SAKURA Science High School Program
Activity Report 2015
# Japan-Asia Youth Exchange Program in Science

## SAKURA Science High School Program

### Activity Report 2015

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Introduction

About the SAKURA Science High School Program

Kazuki Okimura
Counselor to the President, Japan Science and Technology Agency (JST)
Director, Japan-Asia Youth Exchange Program in Science Promotion Office

The SAKURA Exchange Program in Science (SSP) assists young people from other Asian countries and regions (high school students and adults under 40 years old) by nurturing their aspirations in regard to science and technology, improving their levels of knowledge in these fields, and contributing to the development of their home countries and Asia as a whole. We expect that these objectives can be achieved by inviting these people to our country and providing them with access to Japan’s science and technology.

In principle, this project is a grass-roots movement. Participating universities and research institutions express their willingness to invite and accept applicants from designated universities and research institutions across Asia. Our goal is for them to establish, strengthen, develop, and continue the collaborative relationships that are initiated. This project aims to increase the number of supporting bases across the country, and we hope that, across Japan, this will create more active exchanges with Asia.

However, as it is difficult for high school students to initiate and conduct this kind of grass-roots movement, JST has launched the “SAKURA Science High School Program,” which invites them to Japan.

In designing this project, we aimed to nurture excellent high school students in Asia into becoming leading scientists, and give them the ability to contribute to the improvement of scientific technology in their home countries. For this purpose, we have made every effort to prepare the best program in Japan.

First, students have an opportunity to learn about Japan’s cutting-edge technology at institutions such as the Japan Aerospace Exploration Agency (JAXA), Japan Agency for Marine-Earth Science and Technology (JAMSTEC), RIKEN, National Institute of Advanced Industrial Science and Technology (AIST), and National Museum of Emerging Science and Innovation (Miraikan).

Second, students have the opportunity to learn from top researchers in Japan, including Nobel Prize recipients such as Dr. Hideki Shirakawa, Dr. Toshihide Maskawa, Dr. Makoto Kobayashi, Dr. Akira Suzuki, and Dr. Hiroshi Amano, as well as Dr. Jin Akiyama and Dr. Mamoru Mohri, Chief Executive Director of Miraikan.

Third, students visit and learn at prestigious universities such as Osaka University, Ritsumeikan University, The University of Tokyo, Kyoto University, Tokyo University of Science, Waseda University, Keio University, Tokyo Institute of Technology, University of Tsukuba, and Osaka Prefecture University.

We proposed that each Asian country involve themselves in the program, and excellent students from the most competitive high schools, and who had won awards in various contests, participated in this program. They are the future leaders of their home countries.

It was a surprise to the lecturers, including the Nobel Prize recipients, that the students actively asked advanced questions in English. There were lively question and answer sessions in all of the places the groups visited.

The high school students who will become future leaders forged friendships across borders. The participating Japanese students were also stimulated by these outreaches.

We conducted a survey of the participating students and discovered the following:

• Almost all students regarded Japanese research as advanced, and recognized the prominence of Japanese universities.
• Almost all students were surprised by the kindness of the Japanese people, the cleanliness of the cities, and the sophistication of the culture and, overall, were impressed with Japan and its people.
• Almost all students were impressed with the lessons from the Nobel Laureates concerning the difficulties in continuing experiments and research, the importance of becoming fond of performing research, maintaining the dream of becoming a researcher, and being confident and proud to be Asian.

Although it has not been long since the program was planned and implemented, and some aspects of it are still insufficient, we believe that most of the objectives were accomplished with the assistance of those who have supported the program.

Therefore, we would like to express our sincere appreciation for the hard work of those who were involved in the program’s implementation.

Additionally, we would like to express our sincere gratitude to the students and teachers from each country who participated despite the extremely hot weather, and to the respective institutions that sponsored their participation.

Although this program is designed to be beneficial to Asia’s science and technology, we are convinced that it is also a multifaceted program that contributes substantially to the internationalization of Japan and Japanese universities. With your assistance, we hope to build on this experience and continue improving the program.

(September 25, 2015)
“Our Hopes for the Students”
Messages from the Nobel Laureates

Dr. Hideki Shirakawa
Professor Emeritus, University of Tsukuba / 2000 Nobel Prize in Chemistry

The high school students who participated in this program had advanced knowledge and great enthusiasm, and I enjoyed instructing them on the experiments. Many students raised their hands to ask questions (the Japanese would normally hesitate to ask questions). There were students who did not speak English well, but fellow students supported them and I felt a passion towards moving the experiment forward. Reading through their retrospective reports on the class, I found that they had successfully understood the goals of the experiment.

