

Environmental Report 2021



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Today, the world is facing various challenges such as dramatic climate change, resource depletion, environmental pollution, demographic change, and the COVID-19 pandemic. We need to find solutions to these urgent global issues and create a sustainable society.

To solve these issues, Ochanomizu University will develop a research and innovation base and promote cutting-edge research through the integration of arts and sciences. By doing so, we aim to realize a sustainable society where “no one is left behind,” which is one of the principles of the Sustainable Development Goals (SDGs).

Since its establishment in 1875, our university has produced many female graduates who play an active role in Japan and overseas. Based on our traditions and achievements, we have been on a mission to “be a place where all women who are motivated to learn can realize their earnest dreams.” We support all women, regardless of age or nationality, in being guaranteed their individual dignity and rights, deepening their learning, and actively developing their abilities.

We will work to fulfill this mission, develop human resources, and contribute to society, through education and research on protecting the global environment for the future. Furthermore, we have a plan to realize a “sustainable campus,” which implements the SDGs, ensures safety, and is eco-friendly, by reducing carbon emissions as we move toward carbon neutrality and by contributing to the local environment.

Not only our university but also our affiliated schools provide education and make daily efforts to protect the environment by actively conducting projects for a sustainable society. In the 1970s, a report entitled, “The Limits to Growth” once shook the world as a warning against the lack of environmental concern of modern society. Since then, the environment has only been getting worse. As a result, however, young people cannot endure this situation any longer and they have started to raise their voices for the next generation. Now, many people are beginning to understand the essence of this serious issue and to deal with it. These steps may lead us to explore the actual state of the Anthropocene Epoch and seek ways to put SDGs into practice through policies. To this end, our school will continue to strive to address various social issues, including environmental problems, for sustainable human development. Specifically, our university and affiliated schools will cooperate in considering measures based on scientific evidence.

This report reviews and summarizes our efforts in the environmental conservation project. We hope it will help you understand the environmental improvement activities in our university.

President
Ochanomizu University



The main gate, one of the Registered Tangible Cultural Properties of Japan



Environmental Policies of Ochanomizu University

I . Basic Philosophy

Ochanomizu University recognizes various environmental issues as urgent challenges to be solved at a global level. We try to construct a secure and safe campus while taking the global environment into consideration and to play an active role in our society to realize a sustainable world. We also contribute to the creation of a prosperous future, aiming at developing human resources capable of realizing and solving the environmental challenges modern society faces through all activities we conduct, including our regular education and research.

II . Basic Policies

Based on our basic philosophy, we pursue environmental efforts under the five basic policies presented below.

Promotion of Energy
Conservation

Effective Use of
Natural Resources

Prevention of Hazardous
Substance Leaks

Promotion of Environmental Activities and Training of Environmental Leaders

Accountability to Society and Information Transmission

1. Promotion of Energy Conservation

Based on the “Ochanomizu University Energy Management Standard,” we promote energy conservation on campus while engaging in related educational activities so every member of the university can contribute to achieving a carbon-neutral campus.

2. Effective Use of Natural Resources

We reduce the amount of resources we use and efficiently utilize environmental resources while attempting to minimize our waste, aiming at realizing an eco-friendly campus.

3. Prevention of Hazardous Substance Leaks

We comply with legislation related to the environment while carefully controlling every chemical substance. We prevent the leak of hazardous substances and pollution.

4. Promotion of Environmental Activities and Training of Environmental Leaders

We aim develop leaders who actively consider environmental problems and make efforts to solve such problems through various activities related to environmental conservation, environmental education and research, and social contributions.

5. Accountability to Society and Information Transmission

We broadly transmit our perspective on the environment and widely spread our efforts and achievements to protect the environment, aiming at playing an active role as a bridge with local and international societies.

(Established in September, 2021)



Our Efforts to Achieve SDGs

Ochanomizu University HP <Our Efforts to Achieve SDGs>
<https://www.ocha.ac.jp/program/menu/sdgs/top.html>

SDGs (Sustainable Development Goals), which were adopted by the UN Summit held in 2015, are universal goals whose principle is based on the concepts of “inclusive society” and “leave no one behind.” SDGs require various countries, companies, and institutions to tackle global issues by 2030. We have been actively committed in various ways to achieving the SDGs, which consist of 17 goals and 169 targets. In 2022, we will launch an “Institute for SDGs Promotion” project in order to contribute to greater SDGs achievement than before.



