

# Kids

# IS



# 14000



## Introductory Level



Date of Submission to School

month      day      , year

School Name

Grade

Class

Full name

Total number  
in family household

# What is going on the Earth?

Don't you feel that something is wrong with the Earth we live on?



Sometimes, you may feel not good with your body.

At such a time, you take your temperature, and find it's over 37 degrees Centigrade, higher than the usual 36.5. It's half a degree over normal. Soon, you get chills, a headache, you feel sick, and maybe you feel nauseous. From these symptoms, you understand that, "I caught a cold." Then, you take appropriate care.

The same thing is happening now with the Earth. As you are already feeling, "Something isn't quite normal. Something bad is happening." Yes. Your "sense" is right. Doctors for the Earth find "sickness" is starting. You have to start to find what is making the Earth sick and take care of it immediately.





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# Kids' ISO 14000 Programme

## What is “ISO” ?

“ISO” is the international standards for many industrial products and management methods. One easy example is the sensitivity of the camera film.

ISO14001 is a standard for environmental management. Many countries apply this system to their environmental policy.

Now a day, many of governments and industries are required to obtain certification of ISO14001 or local environmental management system as members of the society.

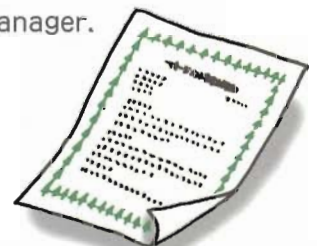
## Kids' ISO 14000 Programme

“Kids' ISO 14000 Programme” is an Environmental Education Program System. It is based on the method of ISO 14001 on energy saving and household recycling in the home. The leaders of this program is “you”!, children, themselves, **so, you should take the initiative.**

## Operations on Energy Saving and Recycling

In the energy saving operation, children work to reduce electricity and gas consumption in their home. Saving water is also important work for reduction of energy and water consumption, since it requires energy to clean up the contaminated water. It is important to reduce garbage, and re-use them or recycle. The objective of operation of energy saving and recycling is to learn the methods for environmental management of your home.

After you are finished working on this workbook, ArTech will evaluate your work from the workbook and return evaluation sheets to each of you to show your contribution to the environment and your leadership ability as an environmental manager.

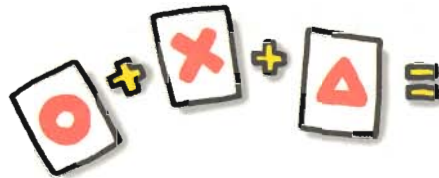


## 6 steps of Operation

- 1 Reference:** Record the energy consumption in your daily life for one week: electricity, gas, water and garbage. This will become a comparison for later.



- 2 Action:** Evaluate and review your families daily energy consumption as well as water and garbage.



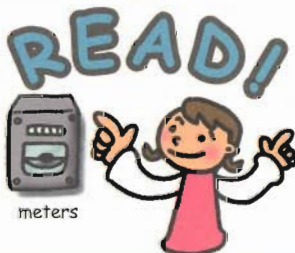
- 3 Plan:** Now, you discuss with your family what to do to save energy, water and waste. Write up what you decide to do.



- 4 Do:** Now put your plan into action!



- 5** Record a second set of data - just like you did for **1**!



- 6 Check:** Evaluate items in the list for each operation again. Now, compare the second data set to the first data set.

# Check your present life style by the data

## Before you plan the operation

Let's record data on how much energy and water and you are spending and how much garbage you are making in the first week! This data becomes important to find your efforts, later. Act as usual to find your true energy spending habits!

## How to take data, and how to make data estimation

### Setup the time to read the meters

Let's choose an easy time to remember when to record your data - 7am? 9pm?

### Read the meters, and record on the data sheet

The meters look like those on page 5.

Find the location of the meters,

and take data from the reading of the meters.

Write the reading on the sheet as the record.



### Example

August	5	6	7	8	9	10	11	12
	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Meter Readings	5040 kWh	5064 kWh	5086 kWh	5114 kWh	5140 kWh	5165 kWh	5197 kWh	5227 kWh
Daily Use	24 kWh	22 kWh	28 kWh	26 kWh	25 kWh	32 kWh	30 kWh	—

### How to calculate the daily energy consumption amount

The difference between the data of the day and the next day is the data of the daily use.

