

IV. THE MATERIAL DEVELOPMENT 1995

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Recycling Now

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Introduction

We developed this teaching material as development material for when the students in the 4th grade study the teaching topic "Rubbish and Our Lives" during the social studies lessons.

The 4th graders have to learn that collecting and disposing of rubbish is necessary as we change our way of living. They will find some good ideas and will hopefully make efforts in learning that topic. Specifically, through interviewing their family, neighbors and the workers in the cleaning facilities, they have taken the problems of collecting and disposing of rubbish into their own lives. Also they have discussed the good ways of reducing rubbish and learned the importance of recycling. From the stand-point of environmental preservation and making much of the natural resources of the earth, recycling is needed and some communities are proceeding eagerly. We hope this material will help them to start thinking about recycling as citizens.

Therefor we edited it for the students to form their own ideas after learning the teaching topic.

We, of course, think it is useful for the 5th to 9th graders to understand the daily lives in the USA as a international understanding material.

In order to be understood easily, we made the material into a story where a Japanese girl named 'Miyo-chan' is traveling around the USA. You will find some difficult terms, but we don't think they are beyond their understanding because they have already learned about rubbish and recycling through their textbooks.

We hope the students will learn that recycling is very useful for environmental preservation. We believe firmly that they will realize the necessity of taking action and co-operating to make their lives more comfortable.

We researched in only a part of the USA. The systems of disposing rubbish depend on the individual community in Japan. The same goes for the USA. There are different problems according to the areas because of the large size of the land. We hope you treat the material not as a typical one but as just a story.

Recycling Now

Miyo-chan is in the 9th grade. She is a very curious girl and her favorite subject is social studies. She took a trip to the USA with her family during summer vacation. She is going to stay a few days with her father's sister (her aunt) in Greenville, North Carolina.

After enjoying her dinner, Miyo-chan helped her aunt with cleaning the dishes. She found her aunt was putting garbage into the hole in the sink.

Miyo-chan: Will the hole be clogged by doing that?

Aunt: That's O.K. The disposer will be all right.

Miyo-chan: What is a diposer, aunt?

Aunt: Oh, you seldom see it in Japan. It is your first time to see it, isn't it? Then I'll show you how to use it.



the entrance of a diposer



a machine under the sink

Q1 Do you know what a disposer is?
Think about it by looking at the
photo.

Miyo-chan: It looks very convenient but
I'm afraid water will get
dirty... How do you dispose
of other rubbish?

Aunt: We stock our rubbish here.



Miyo-chan: When it is full, do you carry the plastic bag to the rubbish-collecting spot?

Aunt: No, we don't. We stock rubbish in the big plastic box and take it once a week.

✕ Miyo-chan went to see the box in back yard with her aunt guiding.

Miyo-chan: We see two different types of boxes. Do you sort rubbish?

Aunt: That's right. In Japan, you sort garbage, cans, and bottles. We do it the same way.

Miyo-chan: Garbage doesn't stink so bad as in Japan.

Q2 Why doesn't it stink? Make a guess what kind of rubbish is in the boxes.

Miyo-chan: Aunt, what is the mark on the other box?

Aunt: Oh, it is a mark of recycling. Greenville city gives stickers to us. It asks us to put them on the plastic boxes.

Miyo-chan: What do you mean by recycling?



Small Talk by Aunt

- ◎ Recycling ~ reducing and utilizing the used goods again as resources, not disposing of them as rubbish
- ◎ Recycled rubbish in Japan ~ cans, bottles, cardboard, newspaper, magazines
- ◎ Merits of recycling
 - ① Recycling helps reducing rubbish.
 - ② Recycling preserves environment.
 - ③ Recycling keeps out the wasting limited natural resources and energy.


Q3 Greenville city gives the recycling mark stickers to each house. How do you use them?

Miyo-chan: You take the rubbish out on the fixed day, don't you? I guess you take rubbish packed in cardboard boxes or bring plastic bags to the rubbish collecting spot in the area.


