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BUILDING A CLIMATE-RESILIENT GENERATION SERIES

Climate Resilience & Waste Management



Teacher's Guide for Primary School Grades 1–3

Prepared for the Nusantara Capital Authority • September 2025

Building Climate Resilience in Nusantara (IKN)

Welcome to the first handbook in the ***Nusantara Green Climate Resilience Education*** series. This volume is for **Primary School (SD) Classes 1–3**. These materials are part of a national effort to help young learners in Nusantara learn and practice simple, powerful habits that keep schools clean, reduce flooding, and protect the Earth.

About Climate Resilience in IKN

Indonesia's new capital city, **Nusantara**, is envisioned as a living example of how people and nature can thrive together—built not only as the nation's administrative heart, but also as a global model for sustainability, resilience, and harmony with the environment.

Climate change and other environmental hazards already shape life across Indonesia. Heavy rains quickly fill drains and cause flooding, hotter days make classrooms uncomfortable, and trash or smoke from burning waste pollute the air and water, creating health risks for communities. By teaching good habits early, schools in Nusantara will help their students live in harmony with their environment—ensuring that Nusantara grows as a model for safer, more resilient cities and a shining example for future generations.

The Purpose of This Series

The ***Nusantara Green Climate Resilience Education*** handbooks are designed to:

- **Equip teachers** with ready-to-use activities that make climate resilience fun and easy for their learners to understand.
- **Show the connection** between daily habits and climate challenges such as floods, health problems, and greenhouse gases.
- **Encourage schools** to become role models in the community, sharing positive actions that others can follow.

A Message for Teachers

As a teacher, you are guiding your learners on their journey into caring for the Earth. Every question you ask, every small routine you reinforce, helps your learners understand that their actions matter. Your role is essential in raising a generation of students who are proud of their city, connected to their environment, and ready to face future challenges with confidence.

Thank you for leading this journey—step by step, habit by habit.

Table of contents

About This Handbook **3**

Aims of This Handbook 3

How to Use This Handbook 4

Why Use Creative Learning Activities? 4

How to Facilitate Creative Learning Activities 5

Topic Orientation **7**

About Climate Change & Waste Management 7

Common Misconceptions & Clarifications 9

Creative In-Class Activity Examples **10**

Creative Learning Activity Flow 11

In-Class Discussions 11

Activity 1: Spot the Difference 12

Activity 2: Garbage Sorting 13

Activity 3: Commitment Poster 14

Evaluation Activity: Matching Bad to Good Practices 15

Optional Extension Activities **16**

Student-Led Project Ideas 16

Connecting with Community 17

Answer Keys for Activity Sheets **18**

Creative Activity Sheet Masters **20**



About This Handbook

Aims of This Handbook

As part of the ***Nusantara Green Climate Resilience Education* series**, this handbook provides teachers with clear guidance, background knowledge, and classroom activities. Its purpose is to give you the confidence and tools to introduce young learners to climate change and waste management in ways that are simple, memorable, and meaningful.

Specifically, this handbook will help you guide students to:

- **Understand some basic concepts related to Climate Change in Nusantara** – notice simple changes in the environment and weather, and see that their actions matter for protecting the Earth.
- **Practice Good Waste Management** – learn to sort rubbish correctly, avoid dangerous single-use plastics, and adopt simple habits that keep their school and community clean and safe.
- **See Waste as a Climate Issue** – understand that waste is not only about cleanliness, but also about climate. By reducing, reusing, and recycling, schools can cut greenhouse gas emissions, prevent floods, and build healthier, more resilient communities.

How to Use This Handbook

You don't need to be an expert in climate change or waste management to use this handbook — the guidance here will help you explain key ideas in simple, age-appropriate ways. By using this handbook, you will be able to:

- Gain information on **climate change and waste management,** and **common misconceptions** in clear language to share with your learners
- Use **discussion prompts** to start short conversations that connect lessons to your learners' daily lives
- Facilitate **step-by-step activities** with clear objectives and reflection questions
- Optionally, extend learning with **student-led & community projects**
- Apply **evaluation tools** to check learning outcomes and celebrate progress

Each activity follows the same format—**Objective** → **Preparation** → **Steps** → **Reflection Questions** → **Learning Outcome**—so you can easily see how to prepare, what to do, and how to guide reflection.

