



Program Manual

Valley Waste Resource Management Tour
for Elementary classes

A partnership of



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Table of Contents

I. Planet Protectors Program Description	Error! Bookmark not defined.
Program Objectives.....	Error! Bookmark not defined.
Theme and Structure	Error! Bookmark not defined.
Logistics and Organization	Error! Bookmark not defined.
Outline of Program Events at Valley Waste.....	Error! Bookmark not defined.
II. Pre-Trip Preparation and Activities.....	3
Consent & Notifications of Dangers and Hazards On-Site	6
Pre-Trip Activities.....	6
1. <i>Vortex's Invitation Video</i>	6
2. <i>Official Planet Protector Training</i>	6
3. <i>Planet Protector I.D. Badges & Division into Three Groups</i>	7
III. Post-Trip Activities	7
IV. Feedback on Trip Experience	7
V. Program Activity Descriptions	8
1. Intro Briefing Activity (10 min).....	8
2. Nature's Recycle Depot (30 minutes)	9
3. Waste Transfer Building (15 minutes)	11
4. Recycling Center (20 minutes)	12
5. Sorting Station Game (20 minutes).....	13
6. Recycling Sequence Puzzles (25 minutes).....	14
7. Recycling Sequence Puzzles (25 minutes).....	14
8. Debriefing Activity (10 minutes)	15
Appendix A: Notice of Potential Hazards and Safety Precautions	17
Appendix B: Field Trip Packing List	17

I. Planet Protectors Program Description

This program has been designed for Valley Waste-Resource Management (VWRM) to use in developing a hands-on tour of the site. The program is designed primarily for students in grade three, as it focuses on the soil cycle and decomposition topics within the provincial curriculum. The tour, which uses a time traveling theme, follows a story to create flow and cohesion throughout each stop along the way. Within the storyline, time travelers arrive and explain to the students how the world has gone to “the dumps” in the future and that it is up to the participants to learn what to do so they can avoid this future and make the world a better place. Students from the Community Development and Environmental and Sustainability Studies programs at Acadia University are the guides, working under the direction and supervision of the Valley Waste Educators.

Program Objectives

For the program participants to:

1. Understand the soil cycle.
2. Understand why waste management is important and how it connects to nature.
3. Be inspired to creatively reuse materials.
4. Reduce personal environmental impact.
5. Increase appreciation of nature.

Theme and Structure

Using the theme of time travel, this field trip provides participants with the opportunity to learn how to reduce impacts on the Earth and facilitate a better future. In doing so, they learn more about nature, the soil and decomposition cycles and waste management.

Upon arrival at the Valley Waste Resource Management site, the participants are greeted by a leader acting in the role of a time traveler named “Vortex” (complete with a spacesuit), who presents a large poster/mural with key words missing from four boxes on it, Vortex explains to the participants that in his/her recent travels to the future he/she saw our Earth in a horrific state! Garbage was piled up on every street corner and floating in every body of water. The air was so heavily polluted that it was difficult to breathe. It was a very scary sight to see! Vortex then explains to the participants that he/she has come back to the present to find a dedicated group of young people to help prevent our future from turning out this way. Vortex points out that the four key words missing from the mural are what we need to incorporate into our lives to save our future. As the participants progress through the facility and learn more about how our waste impacts the Earth, they acquire the four missing words. Vortex assigns them the task of reporting back to him/her with their findings so they can help save the future.

The four missing words the participants collect during the field trip are respect, reduce, recycle and reuse. While doing a physical activity in which they learn about natural

decomposition, the participants learn to **respect** their natural surroundings. After having the opportunity to watch the garbage enter the site at the garbage transfer station, participants understand the need to **reduce** their waste levels.. The participants participate in a sorting activity of recyclable items and learn to **recycle** their consumption and waste contribution. At the re-sale shop and through a craft, the participants have the opportunity to consider how they can **reuse** wasted items.