Our Efforts to Realize Carbon Neutrality

In his Policy Speech of October 2020, the Prime Minister of Japan declared that “by 2050 Japan will aim to reduce greenhouse gas emissions to net-zero, that is, to realize a carbon-neutral, decarbonized society,” and subsequently Japan began steering its way toward realizing a decarbonized society. To achieve this by 2050, universities and the like are expected to play their roles both because they are the cores of local communities and able to promote social reform by conducting educational and research activities. In order to meet this social demand, the “Summit of Presidents and Heads of Universities and Other Institutes on Approaches to their Contributions to Achievement of Carbon Neutrality” was held in March 2021, and 120 national, public, and private universities, including ours, participated and exchanged ideas.

In July 2021, the “University Coalition for Achieving Carbon Neutrality (A Network among Universities)” was launched with the aim of encouraging research and development to create innovative solutions, and its research results are to be implemented in society. It also aims to strengthen the ties among communities and to transmit information more widely. We have announced our membership in this Coalition, and we will be making continuous efforts to realize carbon neutrality by cooperating with other universities and institutions.

The Policy of this Environmental Report

■ Aim

The “Law Concerning the Promotion of Business Activities with Environmental Consideration by Specified Corporations, etc., by Facilitating Access to Environmental Information, and Other Measures (Law Concerning the Promotion of Business Activities with Environmental Consideration),” which was approved in 2004, stipulates that business entities (Specified Corporations) are required to disclose environmental information by publishing environmental reports and that such information is expected to be actively used within society.

As Ochanomizu University does not fall under category of “Specified Corporations” according to this law, we have not to date made or published an environmental report. However, as we set “creating an eco-friendly environment for education and research” as one of the basic policies of our campus plan, such reports are an important part of our mission to make efforts to protect the environment.

By making and publishing this “Environmental Report 2021,” we aim to widely disseminate information such as our view toward protecting the environment, our efforts for achieving this, and the outcome of our efforts to our stakeholders: our pupils, students, graduates, prospective students, guardians, faculty and staff, local residents, corporations, and local governments. Also, this report will help us clarify our course of action regarding various environmental issues. In this way, we will make use of this report as a tool for communication which connects us with society.

■ Subject area of this report

Ochanomizu University Otsuka Building No. 1

※Other buildings are excluded from the subject area of this report; however, we have been considering including them within the subject area from next year.

■ Reporting period for information provided

Fiscal year 2020 (April 2020 – March 2021)

■ References

Ministry of the Environment, “Environmental Reporting Guidelines 2018”

Ministry of the Environment, “Manuals for Items to be Reported in Environmental Reporting, etc. (ver. 3)”



We are making efforts toward environmental consideration in part by making a plan every year based on five basic policies: 'promotion of energy conservation,' 'effective use of natural resources,' 'prevention of hazardous substance leaks,' 'promotion of environmental activities and training of environmental leaders,' and 'accountability to society and information transmission.'

1. Promotion of Energy Conservation

Issue	Plan	Evaluation
Reduction of energy consumption / Reduction of greenhouse gas emissions 	■ Reduce energy consumption per unit by more than 1% every year throughout the University ■ Implement energy-saving measures based on our energy-saving guidelines ■ Plan the replacement of all lights with LED lighting and the renewal of aging air conditioners as measures against global warming ■ Adopt energy-saving or high-efficiency equipment when installing new equipment	○
Awareness and understanding of energy saving 	■ Publish usage of lights and fuel per month on the website to visualize energy consumption ■ Display posters about energy-saving to enlighten students and teachers	○

2. Effective Use of Natural Resources

Issue	Plan	Evaluation
Reduction of service water usage / Reduction of drain and flush volume 	■ Promote the introduction of water-saving equipment and flush-imitating sound systems when repairing lavatories ■ Grasp changes in service water usage and try to discover leaks as soon as possible ■ Promote the installation of rainwater storage and permeating facilities	○
Reduction of paper use 	■ Promote a paperless system for conference materials by using electronic files	○
Reduction of waste discharge 	■ Promote recycling and the effective use of resources on campus ■ Be strict about separating recyclables for collection and promote the recycling of resources	○