I think it is important for SSP to attract as many high school students as possible and to have them become familiar with Japanese culture. Going beyond a simple introduction to cutting-edge science and technology, I would like the students to learn about science and technology by conducting basic experiments and also become familiar with Japan.

Dr. Toshihide Maskawa
Director, Kobayashi-Maskawa Institute for the Origin of Particles and the Universe, Nagoya University / 2008 Nobel Prize in Physics

I strongly felt the interest and aspirations towards science that the high school students who came to Japan possessed. They have infinite potential, and I believe that it is the duty of our generation to nurture their talents. It is important for young people to take an interest in things, find a theme or area that they enjoy, and deeply engage with the topic once they find it. In other words, it is more important for them to study or research diverse areas of interest and broaden their perspectives than deciding on a specific topic and studying or researching it from a young age. By continuing these activities, they will definitely find their own topic and gain the enthusiasm to research it.

Dr. Makoto Kobayashi
Distinguished Emeritus Professor, High Energy Accelerator Research Organization (KEK) / 2008 Nobel Prize in Physics

In my talk, I covered a basic description of elementary particle theory and then moved on to somewhat more specialized topics. I was extremely impressed by the perceptive questions I received after the presentation, and was reminded again of the advanced abilities of the students who were participating in SSP. Our daily lives are supported by the results of scientific research. No matter how advanced the technology, I believe that it originates from a spirit of inquiry towards deeper understanding of the workings of nature. I hope that the Asian nations will produce many people capable of carrying the future of science. The role of SSP in realizing this goal is very significant.

Dr. Akira Suzuki
Professor Emeritus, Hokkaido University / 2010 Nobel Prize in Chemistry

In the two years that I lectured in the SAKURA Science High School Program, I encountered young people from Japan and China who asked questions with eyes shining. I sincerely hope that the young generation from Japan, as well as those from other Asian countries and regions, will further work to understand science and technology and expand their possibilities with the goal of improving the world.

There are as many ways of living life as there are people. By interacting and learning with those from diverse nations from a young age, the students will be able to open their own worlds. I am looking forward to seeing what kinds of paths you will pave in the future.

Dr. Hiroshi Amano
Professor, Department of Electrical Engineering Computer Science, Graduate School of Engineering, Nagoya University / 2014 Nobel Prize in Physics

In my talk for the SAKURA Science High School Program, I introduced the events of the Nobel Week and discussed blue LEDs. After the lecture, I received many questions by students from Indonesia, Brunei, Taiwan, and Toyama High School. The questions were diverse, exciting, and significant, ranging from what the next form of lighting after LEDs will be, to how one can gain good inspiration. For those with such wonderful sensibilities and potential, I believe the program was a fantastic opportunity to gain a sense of Japan and its current situation. It would be an absolute honor if I was able to communicate anything that will help the participants in the future.
Outline of the SAKURA Science High School Program 2015

In the fiscal year 2015, the SAKURA Science High School Program (SSHP) invited 656 extremely talented high school students from all 15 countries and regions specified in the SAKURA Exchange Program in Science (SSP).

The program lasted for eight days and seven nights, with activities in the Tokyo metropolitan area and the Kansai area. Specifically, this included lectures and experiments with the Nobel Prize recipients, as well as visits to universities, research institutions, corporations, high schools, and science museums. The program offered an opportunity to experience science and technology as well as to learn from the foremost researchers in Japan, while also learning about Japanese culture and contemporary Japan through field trips and other activities. The program timeline took into consideration the school terms and vacation periods of the sending countries, and divided the visits into groups in May, July, August 2015, and January 2016.

It was fortunate to gain the generous support of the Japanese high school students and many others who were involved in receiving SSHP students at each institution and providing guidance. Many of the reports from the students invited from Asia expressed satisfaction about being able to experience diverse science and technology, as well as their appreciation for the warm reception they received in Japan.