Finally the participants report back to Vortex and find that they are still missing a 5th and final piece. Through asking questions and group discussion, Vortex helps the participants come to the conclusion that the final piece is that they need to **relay** the information they learned today to their friends and families. Once they have acquired all the missing pieces, the mural is complete. Vortex then asks the participants to close their eyes and imagine what the future will look like once these changes are made. During this time the mural is flipped to the other side, exposing a much more optimistic future. The participants then open their eyes and see the new potential future.

Logistics and Organization

1. Classes are expected to complete pre-trip activities to provide participants with a context for the program.
2. Classes are expected to arrange their own transportation to and from the program site (Valley Waste Resource Management). Students bring their own individual snacks and/or lunches.
3. A professional Valley Waste Resource Management educator coordinates and leads the program. Acadia University students, supervised by the Educator assist with leadership. Teachers are encouraged to participate in and observe the trip program in order to be able to effectively reinforce follow-up activities in the classroom.
4. Classes proceed through the activities as three groups, each with an Acadia student leader. The Educator provides overall direction and. Groups should be pre-defined by the teacher to maximize their ability to work together.
5. The program is currently free of charge to participating classes and schools.
6. It is possible for two classes to come for the program at the same time but they move around the site separately, rotating through activities in a different progression.

Sequence of Events

	Title	Time	
1	Intro Briefing	10 min	Participants begin at the main office building for the introduction and briefing by the Vortex character.
2	Nature's Recycling Depot	25 min	In the wooded area near the office, they participate in a soil decomposition game called "Nature's Recycle Depot." It demonstrates the difference between decomposition of organic and synthetic materials. After they receive their first missing piece: <i>Respect</i> .

3	Waste Transfer Building	25 min	There is a short walk to the garbage transfer building. Here, the participants rotate through three short stations: viewing the garbage coming into the facility, and activities involving the site map and home sorting process. They receive the <i>Reduce</i> piece
4	Recycling Centre	10 min	Participants walk to the recycling building where they view the recyclables being sorted.
5	Sorting Station Game	20 min	Behind the Recycling Centre in an open area they participate in a waste sorting activity similar to what they watched inside.
6	Recycling Sequence Puzzles	10 min	After returning to the office building, the three groups solve a series of picture sequencing challenges. They find the correct order of steps for turning specific waste materials into new products.
7	Reusing Waste Items	25 min	Participants return to main building and visit the Re-Sale shop to understand how many things are thrown away that are still useful. In the outdoor classroom they then decorate a reused milk container and plant a seed to take back to school to complete the soil and waste management cycle and reuse “garbage” in a new form. After they receive the third missing piece: <i>Reuse</i>
8	Debriefing	10 min	Finally, the participants return to the time traveler for the debriefing of the day and completion of the mural at the main building. They receive the final missing piece: <i>Relay</i> .

The program takes approximately 3 hours – 3.5 hours including walking times and breaks. The path for moving about the VWRM facility is shown in Image 1.



II. Pre-Trip Preparation and Activities

All of the pre-activity materials can be downloaded from [http://commdev.acadiau.ca/Planet_Protector Teacher Materials.html](http://commdev.acadiau.ca/Planet_Protector_Teacher_Materials.html)

Consent & Notifications of Dangers and Hazards On-Site

We ask that you send home and have parents sign a photo consent & notification of the inherent dangers and hazards associated with visiting the Valley Waste Resource Management facility prior to the trip. This notification also outlines the various precautions taken to ensure safety and risk management. It is proposed that this be attached to the field trip permission slip, ensuring that parents or guardians are fully aware of such dangers when sending the participant on the field trip. This notification can be found in Appendix A of this document or as a separate download at: .

http://commdev.acadiau.ca/teacher_manual.html Along with this notification, the packing list, as available in Appendix B, should also be distributed among participants.

Pre-Trip Activities

It is the responsibility of the teacher to facilitate the following activities with all participants prior to the field trip. They are essential in building the student's enthusiasm for the trip and preparing them for what they will experience and learn. These provide participants with necessary background knowledge of the storyline and some of the educational topics within this program. Please present them in a fun way... they are going on an "important mission" rather than "a field trip."