3. Prevention of Hazardous Substance Leaks

Issue	Plan	Evaluation
Leakage prevention of chemical substances 	■ Implement proper management and disposal based on the medical control manual ■ Conduct lectures about the use of the medical control software for graduate students and teachers ■ Have teachers explain how to use the chemicals to undergraduate students before experiments	△
	Regarding evaluation △; We did not meet our wastewater quality standard. Therefore, we took further measures and announced them on campus.	
Leakage prevention of harmful substances 	■ Plan to discharge PCB waste ■ Properly remove asbestos-containing building materials ■ Properly manage radioactive substances	○

4. Promotion of Environmental Activities and Training of Environmental Leaders

Issue	Plan	Evaluation
Promotion of environmental conservation activities 	■ Be strict about the separating and sorting of garbage, clean regularly, and prune trees regularly to promote beautification of the campus ■ Recommend that students actively conduct environmental activities	○
Promotion of environmental education and environmental research activities 	■ Give students a chance to develop interest in environmental problems through environmental education	○

5. Accountability to Society and Information Transmission

Issue	Plan	Evaluation
Information transmission both within and outside of the university 	■ Announce our views and policies about the environment both within and outside of the university ■ Conduct self-assessments of our track record and announce it both within and outside of the university	△
	Regarding evaluation △; We made and announced environmental reports from FY2021.	

Evaluation: ○ goal was achieved
 △ goal was not achieved, but conditions were improved
 × efforts were insufficient



(1) Activities at Ochanomizu University

University—Environmental Curriculum—

Human Life and Environmental Science · Associate Professor Toyohiko Nakakubo

"Resource Circulation Engineering"

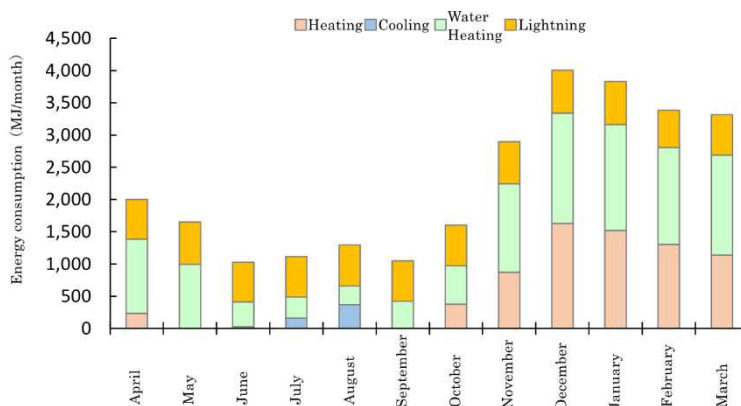
In the field of life science, it is crucial to understand the process of recycling and treating domestic waste and sewage, which helps us understand the foundation of our everyday lives. Waste incineration plants, which have been responsible for the disposal of household waste, are now required to serve as centers for regional energy in addition to their traditional role as sanitary treatment plants. It is also possible to further utilize waste incineration centers to create additional value through creative planning in the community. For example, incineration centers may provide biomass energy and energy resources in the event of natural disasters. The centers can also be utilized as venues for environmental education and lifelong learning. Collaboration with health and welfare management would also be possible.

Innovative approaches toward regional sanitation businesses, which are a cornerstone of our daily lives, allow the sanitation system to expand its limitations as a mere standalone system to an integrated regional environmental business, no longer limited to a single role within the sanitation industry. The "Resource Recovery Engineering" course teaches the foundations of engineering to understand the technical mechanisms of waste incineration plants and wastewater treatment plants.

In addition, the course encourages students to develop creative and imaginative thinking. The lectures introduce students to advanced examples in order to encourage them to develop their critical thinking skills. These skills will help them to contribute to regional planning by asking imaginative questions such as how sewage sludge in the region can be recycled or what kind of renovations are possible for waste incineration plants.