**Example**  
(for electricity)

$$\begin{array}{|c|} \hline \text{Monday} \\ \hline 5064 \\ \hline \text{kWh} \\ \hline \end{array}
 -
 \begin{array}{|c|} \hline \text{Sunday} \\ \hline 5040 \\ \hline \text{kWh} \\ \hline \end{array}
 =
 \begin{array}{|c|} \hline \text{consumption} \\ \hline 24 \\ \hline \text{kWh} \\ \hline \end{array}$$



## What if you can't record data that day?

You may have a day when you cannot take data, because, you are travelling or you are sick!. In this case, you can get the daily use from averaging two days of reading.

**Example**  
(for electricity)

$$\left( \begin{array}{c} \text{Thursday} \\ 5140 \\ \text{kWh} \end{array} - \begin{array}{c} \text{Tuesday} \\ 5086 \\ \text{kWh} \end{array} \right) \div 2 = \begin{array}{c} \text{daily usage} \\ 27 \\ \text{kWh} \end{array}$$

## How do you measure the garbage

The day of garbage collection is different in every city. Please, check garbage collection day. The amount of the garbage can be measured on a scale or it may be easier (but less effective) to count the number of garbage bags.



## Where are the meters?

### Electricity

You can easily find the electricity meter near the entrance hall or kitchen.



Read this number

### Water

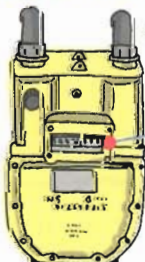
You can easily find this kind of meter at beside the entrance or in the outside of your house.



Read this number

### Gas

First, please, check whether gas in your home is City gas or Liquefied Petroleum gas. Is your gas meter on your house or apartment? For apartment gas meters see if you can find out the average use per apartment in your building.



In case of City gas,

Read this number



In case of LP' gas,

Read this number

# Recording on usual daily usage of

After reading page 4-5, Let's record your data!

 Energy use (before the operation) .....

Electricity 

Month / Day	/	/	/	/	/	/	/	/
Week								
Meter Reading	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh
Daily usage	kWh	kWh	kWh	kWh	kWh	kWh	kWh	_____

Gas 

(check your gas : 1. City gas, 2. Liquid Propain gas)

Month / Day	/	/	/	/	/	/	/	/
Week								
Meter Reading	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>
Daily usage	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	_____



# energy, water and garbage.



## Water use (before the operation) .....

Water 

Month / Day	/	/	/	/	/	/	/	/
Week								
Meter Reading	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>
Daily usage	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	—

## Garbage(before the operation) .....

Garbage(Burnable waste) 

Month / Day	/	/	/	/	/	/	/
Week							
Number Of bags							
Weight	kg	kg	kg	kg	kg	kg	kg

# Does the Earth ha

You may already know that something is wrong with the earth. You may even feel it! In fact, you are right. The doctors for the Earth measure the temperature of the earth, and found that the earth has a fever!

This fever is called "**Global Warming**". The temperature of the earth has actually risen half a degree (C) in the last 100 years. This is about the same as the fever of our body we mentioned before. The doctors of the Earth are predicting that by the time you all reach your 60 years old in the middle of the 21st century, the Earth's temperature will have risen by another degree. It won't stop there unless we do something. It is said that **by the year 2100, it will rise by two degrees**. You should not take it as "That's just two degrees." It would be as serious as if your body temperatures rose a full two degrees (C).

The first thing that happens when the Earth's temperature rises is that the ice cap on the South Pole melts, filling the oceans with new water, and leading to a rising sea level. Some scientists are projecting that **by the year 2050, sea levels will rise by two meters**. Several major cities, such as New York and London, will vanish under the water. The United Nations has already begun debating how to help people who will lose their homes due to the flooding caused by global warming.

As global warming proceeds, more and more water will evaporate into the atmosphere, and the land will become dry. And gradually it will turn into desert. The amount of green land will slowly but surely decrease.

In addition, the cold zones will become warmer, and vegetation will grow more quickly. It may seem like an even deal, with the warm areas turning to desert, and the cold regions becoming fertile, but it is predicted that the effect will be negative.

Also, as an effect of global warming, **diseases specific to tropical regions will increasingly spread across the globe**.

And more than anything else, the atmospheric circulation will become unstable, thunderstorms and heavy rain will intensify, the top soil will be washed away, and arable land will disappear. Ninety percent of the food we eat comes from the land, so if arable land is lost, **food will become scarce, and starvation will spread**.