### Participants by Country and Region

<table>
<thead>
<tr>
<th>Country/Region</th>
<th>High School Students</th>
<th>Supervisors</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Total</td>
</tr>
<tr>
<td>Brunei</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Cambodia</td>
<td>4</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>China</td>
<td>106</td>
<td>111</td>
<td>217</td>
</tr>
<tr>
<td>India</td>
<td>61</td>
<td>38</td>
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</tr>
<tr>
<td>Indonesia</td>
<td>22</td>
<td>8</td>
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</tr>
<tr>
<td>Korea</td>
<td>22</td>
<td>8</td>
<td>30</td>
</tr>
<tr>
<td>Laos</td>
<td>8</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Malaysia</td>
<td>16</td>
<td>14</td>
<td>30</td>
</tr>
<tr>
<td>Mongolia</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Myanmar</td>
<td>8</td>
<td>12</td>
<td>20</td>
</tr>
<tr>
<td>Philippines</td>
<td>11</td>
<td>9</td>
<td>20</td>
</tr>
<tr>
<td>Singapore</td>
<td>3</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>Taiwan</td>
<td>19</td>
<td>11</td>
<td>30</td>
</tr>
<tr>
<td>Thailand</td>
<td>9</td>
<td>31</td>
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</tr>
<tr>
<td>Vietnam</td>
<td>20</td>
<td>10</td>
<td>30</td>
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<tr>
<td>Total</td>
<td>319</td>
<td>275</td>
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Units: Number of people

### Participants by Group

<table>
<thead>
<tr>
<th>Group Name</th>
<th>Time in Japan</th>
<th>Participants by Country/Region</th>
<th>Total</th>
</tr>
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<tbody>
<tr>
<td>Group 1</td>
<td>May 9 – 16, 2015</td>
<td>India (53), Philippines (22), Thailand (44)</td>
<td>119</td>
</tr>
<tr>
<td>Group 2</td>
<td>May 16 – 23</td>
<td>India (56), Malaysia (33)</td>
<td>89</td>
</tr>
<tr>
<td>Group 3</td>
<td>July 4 – 11</td>
<td>China (55), Singapore (12)</td>
<td>67</td>
</tr>
<tr>
<td>Group 4</td>
<td>July 11 – 18</td>
<td>China (77)</td>
<td>77</td>
</tr>
<tr>
<td>Group 5</td>
<td>August 1 – 8</td>
<td>Indonesia (33), Brunei (12), Taiwan (33)</td>
<td>78</td>
</tr>
<tr>
<td>Group 6</td>
<td>August 15 – 22</td>
<td>China (54), Vietnam (33)</td>
<td>87</td>
</tr>
<tr>
<td>Group 7</td>
<td>August 22 – 29</td>
<td>China (53), Myanmar (22), Mongolia (11), Cambodia (10), Laos (10)</td>
<td>106</td>
</tr>
<tr>
<td>Group 8</td>
<td>January 9 – 16, 2016</td>
<td>Republic of Korea (33)</td>
<td>33</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>656</td>
</tr>
</tbody>
</table>
On May 14 (Thu.), 10 high school students selected from Group 1 (India, Philippines, Thailand) made a courtesy visit to Mr. Hakubun Shimomura, Minister of Education, Culture, Sports, Science and Technology. Representatives of the visiting students began by describing their thoughts on the program and goals for the future.

“Since arriving in Japan, we have not only been introduced to advanced science and technology, but also found new friends from other countries. We also realized that the warm welcome we received came from genuine kindness rather than a sense of duty. I felt inspired to learn about Japanese values such as modesty and diligence.”
Ms. Zuleika Antao (India)

“After seeing the excellent science and technology of Japan, I understood that the bright future of Japan had been built on the continued efforts of many scientists. I would like to take what I experienced here to my home, share it with those around me, and utilize it to help the future of my own country.” Ms. Justin Dator (Philippines)

“Will cancer, for instance, be a curable disease 20 years from now? I believe that the advancement of medicine depends on our efforts as well. We would like to help build a better world and make our best efforts towards building the science of the future.” Mr. Chaichontat Sriworarat (Thailand)

Minister Shimomura firmly shook hands with each of the students and responded, “I hope that you will all make use of your experiences in Japan to make active efforts to contribute to science in your respective countries and, using your skills and talents, become people who can play a part in the development of mankind.”
### Group 1 Activity Report: May 9 (Sat.) – 16 (Sat.)

**India:** 48 students + 5 supervisors / **Philippines:** 20 students + 2 supervisors / **Thailand:** 40 students + 4 supervisors