"Urban Energy Engineering"

The energy consumption in city buildings must be discussed in the context of energy systems. This course is designed to provide students with an understanding of the basic principles of thermal engineering and how they can be applied through the study of technologies and equipment that comprise the system. In addition, the program encourages students to develop their ability to create energy conservation plans in buildings and to propose regional energy plans in fulfillment of community development goals.



【Examples of using the analysis program to estimate energy consumption at home】

In the lectures, students get assigned to various projects, in which they use analytical programs to estimate the energy consumption for air conditioning, hot water, and lighting use.

Center—Environmental Education—

Center for Science & Education

Business Title:

"Research and Development of Educational Contents for Science Lectures" (IHI Corporation Contract Research Project)

Contents:

We conducted soil surveys at five locations in 2020. In addition, we plan to continue conducting surveys at other locations while also providing visiting lectures at the Kagoshima campus (or other educational facilities nearby) in 2021.





(2) Activities at Ochanomizu University Kindergarten



Ochanomizu University Kindergarten—Introduction of the Environmental Experience—

Thinking About the Environment Through Garden Harvest

From April to May, bamboo shoots grow in the schoolyard. Following in the steps of previous third-year kindergarten students, who harvested and served cooked bamboo shoots, this year's third-year class also made "bamboo shoot soup." The number of fresh bamboo shoots was limited. The children shared small amounts of soup with their friends and younger children so that they could learn how to savor a small amount of food.

In late May, the plums started to grow. It was not easy to pick them from the high branches, so the children could not successfully harvest them without collaboration with their friends and utilization of tools. Before eating the plums, the children washed them, removed the stems, and later macerated them with sugar-water before eating them. After several weeks, the plums were finally ready to eat. For the children, waiting can be a meaningful experience.

In October, large amounts of acorns fell to the ground. Third-year children led others in roasting and eating them. The children always want to eat them as soon as possible, but they have to learn to wait to roast the acorns just right. The trick is to wait for the sound of acorns cracking open. This process sharpens children's hearing and sense of smell.



Learning About the Environment Through Animal Encounters

Ants start to move around actively when new children enter the kindergarten and first- and second-year students move on to the next grades. When a child notices the presence of ants on the ground and watches them with teachers, other children gather and they start watching together. Closely watching the ground allows them to find even more insects. Roly-polies are relatively easy to catch, which satisfies the children's desire to hold them.

The children dig holes, find larvae, and catch ladybug larvae on leaves. They also grow summer oranges from seeds to see swallowtail butterfly larvae. They chase grasshoppers and playing mantises in the weeds after the summer break. Through these experiences, the children gradually become aware of where to find insects and the fact that insects molt, change in number, and change in appearance as the seasons change.

The Children eagerly catch the insects one by one, trying to make them their own. However, children often find them dead after a day. It may be difficult for children to grasp the concept of life and death. Fully facing the life and death of small insects will encourage them to become aware of their own mortality.

(3) Activities at Ochanomizu University Elementary School



Ochanomizu University Elementary School—Introduction to Environmental Study—

“Environmental Activity” in Philosophical Creation Class (5th Grade)

This class aims to expand individual awareness of environmental issues throughout the school year. Students formed groups based on their environmental interests and carried out activities. Each group took a different approach to their studies, and all the students seemed to be able to learn about environmental issues from various perspectives. The class gives each group a chance to make a presentation on their activity and to communicate with each other. There were nearly 20 topics in total, and the following are examples of what students were doing and their comments.



【Making reusable bags from old clothes】

What is a reusable bag for? - What can we do for an eco-friendly society?

(The following are parts of the students' conversation in class.)

N: Papers and cloth are burnable. But plastics are not, which is why they are thrown away in the sea. I'm afraid that fish might eat plastic trash.

M: We can replace a plastic bag with old clothes, which will slow global warming.