Aunt: No, we don't. You can see a container with wheels. When you take it to the front porch of our house, a garbage man will take it away. Oh, it is the recyclable rubbish day today. Let's go and see how the garbage pick-up truck works.

CONTAINER OPTIONS


We recommend that many of you bring separate plastic recycling bins. If you have more space than the bin can hold, here are some other options:



SMALL REUSABLE CONTAINERS:
Cardboard and plastic milk cartons and juice boxes can be used to hold glass, plastic, and metal. Do not use a milk carton without using paper bags. Do not use a milk carton if it is full of milk. Do not use a milk carton if it is full of milk.



CORRUGATED BOXES:
Stacked flat, 18 gallons in size may be used to hold glass, plastic, and metal. Do not use a box that is full of glass, plastic, and metal. Do not use a box that is full of glass, plastic, and metal.



LARGE REUSABLE CONTAINERS:
Temporary large milk, 18 gallons in size may be used to hold glass, plastic, and metal. Do not use a container that is full of glass, plastic, and metal. Do not use a container that is full of glass, plastic, and metal.

RECYCLING CREDIT

The city will give you a recycling credit for every 100 pounds of recyclable material you bring to the recycling center. The credit will be given to you in the form of a check. The credit will be given to you in the form of a check.

1995 RECYCLING CALENDAR

Monday

Recycling Schedule

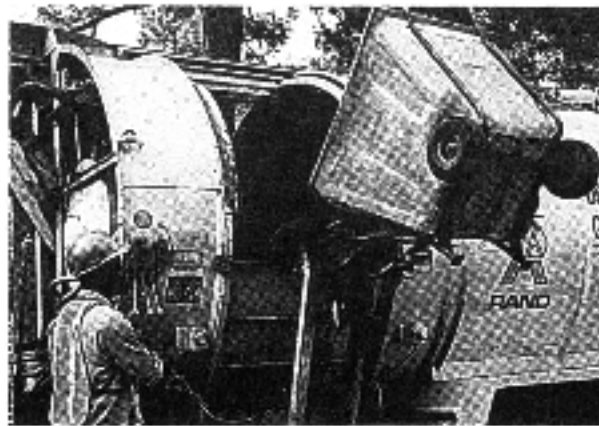
| | | | |
|--------------|----|----|----|
| January | 31 | 18 | 20 |
| February | 13 | 27 | |
| March | 13 | 27 | |
| April | 10 | 24 | |
| May | 8 | 22 | |
| June | 5 | 19 | |
| July | 3 | 17 | 31 |
| August | 14 | 28 | |
| September | 11 | 25 | |
| October | 9 | 23 | |
| November | 6 | 20 | |
| December | 4 | 18 | |
| January '96 | 2 | 16 | 30 |
| February '96 | 12 | 26 | |

QUESTIONS?

Call Greenville Solid Waste and Recycling at 623-1810.

recycling calendar

✕ The next day, a garbage pick-up truck in Greenville came in front of the two, Miyo-chan and her aunt, who were waiting.



Q4 You will find slightly different ways of doing it from Japan. Let's write the different points down.

The next house doesn't carry the container to the front porch. The worker went into the back porch using the cart with two wheels. After a while, he came back to the truck with rubbish. Miyo-chan asked him a question.

Miyo-chan: Why do you go into the back yard? Isn't it a rule that we take it to the front porch? They are doing against the rule. Why don't you leave it?

Worker: Well, the rule is different from what you think. Not only you but also many people don't want their rubbish be seen by other people. So you cannot take it from the front porch. In addition to that, it is a kind of city service for us to go into the back porch.

Miyo-chan: I understand. But it will take much time to do such troublesome work. How many houses do you go a day?

Worker: About 300 houses.

Miyo-chan: And I guess there are some houses where you can't go. How do they dispose of their rubbish? Do they burn or bury it?

Worker: They don't do it. The city built recycling centers where garbage pick-up trucks can't collect. The people take their rubbish there by car. Also those who forget to put it on the front porch can go recycling centers with their rubbish.