1. Vortex's Invitation Video

The first pre-trip activity to take place within the classroom is the viewing of Vortex's Invitation Video. This video introduces the students to Vortex (the main program character), the time travel storyline, and the urgency of the mission to save planet Earth. In this video, Vortex also provides the instructions to complete Official Planet Protector Training as a requirement of participation in this trip, and obtain their Planet Protector I.D. badges. When you play it in class, please do it on the projector and put it on full screen (click on the small icon in the bottom right corner of the black video picture... it looks like the corners of a picture frame but the lines do not go all the way round the frame). This video is accessible on You Tube at:

<https://www.youtube.com/watch?v=xnTiHPQPpGo&list=UU9kKP0YY484uoHknPF5dGNA>.

2. Official Planet Protector Training

After viewing Vortex's Invitation Video, please facilitate the *Official Planet Protector Training* with your class. This training is in the format of a Smart Board activity, but is also available as a PowerPoint if such technology is not accessible (download it at:

[http://commdev.acadiau.ca/Planet_Protector Teacher Materials.html](http://commdev.acadiau.ca/Planet_Protector_Teacher_Materials.html)

This activity is intended to reinforce the participants' current knowledge of solid waste sorting and further it if possible. It should be framed that, although participants may already be aware of appropriate sorting practices, participating in this activity will provide them with official certification. In the activity, various examples of solid waste appear on the screen and participants identify the appropriate bin into which it should be sorted. When using the Smart Board version, participants will be

able to drag these objects into the appropriate bin. this is much preferred as it allows the activity to be more interactive After completing the training, each participant earns a Planet Protector I.D. badge.

3. Planet Protector I.D. Badges & Division into Three Groups

The Planet Protector I.D. Badge template is available in Appendix C of this document. Participants should write their own name under the “Planet Protector I.D.” text, and color the badge. Once completed, all badges should be backed with cardstock paper and attached to string so they can hang around the participants’ necks as a name tag. Badges should be colour coded for the cardstock so as to identify which group the student is in. Participants should be divided into three groups before the trip based on the teacher’s discretion to enable balanced groups that work together well.

III. Post-Trip Activities

Action Step and Planted Flower Pots:

The students will return to school with their seeds planted in the reused milk carton flower pots. The cartons have the picture on the side that they drew of the action step they set for themselves to reduce their impact on the environment. Please have them discuss what they decided to do for their action step and encourage them. Check in with them every few days as to whether they are doing them. You might do this when they check on whether their seeds are coming up.

If possible, put the flower pots on the window sill and have the students keep track of them and water them. They will produce an edible treat which can be shared when the plant has grown.

We encourage you to use your creativity to connect the trip with your curriculum with additional post-trip activities. If you do something that you feel works well, we would really appreciate it if you would share it with us so that we can add more ideas into this manual. E mail us at:

Andrea Gibson Garrett: andreag@vwrn.com

IV. Feedback on Trip Experience

We very much value your feedback on your class program experience and it is important to making the program even stronger in the future. Please fill in the program feedback form which can be downloaded at:

http://commdev.acadiau.ca/Planet_Protector_Teacher_Materials.html

V. Program Activity Descriptions

Here are the detailed activities the class will be participating in, which can be helpful for your pre and post-trip curriculum planning.

1. Intro Briefing Activity (10 min)

Goals:

- Gain motivation and excitement to learn about waste management to help save our future
- Understand the goals of program

Location: At outdoor classroom of main VWRM office building, or inside board room if weather is poor.