Why Use Creative Learning Activities?

Young students learn best through **pictures, stories, and movement**. The activities in this handbook are designed so that learners can:

- **See** clear pictures of good and bad habits
- **Do** simple actions like sorting waste, drawing, or role-playing
- **Feel** proud when they choose habits that help the Earth

The recommended activities make learning memorable, fun, and physical. They are not just games, they are the building blocks of climate resilience. When your learners practice habits like sorting rubbish, refusing single-use plastics, or composting, they:

- Reduce greenhouse gases.
- Keep drains clear to prevent floods.
- Protect their own health and their community.

By making lessons active, you help learners connect everyday choices to the bigger picture of **protecting Nusantara and the Earth**.

How to Facilitate Creative Learning Activities

The activities in this handbook are **climate-smart, hands-on, and play-based**. Each one is supported by activity sheets and designed to be simple, visual, and enjoyable for young learners. Your role is to guide your learners step by step so they can connect everyday habits with caring for the Earth.



Getting Ready

Take a little time to prepare before a class begins. Review the associated materials and prepare some questions for discussions. Print any associated activity sheets, gather needed props, and arrange the space so that all learners can see and take part.

Framing Activities



You may want to start your sessions with a short story or a simple question to catch your learners' attention and link the activity they will do to the local context, recent events, or their daily lives. For example, you might ask: *"What happens if the drain is full of trash and it rains?"*



Reflection and Connection

After a session, spend a few minutes reflecting together. Ask questions such as: *"Why is sorting waste important?"* Aim to connect their answers to climate resilience, for example: how trash in drains can cause floods, or that burning waste makes the Earth hotter.

Celebrate Success



Encourage your learners to celebrate good choices with claps and cheers! Display their creative work and posters in your classroom, or around the school. Praise efforts and remind your learners that small actions make a big difference both at school and at home.



Your Students as Ambassadors

Whenever possible, use a homework format or encourage your learners to take their creative project outcomes home so that their families and community members can see, appreciate, and take part in the lessons they are bringing from school.

Work Together as a School

Climate-smart habits are stronger when the whole school community is involved. Share ideas and experiences with other teachers, celebrate collective action through events such as a "Clean the School Day" and encourage your students to share what they have learned with others.



Remember: Students learn best when they are **active, praised, and can see the results of their actions.** By linking everyday habits to climate resilience, you help them take their first steps toward becoming guardians of the Earth.

Topic Orientation

About Climate Change & Waste Management

Climate Change – The Challenge

Climate change means long-term changes in weather caused mostly by human activities such as burning fossil fuels, cutting forests, and poor land use. In Nusantara, these changes can already be seen in daily life. Heavy rains quickly fill drains and cause flooding. Longer dry periods bring hotter days and less water for washing and drinking. Extreme weather events such as floods, droughts, and fires are becoming more frequent and more severe.

For your learners, these big issues should be explained through their own experiences, such as flooded schoolyards, overheated classrooms, or smoke in the air from burning waste.

Waste – More Than a Cleanliness Issue

Waste is not only about tidiness. Poor waste practices add to climate change and make communities less safe.



Waste as a Source of Greenhouse Gases
Organic matter left to rot in open dumps produces methane, a gas much stronger than CO_2. Burning waste, especially plastics, releases toxic smoke and heat-trapping gases into the air. Note: CH_4 is the chemical formula for methane gas.



Waste and Resource Use
Everything we throw away has used up water, energy, and natural resources to make. Reducing consumption saves resources and lowers emissions. Litter also has big impacts on ecosystems that help protect us from climate change.



Waste and Resilience
Trash in rivers and drains blocks water flow and makes flooding worse. Communities with good waste systems—sorting, composting, and recycling—are healthier, cleaner, and stronger against disasters.

