn't pollute the biosphere. Ecobricking is not only about managing plastic and making crafts; **the goal is how this ecobricking process will raise awareness to reduce plastic consumption and avoid using it as much as possible.** When we make ecobrick routinely from the used plastics in our homes, our awareness will slowly increase. When we are aware of this, we will be more careful about using plastic and start reducing our plastic consumption.

THE 'CRADLE TO CRADLE' PRINCIPLE

One of the principles of making ecobricks is a circular design that is cradle to cradle. The ecobricks rotate according to natural cycles. Just as a leaf falls from a tree, it returns to nature, becoming compost for the tree to grow. Ecobricks are designed for repeated use. Damaged ecobricks can be converted into new ecobricks. We prevent the plastics in ecobricks from ending up in the biosphere.

HOW TO MAKE ECOBRICKS?

Making ecobrick is not difficult; it only requires intention, patience, and effort. Prepare the tools and materials as you see in the picture!

Photo: Yuni Ifayati

In general, the steps for making an ecobrick are as follows:

1. Collect, separate, clean, and prepare all types of plastic, such as plastic bags and any plastic packages.
2. Collect plastic bottles. Choose the same brand and size.
3. Pack a soft-coloured plastic to the bottom of the bottle (to give an aesthetic element to the ecobrick bottle).
4. Cut the plastic into pieces. Do not mix paper, metal, or glass. Pack all the plastics in the bottle! Use bamboo or wooden sticks to compact them.
5. The quality of the ecobrick is very important. During the making, weigh your ecobrick. The minimum density recommended by the Global Ecobrick Alliance (GEA) is 0.33 g/ml.

Image Source: ecobricks.org

6. Record data for every ecobrick that you make in the GoBrik app. You will get a serial number. To learn how to use this app, click here for the guide. Or scan the barcode on the side!
7. Write down the serial number and weight of the ecobrick. Use enamel polish, nail polish, or permanent marker. To get the serial number, open the GoBrik app and follow the steps.
8. Store your ecobricks properly before using them.
9. If your ecobricks have been collected, collaborate with other ecobrickers. You can make tables, chairs, and other indoor furniture.
10. Are you ready to ecobrick? Complete your understanding of the technique of making ecobrick directly from the founder and principal of the Global Ecobrick Alliance. Click here for the video!

source : youtube.com/@Ecobricks

C. Action

MEETING 7
OBJECTIVE:
Through this activity, the learner can make ecobricks correctly and precisely.

1. Let's be Creative

ECOBRICK WORKSHOP

Are you ready to make ecobrick? At the previous meeting, you were asked to record the amount of plastic you and your family use. Now, it's time for us to collect the plastic and make ecobricks! The making of this ecobrick will be guided by a teacher or the Global Ecobrick Alliance trainer so that you can make your first ecobrick right! Why must it be right? It will give you a better experience in making ecobricks, easing you for the next ecobricking. Remember, there are aspects of density and weight that must be reached. Also, make sure your plastic is clean and dry to avoid mould.

MY ECOBRICK SAVES MY EARTH

Make an ecobrick with a 330ml bottle volume. Make sure, you don't buy a new bottle. Look for used bottles in your nearest neighborhood!

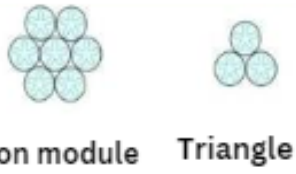
Name : …….....
Your Ecobrick Vision : ……..…...

My Ecobrick
Ecobrick Weight : ……..…...
Ecobrick Serial Number: ……..……
Bottle Colour : ……..…...

ECOBRICK MODULE @ECO-LITERACY CORNER

Are your ecobricks ready? Is it compact and meets the minimum weight standards? If your answer is yes, let's create a module! The easiest, fastest, and most fun thing to do when using ecobricks for various functions is to create modules. Two types are for horizontal installation and one for vertical buildings. To make the ecobrick module, we can use silicone glue (silicone sealant). Check out the picture below!