Materials:

- Vortex costume: suit, helmet, gloves, boots
- Mural
- Vests for participants
- Kettle with pieces in it

Description:

1. A leader, acting as “Vortex” the time traveler welcomes the participants to the Valley Waste Resource Management facility with excitement and hope.
2. Vortex first checks that all participants have their Planet Protector I.D. badges, ensuring that they have completed official training. He/she asks what they learned in the training.
3. Once this is confirmed, Vortex explains the disappointing future that he/she had seen, as explained in the storyline description, with the mural as a visual aid.
4. Vortex explains the four key pieces that are missing from the mural are what we need to incorporate into our lives in order to save our future. He/she explains that as they progress through the Valley Waste Resource Management facility and learn more about how our waste impacts the Earth, they acquire the four missing pieces from the mural.
5. Vortex sends the participants away and tells them to report back to him/her with what they found before they leave.
6. Each student receives a vest to wear before they leave.



2. Nature's Recycle Depot (30 minutes)

Goals: For participants to:

- Understand the process of natural decomposition
- Understand the differences between decomposition of organic and synthetic materials in nature
- Understand the impact that synthetic materials can have in the natural environment
- Have fun and be physically active

Location: In the wooded area past office.

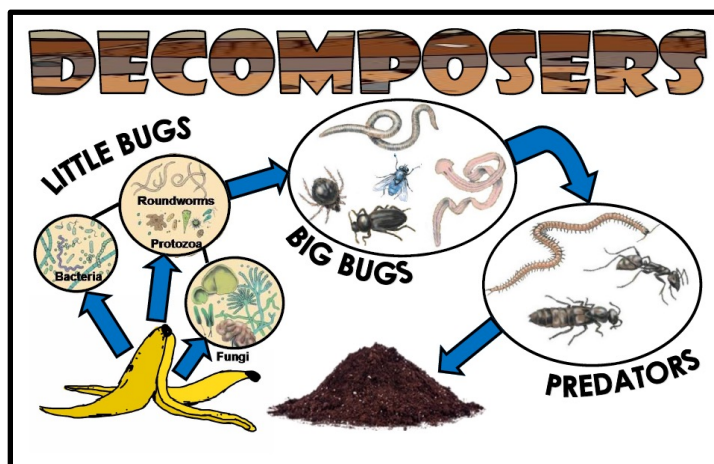
PART ONE: Decomposition Display (10 min)

Materials:

- Decomposer poster
- 3 banana peels (or other organics) at various stages of decomposition
- 3 juice boxes (or other synthetic materials)
- Soil composter container

Description:

1. First, ask participants what they do with their food waste when they are done with it. Ask them if they know what happens to it once it goes into the compost. Use this as a basis upon which to explain the decomposer poster.
2. Explain the different decomposers (little bugs, big bugs and predators) using the decomposer poster, and how they break our food down.
3. The “little bugs” depicted in the poster include bacteria, protozoa, fungi and roundworms. The “big bugs” include mites, small beetles, earth worms, flatworms and flies. The “predators” include rove beetles, ants and centipedes.



Explain Decomposition Display:

One clear-fronted green bin contains synthetic materials and organic waste at three stages of decomposition (one day, two weeks and two months). Participants see that the organic material decomposes into healthy, rich soil, while the synthetic material remains unchanged.

4. The first part of the visual display shows the first stage of decomposition, with both synthetic and organic waste at one day of decomposing.
5. The second part of the display shows the waste at two weeks old.
6. The third part of the display shows the waste at two months old.
7. The leader should ask the participants the following discussion questions:
 - a. “Which object seems to be decomposing faster?”
 - b. “Why do you think the synthetic material is not decomposing?”
 - c. “Can you see any bugs?”
 - d. “What can this soil be used for after the organic material is fully decomposed?”
8. Explain and discuss why synthetic materials cannot be broken down as easily.



PART TWO: Decomposition Game (20 minutes)

After participants have viewed the process of decomposition in the poster and display, they play a game to simulate the process.