Aunt: Miyo-chan, I left some newspapers in my car. Let's take them to the recycling center now. Get in my car.

✕ Miyo-chan went to the recycling center with her aunt.



a rubbish collecting spot in Japan



a recycling center in Greenville

Q5 You see the different ways of carrying the rubbish between Japan and the USA. See the photos above and say the differences.

Small Talk by Aunt

Recycling Center

In Japan, the citizens bring the different types of rubbish to the rubbish collecting spot depending on the day. On the other hand, here in Greenville, you will see different kinds of containers for the different kinds of rubbish. Whenever we want to take it, we do it by car. It is very convenient. There is one supervisor.

As follows, you will see a big container for large-sized rubbish, a tank for used oil and a box for the used eyeglasses (those who want to take them can).



Miyo-chan: I understand how each house disposes of rubbish, aunt. But where does rubbish from houses go next? Is garbage burned or not?

Aunt: O.K. I'll be off tomorrow. Let's go and see how rubbish from homes is disposed of next. I'll ask one of my friends who is working for the city office.

✕ The next day, Miyo-chan and her aunt went to see some places.

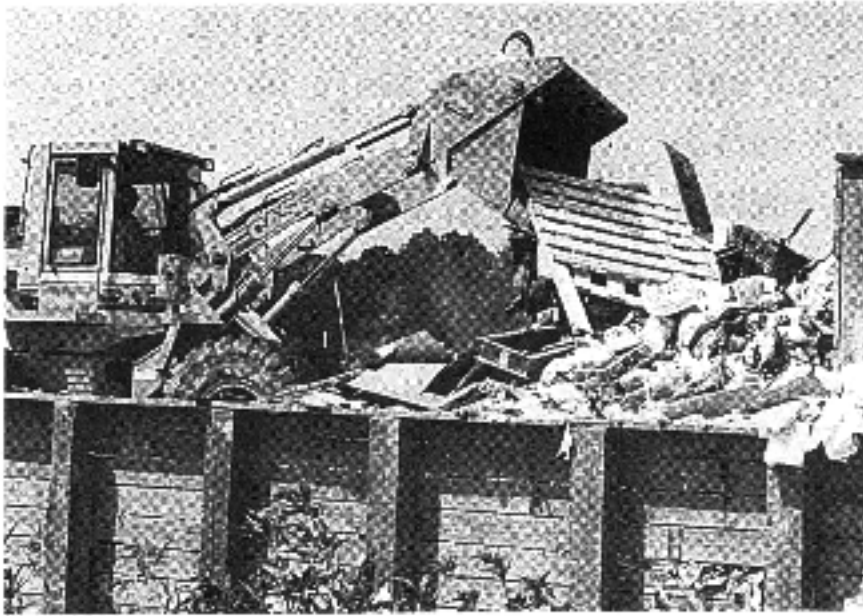
garbage

Miyo-chan: Garbage is buried, isn't it? Garbage is piled up on the flatland, not in the valley. Right?

Aunt: Right. You don't see any mountains around here. It is natural to do it on the flatland.

Miyo-chan: Garbage doesn't seem to be wet compared to that in Japan. Why isn't it burned in Greenville?

Q6 Think about the question from Miyo-chan.

