

Super Science Highschool 文部科学省指定 スーパーサイエンスハイスクール(第III期)人材育成重点枠

# Seeking Future Researchers!

Tokyo Metropolitan Tama Science and Technology High School

2025 School Guide



# **Educational Goals**

- Cultivate curiosity and inquisitiveness towards science and technology, and nurture creativity.

- Ensure the development of academic abilities necessary for achieving future goals.

- Foster flexible thinking and logical problem-solving skills.

- Develop a sense of responsibility and rich humanity as a member of society.

- Encourage students to realize their potential and cultivate aspirations to open up the future.



### Opening the Door to Science by Discussing the "Ideals of Science"

Our school was established in April 2010 as a specialized science-oriented high school, with the aim of developing human resources who can actively engage in technological innovation as scientists and engineers. This year, we have welcomed our 15th cohort of students.

In addition to organizing a curriculum centered on basic education in science and technology, including project-based and graduation research, we are engaged in a variety of unique educational activities. These include science and technology advisory classes and lectures supported by researchers from universities and cutting-edge research institutions, as well as overseas training aimed at developing global STEM talent. We are nurturing students who aspire to become scientists and researchers who will play active roles globally.

Furthermore, we have been designated by the Tokyo Metropolitan Board of Education as an Advanced Academic Guidance School and an English Education Research Promotion School. As a science-oriented high school, we are also focusing on systematic and planned initiatives to realize the career aspirations of our students.

Last year, we enhanced our educational activities, including graduation research presentations, project research presentations, visits to laboratories and companies, and exchanges with students from other schools and overseas. We will continue to fully support students in their research activities, helping them solve their "why and how" questions, and discovering and nurturing their academic and research potential.

To junior high school students: We hope you will use our well-equipped facilities to research what interests and fascinates you, discuss the "ideals of science" with friends, challenge your potential, and open the door to science.



Principal: Tsunetsugu Morita

# Development of STEM Talent

Tama Science and Technology High School specializes in developing STEM talent.

While general high schools allow students to choose between a science or humanities track based on their future aspirations, our school designs a three-year curriculum assuming all students will pursue science.

# Balancing Exam Preparation and Research

The knowledge gained from general subjects serves as the foundation not only for university entrance exams but also for the specialized knowledge in science and technology. Through hands-on training and research in the science and technology department, students solidify their understanding and enhance their practical application skills.

# Curriculum

### Curriculum Overview

At Tama Science and Technology High School, the curriculum is designed to foster students' skills in both scientific inquiry and technological innovation. The courses offered integrate both general education subjects and specialized science and technology disciplines, with a focus on preparing students for higher education and future careers in STEM fields. The curriculum is structured to ensure a balance between theoretical knowledge and practical application through research activities.

### ### Year 1: Foundational Knowledge

In the first year, all students study the foundational subjects necessary for both general education and specialized science courses. The goal is to build a solid academic foundation in the natural sciences, mathematics, humanities while introducing students to basic scientific methodologies.

- \*\*General Subjects\*\*: Mathematics, Physics, Chemistry, Biology, English, Japanese, Geography
- \*\*Introduction to Research\*\*: Basic courses in scientific research methods and lab techniques

### ### Year 2: Introducing Specialization

From the second year, students start to select and focus on a specific field of interest from four primary areas: Biotechnology (BT), Ecotechnology (ET), Information Technology (IT), and Nanotechnology (NT). This allows them to deepen their understanding of specialized topics while continuing with their general education.

- \*\*Core Science Courses\*\*: Advanced Mathematics, Physics, Chemistry, and Biology (students select according to specialization)
- \*\*Specialized Subjects\*\*: Students choose from the four main specialization tracks: Biotechnology (BT), Ecotechnology (ET), Information Technology (IT), and Nanotechnology (NT)

### ### Year 3: Research and Practical Application

In the third year, the emphasis is placed on applying the knowledge acquired through independent research projects and practical activities. Students conduct experiments, participate in project-based learning, and present their findings.

