Osaka Prefectural Senri High School

Sakura Science Plan: Exchange Program

Objectives

The main objective of this exchange is to foster interest in cutting-edge science and the ability to tackle challenges by having Taiwanese and Japanese high school students engage in joint research, experiments, and presentations on topics like quantum computers and semiconductor technology.
As background, quantum technology and semiconductors are next-generation foundational technologies directly connected to solving societal issues, making international talent development and cooperation highly necessary. Furthermore, exposing students to advanced fields from the high school level and collaborating with peers from different cultural backgrounds will be a great asset not only for the participating students but also for other students at the host school who hear the reports.
This exchange aims to go beyond exposure to cutting-edge technology by nurturing the ability to identify problems, discuss, and present solutions through international collaboration. Through visits to companies and universities, students will also gain an understanding of the social significance of science and technology, providing an experience that connects academics to society. This is intended to develop high school students aiming to become researchers or engineers, while also increasing the broader group of individuals who are familiar with science and technology.
Following the implementation, continuous international collaboration, such as online exchanges and joint research in subsequent years, will be developed to ensure the learning is not fleeting and to build a talent network that can be utilized in the future. The educational program, workshops, and discussions are designed to cultivate creativity and critical thinking, thereby contributing to the development and promotion of diverse talent.

Pre-Exchange Activities (Online Exchange)

- **January 13 (TBD):** Pre-briefing on the activities planned for the visit to Japan.
- **January 27 (TBD) (:** High school students research and present on the basic principles of semiconductors and quantum computers.
- **February 10 (TBD)** Host families and invited students meet online to start to get to know each other.
  Brainstorm on the future opened up by semiconductors and quantum computers to help participants to think deeply and prepare for the program.

Post-Exchange Activities

- **March 13 (TBD):** Share the finalized Self-Reflection video by this date.

No. of Students: 7 No. of Teachers: 1 **Total No. of Participants: 8**

Program Details

Date	Time	Activity	Description
March 2 (Mon)	**AM**	**Quantum Computer Web Simulation**	Learn the basic concepts of quantum computers through web simulation.
	PM	**Joint Experiment/Research ② (Experiments to Understand Quantum Technology)**	Deepen understanding of the principles of quantum technology through experiments such as the photoelectric effect and Young's double-slit experiment.
March 3 (Tue)	**AM**	**Facility Visit ①: Bando Kobe Science Museum**	Visit the Bando Kobe Science Museum
	PM	**University Visit ① (Professor Miki, Kobe University)**	Professor Takuji Miki (Institute for Advanced Research and Education, Graduate School of Science, Technology and Innovation, Kobe University) conducts research on quantum computers using semiconductor spin qubits. He will introduce cutting-edge research, including technology for high-precision control of qubits in near-absolute zero, cryogenic environments, and research toward large-scale integration. Students will learn about quantum computer research and the career perspectives of researchers through a lecture, Q&A session, and a lab tour.

Date	Time	Activity	Description
March 4 (Wed)	**AM**	**Joint Experiment/Research ③ (Discussion/Idea Creation)**	Students will lead discussions on how quantum/semiconductor tech can address societal issues (health, education, environment, circular economy), building creativity and critical thinking.
	PM	**International Student Exchange Program ①**	International students from US, UK and Taiwan who are studying advanced science (such as quantum computing) at universities will be invited to give feedback on the ideas suggested in the morning. This session includes presentations, small group talks, a panel with the international students, and group discussions to boost collaboration, presentation skills, and international perspectives. Will also include a lunch to help everyone connect.
March 5 (Thu)	**AM**	**Company Visit ①: Kyocera**	Tour the Fine Ceramics Museum to learn about materials technology and product applications.
	PM	**Company Visit ②: Rohm**	Company tour and classroom session to learn about the semiconductor manufacturing process and applications of cutting-edge technology.
March 6 (Fri)	**AM**	**Joint Presentation Session**	Students present the front of the entire school and take questions, improving their presentation skills and critical thinking skills.
	PM	**Joint Experiment/Research ④ (Review and Video Creation)**	Review the exchange create a video summarizing the activities.

Itinerary

Date	Time	Activity	Location	Accommodation
March 1 (Sun)	**AM**	Travel from Taichung to Taoyuan Int'l Airport Depart TPE		Students: Homestay Teachers: Hotel
	PM	Arrive at KIX Travel to Senri High School - Orientation, Welcome Exchange Meet with host families and return home.	Senri HS	
March 2 (Mon)	**AM**	Joint Experiment/Research ①: Quantum Computer Web Simulation	Senri HS	Students: Homestay Teachers: Hotel
	PM	Joint Experiment/Research ②: Experiments to Understand Quantum Technology	Senri HS	
March 3 (Tue)	**AM**	Facility Visit ①: Bando Kobe Science Museum	Kobe City	Students: Homestay Teachers: Hotel
	PM	University Visit ①: Professor Miki's Lab, Graduate School of Science, Technology and Innovation, Kobe University (Lecture, Q&A, Lab Tour)	Kobe University Kobe City	
March 4 (Wed)	**AM**	Joint Experiment/Research ③ Discussion / Brainstorming	Senri HS	Hotel
	PM	International Student Exchange Program ① Presentation Preparation	Senri HS	
March 5 (Thu)	**AM**	Company Visit ①: **Kyocera Fine Ceramics Museum**	Kyocera Corp., Kyoto City	Hotel
	PM	Company Visit ②: **Rohm** (Tour and class)	Rohm Co., Ltd., Kyoto City	
March 6 (Fri)	**AM**	Joint Experiment Presentation, Q&A Session ④	Senri HS	Hotel
	PM	Joint Experiment/Research ④: Self-Reflection, Making Video	Senri HS	
March 7 (Sat)	**AM**	Travel to Kansai International Airport	Suita	
	PM	Depart KIX, arrive at TPE, head to Taichung City		