Solutions – What We Can Do in Schools



Say No to Single-Use Plastics
Use cloth bags, reusable bottles, and banana-leaf wrapping instead of plastic bags, straws, or styrofoam.

Never Burn or Litter!
Litter blocks drains and worsens floods; burning creates smoke that harms health and makes the Earth hotter.



Sort Waste
Make sure proper bins are provided and ensure we all place rubbish in the right bins: Organic, Paper, Plastics & Recyclables, and Hazardous.

Compost Food Scraps
Turn food waste into compost to reduce methane and create healthy soil for school gardens.



Keep Drains and School Grounds Clear
Regularly clean drains and waterways around the school to reduce flooding during heavy rain.

Flood Awareness and Response
Know safe areas to gather if flooding occurs, and remind your learners never to play in floodwater.

Common Misconceptions & Clarifications

Children, and even adults, sometimes hold misleading ideas about waste and climate. As a teacher, you can gently guide your learners toward better understanding. For example, many learners believe that throwing one piece of rubbish does not matter.

You can remind them that when everyone does the same, drains become blocked, floods happen, and the school becomes dirty.

Common Misconception	Clarification
"Throwing one piece of trash doesn't matter."	Every piece adds up. If everyone throws trash, it blocks drains, makes floods worse, and dirties our school and community.
"Plastic disappears when we throw it away."	Plastic never really goes away. It breaks into smaller pieces but stays in the soil, rivers, and air for hundreds of years.
"Burning trash makes it go away."	Burning only changes trash into smoke. The smoke makes it hard to breathe and makes the Earth hotter.
"Food scraps are just garbage."	Food scraps can be composted. Compost becomes healthy soil that helps plants grow and reduces waste piles.
"Floods only happen because of heavy rain."	Rain causes floods, but blocked drains filled with trash make them much worse. Keeping drains clean helps prevent flooding.
"Smoke only hurts people who are nearby."	Smoke travels through the air. Even if you don't see it, it can harm lungs, pollute classrooms, and make the Earth hotter.
"Composting is dirty and attracts pests."	Proper composting is clean and safe. It turns food scraps into healthy soil that helps gardens grow. Covering and mixing it regularly prevents pests.
"If rubbish is buried, it disappears."	Burying waste only hides it. Plastic and hazardous materials remain in the soil for hundreds of years and can poison water.

Creative In-Class Activity Examples

Please note that the activities included in this handbook are examples designed for specific learner levels. Teachers are encouraged to adapt them as they wish, and create their own activities to suit the needs of their class and grade level.

Creative Learning Activity Flow

The activities in this handbook are designed to follow a natural learning flow.

Each learning session can start with a short in-class discussion that helps learners connect the topic to their everyday lives. This is followed by a hands-on activity using provided, photocopyable activity sheets, where learners can explore new habits in fun and engaging ways. An evaluation activity is included to help teachers measure what students have learned at the conclusion of this book.

Guidance on how to use all the materials needed for these steps, such as discussion points, activity sheets, and evaluation tools, is provided below.

In-Class Discussions

Short discussions help your learners connect their own experiences with the bigger idea of climate resilience. These conversations should be simple, lively, and no longer than five minutes. A well-guided discussion can prepare learners for the activity ahead or help them reflect afterwards.

When beginning a conversation, keep it practical and close to your learners' lives. Show them something familiar, such as a plastic bag or a banana peel, and let them share what they already know. Talk about things they see every day—puddles in the schoolyard, smoke in the air, or drains filled with rubbish.

It is often more effective to ask than to tell. Questions like *"What happens if we throw rubbish on the ground?"* invite your learners to think and respond. Celebrate their answers with claps or cheers, and encourage them to share habits they already practice at home. Always close by linking discussion to a clear action they can take, for example: *"Today we will put rubbish in the right bin."*

Tips for guiding discussions:

- **Keep it visual** – use real objects or pictures.
- **Use everyday examples** – connect to things your learners see and know.
- **Ask open questions** – encourage thinking and sharing.
- **Celebrate ideas** – clap, cheer, and praise contributions.
- **Link to action** – finish with one clear habit the class will practice.