- Materials:*
- Leaves
 - 9 Buckets (3 different colors)
 - 25 gloves (3 different pictures of insects)

Description:

1. Split the large group into 3 smaller groups.
2. In smaller groups, explain how the game works.
 - a. Little bugs transport leaves from buckets 1 to buckets 2, crunching them up before dropping them in the bucket. They shuffle, keeping their feet together.
 - b. Big bugs transport leaves from buckets 2 to buckets 3, also crunching them up more before dropping them in the bucket. They walk heel to toe.
 - c. Predators try to tag big bugs and little bugs. They hop. They are not allowed to “puppy guard” the buckets. When little or big bugs are tagged, they must go into “hibernation” by curling up in a ball on the ground. They can re-enter the game if a leader or another participant on their team tags them back in. After predators have tagged a bug, they must go to a designated spot on the edge of the game for 3 seconds while they “enjoy their meal.”
 - d. The game ends when all of the leaves are in the final buckets or interest is waning.
3. Tell the participants that, in order to play, they must shrink down to the size of decomposers and become bugs. To do this, have them close their eyes, curl up into a ball and “think small”.
4. With their eyes closed, leaders will place gloves on their hands. These gloves have three different pictures (bacteria, beetles and millipedes), indicating the different type of decomposers
 - a. Bacteria represent little bugs
 - b. Rove Beetles represent big bugs
 - c. Millipedes represent predators
5. There should be more participants as little bugs and big bugs than predators (for 8 kids, 3 little bugs, 3 big bugs and two predators)
6. Once all gloves are distributed, tell students that they succeeded in shrinking to the size of decomposers and that they are now inside of a leaf pile!
7. Answer any clarifying questions and send the little and big bugs to their respective starting buckets to begin. Then send predators out shortly after, giving the others a head-start.
8. Play for a short time, then call “freeze”. Discuss the game dynamics briefly as to how the bugs are decomposing the leaves. Comment on how the predators are doing vis a vis real life. Then rotate the roles.
9. Freeze a second and third time and rotate roles so that all of the kids get all of the roles.
10. Once the game is completed, bring the participants together to debrief the activity.
11. Ask the participants:
 - a. “Who won that game?” (Explain that everyone won because decomposition is a process to which all decomposers contribute and they all completed their task of decomposing the leaf pile)
 - b. “What is something that you learned about what decomposers do?”
 - c. “What would happen if we tried to do this with man-made things?”

- d. "What are some things we could do to prevent man-made things from mucking up this process?"
 - e. "Why don't these broken up leaves look like actual soil?"
12. At the end of the activity, the participants will receive the Respect puzzle piece because through this activity, they have learned about the decomposition in nature. They have learned that it is important to *respect* the natural processes around them.
13. Finally, have the participants close their eyes, reach up to the sky and "think big" in order to grow back to normal height. At this time, leaders collect the gloves.

3. Waste Transfer Building (25 minutes)

Goals: For participants to:

- Gain a general understanding of how much garbage is wasted on a regular basis.
- Gain an understanding of how the Valley Waste Resource Management facility operates

Location: Takes place in the Garbage Transfer Building

Materials:

- Facility poster map mounted on table with toy trucks
- Stools for participants to stand on to see through the window

Description:

Upon entering the garbage transfer building, the class remains with their assigned groups and they rotate through three activity stations. The sorting game is installed and secured to the stairs to act as a protective barrier as well as an activity station. The activities are as follows

1. **Tipping floor window:** The leader stands in front of the window facing the participants. The leader explains that this is the location where all of the garbage and compost comes into the facility and is collected and compacted before it is transported to the landfill or compost facility
 - a. The leader then moves away from the window to allow participants to look in. Stools are placed in front of the window to ensure that participants of all ages and heights are able to see clearly. The leader has a conversation about the garbage pile and asks the students ways they can make less garbage...
 - How many bags of garbage do you think most families throw away each collection day?
(answer is 2-3)
 - How do you think we can reduce the amount of garbage that we make with our families?
2. **Interactive Facility Map:** The leader directs their attention to the poster map of the facility and explains the flow of garbage within the facility on a greater scale.
 - a) The leader gives each group member a toy truck and asks them to pretend they're bringing in a type of waste to the transfer station. The leader then asks each student to