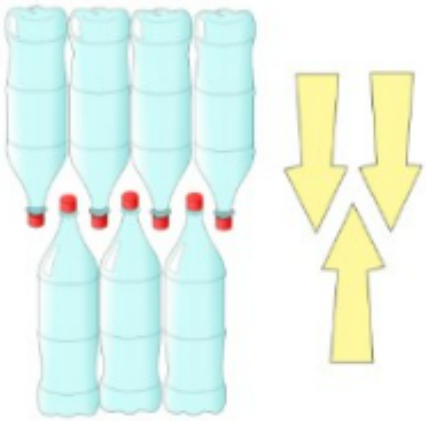
Put the bottles on a flat surface. Make sure the whole bottle is the same size. Create a color pattern based on the cover and the bottom of the bottle. Press to stick. Let it dry for 24 hours.



Hexagon module Triangle module

19 botol ecobrick

12 botol ecobrick

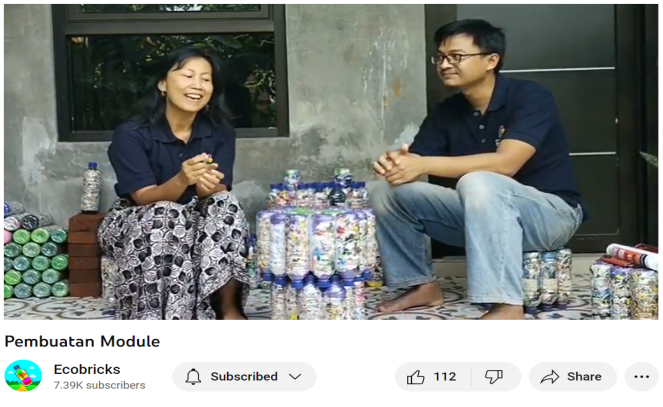


If you use bottles of the same brand, the top of the hexagonal module will clap with the bottom of the triangular module.

The hexagon bench module can be arranged into six, three, and others that are larger

Image source: ecobricks.org.

You can also watch GEA Principal Ani Himawati and GEA Master Trainer Aang Hudaya assemble modules!



Source: youtube.com/@Ecobricks

MEETING 8
OBJECTIVE:
Through this activity, the learners can design functional objects from ecobricks.

2. Let's Collaborate!

DESIGNING ECO-LITERACY CORNER

a. As a group, make an Eco-literacy Corner design by utilizing the ecobrick that you made before. Adjust to the number of ecobricks collected in the class and the area that will be used as an Eco-literacy Corner.
b. Present your group's design to the class and choose the best design to build together.
c. Let's collaborate to build an Eco-literacy Corner design at your school!

PROPOSED ECO-LITERACY CORNER DESIGN

D. Assessment/Reflection

MEETING 9
OBJECTIVE:
The learners get insights from environmental activists.

1. Let's Read!

INSPIRATION FROM ENVIRONMENTAL ACTIVISTS

After understanding plastic and its environmental impacts, we must start changing our mindset about plastic. Many inspirational figures have dedicated themselves to contributing positively to preserving nature. Who are they?

RUSSEL MAIER AND ANI HIMAWATI, GLOBAL ECOBRICK ALLIANCE (GEA)

Photo: Ani Himawati

Ecobrick was first initiated by Canadian artist Russell Maier and his Indonesian wife, Ani Himawati Maier. This couple is very aware of the dangers of plastic for health and its destructive impact on the environment.

Russell Maier's experience living in the Philippines with his wife became a turning point in his life. The two of them began to look for the best method to deal with the large amount of used plastic in their environment without triggering other problems, such as air pollution and smoke burning.

Russel realized that plastic was waterproof, durable, and not easily damaged. Given these fundamental characteristics of plastic, he experimented with packing plastic into something more practical. Thus, ecobricks were born.

Through ecobrick, Russel and Ani want to change the paradigm about plastic. After use, plastic is not 'trash'. It is used plastic. Plastic 'waste' and used plastic are different. Used plastic can be reused, and 'waste' is the end product that cannot be used or recycled. By understanding this paradigm, it is expected that there will be a change in people's behaviour. The used plastic will not be thrown away. However, it is saved by making ecobricks.