Each activity in your handbook comes with some suggested discussion points, feel free to also design your own based on current events and situations at the time of delivering your classes.

Activity 1: Spot the Difference

Objective Recognize common harmful waste practices and better alternatives.



Preparation

- Enough photocopies of the *"Spot the Difference"* sheet (see 'Creative Activity Sheets') for all your students.
- Enough color pencils for all students to draw on and color the pages.

Optional Discussion Prompts for this Activity

- Why is it better to put banana peels in a compost box?
- How does using a reusable bottle with no plastic help the planet?
- Which of these habits can we start at school or home?

Instructions

1. Choose or create a discussion topic for your class & lead a discussion for a few minutes. Try to engage as many of your learners as possible.
2. Hand out the activity sheets, then show and explain: "*On the left, we see things that hurt the Earth, and on the right, things that help the Earth.*"
3. Ask your learners to look carefully and draw or write the four differences they can find in the circles on the bottom of the page.
4. Once learners are finished, invite them to name the differences:
    - Plastic cup and straw → Reusable bottle with no straw
    - Banana peel on a pile of trash → Banana peel into compost box
    - Litter on the ground → Litter sorted into the right bins
    - Trash thrown in river → Clean river
5. Reflection question: "Which school is taking better care of the Earth? Why?"
6. Optional step - depending on available time: invite your learners to:
    - Draw another thing they can do in the space provided.
    - Color the picture

Reviewing this Activity

See the 'Answer Key' section for answers to this activity sheet.

Activity 2: Garbage Sorting

Objective Learners understand that different kinds of waste belong in different bins and practice separating waste.



Preparation

- Signs for four bin types (see 'Creative Activity Sheets').
- Find an area at the school that needs a clean-up.
- Prepare four boxes or baskets and label them with the bin signs.

Instructions

1. Show the four bins to the class. Simply explain what belongs in each:
    - Organic = food scraps, leaves
    - Paper = old books, newspapers
    - Plastics & Recyclables = bottles, cans, plastic bags
    - Hazardous = batteries, chemicals
2. Put your students into groups of 4 -6, and explain that each group will work as a team to pick up trash and put it in the correct bins. Explain that they all have 15 minutes to do this activity.
3. After 15 minutes, sound a bell that brings students back together.
4. After the collection is done, check the boxes together as a group, discussing the items in them one by one.
    - If items are in the correct bin → clap and cheer.
    - If items are not in the correct bin → guide them to the right bin and explain why.

Optional Reflection Questions for this Activity

- Which bin had the most items? Why?
- What happens if all rubbish is mixed together?
- What happens when you burn trash?
- How does sorting waste keep drains clear and prevent floods?

Reviewing this Activity

See the 'Answer Key' section for answers to this activity sheet.

Activity 3: Commitment Poster

Objective Learners make a personal commitment to practice 1 eco-friendly habit.



Preparation

- Photocopy enough *"From Today I Will..."* activity sheets (see 'Creative Activity Sheets') for all of your learners.
- Have enough colored pencils ready for all of your students to use.

Optional Discussion Prompts for this Activity

- What plastic things do you use every day? What could you do instead?
- How do you feel when you see trash on the ground or in the water?
- What eco-friendly habits do you already see in your home or community?

Instructions

1. Hand out the Creative Activity Sheets to your learners and explain: *"Let's all think about some good habits that can help the Earth!"*
2. Ask your learners to first draw or write what they feel littering does to the Earth in the top space. After they add their answer in the top space, ask them to now pick a good habit (see images around the girl's head), or think of one on their own, and draw or write about it in the bottom space. The examples shown are:
    - Using reusable bottles
    - Sorting trash
    - Composting
    - Using cloth bags
    - Refusing plastic straws
    - Eating food wrapped in a leaf
    - Refusing plastic bags
3. When everyone is finished with their sheet, invite each student to hold up their posters and say aloud: *"From today I will [their good habit answer]!"*

Reviewing this Activity

As this activity is very much up to individual creativity, there is no example in the 'Answer Key for Activity Sheets' section for this particular activity sheet.