- \*\*Graduation Research\*\*: Each student undertakes an independent research project in their areas, with guidance from science advisors and university-level instructors.
- \*\*Collaboration with Universities and Companies\*\*: Students have opportunities to work with researchers from universities and private industries, preparing for higher education and professional careers.













# Career Guidance

To help students become future scientists and engineers, we aim to foster advanced academic abilities and the skills to independently solve problems, with a focus on preparing them for admission to national public universities and prestigious private universities in the sciences. We support students in discovering their potential and pursuing their desired career paths.



-Enhanced Career Education-

Career Path (2024)

Science and Technology Advisor System, Career Lectures, and Visits to University and Corporate Research Labs -Enhanced Mock Exams and Lessons-

Mock exams for all students (four times a year), lessons during long vacation periods (46 courses in summer, 27 courses in winter), after-school lessons, and Saturday lessons

# List of Total University Admissions

	Current	Previous
	Students(12th)	Graduates
National	42	11
Universities	42	11
Public	16	2
Universities		
Private	220	40
Universities	329	40
Vocational	4	0
Schools	4	0

# 12TH BATCH CAREER PATH (%)



## National Universities:

- Hokkaido University: 5 total admissions (1 current, 4 previous)
- University of Tsukuba: 4 total admissions
- · Tokyo University of Agriculture and Technology: 12 current, 10 total previous admissions
- · Tokyo Institute of Technology: 2 total admissions
- Other universities such as Tohoku University, Ibaraki University, and Kyushu University had multiple admissions ranging from 1 to 3 students.

### **Public Universities:**

- Tokyo Metropolitan University: 15 total admissions (14 current, 1 previous)
- · Yokohama City University: 4 total admissions
- · Other public universities had 1 or 2 admissions.

### **Private Universities:**

- Aoyama Gakuin University: 6 total admissions
- · Shibaura Institute of Technology: 16 total admissions
- · Chuo University: 17 total admissions
- · Tokyo University of Agriculture: 18 total admissions
- Kogakuin University: 33 current admissions
- · Waseda University: 3 total admissions
- Other private universities had multiple admissions ranging from 2 to 13 students.

### **Vocational Schools:**

• Several admissions to national and prefectural vocational schools, including a few specialized institutions.

# Science and Technology Fields

Tama Science and Technology High School offers four main areas of specialization.







# - BT (Biotechnology):

Covers subjects like microbiology, plant biotechnology, food chemistry, and genetic engineering, exploring the use of biological processes and understanding living organisms.

# - ET (Ecotechnology):

Focuses on addressing environmental issues like air and water pollution through chemical analysis and devising improvement strategies based on data interpretation.

# - IT (Information Technology):

Provides broad knowledge in areas like AI, IoT, and network security, crucial for the ever-evolving information society.



# - NT (Nanotechnology):

Involves understanding the structure and properties of materials through strength testing and analytical simulations, focusing on microlevel phenomena.

# Extracurricular and Research Activities

Through research activities, students not only acquire specialized knowledge and technical skills but also learn how to approach experiments and research, how to give presentations, and how to write reports, preparing them to become future researchers.





Classroom Scenes



Sports Clubs (Kendo Club)



Advisor Lectures/Sessions



Sports Festival



Research Project Presentation

### SSH

Our school was designated by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) for the first phase (2012-2016), the second phase (2017-2021), and last year, we were newly certified for the third phase (2022-2026).

In this third phase, we are working on developing a curriculum that nurtures the ability to engage in research through international collaboration. We hypothesize that by encouraging inquiry-based activities that transcend age and fields, sharing reflections within domestic and international networks, and engaging in research exchanges, students can grow into STEM professionals capable of leading international collaborative research.

Additionally, starting this year (2023), we have been designated as a school under the priority framework for human resource development. We will build networks with other schools through research utilizing university-level simulation software.

We invite you to experience our classes and become a STEM professional who takes on the challenges facing the global community.

