

## WHY ALL THE PLASTIC? (LEVEL 2)

<b>Description</b>	Learners will have the opportunity to conduct science experiments to better understand the environment and present their learnings as a poster convince their family to reduce-reuse.
<b>Leading Question</b>	Can you develop an alternative to plastic
<b>Total Time Required</b>	5.5 hours total over 5 days.
<b>Supplies Required</b>	A tool to dig with, any two sticks to write on, pens, any fruit core or green leaf, a piece of plastic. Pens, paper, discarded cloth, jute, paper, plastics, etc.
<b>Learning Outcomes</b>	<ol style="list-style-type: none"> <li>1. Understanding what is biodegradable and composting</li> <li>2. Historical understanding of the evolution of materials</li> <li>3. Critical thinking and design.</li> </ol>
<b>Previous Learning</b>	None

## DAY 1

Today you will learn about plastic and recycling.

<b>Suggested Duration</b>	<b>Activity and Description</b>
<b>5 minutes</b>	<ul style="list-style-type: none"> <li>• Discuss with the learner that they will have the opportunity to understand more about plastic.</li> </ul>
<b>10 minutes</b>	<ul style="list-style-type: none"> <li>• Learners will design their home plastic diary for a week to tally their home usage of plastic. Their sheet will include columns for: <ul style="list-style-type: none"> <li>○ The item,</li> <li>○ number of uses per day,</li> <li>○ single use,</li> <li>○ total usage over the week,</li> <li>○ suggested reuse or alternative</li> </ul> </li> </ul>

- 15 minutes**
- Learners will identify the seven most commonly used plastic items in their home, by exploring their home, discussing with family members etc. Examples can include: Bottles, straws, cups, packaging, bags, food packaging, toiletry sachets etc.

- 10 minutes**
- Learners will then make a tally marks depending on how many of that particular piece of plastic were used that day

Item	Number of items used in a week	Single use	Total no of uses	Reduce / Reuse / Replace
 Plastic Bag	Monday: Tuesday: Wednesday: Thursday: Friday:	Yes	Student Guess: 5  Family Guess: 5  Actual Total: 3	Reduce: This is how we can reduce the use  Reuse: This is how we can repurpose and use it  Replace: Based on the alternative developed by the students

- 10 minutes**
- Learners will add a column of whether this plastic is “single use” which means that it is only used once before being discarded. Learners will think about how many of these plastic items were discarded after one use and mark this with a tick or cross in the single use category daily

- 10 minutes**
- Learners will guess which of the plastic items they think is used the most in their home in the week based on an investigation of usage patterns. Learners will also interview their family members to discuss and make the same guess

## DAY 2

Today you will learn what biodegradable is and how to recycle.

### Suggested Duration

### Activity and Description

- 20 minutes**
- Learners will learn the word biodegradable – something that breaks down naturally and turns into soil.

	<ul style="list-style-type: none"> <li>• We will do an experiment to explore what happens to plastic and natural food items.</li> <li>• Dig two small holes in the soil of the garden/lawn (or plant pots if a backyard is not available.)</li> <li>• Put any plastic trash in one and fruit core or green leaf in the other.</li> <li>• Cover both the holes with soil and insert a stick marking the plastic hole with Plastic and the fruit core/green leaf with Fruit or Leaf</li> </ul>
<b>10 minutes</b>	<ul style="list-style-type: none"> <li>• Learners will think about what they think they will find after a week</li> </ul>
<b>20 minutes</b>	<ul style="list-style-type: none"> <li>• Learners will think about how families dispose plastic and what happens to it? If they have access to investigate the lifecycle of the plastic based on the attached <a href="https://www.wwf.org.uk/sites/default/files/2020-02/WWF_Plastics_Explainer.pdf">https://www.wwf.org.uk/sites/default/files/2020-02/WWF_Plastics_Explainer.pdf</a></li> <li>• Learners can draw where they see plastic that has been discarded</li> <li>• Prompts: Piles of discarded plastic on the roadside / in water bodies etc. Many of these plastics break into small pieces and get eaten by sea animals making them very ill</li> </ul>
<b>10 minutes</b>	<ul style="list-style-type: none"> <li>• Learners will mark on their weekly plastic diary the uses of plastic for the day across all the items</li> </ul>

## DAY 3

Today you will learn what plastic is used for around the house.