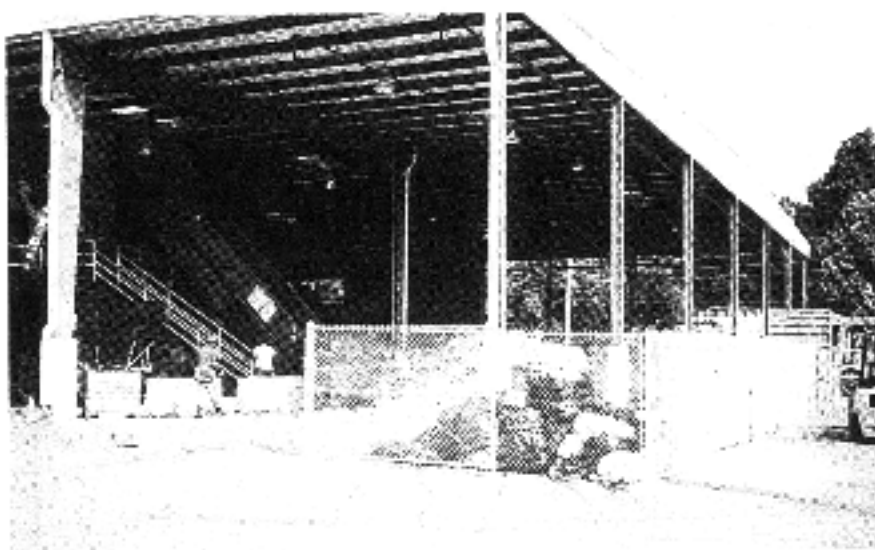


a rubbish landfill

Aunt: They say that when the landfill is full, they don't reuse the land and just leave it. What a waste! As in Japan, Greenville city worries about the shortage of landfill land. So it started systems for recycling four or five years ago.

Miyo-chan: Really? The same thing happened as in Japan. I suppose it would be easy to find a place to build a new landfill, because the USA is a huge country. I don't know that.

disposing of recyclables



Aunt: This is ECVC. This is a rubbish disposing place which the city supported to build about four years ago. Recyclables, cans, bottles,

magazines, papers, cardboards and so on are collected and sorted here. The numbers of workers here is 32 and 27 of them are handicapped people. They are working for their independence. It is very important for them to participate actively in society.

Miyo-chan: They are sorting rubbish carried by the conveyor belt by hand. Do you see they are doing it very fast and correctly. Where do cans, bottles and papers sorted here go next?

Aunt: They are sold by the recycling companies. The aluminum cans are recycled into aluminum cans again. You see some bundles of paper for computers over there. I have heard that they are sold to Japan and made into toilet paper.

Miyo-chan: It is a pity for them to be put away after using it because all of them are limited natural resources. We would like to make good use of them. Recycling is a very important activity but are there any problems?

Aunt: Oh, that's a good question. I'll give you one example. EC VC is collecting only pet-bottles among the products made from oil. They don't collect styrofoam and trays.

Miyo-chan: Then I wonder how are they disposed of? I understand. I have seen some trays at the landfill.



rubbish of papers

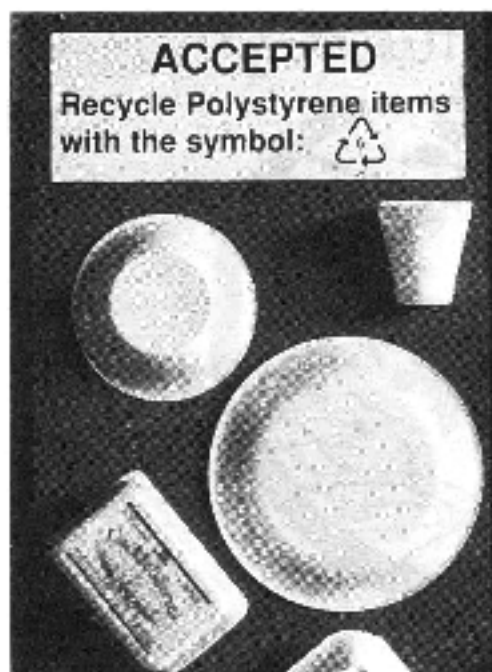


pet-bottles

Small Talk by Aunt

You will see a different number on the oil products (trays). The oil products contain different amounts of oil in them. When they collect them, they collect them by number. Check what number is on the trays around you.

We have two types of oil products, one is recyclable and another is not.



The reasons why these products can not be recycled are technical difficulties or when it is O.K., it takes much money to recycle.

For one example, pet-bottles can be recycled and made into carpets in the USA.