# ve a Fever?

The cause for this **global warming** can be found in us, human beings, as we have made our lives more convenient. Today in Japan, half of our electricity comes from burning petroleum. So when you use electricity in your homes, carbon dioxide is released into the atmosphere. And just as you get warm when you put a blanket over your body, this carbon dioxide acts like a blanket in the atmosphere. **The amount of carbon dioxide in the atmosphere today is one and a half times what it was a century ago.**

It is almost impossible to find petroleum in Japan, so we import huge amounts of oil. But it is said that **the world's supply of importable oil will dry up in 40 years.** Of course, several sources of fuel have been proposed as alternatives, but there is nothing certain yet.

The countries called the "developed countries" only hold a small portion of the world's population, but they use the majority of the world's energy. Each person in developed country uses **more than five times the energy used by each person living in developing countries such as China.** But someday, the people in those countries will use the same amount of energy as developed country people do now. The population in the developing countries is larger, so the amount of energy they will use will be tremendous. The Earth's illness will worsen!

Unless we all work together to save resources, we will not be able to prevent either global warming or energy shortages.



**Operation 1:**

# Energy Saving Operation for Electricity



## Check Sheet for Analysis for my family's daily energy consumption

Yes **2**points   
  More or Less **1**points   
  No **0**point

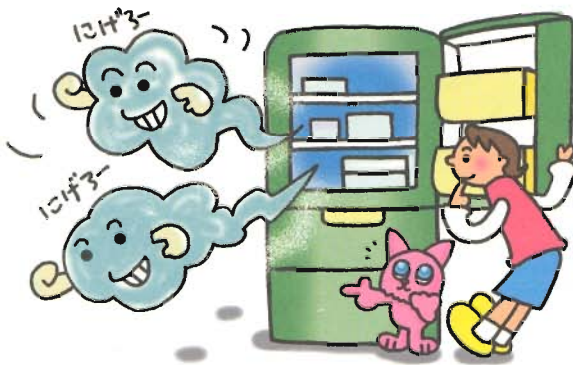
Item	Before Operation	During Operation
Are you trying to shorten the time to use the air conditioner/heater?		
Is your air conditioner set at about 28 degrees centigrade or less?		
Is your household thermostat set at about 20 degrees centigrade?		
Do you use clothing instead of the air conditioner/heater to adjust for changing temperature?		
Do you take good care of the air conditioning/heater itself?		
Do you shut curtains or blinds when the air conditioner/heater is on?		
Do you use curtains, awning or blinds?		
If you have heated floors are the set to about 20 degrees centigrade?		
Do you turn off lights when you're not using them?		
Are you always careful about turning off the TV when you are not watching?		
Do you shut off the main power of your TV and video player?		
Are you reducing the number of times you open and shut the refrigerator door?		
Do you always keep the volume of food in the refrigerator within an appropriate range?		
Is your refrigerator exposed to sunlight?		
Are your appliances such as your vacuum regularly cleaned or maintained?		
When you are not home do you turn down the household thermostat?		
Do you spend energy keeping food warm for a long time.		
Is your refrigerator next to the cooking stove?		
<b>SUM</b>		

## ⚡ How you can reduce electricity consumption

If you turn off the TV with the remote control after watching it, you may think you've really shut it off, but electricity is still flowing through it. This may seem hard to believe, but TVs and video players continue to use electricity even after you shut them off with the remote control. The clock inside continues to run, and the appliances are kept in a state so that they can quickly go on when you click the remote control button again. This is called standby power.



Unless you pull out the plug from the wall socket, nearly all of electrical appliances continue to flow electricity even when they are "off."



When you open the refrigerator, cool air gets out, the temperature rises, and the refrigerator uses lots of electricity to bring the temperature back down again. Stuffing too many things into the refrigerator also makes it use more power.

Try not to use the TV as a clock by leaving it on even though you're not watching it. It also seems to be bad to automatically turn the TV on as soon as you return home. **Set a time limit for how long you'll spend playing TV games.** It's also bad for your eyes to play TV games too long.





If your family can spend time together in the same room, you can cut on electricity consumption for air conditioning/heating and for lighting.

Raising or **lowering the temperature setting on an air conditioner/heater by just two degrees** can result in a power saving of **about 10%**.

When it is cold, you can make yourself warmer by wearing an extra pair of socks, or putting on leg warmers or tights.




Vacuum cleaners use a large burst of electricity when you turn them on. Move things out of the way before you start vacuuming, so that you don't have to turn the appliance on and off.