<b>Suggested Duration</b>	<b>Activity and Description</b>
<b>15 minutes</b>	<ul style="list-style-type: none"> <li>• Learners will mark on their weekly plastic diary the uses of plastic for the day across all the items</li> </ul>
<b>30 minutes</b>	<ul style="list-style-type: none"> <li>• Learners will interview their grandparents and other members of their home and understand whether they used as much plastic for as many different things. Learners will think about the alternatives that were used prior to plastic.</li> <li>• Prompt questions: Did you have as much plastic at home when you were growing up? What did you use instead of plastic?</li> </ul>
<b>15 minutes</b>	<ul style="list-style-type: none"> <li>• Learners will draw comparison images of things from the past without plastic and in the present with plastic.</li> </ul>

**20 minutes**

- Learners will fill out the below worksheet for each of the plastic items to plan for their re-use, reduce and replace chart. Some of the core questions include:
  - i) What is the use or purpose of this plastic item?
  - ii) How important is this plastic item – what is it used for?
  - iii) Do we have any options to the plastic?
  - iv) Can we reduce this plastic item?

## DAY 4

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Today you will learn about different materials you can use other than plastic.

Suggested Duration	Activity and Description
<b>30 minutes</b>	<ul style="list-style-type: none"> <li>• Learners will begin to think of the reduce, reuse or replace framework designing the alternatives to plastic Learners will first think of the plastic items that they can replace</li> <li>• Learners will discuss with the family what material options can be used instead of plastic e.g. cloth, paper, jute, glass etc.</li> <li>• Learners will experiment with trying to replace plastic with the chosen other material options (e.g. What else can you store shampoo in? How else can you package chips etc.)</li> <li>• Learners will reflect on whether these new solutions would work or not. Learners will try and identify the key characteristics that made plastic so special and used so commonly</li> <li>• Prompt questions: Do other materials get wet? Are other materials as durable - do they get torn or destroyed as easily?</li> </ul>
<b>20 minutes</b>	<ul style="list-style-type: none"> <li>• Learners will think of the plastic items that cannot be replaced with alternatives and plan on how their usage can be reduced. Learners will think of a plan on how they can reduce the usage of the item e.g. buy a bigger size of chips bag to last longer etc.</li> </ul>
<b>20 minutes</b>	<ul style="list-style-type: none"> <li>• Learners will think of the plastic items that cannot be replaced or reduced and think of whether they can be re-used. For example, refill a plastic bag with grains or ration, reuse a plastic grocery bag for trash etc.</li> </ul>
<b>10 minutes</b>	<ul style="list-style-type: none"> <li>• Learners will mark on their weekly plastic diary the uses of plastic for the day across all the items</li> </ul>

## DAY 5

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Today you will finish their observation and present about recycling.

EAA welcomes feedback on its projects in order to improve, please use this link:  
<https://forms.gle/LGAP9k17fMyJrKJN7>

Suggested Duration	Activity and Description
20 minutes	<ul style="list-style-type: none"> <li>Learners will dig around the holes and check the progress of the plastic and food. Based on their observation, they will share what they think will happen and why.</li> </ul>
10 minutes	<ul style="list-style-type: none"> <li>Learners will mark on their weekly plastic diary the uses of plastic for the day across all the items</li> </ul>
30 minutes	<ul style="list-style-type: none"> <li>Learners will compile all of their work from the week to make a poster to convince family members to reduce, reuse or replace plastic</li> <li>Learners can present this in the framework of: i) How much plastic we use, ii) Why is plastic bad? lii) What makes plastic special? Iv) What can we reduce, reuse or replace? Learners can choose to make a poster, campaign or use their diary etc. to share during their presentation</li> <li>Learners need to consider the criteria of a clear message to the family on why plastic is harmful and how much it is used and a convincing argument on reducing, reusing or replacing it</li> </ul>
15 minutes	<ul style="list-style-type: none"> <li>Learners will present their argument to the family and notice how many were convinced with it – they will reflect on why other family members were not convinced and think of what they could do differently</li> </ul>

## ASSESSMENT CRITERIA

- Analytical thinking and observations made.
- Ability to prepare and ask meaningful questions and follow up questions.
- Critical thinking and problem solving to design alternatives to plastic.
- Clarity of messages when drawing, writing or speaking.

## ADDITIONAL ENRICHMENT ACTIVITIES

- The activity can be extended with more time to observe the biodegradation that typically takes 4 months.

## MODIFICATIONS TO SIMPLIFY

- Learners can make a weekly plastic diary and focus on what can be reduced and reused