✕ those who support recycling activities voluntarily

Miyo-chan: I've learned the city supports recycling strongly. I hope citizens will have a higher consciousness about rubbish recycling.

Aunt: I hope so, too. The worker for the garbage pick-up truck we saw yesterday said that he was very happy to see many people in Greenville co-operate in sorting rubbish. I know a volunteer who supports recycling rubbish in our community. I'll let you talk to her.

A talk by Mrs. Ponder

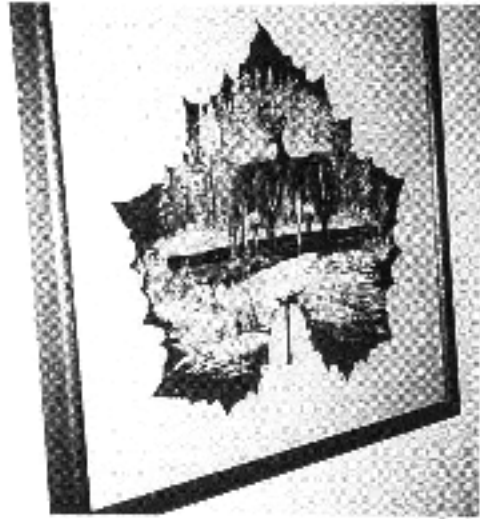
In order to extend our recycling activity, the Federal Government made leaflets for students for understanding recycling. When requested, it sends free video tapes to anywhere. Also it made a guideline for teachers to teach recycling at schools.

Our volunteer group will go and talk about the necessity of recycling when requested to from churches or companies.

At school students have a chance to study recycling during the lessons of not only social studies but also many subjects like science. Sometimes we give teachers some advice or talk with students directly.

We find some rubbish which can be used again. We reuse them as they are and make some decorations. We hold 'The Unnatural Resource Festival' regularly. We exhibit many kinds of decorations reused by students and adults. We hope

the citizens will have a higher consciousness for recycling.



some goods reused from rubbish

Small Talk by Aunt

Adopt a Way

There some sign boards which say 'Adopt a Way' standing along the roads in Pitt County . Greenville. This is not one of the recycling activities. The boards say that they will clean the roads individually or by groups from the stand-point of environmental preservation.

Those who declare clean 2 miles of roads around the sign board four times a year.

Recycling at a farm

This is not a volunteer but a farmer who is tackling recycling at a farm



a declaration board



His name is J. Storey and he has about 200,000 chickens. He is making fertilizer from the large amount of chicken waste, peanut shells -which are grown in the farm- and wood chips. The fertilizer he is making covers more than about 1000 acres of farm. He doesn't use chemical fertilizer at all. It is said organic farming needs more work to do, but in this case only his family controls the big farm by computers and technology.

Miyo-chan is hearing from her aunt about the volunteer activities over a cola and a hamburger. When she sees some paper cups or papers in the dust box, she has another question.

Miyo-chan: I understand how the rubbish from houses is disposed of but how about the fast food restaurants like this? Will a city pick-up truck come and collect it?

Aunt: The same thing happens as in Japan. The private garbage companies collect rubbish from companies and shops. It costs money. You are going to go to Minneapolis tomorrow, aren't you? There is the largest mall in the USA called 'Mall of America' Why don't you ask your family to let you see how the rubbish is collect and disposed of there.

Miyo-chan went to 'Mall of America' in Minnesota with her father.

She was very surprised to see the big scale of the mall. To her surprise, she found an amusement park inside the mall. She worried about the large quantity of rubbish from here every day. She is taught that they can't sell something to drink in cans.

There are some different rubbish boxes depending on its kind. Many posters ask the customers to sort rubbish when they put it away. A lot of people co-operate sorting rubbish into the boxes.

Miyo-chan asked a clerk to guide her in the underground of the mall. To her surprise again, she saw all of the basement is a rubbish collecting place.



It is so large. All rubbish from 'Mall of America' is collected here and sorted into the different big containers.