### **Club** Activities

SportsSoccer Club, Basketball Club, Tennis Club, Badminton Club, Track and Field Club, Volleyball Club, Swimming Club, Table Tennis Club, Kendo ClubCulturalScience Research Club (Biology Section),
Sports Badminton Club, Track and Field Club,   Clubs Volleyball Club, Swimming Club,   Table Tennis Club, Kendo Club Science Research Club (Biology Section),
Clubs Volleyball Club, Swimming Club,   Table Tennis Club, Kendo Club   Science Research Club (Biology Section),
Table Tennis Club, Kendo Club   Science Research Club (Biology Section),
Cultural Science Research Club (Biology Section),
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Science Research Club (Chemistry and Physics
Clubs Section),
Science Research Club (Life Science Section),
Science Research Club (Mathematics Section),
Robot Research Club, Wireless Workshop Club
Brass Band Club, Art and Illustration Club,
Photography Club, Astronomy Club,
Computer Club, Volunteer Club,
Light Music Club, Shogi Club

### School Events

- April Entrance Ceremony, Excursion
- May Sports Festival
- July Advisor Lectures/Sessions, Science Dialogues, Laboratory Visits, Summer Courses
- -August Summer Courses
- September Tama Future Festival
- October: Tama Science Online Symposium
- November Graduation Research Presentation, School Trip
- December Advisor Lectures/Sessions, Science Dialogues, Winter Courses
- January: Winter Courses, Entrance Exam Preparatory Events
- March: Graduation Ceremony, Project Research Presentation, Advisor Lectures/Sessions, Cultural Events

### Achievements and Recognition

-JSEC 2023 (21st Japan Science and Engineering Challenge): "Development of Alginate Gloves Friendly to Humans and the Environment" received the Denka Award.

- Patent Contest Excellence Award: "Automatic Control of Myoelectric Prosthesis Using Inertial Measurement Unit" won the Excellence Award, receiving support for patent application.

- U-22 Programming Contest 2023: Received the Minister of Economy, Trade, and Industry Award for "Software to Convert English Text into Knitting Patterns." Additionally, the project won two corporate awards.



Poster Presentations



Cultural Clubs (Wireless Workshop Club)



Science Dialogues



多摩未来祭(Cultural Festival)



Scenes from Experiments

# Uniforms

Our school uniforms are designed with the concept of a professional suit, giving a calm and sophisticated appearance. The skirts incorporate a subtle cherry blossom color, while the trousers have a refined sky blue hue. Both skirts and trousers are available for students to choose from.





Summer Uniform

Winter Uniform

Testimonials from Graduates

- Mr. Udagawa (Tohoku University, Faculty of Science, Department of Biology): "I was drawn to Tama Science and Technology High School because of its unique research opportunities. Although I chose the BT (Biotechnology) field, I found that the school offers a solid foundation for research and allows for interesting projects depending on one's knowledge and passion."

- Ms. Dakeno (Tokyo Metropolitan University, Faculty of Urban Environmental Sciences, Department of Applied Chemistry):

"The wide-ranging learning in the first year helped me grow during research activities in the following years. The experiences gained from presenting at external conferences greatly benefited me during university admissions."

- Ms. Fukuzawa (Chiba University, Faculty of Science, Department of Physics):

"At first, I was unsure about the research aspect, but I learned a lot from the highly knowledgeable students and teachers. The school offers many opportunities to engage with science, making it an ideal place for those with a passion for it.

- Mr. Matsuoka (Tokyo University of Agriculture and Technology, Faculty of Engineering, Department of Intelligent Systems Engineering):

"I was attracted to the balanced curriculum between general and specialized subjects. Even though I was a complete beginner in IT when I started, I was able to complete my desired research thanks to the school's excellent environment and resources."







- 10 minutes on foot from Musashi-Koganei Station (JR Chuo Line) South Exit

# Tokyo Metropolitan Tama Science and Technology High School

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