To record how much plastic around the world has been successfully secured in ecobrick bottles, they developed an application called GoBrik. Ecobrick bottles registered at GoBrik will receive a serial number and validation from other ecobrickers. This movement has spread worldwide and is part of the Global Ecobrick Alliance (GEA).

Russel and Ani are campaigning for ecobricks to manage plastic in a more friendly and harmonious way with nature. Ecobrick is one of the real actions to build awareness in reducing the use of plastic and living a more environmentally friendly life. The best ecobrick practice is when we don't have plastic in our homes that we can put in ecobrick bottles. This means that our lives are increasingly in harmony with nature.

MELATI AND ISABEL WIJSEN - BYE BYE PLASTIC BAGS

Source: https://byebyeplasticbags.org/team/

Melati (21) and Isabel Wijsen (19) are sisters from Bali. They are known as climate activists in Indonesia. In 2013, when they were only 12 and 10 years old, Melati and Isabel started campaigning to reduce plastic use in Bali. One of them is the Bye Bye Plastic Bag campaign, which is the key to enforcing the rules regarding the use of plastic bags in Bali. They managed to get 100,000 people to sign a petition to support single-use plastics. They even went on a hunger strike to meet the governor of Bali at that time, I Made Mangku Pastika. Thanks to this action, the governor signed a warrant to ban using styrofoam, plastic bags, and straws in Bali. This rule was started to be implemented in 2018.

Bye Bye Plastic Bag was originally a movement inviting tourists and the local Balinese community to clean up plastic waste on the coast. It also collects people's petitions. Melati and her friends also helped local shops and eight hundred families use bags made from alternative materials instead of plastic bags.

After three years of starting the movement, Bye Bye Plastic Bag has received global support. A total of 13 countries showed interest in supporting this movement. In the last 4 years, the Bye Bye Plastic Bag movement has succeeded in getting 57,500 people in 430 locations to participate in preventing 115 tons of plastic from polluting the oceans.

In 2018, Isabel and Melati were included in Time magazine's 25 Most Influential Teens of 2018 list. They also spoke at the United Nations World Ocean Day event in New York City, USA in 2017. Melati Wijsen's contribution to environmental protection was even featured in the documentary film Bigger than Us (2019), directed by Flore Vasseur and produced by Marion Cotillard.

AESHNINA AZZAHRA - ECOTON

Source: Instagram @Aeshnina

Aeshnina Azzahra, a 14-year-old student, is an environmental activist. Her age does not prevent her from taking real action to preserve the earth.

Aeshnina once sent a letter to the Gresik Regency about the environment around her school when she was still in elementary school. She has also written letters to leaders in some countries that export waste to Indonesia, such as the United States, Canada, Germany, and Australia. She was widely discussed when she sent a handwritten letter as a protest to the President of the United States (US), Donald Trump. The letter was sent through the American Consulate General in Surabaya. She protested against the United States, which illegally exported plastic waste contaminated with hazardous and toxic materials (B3) to Indonesia.

The young girl's actions also received a lot of attention. She had the opportunity to participate in research on plastic waste at the Institute for Ecological Studies and Wetland Conservation (Ecoton).

In 2021, Aeshnina was asked to address the world's largest climate change conference, UNFCCC COP26, in Glasgow, Scotland. She is also one of the youngest speakers at the Plastic Health Summit 2021 forum.

Currently, Aeshnina is actively providing education about microplastics on the Instagram account @info.mistik. On the website, she tries to educate the public about the ins and outs of plastic, from its types to its impact on health and the environment.

Apart from that, Aeshnina is also currently starring in a documentary directed by Irja von Berstoff. The film Die Kinder der Klimakrise, tells the journey of four girls from three continents who struggle to prevent an environmental crisis.

Aeshnina is determined to continue taking action for the environment. She believes everyone, including children, has the right to a clean and healthy environment.

PANDAWARA GROUP

Source: Instagram @ pandawaragroup

The Pandawara group consists of five friends: Muchamad Ikhsan, Gilang Rahma, Agung Permana, Rafly Pasha, and Rifki Sa'dulah. “Pandawara” is taken from the name of the Pandawa Lima puppet because it has five members, while "wara" means a bearer of good news. These five friends inspired the community through river clean-up actions.