Miyo-chan: This is a very large collecting place, isn't it, Father? Are those who are working here employees of the mall?

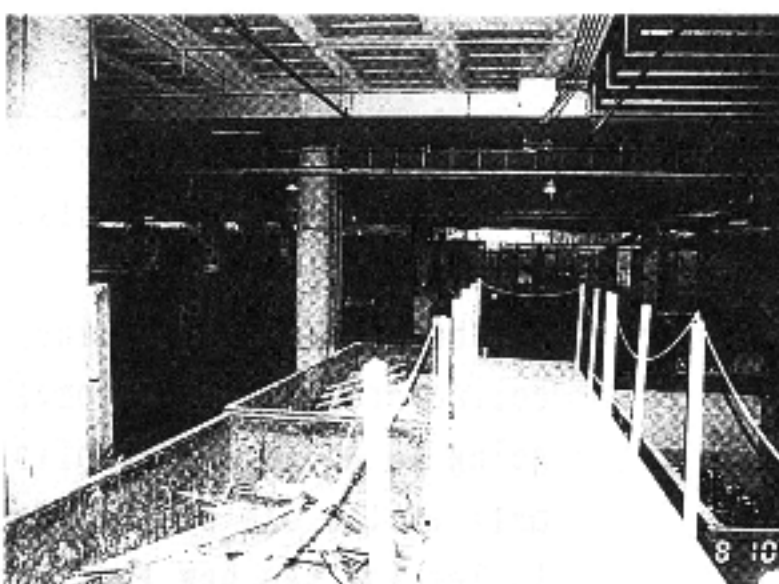
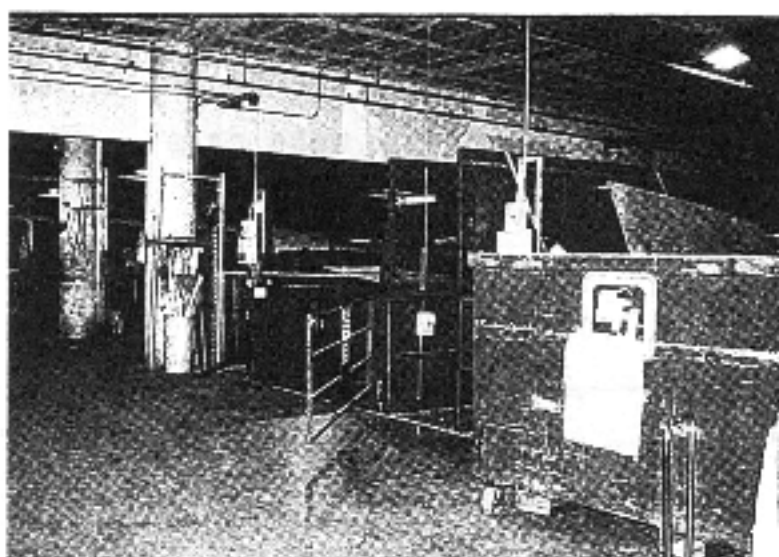
Father: No, they aren't. They are the workers of private rubbish company BFI. The company is all over the USA. It is taking charge of disposing of rubbish from shops and companies.

Miyo-chan: Where does the rubbish from here go next?

