




WHY ALL THE PLASTIC? (LEVEL 2)

Description	The learner will have the opportunity to explore and understand the qualities of plastic including what makes it special and it's usage in their homes. Learners will then determine how we can reduce, reuse or replace it at home. Learners will develop alternatives to plastic and convince family members to adopt it.
Leading Question	Can you develop an alternative to plastic
Total Time Required	6.25 hours total over 5 days.
Supplies Required	A tool to dig with, 2 sticks, pens, any fruit core or green leaf, a piece of plastic. Pens, paper, discarded cloth, jute, paper, plastics, etc.
Learning Outcomes	<ul style="list-style-type: none"> - Understanding what is biodegradable and composting - Historical understanding of the evolution of materials - Understanding of plastics and their uses - Understanding of the danger plastics cause to the environment - Understanding and appreciation for the need for recycling, reuse and replacement of plastics - Understand and appreciate the availability and need for alternatives to plastics - Enhance their critical thinking and design skills - Improve their research and experimentation skills - Improve their presentation and communication skills
Previous Learning	None

DAY 1

Today you will learn about plastic and recycling.

Suggested Duration	Activity and Description
5 minutes	<ul style="list-style-type: none"> ● You will have the opportunity to learn about plastic. ● Share with your parents what you would like to know about plastic?
10 minutes	<ul style="list-style-type: none"> ● How much plastic do you think you use every day? ● Design your home plastic diary for a week to tally your home usage of plastic. <p>The sheet will include columns for:</p>

	<ol style="list-style-type: none"> 1. The item 2. Number of uses per day, 3. Single use 4. Total usage over the week, 5. Suggested reuse or alternative 										
15 minutes	<ul style="list-style-type: none"> ● Identify the seven most commonly used plastic items in your home, by exploring your home, discussing with family members etc. ● Examples can include: Bottles, straws, cups, packaging, bags, food packaging, toiletry sachets etc. 										
10 minutes	<ul style="list-style-type: none"> ● Make a tally mark depending on how many of that particular piece of plastic were used that day <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Item</th> <th style="width: 25%;">Number of items used in a week</th> <th style="width: 10%;">Single use</th> <th style="width: 15%;">Total no of uses</th> <th style="width: 35%;">Reduce / Reuse / Replace</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">  Plastic Bag </td> <td> Day 1: Day 2: Day 3: Day 4: Day 5: </td> <td style="text-align: center;">Yes</td> <td> Student Guess: 5 Family Guess: 5 Actual Total: 3 </td> <td> 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 </td> </tr> </tbody> </table>	Item	Number of items used in a week	Single use	Total no of uses	Reduce / Reuse / Replace	 Plastic Bag	Day 1: Day 2: Day 3: Day 4: Day 5:	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
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10 minutes	<ul style="list-style-type: none"> ● Add a column of whether this plastic is “single use” which means that it is only used once before being discarded. ● 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	<ul style="list-style-type: none"> ● Determine which of the plastic items you think is used the most in your home in the week, based on an investigation of usage patterns. ● Also interview your family members to discuss and make the same guess 										
5 minutes	<ul style="list-style-type: none"> ● Think about what did you discover and enjoy the most and least about this process, challenges you faced, etc. 										

DAY 2

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

Suggested Duration	Activity and Description
20 minutes	<ul style="list-style-type: none"> Learn about the concept biodegradable – which is something that breaks down naturally and disintegrates into the soil. <p>We will do an experiment to explore what happens to plastic and natural food items.</p> <ul style="list-style-type: none"> Dig two small holes in the soil of the garden/lawn (or plant pots if a backyard is not available.) Put any plastic trash in one and fruit core or green leaf in the other. 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
10 minutes	<ul style="list-style-type: none"> Think about what you think you will find after a week and write it down
20 minutes	<ul style="list-style-type: none"> Think about how families dispose of plastic and what happens to it? Discuss and investigate the lifecycle of the plastic based on the infographic in the appendix: <p>Link: https://www.wwf.org.uk/sites/default/files/2020-02/WWF_Plastics_Explainer.pdf</p> <ul style="list-style-type: none"> Draw places where you see plastic that has been discarded Think about where have you seen discarded plastic? <ul style="list-style-type: none"> Piles of discarded plastic on the roadside / in water bodies etc. Many of these plastics break into small pieces and get eaten by birds and animals making them very ill
10 minutes	<ul style="list-style-type: none"> Mark on your weekly plastic diary the uses of plastic for the day across all the items. It is best to add this information at the end of the day when you can find out how much has been used for each of the items.
10 - 15 minutes	Present your thoughts on what will happen to the plastic and fruit you planted as well as the drawing of where you see plastics discarded to your parents/family/class and receive feedback and suggestions for improvement (if any). Incorporate the feedback given.
5 minutes	What did you discover and enjoy the most and least about this process, challenges you faced, etc.

DAY 3

Today you will learn what plastic is used for around the house and what are its alternatives.