## ⚡ Energy Saving Action Plan for Electricity

### Examples of Action Plans

1. Until now, I would keep the light on since I planned to come back to my room. But now I decided to switch the light off when I leave the room. (7<sup>th</sup> grade girl)
2. I no longer keep the refrigerator door open while I make up my mind on what to take out to eat or drink. I ask my parents if we have what I want or make my mind up before opening the door. (7<sup>th</sup> grade girl)
3. I never noticed how much time I spent on computer games! Now I set a time limit to save energy and that money can go towards something else! (6<sup>th</sup> grade boy)



 Please write what you decided to do to reduce electricity consumption.

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## Action Data Sheet

Month / Day	/	/	/	/	/	/	/	/
Week								
Meter Reading	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh
Daily usage	kWh	kWh	kWh	kWh	kWh	kWh	kWh	_____

## Operation 2:

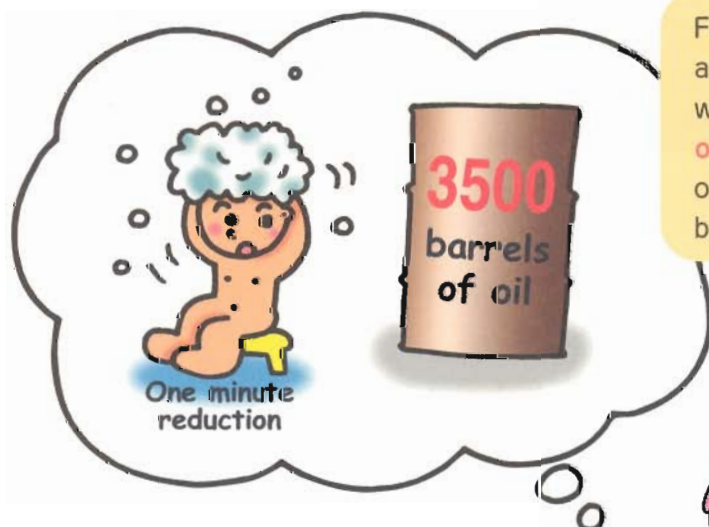
# Energy Saving operation for Gas

## Analysis Sheet of Current Situation in My Own Home

Yes **2** points     More or Less **1** points     No **0** point

Item	Before Operation	During Operation
Do you dry the bottom of your pots before placing them on your stove to cook?		
Do you cook things on the stove one after the other, without turning off the heat?		
When to boil the water, do you use an efficient water heater?		
Do you try to use low temperature water when washing dishes?		
Do you clean the gas burners in your home often?		
Do the members of your family take showers, not baths?		
When buying electrical appliances, do you choose energy-saving types?		
When you use the BBQ do you try to keep the cover down to retain energy?		
<b>SUM</b>		

## Hints for Reducing Gas Consumption



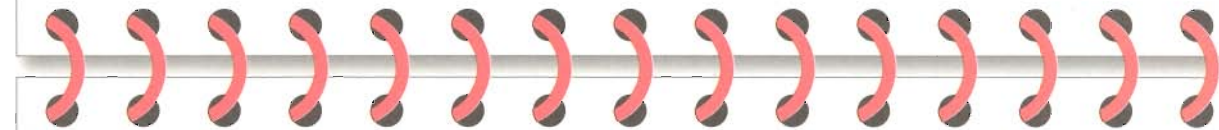
For **every one minute** that we all shorten our showers by, we can save the **equivalent of many thousands barrels** of oil. (For Japanese, 3500 barrels of oil)



## Energy Saving Operation Action Plan for Gas

### Examples of Action Plans;

1. I am going to reduce the gas consumption through my idea that when I wash the plate with detergent first, and then wash out the detergent with hot water after washing all plates (5<sup>th</sup> grade girl)
2. We use a gas heater in my home in winter time. I plan to reduce gas consumption by switching off the heater often and warming myself by wearing an extra layer of clothes. I will try to not depend on energy so much! (7<sup>th</sup> grade girl)
3. I think it wise to ask my parent if we could turn the hot water temperature down 2 degrees. That way we can use less energy heating water up! (6<sup>th</sup> grade boy)



 Please write what you decide to do to save energy with gas.