The Pandawara action began in mid-2022. This action stems from their empathy and anxiety because they become the flood victims in Bandung. They traced the causes of the flood until they finally found the root of the problem. It is a garbage pile that blocks the river flow. Using simple equipment, these five friends went down to the garbage-filled river. The unpleasant odour and leeches are something familiar when they clean the river. This action is carried out consistently to raise public and viral attention on social media.

Pandawara is strongly determined to create a clean environment free from garbage. They want to invite all young people in Indonesia to care about the environment by not littering and being willing to clean up trash wherever it is. They uploaded their actions on YouTube, Instagram, TikTok. It inspires many people. The viral video is when they invite Lampung people to clean up Sukaraja Beach. They got 3,700 Lampung residents involved in the action and transported 300 tons of garbage. You can watch their inspiring actions on their Instagram and Tiktok accounts @pandawaragroup.

How inspiring is the story of the environmental activists above? Write down the inspiration you get! Don't forget to follow that account!

1. ……
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2. ……
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3. ……
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4. ……
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5. ……
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2. Let's Practice!

Ecobrick - Reflection for Action

Answer the questions below!

1. Where does the plastic come from?

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2. Who is responsible for the used plastic in the products we buy?

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3. Where will the plastics go after you throw them in the bin?

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4. Where will this plastic go after - 10 years from now? 100 years from now?

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5. Who and what will be affected by this plastic in the future?

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6. Where will the ecobrick go in 10 years? 100 years?

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7. Instead of using plastics, what alternatives can we choose to do?

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8. What is the role of plastic in your life?

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9. Why do we make Ecobricks?

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10. How will our attitudes or choices affect the environment and the people today and tomorrow?

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11. How was your experience in making ecobricks and collaborating to build an Eco-literacy Corner at your school with your friends?

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MEETING 10
OBJECTIVE:
Through this activity, the learners can review their understanding of ecobricks as an alternative solution to reduce the impact of climate change.

3. Let's Play!

ECOBRICK BOARD GAME

Are you familiar with the Snakes and Ladders board game? We will have fun playing ecobrick Snakes and Ladders!

1. Form a group of 4-5 people.
2. Prepare dice, Snakes and Ladders board, and pawns for each member. Download the snake ladder board here or scan the barcode below! A printed version is also available on the next page.

3. Decide who goes first.
4. Each member takes turns taking steps according to the dice roll.
5. Answer every question loudly, making sure all the members listen well. The winner is the first to reach the finish box.

Doc: Yuni Ifayati

MEETING 11 - HOME TASKS
OBJECTIVE:
Through this activity, the learners practice getting used to an eco-friendly lifestyle as a concrete action to reduce plastic use.

4. Let's Share!

21 DAYS ECOBRICK CHALLENGE: MAKE IT INTO A HABIT!

After learning about plastic and its harmful effects on all of us, and taking real action by making ecobricks, now is the time to share! Share your stories and enthusiasm to inspire others! Discuss with your parents to start simple but impactful steps for our environment! According to Dr. Maxwell Maltz's book Psycho-cybernetics, it takes 21 days to form a person's habit. So, let's try to get used to these good things. Put a checkmark on the things you have worked on with your family! Use the printed version on the next page; if you want to print it, you can download it here!

Image source: Doc: Yuni Ifayati

Document your activities! Collect at least 3 of your photos from the above actions and describe them!

Photo Description:

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Photo Description:

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After you've completed the above challenge for 21 days, fill out the reflection sheet below to see how far you have taken action for the planet!

SELF-REFLECTION (POST-ACTIVITY SURVEY)

This survey aims to see your changing behaviour after learning about plastics, ecobrick, and the biosphere.