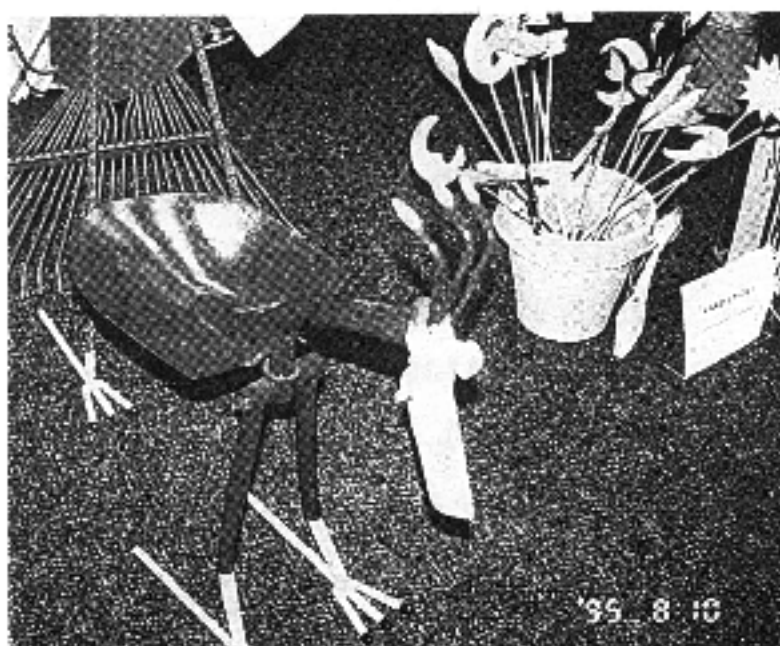
Father: They go to BFI and are recycled in the same way you saw as in Greenville.

Miyo-chan: Then how do they dispose of non-recyclables? Do they bury them as in Greenville?

Father: Probably yes, I guess. By the way, I've just heard from the clerk that BFI opened the shop where reproduced goods are sold in the mall. Its name is 'Recycle Shop Now'. Let's go and see it.



rubbish collecting place underground



Q7 After looking at the recycling shop and the goods sold there, how do you think about it? Write down your impressions.

✕ disposing of garbage

Miyo-chan: Father, garbage is buried in Greenville. How about it here? Is it burned or used for something?

Father: When it is burned, it give off harmful gases. I have never heard garbage is being burned. But there is one factory which makes use of garbage and makes fuel that is burned for electric generation. Let's go and see the factory.

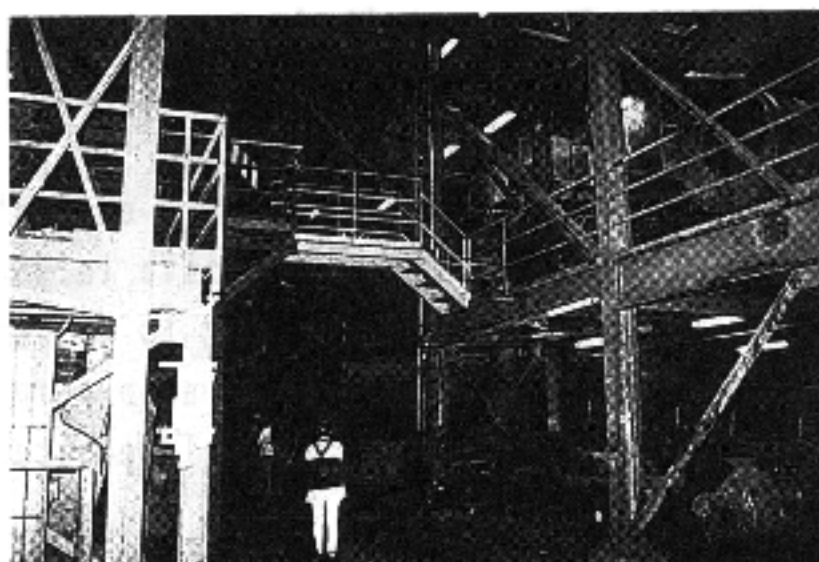
Resource Recovery (a factory makes fuel from garbage)

The company is established from both private and public sources. Only the burnable garbage is taken out of the mixed garbage by automation and made into fuel for electric generation.

The fuel has less calories than coal but it is worth-while for being used for electricity. It gives off harmless gases and it doesn't stink so much because garbage is dry, on the other hand it is wet in Japan. After spreading the disposers in Japan, such a factory would be built in Japan, too.

The purpose of building the company is not for money but for solving the shortage of landfill land. It is a very serious problem.

Therefore the final goal of the



fuel made from garbage

company is 'not to send garbage to the landfills'.