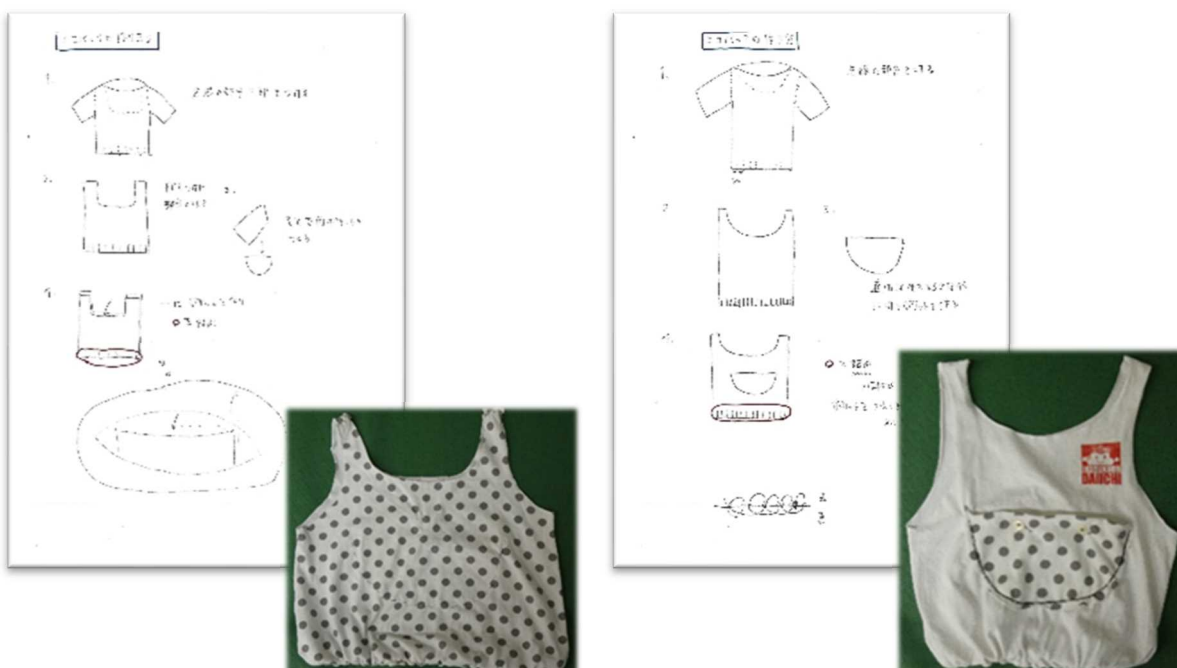
R: If we don't use a plastic bag, that is something eco-friendly. It is recycling to reuse old clothes, too.

RS: If we do not use plastics, then plastic bags will be reduced.

A: When we recycle old clothes into an eco-friendly bag, we don't have to use a plastic bag, which will contribute to improving environmental issues.

S: Vinyl made of plastics remains after burning. On the other hand, a reusable bag is good for the environment. Japan ranks second to last in plastic waste.

Students had these conversations throughout their project.



【About biodegradable plastics】 –Students' review–

We learned about plastics that are environmentally friendly and easy to use, and biodegradable plastics is one of those. This plastic is made from casein, a substance that comes out when milk is boiled. We hardened it in an oven by heating it in cookie molds. One of the members accidentally fed it to her dog, but it did not affect the dog. And when I tried drinking water with this biodegradable plastic straw, it was not much different from a regular straw. We've left this straw in soil and water to see if it would decompose. When placed in the water, the straw gradually softened and seemed to decompose little by little. In the case of soil, it did not decompose when the soil was watered, probably because the soil did not contain any fungi or fungicides. (S. M.)

Biodegradable plastics are plastics that can be decomposed by microorganisms in the ground and ocean when discarded. My group tried to make this plastic with milk and vinegar. We also had to harden the plastic, which I did at home, but it took some time to adjust the heating time of the microwave oven. When I finished making it and left the plastic on the table, my dog happened to eat it, probably because the smell of the milk was still there. No change was found in the dog's body, but it was not digested and I found white pieces in his stool. Biodegradable plastics are said to be expensive and difficult to process, but this experiment told me that it is safe for animals to eat the plastics. If biodegradable plastics are used in plastic bottles and flowerpots, it does not hurt any animals and can be decomposed in the soil or the sea. I think this is a strong advantage of biodegradable plastics. (Y. A.)