NO	STATEMENTS	1	2	3	4	5
		NEVER	SELDOM	SOMETIMES	USUALLY	ALWAYS
1	I sort out organic and non-organic waste.					
2	I refuse to use plastic straws.					
3	I have my shopping bag when shopping in a market.					
4	I refuse to use single-use plastics.					
5	I send my segregated waste to the waste bank management.					
6	I bring my tumbler when I travel.					
7	I use a handkerchief or a small towel to replace the tissue.					
8	I bring my container when buying food at the canteen or any food stall.					
9	My mother refills bath soap, laundry soap, shampoo, oil, and other household necessities.					
10.	Have you and your family made ecobricks from used plastic at home?					
Score per column (sum the scores per column)						
Total score = (Total gained score per column/5)*10						

Great! You've made an effort to start a good habit of reducing plastic use that is in line with ecobrick goals! Remember, ecobricking isn't just about making ecobrick bottles into art or crafts. Ecobricking is a conscious way of transitioning away from plastic. The ultimate goal is to reduce consumption, be plastic conscious, use natural materials, and ecobrick. Ecobricking is the final step to minimize the contribution of plastic waste to landfills as we sort, compact, and repurpose. Ecobricking is an attempt to take personal responsibility for the plastic we use because it can be done by anyone, anywhere. Used plastic is not waste. This will change our perspective on used plastic. This change in perspective will affect how we treat the plastic we use daily. From here, awareness of the need to reduce the use of plastic grows.

E. Presentation

MEETING 12
OBJECTIVE:
Through this activity, the learners can write/compile/create literacy works such as infographics, short stories, illustrated stories, stories of inspirational figures, posters, and comics.

1. Let's Write

We have designed and built an eco-literacy corner with an ecobrick we have made together. Now is the time to make literacy work as a learning resource and a creative way to share it with friends. Create your literacy work on different sheets to display! Please choose the literacy work as a campaign for an eco-friendly lifestyle!

1. Comic
2. Short story
3. Poster
4. Infographics
5. Writing inspiring stories of environmental activists
6. Your own choice: ……

DRAFT YOUR WORK AND ASK FEEDBACK FROM YOUR TEACHER!

MEETING 13
OBJECTIVE:
Through this activity, the learners can publish their work, present the ecobricking process, and share the efforts to reduce the use of plastics.

2. Let's Share

PART 2: ECOBRICK WORKSHOP FOR PARENTS.

With your teacher's guidance, plan an activity with all your classmates' parents! Invite them to school to make ecobricks together. Tell them about your experiences during the process of making ecobricks! See your notes during our ecobricking process (page 25). The activities flow includes:

a. Ecobrick Exhibition and Talk to Students and Parents.
b. Workshop for Parents –students mentor their parents to make ecobrick.

When you have completed making ecobrick with your parents, let's write your ecobrick vision together as a joint commitment to reduce plastic use!

ECOBRICK FAMILY VISION

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Students Parents

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A. Appendix 1

1. Text 1 - member 1

LANDFILL OVERLOADED, DEPOK IN WASTE EMERGENCY

Depok, West Java, is facing a waste emergency. Of the 1,200 tons of waste produced by 1.2 million residents of Depok every day, only 200 tons can be accommodated in the Cipayung landfill (TPA). "As much as 75 percent is household waste, while 25 percent is market and office waste," said Depok Environment and Sanitation Service Head Iyai Gumilar, on Monday (19/9).

The reason for this is that Depok is in a waste emergency because the landfill located in Cipayung Village is overloaded. The current landfill area is 11.2 hectares. Everything is full of trash. The only landfill is now filled with millions of tons of waste, and there is no place left to accommodate the garbage from the residents of Depok in 11 sub-districts.

Iyai hopes that the West Java Provincial Government will respond as soon as possible, considering that the landfill land in Cipayung is very critical. He also did not deny that garbage is piling up on the sides of roads in 11 sub-districts, including markets and offices, which are the responsibility of Depok government.