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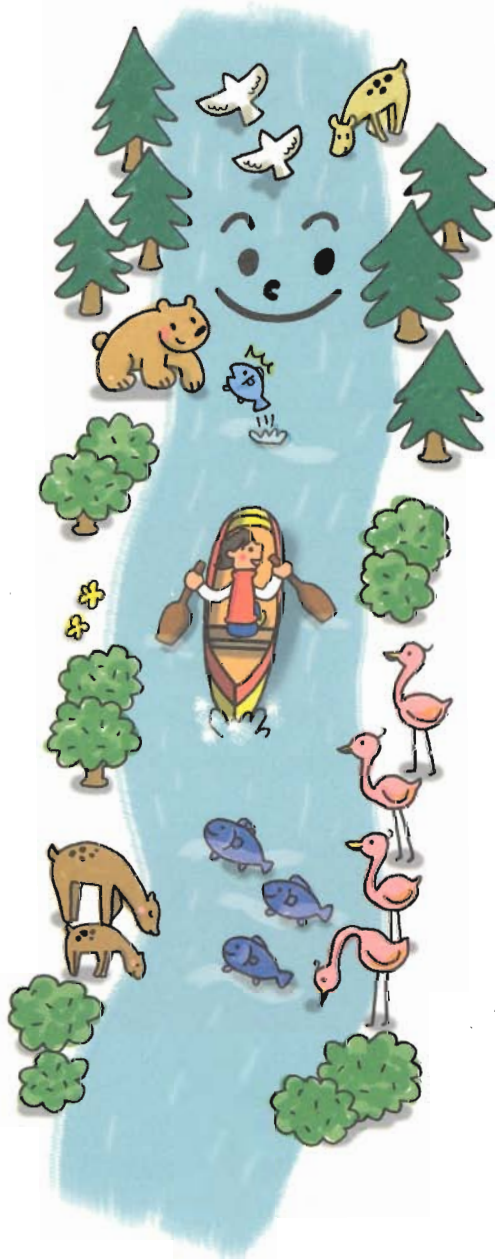
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### Action Data Sheet

Month / Day	/	/	/	/	/	/	/	/
Week								
Meter Reading	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh
Daily usage	kWh	kWh	kWh	kWh	kWh	kWh	kWh	—

# Our Source for life:



It is said that there are two miracles on the Earth. **The first is the existence of water, and the second the birth of life.** These two miracles are not unrelated to one another. It is **precisely** because of the presence of water that life was born on the earth. It is no exaggeration to say that all of the creatures on the Earth are not made from water. When you were in your mothers' womb, you were floating in a kind of water called the amniotic fluid. **70% of our body weight is made of water.** Furthermore, an average **human being drinks three liters of water per day.**

The first thing you do when you wake up in the morning is to wash your face, brush your teeth, rinse your mouth, boil water, and cook your breakfast. To flush the toilet, do laundry or take a shower you need water!

Human beings have polluted this precious water. The seas and rivers have become dumping places for harmful chemicals and oil from factories. The agricultural chemicals and chemical fertilizers spread on farmland penetrate into the soil, and are mixed into the groundwater. **Many creatures have become extinct or disappeared out due to this pollution over so many years, and today we ourselves are being affected by pollutants known as endocrine disrupters.**

# Water, is in Danger!

Once upon a time, contaminated water was slowly cleaned through a process of natural circulation. Today, it is necessary to clean and disinfect water using purifying plants before it becomes safe enough to drink. It requires energy to operate the various purifying plants. As a result, **using water means using energy.**

The biggest problem today is **household wastewater, from laundry, baths, and toilets.** Products such as kitchen detergent, laundry detergent, shampoo and conditioner are not highly toxic, but we use them every day, and as a result they flow into the rivers and seas in great quantities, leading to contamination.

The government has begun to clean up the contamination of rivers and the seas, using great sums of money. Unfortunately, however, the environmental state of rivers has not been restored to its pristine state. It is becoming important for each one of us to become aware of this problem.

**Water is important not only for our bodies, but for our minds as well.** Somehow, hearing the soft sound of waves or of flowing water has a soothing effect on us.

Placing importance on water is placing importance on our own selves.



### Operation 3:

# Saving Water Operation



## Analysis Sheet of Current Situation in My Own Home

○ Yes **2** points    △ More or Less **1** points    ✕ No **0** point

Item	Before Operation	During Operation
Are you careful about not letting the water run while you brush your teeth or wash your face and hands?		
Are you careful about not letting the water run while you take a shower?		
Are you careful about not letting the water come out too strongly when you're washing your hands?		
Do you make sure to flush the toilet only once when you go to the toilet?		
Have you done things like put a plastic bottle filled with water into the toilet tank in order to save water?		
Do you use the water from the bathtub to water plants?		
Do you reuse water when doing the laundry?		
When you have only a little laundry to do, do you do it by hand?		
Do you wash your car using water from a bucket?		
Do you collect rainwater, and use it ?		
Do you use equipment to make sure that water doesn't flow out too fast from the tap?		
SUM		



## Hints for Reducing Water Consumption

If you leave the water running while brushing your teeth. **You fill up 3 buckets with water**



Even in the case of not having a water-saving type of toilet, you can still save water by placing a bottle full of water into the water tank. Each time you flush the toilet, it uses **20 liters of water**.