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#### Schedule

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<tr>
<th>Date</th>
<th>Activity</th>
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<tbody>
<tr>
<td>May 9 (Sat.)</td>
<td>Arrive at Kansai/Itami Airport</td>
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<tr>
<td>May 10 (Sun.)</td>
<td>Orientation, visit Kyoto City, interact with students of Ritsumeikan High School</td>
</tr>
</tbody>
</table>
| May 11 (Mon.) | Visit universities (Team 1: Osaka University, Team 2: Ritsumeikan University)  
  - Introduction to the university and international program, discussion with foreign students,  
  - visit to laboratories and campus (travel to Tokyo by bullet train, “Shinkansen”)  |
| May 12 (Tue.) | Visit High Energy Accelerator Research Organization (KEK) at Tsukuba campus  
  - Visit Japan Aerospace Exploration Agency’s (JAXA) Tsukuba Space Center  
  - Visit Edo-Tokyo Museum  
  - Courtesy visit to the Philippine Ambassador to Japan (11 members of the Philippines team only) |
| May 13 (Wed.) | Visit National Museum of Emerging Science and Innovation (Miraikan) (meet with Chief Executive Director Dr. Mamoru Mohri, view the museum and ASIMO)  
  - Experiment class with Dr. Hideki Shirakawa (at Shibaura Institute of Technology) |
| May 14 (Thu.) |Courtesy visit to Minister Shimomura (10 students: 4 from India, 2 from Philippines, 4 from Thailand + 3 supervisors)  
  - Visit Sony Explora Science  
  - Courtesy visit to the Ambassador of the Royal Thai Embassy in Tokyo (11 members of the Thailand team only) |
| May 15 (Fri.) | Visit the University of Tokyo  
  - Introduction to the university and international program, discussion with foreign students,  
  - visit to laboratories and campus  
  - Closing ceremony for the presentation of the Certificate of Achievement and farewell party (JICA Tokyo International Center) |
| May 16 (Sat.) | Leave Japan                                                             |

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#### Activity Report

**May 9: Arrival in Japan**

The first to arrive in Japan for this year’s high school program was the Thai team, who arrived early in the morning. The Indian team arrived at night, and traveled to their accommodations at the Ritsumeikan University Biwako-Kusatsu Campus and joined the Thai team. As the Philippine team arrived late in the night, they had to wait until the next day to join the others. While the Thai team was waiting for the others, they had an early opportunity to interact with Japanese culture by being introduced to Japanese calligraphy, origami, and card games by the students of Ritsumeikan High School, an SSH (Super Science High School).

**May 10: Visiting Kyoto with Ritsumeikan students**

After the overall orientation, the students traveled to Kyoto City in order to learn about the history and culture of Japan, visiting Kinkakuji Temple, Kiyomizudera Temple, and other surrounding areas. Ritsumeikan High School students accompanied each group as tour guides, and explained aspects such as the history and structure of the temples in English and using materials they had prepared beforehand.

In late afternoon, they visited Ritsumeikan High School. After an introduction to the school, the Ritsumeikan High School students led a social gathering that was greatly enjoyed by those attending.
May 11: Visiting universities (Team 1: Osaka University, Team 2: Ritsumeikan University)

The students were divided into two groups, and visited the Osaka University Suita Campus and the Ritsumeikan University Biwako-Kusatsu Campus. At Osaka University, the students were introduced to the university, participated in a question-and-answer session, and received advice from current study abroad students about student life and studying abroad. In the afternoon, they visited laboratories in departments such as the School of Engineering and were introduced to the research performed there.

One of the students from the Philippines expressed his gratitude, noting, “The visit to Osaka University made the SSP activities very exciting. I appreciate their time and efforts in making the preparations to show us many different things.”

The group that visited Ritsumeikan University was also introduced to the university and study abroad system, and visited multiple laboratories where they received explanations on the research being conducted.

May 12: Visiting KEK and JAXA at Tsukuba City

The group visited Tsukuba City, Ibaraki Prefecture, to view the High Energy Accelerator Research Organization (KEK) and the Japan Aerospace Exploration Agency (JAXA) headquarters at Tsukuba Space Center. At KEK, they were overwhelmed by the massiveness of the KEKB collider, which is used for particle experiments.

At JAXA, the students appeared to be engrossed in the efforts and history of space development in Japan as they viewed exhibits on satellites and space rockets.

May 12: Courtesy visit to the Philippine Ambassador

Ten students from the Philippines and one supervisor met with Mr. Manuel M. Lopez, Ambassador Extraordinary and Plenipotentiary, at the Philippine Embassy in Tokyo. The Ambassador encouraged the students, expressing his hope that they broaden their interests in science through the diverse experiences they are having in Japan and become leading international scientists in the future. The students seemed nervous in front of Ambassador Lopez, but were unable to contain their excitement during such an important experience.

May 13: Participating in an experiment with Dr. Shirakawa

The students participated in an experiment class taught by Dr. Hideki Shirakawa, recipient of the Nobel Prize in Chemistry. The experiment concerned synthesizing conductive plastic and building organic EL elements using this material. When they began checking to see if the resulting organic EL element was actually electro-conducive and saw it light up, there was great applause and cheering.