- find the right building or pile to where they need to drive their waste.
- b) The leader asks the participants if they have any metal, construction material or hazardous waste (paints, gasoline, etc.) in their trucks. Some say yes. The leader shows how these things go to separate piles and the participants drive their trucks and drop these things there (in their imaginations)
 - c) The leader can ask other questions like:
 - “How many bags of garbage do you think the whole Valley throws away each year?”
(answer is 18,000)
 - “Why do you think it’s important that there are separate piles to put different waste?”
3. **Escape from the Landfill Game:** The leader explains that not all waste we throw away belongs in the garbage and landfill. Each child receives a couple of items that kids throw away. The students take turns putting their waste item in the correct bin and discussing their choices.
4. At the end of the three stations, the participants gather as one group and receive the **Reduce** puzzle piece because they learned the importance of reducing the amount of garbage they send to the landfill.

4. Recycling Center (20 minutes)

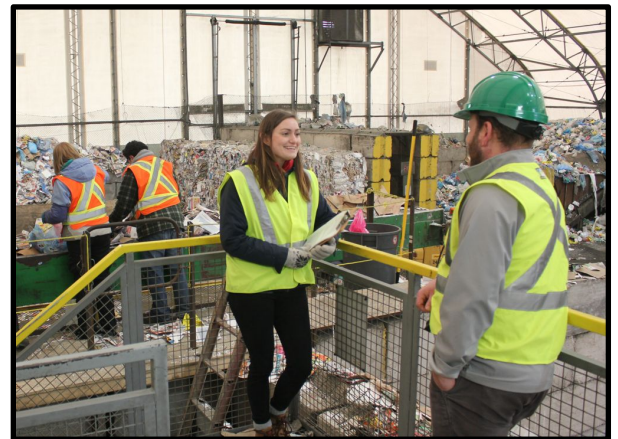
Goals: For participants to:

- Understand the process of sorting, reprocessing and reuse of recyclable materials.
- Understand where materials go and how they are managed after the transfer station.

Location: In the meeting room in the Recycling Center.

Materials:

- PowerPoint Presentation
- Items made of recycled materials



Description

1. Participants walk across the pavement (with leaders as crossing guards) and walk on the “path” through the break in the trees to the recycling building.
2. Participants follow the leader, entering the site at the back of the facility. At this point, the leader informs the participants of potential risks (such as low pipes, etc. that they could potentially bump their heads on. They walk along the wall of the building, toward the stairs, bringing them to the presentation room. Participants follow the leader up the stairs and into the room where they watch workers sorting for about 5 minutes or until they lose interest.
3. Encourage the participants to ask questions about what the people are doing and what they see.

PowerPoint:

5. Sorting Station Game (20 minutes)

Goals: For participants to:

- Gain a contextual understanding of VWRM's methods of sorting, recycling and reusing
- Have fun practicing the sorting process
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Location: On the path behind Scotia Recycling Centre

Materials:

<ul style="list-style-type: none"> • 8-10 trays • 10 bins for sorting & signs • 2 large bins to hold garbage before it goes on conveyor belt (use stickers that use for recyclables in schools in the Valley) • 2 clear garbage bags 	<ul style="list-style-type: none"> • Items for sorting <ul style="list-style-type: none"> ○ Plastic water bottles (15) ○ Big, clear soda bottles (15) ○ Green soda bottles (15) ○ Small yogurt/ fruit cups (15) ○ Danino drink containers (15) ○ Big yogurt containers (15) 	<ul style="list-style-type: none"> ○ Juice boxes (15) ○ Milk/ juice cartons (15) ○ Plastic juice bottles (15) ○ Soda cans (15) ○ Assorted garbage
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Description:

1. Ask participants to share what they know about recycling.
2. Hold up some examples of items that will be used in this activity and ask participants to state how they should be sorted. Some garbage is also used to show what should not be recycled.
3. Remind participants of the different items made of recycled materials (like polar fleece, etc.) that they had just seen in the recycling center. Explain that in order to make those items, they need to sort out our recyclables into specific types of plastics and metals. For example, only green soda bottles can be made into green shirts.
4. Explain that they will play a game where they will practice this process of further sorting recyclables so they can be made into separate types of new things.
5. Participants will sort materials into the baskets that are provided. There will be enough roles to enable a class of up to 25 to all be engaged in the process simultaneously.
 - a. 1 or 2 participants are responsible for loading the mixed plastics onto the "conveyor belt".
 - b. Up to 10 participants act as the conveyor belt. They do this by standing in one long line, holding trays with things to be sorted and walking down the line. When they reach the end of the line, they dump what is left on their tray in a garbage bag and run to the back of the line.
 - c. Up to 10 participants are "sorters". They stand facing the "conveyor belt." Each sorter is assigned a specific type of recyclable to sort. As the objects come down the conveyor belt, they collect their specific type of plastic in their sorting bucket.
 - d. At the end of the conveyor belt, one participant is responsible for collecting all of the un-sorted objects into a plastic garbage bag.



6. Demonstration and explanation:
 - a. First assign the people to the conveyor belt. Have them stand in a line with their trays and practice walking down the line and returning to the front. Have them practice making “conveyor belt” noises.
 - b. Next, assign 2 people to load the trays with recyclables.
 - c. Next, assign the sorters. Have them practice by putting a couple things down the conveyor.
 - d. Finally, assign the “garbage man” at the end of the line to collect the garbage.
7. If the game seems to be going too quickly, these collected items can go back to the front to be sorted again.
8. As objects that have not been collected or that are not assigned to a participant reach the end of the conveyor belt, they are collected into a clear garbage bag.
9. Run the activity and after a short while, stop everyone. Make any relevant observations or ask questions briefly about how the conveyor belt is working.
10. Switch roles and restart the conveyor belt so everyone ends up doing two different roles.
11. Stop the activity. For the following debriefing questions, make sure the participants are in a position to all hear and be able to respond. A large circle for the discussion is recommended. Debriefing questions:
 - a. What happened to the items that got sorted
 - b. What happened to the items that didn’t get sorted?
 - c. Are there items in the garbage that could have been sorted? Why did they get there?
 - d. How is this game like what happens in real life? (Explain idea that if people do not sort at home, then things that could be saved are lost)
12. At the end of the activity, the participants receive the **Recycle** puzzle piece because they learned the importance of reducing the amount of garbage they send to the landfill.

6. Recycling Sequence Puzzles

Goals: For participants to:

- Understand the process and steps of recycling items to make new materials

Location: On grass outside the main office.

Props: Multiple sets of sequence picture cards, Items made from recycled materials

1. Split into three groups. Each leader explains that the materials that come for recycling are made into new materials through a series of steps. Hold up a card with one thing that is remade (for example a t shirt comes from old pop bottles). Then show the group a picture card of a pop bottle. Then given them pictures of the steps that are between the pop bottle and the t shirt and have them decide what is the proper order.
2. Each group does multiple sequencing challenges depending on the number of available cards.
3. At the end of the activity, hold up some of the real examples of things made from recycled materials and have the kids answer what the original item was.
4. The participants receive the **Recycle** puzzle piece because they learned the importance of recycling the right way

7. Reusing Waste Items (25 minutes)

Goals: For participants to:

- Appreciate that the Re-Sale Shop allows things to be reused that were considered waste.
- Creatively design a new object out of re-claimed and natural materials.
- Brainstorm and think critically about how to practice the concepts learned on this field trip at home and in school.

Location: At the reuse center and the outdoor classroom or the board room if weather is poor.