Evaluation Activity: Matching Bad to Good Practices

Objective Learners demonstrate understanding by matching harmful habits to better alternatives.



Preparation

- Photocopy enough *"What We Do Matters"* evaluation sheets (see 'Creative Activity Sheets') for all of your learners.
- Pencils or crayons for drawing lines and coloring in the sheet.

Optional Discussion Prompts for this Activity

- Why is using a cloth bag better than plastic?
- What happens if we compost food scraps instead of throwing them away?
- Which good habit will you share with your family?

Instructions

1. Hand out the Creative Activity Sheets to your class and explain: along the top are some habits that hurt the Earth, and along the bottom are alternative options you can do instead to help the Earth.
2. Ask your learners to write their names on the back of the sheet, and explain that their sheets will be collected so you can grade their responses.
3. Ask learners to **draw a line from each bad practice to the better habit** that should replace it. If you wish, you can give them one example, such as: Instead of using a plastic bag → I could use a reusable cloth bag!
4. Once all of your learners are finished, collect the sheets and grade them.
5. Optional step - depending on available time: invite your learners to also color the picture.

Grading this Sheet

See the 'Answer Key' section for answers to this activity sheet. To grade this sheet, you can give one point for each bad practice your learner connected to the correct better habit. You can add other assessment methods to suit your class.

Optional Extension Activities

The following are some examples of activities that extend learning beyond the classroom and connect directly to challenges faced in Nusantara and across Kalimantan. They encourage your learners to take responsibility, involve their families and the community, and show how waste management and climate-smart habits reduce real risks such as floods, fires, and pollution.

Even small projects can make a difference! With teacher support, learners can lead activities that grow into long-lasting habits for the whole school.

Student-Led Project Ideas

Waste Sorting Day

Choose one day each week when learners lead their class in collecting and sorting rubbish into the correct bins.

Resilience Link: Reinforces proper waste management, keeps drains and waterways clear, and reduces flooding after heavy rains.

Commitment Wall

Encourage your learners to produce creative works of art, drawings, posters, comic strips, etc, with key messaging around proper waste management & how it relates to climate resilience. Display your learners' pledges in the classroom or hallway. Add new promises over time to show collective progress.

Resilience Link: Builds pride and makes climate-smart behaviors visible and normal across the school community.

Tips for Teachers: Encourage your learners to share their project progress during class meetings or assemblies. Set up a progress board to track achievements. As their confidence grows, invite them to present their strategies to other classes or at school events so their ideas spread.



Connecting with Community

The following optional activities give learners the chance to connect with local expertise and see real-life examples of climate and waste solutions.

Guest Speaker Event

Invite a guest speaker, such as a community member, activist, or environmental worker that is involved in a local waste management or climate resilience education initiative to share their knowledge and experience about how waste management and climate resilience intersect.

Field Experience

Take learners to visit a nearby initiative, such as a waste-sorting center, beach clean-up, or community garden. Local experts can explain and, if appropriate, have learners participate in hands-on activities.

Tips for Teachers: Involve learners in choosing the guest or visit, and prepare them with guiding questions. Keep the session short and interactive. Afterwards, ask: *"What new thing did you learn? How can we use this in our school or community?*

Answer Keys for Activity Sheets

(FOR TEACHER REFERENCE)



Your learners should note (a) the banana peel in the compost, (b) the reusable bottle instead of a plastic cup, (c) rubbish sorted into bins, and (d) the clean river. **Extra scores can be given for creative additional ideas if wished.**



Your learners should link each bad habit to its better choice as shown above. **To grade this sheet,** you can give one point for each correct answer.

Creative Activity Sheet Masters

(FOR PHOTOCOPYING)

THERE ARE 4 DIFFERENCES IN THE 2 IMAGES. CAN YOU SPOT THEM?