※ on the plane to Japan (conversation with Miyo-chan and her father)

Father: You didn't go sight-seeing during the stay in the USA, did you?
You became a specialist of rubbish.

Miyo-chan: No, but I will have another chance to go sight-seeing. I'm very
glad to have visited many unique places. It gave me a good experience.

Father: What did you learn from researching disposing of rubbish?

Miyo-chan: Well, first, I've learned that the reason why the USA started
recycling is shortage of landfills. Even a large country is worried
about the same problem as in Japan. The other day, I took a
look at the video by a volunteer supporting recycling. An interviewer
asked some people what they thought if a new landfill would be built
near-by.

Father: And what were their answers?

Miyo-chan: They said 'No.'

Father: Everyone knows the necessity of building it, but when the decision
is made, they say no. It is the same thing as in Japan, too.

Miyo-chan: Next, Japanese people entrust this matter to the city or the town.
They don't want to solve this problem by themselves. I saw many
Americans were trying to do something for recycling actively. Not
only individuals but also companies and volunteers want to make much
of the limited natural resources and preserve the environment of the
earth.

Father: The communities or schools don't collect used cans or clean the
roads by group. But as for individuals, they do it voluntarily. I
can't say which is better but I feel the Americans do it not by force
but of their own will. This is an American way of doing it.

Miyo-chan: I visited a Japanese rubbish facility when I was in the fourth grade.
I think it is as far ahead as in the USA. The most important thing is
when we have good facilities or machines, we have to make use of it
with the co-operation from the people. For example, I hope they will
have more consciousness for rubbish and sorting rubbish from houses
neatly.

Father: Yes, exactly. When mixed, it is rubbish, but when sorted it is a
resource. The recycling law is ready in Japan and will be carried
out in 1997. Both people and companies have to solve the problem
through co-operation.

Miyo-chan: Lastly, I wonder the Americans don't seem to think about reducing rubbish when it comes to the rubbish problem. But the Japanese do.

Father: I don't know that problem. But the only thing I can say is I had few chances to see over-wrapping.

SUPPYMENTAL MATERIALS (Q and A)

Q1 Do you know what a disposer is? Think about it by watching the photo.

The machine is settled under the sink, and it is a machine to crush the garbage coming out of the kitchen and send it to the sewer. Most of the American houses have a disposer.

Q2 Why doesn't it stink? Make a guess what kind of rubbish is in the boxes.

As the report said before, most American houses have disposers and the rubbish in the boxes is dry and it doesn't stink. Wet waste, garbage is crushed into pieces and sent to sewer.

The kind of rubbish in the boxes are papers, plastics and trays.

Q3 Greenville city gives the recycling mark stickers to each house. How do you use them?

Greenville city delivered them to raise the citizens consciousness for recycling. It is easy to find the recyclable containers with stickers. This helps the people to sort recyclables and non-recyclables at home.

Q4 You will find slightly different ways of doing it from Japan. Let's write the different points down.

In Japan, garbage collectors throw the big plastic bags into the pick-up trucks by their hands one by one. The bags are collected in one fixed place depending on its area. But in Greenville the collectors go into the houses directory. They take rubbish out of the containers at home and put it in the carts with two wheels. The pick-up trucks carry the carts automatically.

Q5 You see the different ways of carrying the rubbish between Japan and the USA. See the photos above and say the differences.

The Japanese put rubbish into the plastic bags and strap them. On the other hand, rubbish in the USA is carried to the recycling center directly, not in bags. In addition to this, different kinds of rubbish is carried to the different places.

Q6 Think about the questions from Miyo-chan.

When it is burned, it gives us harmful gases and it costs much money to build such facilities. It costs less to bury it. Therefore most non-recyclables are buried in the landfills in the USA.

Q7 After looking at the recycling shop and the goods sold there, what do you think about it? Write down your impressions.

First, I was surprised at the many kinds of goods sold here. Among them, I don't see they are made from recyclables. I found some goods reborn into household goods from some parts of used items.