**Method:** Fill a bottle with water and close the cap (if you use a PET bottle, it is a good idea to put also in some pebbles to make sure it stands stably). Then ask an adult to remove the lid from the toilet water tank. Place the bottle in a place where it doesn't come into contact with any of the equipment, and close the lid.

Used water in the bath can be used for laundry, cleaning, or watering plants. Considering that it takes **50 to 70 buckets of water** to fill a bathtub, flowing all that water away is wasteful.



There is a wonderful device called a “**water-saving shower head**” that shoots air along with the water of the shower, giving the same gush despite a 50% saving in water. This helps to save not only on your water bill, but also reduces consumption of gas to heat the water as well.





One spoonful  
of oil can kill  
the fish  
in one ton of water.

Suppose that you use a teaspoon of oil to fry some food, and throw it down the drain. In order to make the water clean enough for fish to live, the oil has to be diluted with one ton of water. This is the amount of water used by an average household in one day. It's better to wipe oil, mayonnaise, or sauce off the plates directly into the garbage before washing them.



Tap water suppressors, which are distributed free by Waterworks Bureaus to people who apply, can be installed on taps, reducing the outflow of water to approximately 60% of the normal flow.



## Water Saving Action Plan for Reducing Energy through Water

### Water Saving Operation

1. Up to now, I used a lot of hot water when I washed my body and hair with shampoo to clean off the soap and bubble foam. From now on I will try to shower or use less water in my bath! (5<sup>th</sup> grade girl)
2. In my home, we use groundwater. Although the groundwater seems to be inexhaustible, it may dry out if we continue to pump it up. So, I plan to save water in our daily life. (6<sup>th</sup> grade girl)
3. I have seen big foam in the river, which came from the house from the washing machine. I think we should do something with this fact. (7<sup>th</sup> grade girl)



 Please write what you decided to do.

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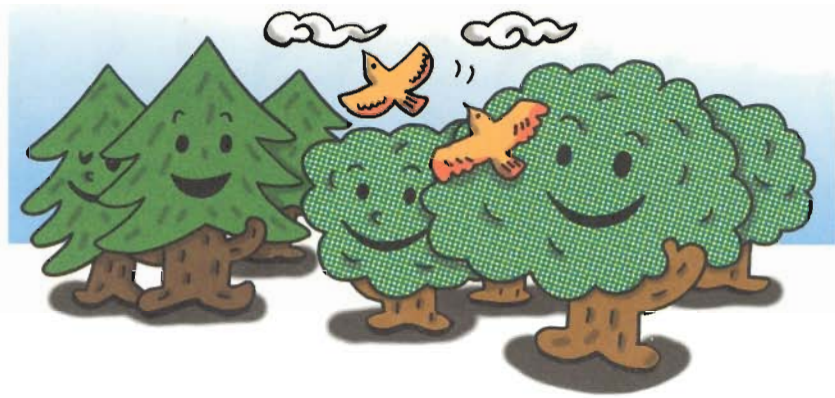


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### Action Data Sheet

Month Day								
Week								
Meter Reading	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>
Daily usage	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	—

# Reduce, Recycle and Reuse Garbage.



Every day, huge amounts of garbage are discharged from our homes and schools. This type of garbage, known as “municipal solid waste,” comes from our daily life. In addition to this, there is “industrial waste,” which comes from offices and factories.

**Every year, many million tons of such waste are produced in each country. It is enough to fill the big football stadium more than 100 times!**

When garbage is burned in incinerators, it **releases toxic chemicals**, such as dioxin and other endocrine disrupters if the performance of the incinerator is poor. It also causes damage to people living near the incinerators, crops, as well as living things in rivers and lakes.

Your country is not the sole culprit. The amount of garbage produced every day around the world is simply mind-boggling. **It is said that in 25 years the amount of municipal waste produced around the world will be four or five times what it is today.** Unless we change our ways, not only will there be nowhere to put the garbage, but the Earth will literally be swamped with waste.

How can we solve this global problem?

**We must change ourselves.**





Nearly all of the garbage that comes from food is organic, so it can be **made into compost** using bio-technology such as the use of microorganisms, and in this way, we can **convert them into agricultural fertilizer**.