HOW WE CAN KEEP OUR SCHOOLS CLEAN ?





WRITE OR DRAW THE DIFFERENCES THAT HELP KEEP YOUR SCHOOL CLEAN IN THE CIRCLES:

WRITE OR DRAW ONE MORE THING TO HELP THE EARTH:

.....

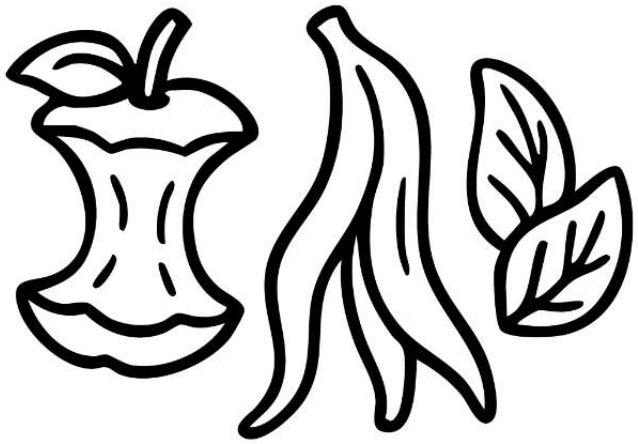
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BIN SIGNS

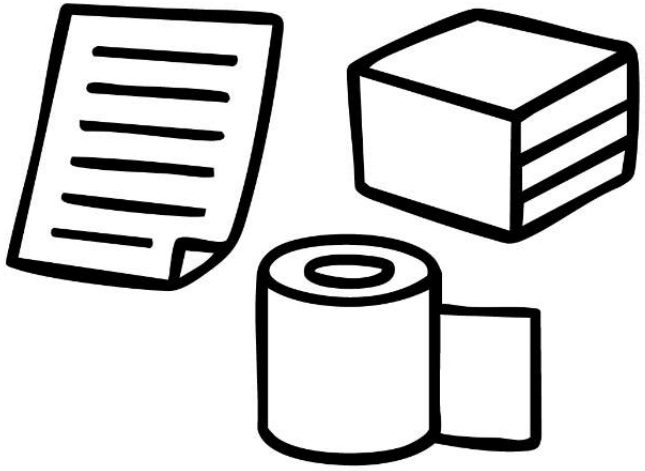
CUT OUT THE 4 SIGNS AND PASTE THEM ON 4 SEPERATE BINS OR BOXES



ORGANIC



PAPER



PLASTICS & RECYCLABLES



HAZARDOUS



I REALLY WANT TO HELP BY KEEPING THE EARTH CLEAN!

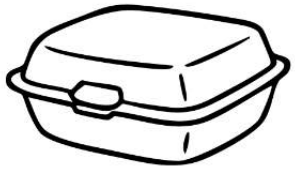
DRAW OR WRITE WHAT YOU FEEL LITTERING DOES TO THE EARTH...



DRAW OR WRITE WHAT YOU WILL DO TO HELP KEEP THE EARTH CLEAN AND SAFE...

KEEPING EARTH CLEAN IS UP TO US – WHAT WE DO MATTERS!

LOOK AT THE PICTURES OF THE BAD CHOICES. DRAW A LINE FROM EACH ONE TO THE BETTER CHOICE! LET'S DO THIS FROM NOW ON!









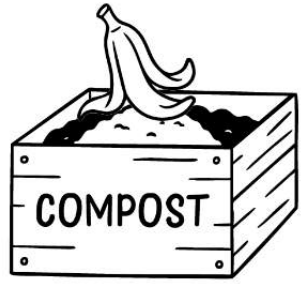












GREAT JOB! EVERY CHOICE YOU MAKE LIKE USING LESS PLASTIC OR SORTING TRASH HELPS TAKE CARE OF OUR EARTH.

This Handbook is part of the
'Building a Climate-Resilient Generation'
educational series, prepared for:

NUSANTARA
Capital City of Indonesia

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Nusantara Capital Authority Office,
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INDONESIA

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