Plastics are considered something bad nowadays because, once plastics are made, they cannot decompose and will remain forever. I found an appealing plastic though, which is called biodegradable plastic. It can decompose in the soil and water, unlike other plastics. My group experimented with biodegradable plastic straws to see if they would decompose in the soil. The Internet says the straw will decompose in six weeks, but six months have passed and it still hasn't decomposed. In my opinion, there were no microorganisms in the soil, which is why the straw remains. Although we used straws from a store this time, it might be a good idea to experiment with biodegradable straws made from the casein of milk in this class. This project gave me a chance to be aware of environmental issues in my daily life. For example, I'm using my bottle to drink instead of buying a plastic ones. And I prefer to choose paper packages while shopping. It is important for each of us, as individuals living on the earth, to find what we can do to improve environmental issues. (K. M.)



(4) Activities at Ochanomizu University Junior High School



Ochanomizu University Junior High School – Introduction to Environmental Lessons –

“Recycling Plastics” in Science Class (1st Year)

We are surrounded by a lot of plastics. Plastics are convenient and useful in our lives because they are ...

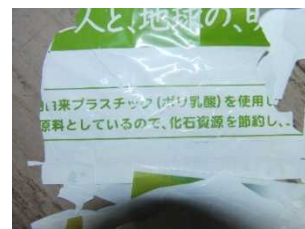
- Rustproof
You’ve never heard of rusty plastic, have you?

- Decay-resistant
Plastics are different from raw garbage.

But the problem is when it becomes garbage. With food scraps, they will decompose in a few weeks or months even if they are left as is. However, plastics don’t work that way. Plastic bags are said to take up to 20 years to decompose completely, and plastic bottles up to 450 years.

Micro-Plastics, which are plastics smaller than 5 mm, have recently become a particular problem. Some fish accidentally choke to death on micro-plastics that have been disposed of into the ocean. Micro-plastics are said to be harmful to humans too, so we should deal with this matter.

Therefore, “biodegradable plastics,” which can decompose, have also been developed in recent years. This photo on the right shows a file-folder made of biodegradable plastic, which I received several years ago.



Also, insects that can eat plastic have been discovered on earth.

How wonderful biodiversity is!

[Plastic-eating insects discovered, but garbage disposal is questionable](https://natgeo.nikkeibp.co.jp/atcl/news/17/042600162/) - from National Geographic¹
[Plastic-eating insects](https://www.nikkei-science.com/?p=54223) - from Nikkei Science, October 2017²

However, it does not seem this insect will solve the plastic waste problem. There won’t be enough insects to reduce all plastic disposal on Earth.

Anyway, let’s recycle plastic as much as possible, instead of disposing of it as garbage.

Plastics take a long time to decompose completely once we throw them away.

Plastic bottles are best for recycling because they are made of polyethylene terephthalate that won’t mix with other types of plastics. The photo on the right shows “cotton” made from plastic bottles, and fleece and other cloths will be made from this cotton.



Food trays like in the image on the right can be reused because they are made from polystyrene.



As another solution, plastics might be useful for disposing of flammable garbage because petroleum, which is a raw material of plastics, burns well. We can include some plastics, which will help to burn garbage and prevent overusing fuel.

¹ <https://natgeo.nikkeibp.co.jp/atcl/news/17/042600162/> NATIONAL GEOGRAPHIC, 2017.4.26.

² <https://www.nikkei-science.com/?p=54223> SCIENTIFIC AMERICAN, Nikkei Science.

1 st Year	Required Subject	Basic Project Study
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1st Year Required Subject Geography A

Through dealing with other global issues, such as population problems, food problem, residential and urban problems, and natural resources and energy problems, students learned that these problems were complicatedly intertwined with environmental problems.

In the curriculum's map unit, the itai-itai disease was dealt with as an example of solving epidemiological issues using a map as a tool.

In the climate unit, students considered the impact of environmental problems as one of the causes of climate change.

During summer vacation, volunteer students applied for the Global Environmental Essay Award held by Chuo University (Results: Outstanding performance award, 1; Winners, 3). The student who won the outstanding performance award was a 3rd-year student who had applied for the same award when she was a 1st-year student. We have applied for Global Environmental Essay Award held by Chuo University for six consecutive years and won four times.