Paper is another issue. Computers use a lot of paper. In the world today, one third of all wood exports are destined for Japan.

Every year, 17 million hectares of tropical rainforest, or the equivalent of half of Japan's land area, is lost. Forests absorb carbon dioxide and emit oxygen, meaning that **deforestation leads to the acceleration of global warming**. Moreover, it is said that approximately one half of the Earth's living beings inhabit those areas. Not only that, but one fourth of the plants used today to produce medicines come from tropical rainforests.

**Garbage is not something to throw away; rather it is a "treasure mountain."** If we begin thinking before simply tossing things out, we will be able to protect the Earth through reuse and recycling.

## Operation 4:

# Waste Recycling



## Analysis Sheet of Current Situation in My Own Home

Yes **2** points   
  More or Less **1** points   
  No **0** point

Item	Before Operation	During Operation
When shopping, do you bring your own bags instead of receiving plastic bags from the store?		
When shopping, do you refuse unnecessary wrapping?		
Do you select products which are in reusable containers?		
Do you plan your shopping so that you don't buy unnecessary items?		
Do you eat food before the expiration date, and not throw things away?		
Do you use your garbage for compost?		
Do you avoid using tissue paper, and use dust cloths instead?		
Do you avoid the use of paper towels and use small bath towels to dry your hands?		
Whenever possible, do you buy products with an environmentally friendly mark on them?		
Do you use recyclable diapers?		
Do you recycle newspapers and magazines?		
Do you put out milk cartons for recycling?		
Do you put out glass bottles for recycling?		
Do you put out aluminum cans for recycling?		
Do you put out steel cans for recycling?		
Do you put out cardboard for recycling?		
Do you put out foam food packages for recycling?		
Do you put out PET bottles for recycling?		
Do you sell used items in free markets?		
<b>SUM</b>		

## How you can Recycle Waste!



Tax money is used to transport, burn, and bury garbage. This comes out to **substantial amount annually**. You can find this amount from your city office.



The pulp used in paper is made from wood, but when forests disappear, carbon dioxide can no longer be absorbed, leading to global warming.

Never fail to put out milk cartons and old newspapers for recycling. By recycling **30 1-liter milk cartons**, we can produce **five rolls of toilet paper**. Moreover, an average family goes through roughly **70 kilograms of newspaper paper** a year, amounting to **1.5 trees**.

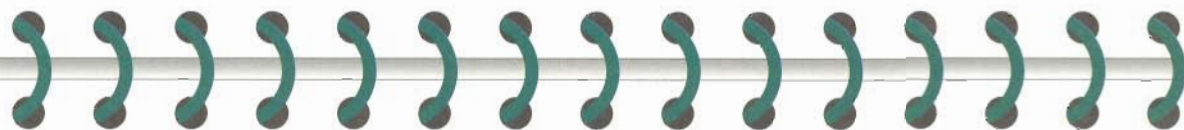
PET bottles can be transformed into a variety of products, including shirts, suits, school uniforms, garbage bags, clear files, desk pads, and shoes. Make sure that you take off the cap, wash each bottle lightly with water, and crush it.



## Action Plan for Recycling Waste

### Examples of Action Plans

1. I checked the garbage from my home, and I found that many of them are of vinyl and aluminum rather than of papers. I feel this is not good. I think we have to reuse and recycle even such a small things as toothpicks and tissues. (9<sup>th</sup> grade girl)
2. I use many sheets of photocopied handouts in school. I plan to use these handouts for rough work before I make my good copy for my teacher.(9<sup>th</sup> grade boy)
3. I plan to make boxes to separate garbage by materials, such as for, cans, PET bottles, glass bottles, paper cartons, and food trays. I plan to ask my family to cooperate in my program. (8<sup>th</sup> grade boy)



 Please write what you decided to do to reduce garbage.

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## Action Data Sheet

Month / Day							
Week							
Number Of bags							
Weight	kg	kg	kg	kg	kg	kg	kg

# Toward a Zero Emission Society

## Action Plan Sheet for Zero Emission

### Aiming for a Society with No Waste

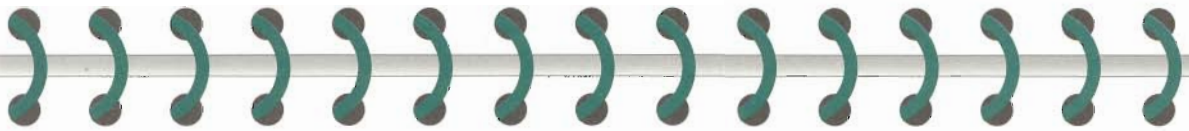
We hope to make a society with no waste in the 21st century. Today, people around the world hold this hope. In the midst of this, zero emission activities (activities for a society with no garbage) are taking place in various places in the world.