Suggested Duration	Activity and Description															
10 minutes	<ul style="list-style-type: none"> Interview your grandparents and other members of your home and understand whether they used as much plastic for as many different things. Think about the alternatives that were used prior to plastic. <p>Prompt questions:</p> <ul style="list-style-type: none"> Did you have as much plastic at home when you were growing up? What did you use instead of plastic? 															
15 minutes	<ul style="list-style-type: none"> Draw comparison images of things in the past without plastic and in the present with plastic. If you cannot draw the images of the things in the past, you can write a list of them instead. 															
20 minutes	<ul style="list-style-type: none"> Fill out the below worksheet for each of the plastic items in order to plan for your re-use, reduce and replace chart. Some of the core questions include: <ul style="list-style-type: none"> What is the use or purpose of this plastic item? How important is this plastic item? Do we have any other options of items to use instead of this plastic item? Can we reduce the use of this plastic item? <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 25%;">Name of the plastic item</th> <th style="width: 25%;">Use or purpose of item</th> <th style="width: 25%;">Level of importance of item</th> <th style="width: 25%;">Options of other items to use instead</th> <th style="width: 25%;">Can we reduce the use of this item?</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> <p>Mark on your weekly plastic diary the uses of plastic for the day across all the items. It is best to add this information at the end of the day when you can find out how much has been used for each of the items.</p>	Name of the plastic item	Use or purpose of item	Level of importance of item	Options of other items to use instead	Can we reduce the use of this item?										
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10-15 minutes	Present all your findings for the day (from all the activities) to your parents/families and receive feedback and suggestions for improvement (if any).															

	Incorporate the feedback from your parents/ families
5 minutes	What did you discover and enjoy the most and least about this process, challenges you faced, etc.?

DAY 4




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

Suggested Duration	Activity and Description
30 minutes	<p>Begin to think of the reduce, reuse or replace framework designing the alternatives to plastic</p> <ul style="list-style-type: none"> - First, think of the plastic items that you can replace - Discuss with your family what material options can be used instead of plastic e.g. cloth, paper, jute, glass etc. - 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.) - Reflect on whether these new solutions would work or not and test them out. - Identify the key characteristics that made plastic so special and used so commonly
20 minutes	<p>Prompt questions:</p> <ul style="list-style-type: none"> - Do other materials get wet? Do the items inside get wet? (e.g. cloth and paper) - Are other materials as durable - are they torn or destroyed as easily? (e.g. paper and glass) - Are other materials heavy and easy to carry or travel with? (e.g. metal and glass) - Can all materials be made into any shape?
20 minutes	<p>Think of the plastic items that cannot be replaced with alternatives and plan on how their usage can be reduced. Think of a plan on how you can reduce the usage of the item e.g. buy a bigger size of chips bag to last longer etc.</p> <p>Compile a list of the plastic items that cannot be replaced or reduced and think of whether there are ways to make them last longer or ways to re-use them. For example, refill a plastic bag with grains or ration, reuse a plastic grocery bag for trash etc.</p>
10 minutes	<p>Think of the plastic items that cannot be replaced or reduced and think of whether they can be reused.</p>

	For example, refill a plastic bag with grains or ration, reuse a plastic grocery bag for trash etc.
10 minutes	Mark on your weekly plastic diary the uses of plastic for the day across all the items. It is best to add this information at the end of the day when you can find out how much has been used for each of the items.
10-15 minutes	Present all your findings for the day (from all the activities) to your parents/families and receive feedback and suggestions for improvement (if any). Incorporate the feedback from your parents/ families
5 minutes	What did you discover and enjoy the most and least about this process, challenges you faced, etc.?

DAY 5

Today you will finish your observations and present about recycling.

Suggested Duration	Activity and Description																						
15 minutes	Dig the items you buried back up from the holes sand check the changes observed in the plastic and food. Based on your observation, share what has happened so far and what you think will happen in a few weeks and why?																						
10 minutes	Mark on your weekly plastic diary the uses of plastic for the day across all the items. Using this information, the diary should now have all the necessary information for all the days and the actual total completed. <table border="1" style="margin: 10px auto;"> <thead> <tr> <th>Item</th> <th>Number of items used in a week</th> <th>Single use</th> <th>Total no of uses</th> <th>Reduce / Reuse / Replace</th> </tr> </thead> <tbody> <tr> <td rowspan="4">  Plastic Bag </td> <td>Day 1:</td> <td rowspan="5">Yes</td> <td>Student Guess: 5</td> <td>Reduce: This is how we can reduce the use</td> </tr> <tr> <td>Day 2:</td> <td>Family Guess: 5</td> <td>Reuse: This is how we can repurpose and use it</td> </tr> <tr> <td>Day 3:</td> <td></td> <td></td> </tr> <tr> <td>Day 4:</td> <td></td> <td></td> </tr> <tr> <td>Day 5:</td> <td>Actual Total: 3</td> <td>Replace: Based on the alternative developed by the students</td> </tr> </tbody> </table>	Item	Number of items used in a week	Single use	Total no of uses	Reduce / Reuse / Replace	 Plastic Bag	Day 1:	Yes	Student Guess: 5	Reduce: This is how we can reduce the use	Day 2:	Family Guess: 5	Reuse: This is how we can repurpose and use it	Day 3:			Day 4:			Day 5:	Actual Total: 3	Replace: Based on the alternative developed by the students
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30 minutes	Compile all of the work from the week to make a poster to convince family members to reduce, reuse or replace plastic Present this in the framework of:																						

	<ul style="list-style-type: none"> - How much plastic we use - Why is plastic bad? - What makes plastic special? - What can we reduce, reuse or replace? - Make a poster, campaign, or use your diary etc. to share during your presentation • Make sure you communicate a clear message to your family on why plastic is harmful and how much it is used and a convincing argument on reducing, reusing or replacing it
15 minutes	Present your argument to the family and notice how many were convinced with it – reflect on why other family members were not convinced (if any) and think of what they could do differently
10 minutes	What did you discover and enjoy the most and least about this process, challenges you faced, etc. during the entire project?

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