In the life and culture from around the world unit, students dealt with environmental problems as one of several regional issues such as air pollution in China, deforestation of tropical forests in Southeast Asia and South America, and desertification in Africa.

3rd Year Optional Subject Geography B

Students took a general look at environmental problems as global issues and summarized their connection with natural resources and energy problems, population problems, and food problems.



台所排水による環境負荷低減について

[illegible]

2nd Year Required Subject Japanese History A

Students dealt with the Ainu assimilation policies, and considered what impact such lifestyle changes had on the environment.

Students dealt with the Ashio copper mine pollution incident, and considered what kind of environmental problems occurred during the modernization process.

Dealing with the trials of four pollution-related diseases in Japan that were accompanied by high economic growth periods, students considered why these lawsuits started during those periods. Moreover, they considered why the enactment of the Environment Basic Act needed time, learned the history of development and the environment, and thought about how they should tackle unsolved problems.

3rd Year Optional Subject Japanese History B

When students studied the formation of the Japanese islands and the beginning of rice farming, they learned that changes of topographies and food resources caused by climate change greatly influenced these events. They learned to see daily lives from a viewpoint of the events' relations with the natural environment.

Watching a part of *Ise Jingu: Prayer Born of the Forest* (Kinokuniya Company Ltd.), students learned about the relation between cutting down wood for shrines and the frequent occurrences of floods, and considered the connections between nature worship, religious norms, and environmental protection.

Learning about the frequent occurrences of famine caused by cold-weather damage and abnormal weather in the Middle Ages equivalent to the Little Ice Age, students considered what kind of impacts these incidents had on society and the government.

Students considered elements supporting the construction of sustainable lifestyles, learning that city planning was developed in order to reduce the damage of big fires, and that the non-garbage lifestyle was constructed with the assistance of the relationship between neighboring farming villages in the early modern period, Edo.

2nd Year Required Subject Project Study I Area of Global Environmental Science

In this subject, students chose a theme and did research using keywords such as global warming, air pollution, natural resources and energy, and climate. Examples of the research themes of 2020 are introduced below.

“The Relation between Global Warming and CO₂ Concentration” for the High-school Student Poster Session at the Study Meeting of the Association of Japanese Geographers, Autumn 2020

“How to Preserve Vegetables in Terms of Food Waste and Environmental Burden” for the Sustainability Awards for Students by Students 2020 (2nd place - Special Prize)

“Let's Solve Coolly! Heat-Island Phenomenon” for the International Junior-high-school and High-school Web Contest 2020 (23rd place - Best 50)



1st Year Required Subject
SSH School Designated Course Life Science

Students learned familiar life science with a focus on sustainability and ethicality.

Students experienced tie-dyeing organic material packs using a method of new organic plant dyeing which is environmentally friendly.

1st Year Required Subject
Integrated Home Economics

Cooperating with an ethical brand, students experienced basic sewing of clothes making and developed products. Superior products were mass-produced in the factory of the brand in Ghana, Africa, which employs poor women and disabled people, and were sold in Tokyo. Ten percent of sales were donated to Africa for educational support (details are given in the article “ellipse” in the database of Ochanomizu school).

Students learned about the environment such as the Paris Agreement, SDGs, circular economy, food loss and waste, ocean plastics, and forest fires in the Amazon, and discussed environmental problems.

First-year students give a lesson on the relationship between chocolate and child labor to 5th-year students of the elementary school every year.

2nd Year Required Subject
Integrated Home Economics

Since 2011, students have been learning about and experiencing ethical consumption, with consideration of the environment and human rights, and have been making presentations on the topic in environmental education classes.

Second-year students give a lesson on ethical consumption to first-year students of the junior high school every year (by video letter in 2020).

1st-3rd Year Required Subject
Integrated Home Economics

In a cooking class, 100% biodegradable eco-friendly detergents, non-microplastic cellulose sponges, and composting to process kitchen garbage are used. We cook in an eco-friendly manner by discharging clean drainage, minimizing food waste, and adopting energy-saving cooking methods. However, cooking classes were not given in 2020 because of COVID-19.



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