You can begin to think to create a community with no garbage in your home.

### A Society with No Waste

(John's)

As my way to reduce garbage, I decided to only take as much food as I can finish. Every year, my grandmother who lives in the countryside sends us fruit, and we always throw some out because we can't eat it all. From now on, I will give some away to my friends or to peoples in the next doors. Also, when I outgrow clothes, I will pass them down to other people through bazaars or recycling shops.



 Please, write your ideas for a Zero Emission Society.

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# Check the results fr

## Let's compare before and after data sets!

Please compare your data sets before and after operation completion.  
You can find results from your action plans!

### Electricity

Date	1st day	2nd day	3rd day	4th day	5th day	6th day	7th day	Sum
Before <b>①</b> Operation	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh
During <b>②</b> Operation	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh
Difference <b>①-②</b>	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh

### Gas (Mark: City gas or LP gas)

Date	1st day	2nd day	3rd day	4th day	5th day	6th day	7th day	Sum
Before <b>①</b> Operation	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>
During <b>②</b> Operation	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>
Difference <b>①-②</b>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>

### Water

Date	1st day	2nd day	3rd day	4th day	5th day	6th day	7th day	Sum
Before <b>①</b> Operation	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>
During <b>②</b> Operation	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>
Difference <b>①-②</b>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>

### Burnable waste

Date	1st day	2nd day	3rd day	4th day	5th day	6th day	7th day	Sum
Before <b>①</b> Operation	kg	kg	kg	kg	kg	kg	kg	kg
During <b>②</b> Operation	kg	kg	kg	kg	kg	kg	kg	kg
Difference <b>①-②</b>	kg	kg	kg	kg	kg	kg	kg	kg

# om Operations



## Let's compare with the averages

Calculate your average of daily use, and compare with national average.

### Electricity

	In your family		National average <sup>③</sup> (daily)
	Weekly sum <sup>①</sup>	Per day(/7) <sup>②</sup> $\text{①} \div 7$	
Before Operation	kWh	kWh	kWh
During Operation	kWh	kWh	

### Gas

	In your family		National average <sup>③</sup> (daily)
	Weekly sum <sup>①</sup>	Per day(/7) <sup>②</sup> $\text{①} \div 7$	
Before Operation	m <sup>3</sup>	m <sup>3</sup>	city gas / LP gas
During Operation	m <sup>3</sup>	m <sup>3</sup>	

### Water

	In your family		National average <sup>③</sup> (daily)
	Weekly sum <sup>①</sup>	Per day(/7) <sup>②</sup> $\text{①} \div 7$	
Before Operation	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>
During Operation	m <sup>3</sup>	m <sup>3</sup>	

### Burnable waste

	In your family		National average <sup>③</sup> (daily)
	Weekly sum <sup>①</sup>	Per day(/7) <sup>②</sup> $\text{①} \div 7$	
Before Operation	kg	kg	kg
During Operation	kg	kg	


## Summary

Now, let's calculate the consumption per person by dividing by the number in your family.

item		Your family	National average
Electricity	Before operation	kWh	kWh
	During operation	kWh	
Gas	Before operation	m <sup>3</sup>	city gas / LP gas m <sup>3</sup> / m <sup>3</sup>
	During operation	m <sup>3</sup>	
Water	Before operation	m <sup>3</sup>	m <sup>3</sup>
	During operation	m <sup>3</sup>	
Burnable waste	Before operation	kg	kg
	During operation	kg	

## How does your lifestyle reflect in the data?



 Write about what you think the data of your life and about the ideas of how you can change your lifestyle after completing this project!

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# International Certificate for Primary Level of Kids' ISO 14000 Programme

After you finish “Introductory Level” of Kids' ISO 14000 Programme, you can challenge to “Primary Level”, “Middle Level”, and “Highest Level”. If your environmental management ability is deemed higher than a certain level expectations, then, the international certificate will be given to you.



## Kids' ISO 14000, Introductory Level Workbook (English International Edition E11-2)

Edited and published by ArTech (International Art & Technology Cooperation Organization)

**If you have any question on Kids' ISO 14000 Programme, please, contact to**

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