The problem at Cipayung landfill must immediately find a solution and a sustainable solution because the waste problem will not go away. "If this condition continues, it will harm natural ecosystems, especially health and landfill contours, which can result in disaster," said Iyai. (OL-13)

Source: https://m.mediaindonesia.com/megapolitan/523647/tempat-pembuangan-akhir-overload-depok-darurat-sampah, 19 September 2022, 19:45 WIB

2. Text 2 - Member 2

PESALAKAN OVERLOAD, THE RESIDENTS PROTEST TO CLOSE ACCESS

Thousands of residents of Pesalakan, Pegongsoran Village, took to the road to close the entrance to the Pesalakan Final Disposal Site (TPA), Thursday (11/5). The action was carried out as a form of protest by the residents against the Pemalang District Government (Pemkab) because the landfill's capacity had exceeded its capacity, which caused a stench of garbage, disrupting activities and threatening the health of residents around the landfill.

Action coordinator Andi Rustono said he had meditated three times with the Pemalang Regency Government to take action regarding the waste problem at the landfill. When there was no response, he and thousands of people went to the streets to block access to the garbage trucks.

The excess capacity of the Pesalakan landfill can be seen from the large amount of garbage piled up, which blocks trucks' access to the garbage disposal area. The residents complained about the smell and the number of flies, which affected their health.

One of the residents said that many children have respiratory problems and diarrhea. "We hope that everything will be fixed. If necessary, close the Pesalakan landfill. For 30 years, we have not enjoyed clean air ,and now it is over capacity. The existing equipment is also unable to handle it," he said.

Source:https://joglojateng.com/2023/05/12/tpa-pesalakan-overload-warga-demo-tutup-akses-masuk/, 12 May 2023

3. Text 3 – Member 3

THE OVERLOAD LANDFILL IN SUMENEP,

PER DAY REACHES 33.32 TONS OF WASTE

Waste production in Sumenep Regency continues to increase. The Head of Waste Management, Achmad Junaidi, said that it has continued to increase since 2021.

"In 2021, the waste per day will reach 32.50 tons, in 2022 it will increase to 32.82 tons per day, then this year it will increase to 33.32 tons per day," he explained, Wednesday (10/5/2023). Meanwhile, the Final Disposal Site (the landfill) available in Sumenep is only one hectare. According to him, the current landfill has exceeded its capacity.

"To handle the increasing volume of waste, we will build a Recycling Center at the landfill. Because adding landfill locations is quite expensive, around IDR 10-20 billion," he explained.

Indonesian Sharia Garbage Bank Community (KBSSI) activist Dita Anis Zafani explained that waste production in Sumenep is out of control because the management system still uses open dumping and landfill methods.

"The garbage piled up produces methane, which is 25 times more dangerous than CO2 into the air. This will raise the earth's temperature," she said Wednesday (10/5/2023). She said that this is one of the things that triggers climate change. According to Dita, we should start switching to other methods, such as composting, sorting and recycling. "The last three options can also encourage economic development," he concluded.(fa/faj)

Source: https://mediajatim.com/2023/05/11/tpa-di-sumenep-overload-per-hari-sampah-mencapai-3332-ton/. 11 May 2023

4. Text 4 - member 4

LANDFILL OVERLOAD, WASTE VOLUME IN ACEH TAMIANG 40 TONS/DAY

The landfill capacity (TPA) located in Kampung Durian, Rantau District, Aceh Tamiang is already mounting and giving off an unpleasant odour. "Currently, the landfill is overloaded. During the rainy season, the waste condition in the landfill is mixed without any separation," said Member of Commission IV Aceh Tamiang, Jayanti Sari, in Karang Baru, Wednesday (11/1/2023).

Environment Department Aceh Tamiang noted that in 2021, the amount of waste produced per day will be 35-37 tons, all of which will be disposed of in the landfill. Syurya also confirmed that the volume of waste at the end of 2022 will almost double from usual due to natural disasters such as floods.

He explained that the waste management system at TPA has been using the sanitary landfill method (accumulating waste in a concave location and compacting it). Of course, this system has advantages and disadvantages.

“The advantage of managing sanitary landfills is reducing environmental pollution and avoiding methane gas explosions. Meanwhile, the disadvantage is that the application fee is very high and is not supported by funding for this system. Furthermore, the community has an important role in reducing waste from the sources, such as from the household." said Surya. (mc04/toeb)

Source: https://www.infopublik.id/kategori/nusantara/701583/tpa-overload-volume-sampah-di-atam-40-ton-hari, 11 January 2023

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