Materials:

- 20-25 milk or juice cartons cut in half
- Composted soil & crunched leaves from Nature's Recycle Depot
- Seeds
- Materials to decorate the cartons
 - Paper cut to size of side of milk carton
 - Tape
 - Crayons

Description:

1. After an explanation of the Re-Sale shop and a brief tour, the participants re-locate to the outdoor area or the board room upstairs (locale depends on the weather).
2. Participants make a craft using provided re-claimed materials with the guidance of the leader(s).
 - a. Each participant is given a sheet of paper and asked to come up with one simple step they can do to reduce their environmental impact in their life (help them with ideas as need be). They then draw a picture of this step they will do and write their name on it.
 - b. They each then tape the sheet securely on the bottom half of a 2 litre milk carton
 - c. With the help of a leader, they fill their carton with soil and plant a seed (the type of seed will depend on availability and time of year). Participants are encouraged to incorporate the crunched leaves from the Nature's Recycle Depot activity.
3. At the end of this activity, the participants receive the **Re-Imagine** from the leaders puzzle piece to complete the mural because they used their creativity and problem solving skills to re-imagine previously wasted materials for further use.

8. Debriefing Activity (10 minutes)

Goals: For participants to:

- Connect knowledge of all of the different concepts they learned throughout the field trip for a deeper understanding of waste management and its impact on the Earth.
- Understand the importance of sharing their knowledge with others to ensure a positive future for the Earth.

Location: At outdoor classroom outside the main office building, or in the board room in poor weather.

- Materials:*
- Vortex costume: suit, helmet, gloves, boots
 - Mural
 - All 4 puzzle pieces

Description:

1. Vortex returns and the participants show him/her their new puzzle pieces and explain what they learned. As the participants give the puzzle pieces to Vortex, he/she asks them to explain what each means.
2. Vortex places each puzzle piece on the mural, finding that one is missing.
3. Vortex then asks the participants what else could possibly be necessary to add to the three words "Respect" "Reduce" "Recycle" and "Reuse" to ensure a better future.
4. If the participants are having trouble with this, Vortex can help by giving prompts or asking probing questions. An example of this could be, "How can we help other people to do all of these wonderful things that you learned today, too?" or "What can we do to help others learn what we've learned today?"
5. Eventually, the participants come to the conclusion that they must **Relay** or share the things they have learned to help create a healthier Earth in the future. Vortex provides them with this last puzzle piece and explains that they will be relaying their experiences to their families and friends.
6. As Vortex puts the last puzzle piece in the mural, the students are directed to close their eyes and imagine what their future may look like once these changes are made. During this time the mural is flipped to the other side, exposing a much more optimistic future. The participants will then open their eyes and see the new potential future including the four words/pieces in it.
7. Vortex thanks the participants for all that they have done and reminds them to continue practicing their action step and all of the other things that they learned on this field trip.

Appendix A: Notice of Potential Hazards and Safety Precautions

To whom it may concern,

There are some potential hazards involved with visiting the Valley Waste Resource Management facility for the Planet Protectors field trip. A list of these hazards can be found below. It should be noted, however, that appropriate safety precautions have been taken to mitigate risk.

During this field trip, the potential hazards that participants will be exposed to include:

- Walking beside and crossing roads within the facility
- Active playing in a wooded area
- Possibly exposure to heavy machinery working in the vicinity

The following safety precautions have been taken in order to reduce danger related to these hazards:

- Appropriate clothing (weather-appropriate layers, closed toed shoes) is required
- Movement about the facility will take place in a single-file line. Leaders and chaperones will lead and follow the group to ensure all participants stay together
- When crossing roads, leaders will act as crossing guards to stop all traffic
- The group will travel on paths away from the roads whenever possible.
- Participants are only permitted in certain areas of the facility, keeping them away from direct contact with all machinery
- Thorough supervision throughout the entirety of the trip

If you have any additional concerns, please contact your teacher.

Appendix B: Field Trip Packing List

All participants that intend to participate in the Planet Protectors field trip are required to bring all of the items listed below. If, for any reason, this is not possible, please speak with your teacher before the date of the field trip.

All participants must bring:

- Sturdy, closed-toed boots or shoes
- Clothes that may get wet or dirty
- Weather-appropriate attire (extra layer, rain jacket, etc.)
- Bag lunch and snack

Appendix C: Planet Protector I.D. Badges