One of the supervisors who was observing the class, Ms. Mayadas, Vice-President of the Cathedral and John Connon School in India, later noted, “How wonderful. Being able to receive the direct tutoring of a Nobel Laureate is likely a once-in-a-lifetime experience for these children.”
May 13: Meeting with Dr. Mohri at Mirakikan

At the National Museum of Emerging Science and Innovation (Miraikan), Chief Executive Director and Astronaut Dr. Mamoru Mohri gave a lecture describing how he first began dreaming about space after seeing a solar eclipse at his birthplace, Hokkaido, as well as the roles and possibilities of science and technology in society. The students were completely engrossed in his fascinating talk. After the lecture, all of the students went on stage to take a commemorative photograph with Chief Executive Director Mohri.

May 14: Courtesy visit to the Ambassador of the Royal Thai Embassy in Tokyo

When the 10 students and one supervisor member visiting from Thailand arrived at the Royal Thai Embassy, they were met by Mr. Sihasak Phuangketkeow, Ambassador Extraordinary and Plenipotentiary. When they began discussing their visit to the High Energy Accelerator Research Organization (KEK), the Ambassador described his own visit to the KEK with Princess Sirindhorn, who visited Japan in April 2015. He also noted the collaborative Japan-Thai relations in the field, and discussed his hopes for active contribution from the younger generations.

In turn, the students expressed their desire to continue their studies in scientific fields upon their return to their country.

May 15: Visiting the University of Tokyo

The members of Group 1 visited the University of Tokyo Hongo Campus. As it is one of the most prestigious universities in Japan, many of the students were eagerly awaiting this visit. They listened intently to the overview of the Faculty of Engineering and the Graduate School of Engineering, as well as that of the daily life on campus, and asked many questions ranging from study abroad preparations to the current state of research. After a lecture on the “i.school” educational project, they went to see the FX10, successor to the “K computer,” proclaimed in 2011 to be the best in the world.

May 15: Dance performances from each country at the farewell party

At the farewell party that took place after the closing ceremony, students performed dances and songs from each of the three countries. When the students from Thailand performed their dance after India and the Philippines, all students began joining the dance circle as if they were reluctant to part ways. By the time the dance was over, they had formed a large circle of high school students from the three countries.
The participants are ambassadors for each nation, and must now return to their own countries and contribute to their development. Here I will pass on the “Seven Sins” as proposed by Mahatma Gandhi: Politics without principle, commerce without morality, wealth without work, knowledge without character, science without humanity, pleasure without conscience, and worship without sacrifice. I pray for the continued development of the SSP.

Thank you for the opportunity to participate in the SSP. Ever since arriving in Japan, I have been surprised daily by the clean and well-regulated city, kind people, and advanced technology. I believe that participating in this program was enlightening for the students. After returning to Thailand, I hope to share this experience with others. I believe that the world will become a better place as a result of SSP.
The day that the Malaysian students visited the Embassy of Malaysia coincided with a visit of the current and previous Prime Ministers of Malaysia to Japan, and the Embassy seemed quite busy. The students met with the young Secretary Mr. Fadil, who is in charge of the study abroad program and who explained the role of the Embassy; Japan-Malaysia relations; collaborative relations in the fields of science, technology, and culture; and the current situation regarding study abroad students from Malaysia.

The students received advice on studying abroad in the field of veterinary medicine, diplomats’ activities in foreign countries, and career paths to becoming Ambassadors.

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**Schedule**

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<td>May 18 (Mon.)</td>
<td>Visit universities (Team 1: Kyoto University, Team 2: Ritsumeikan University)</td>
</tr>
<tr>
<td></td>
<td>· Introduction to the university and international program, discussion with foreign students, visit to laboratories and campuses (travel to Tokyo by bullet train, “Shinkansen”)</td>
</tr>
<tr>
<td>May 19 (Tue.)</td>
<td>Visit National Institute of Advanced Industrial Science and Technology (Tsukuba City)</td>
</tr>
<tr>
<td></td>
<td>Visit Japan Aerospace Exploration Agency’s (JAXA) Tsukuba Space Center</td>
</tr>
<tr>
<td>May 20 (Wed.)</td>
<td>Visit National Museum of Emerging Science and Innovation (Miraikan) (meet with Chief Executive Director Dr. Mamoru Mohri, view the museum and ASIMO)</td>
</tr>
<tr>
<td></td>
<td>Experiment class with Dr. Hideki Shirakawa (at Shibaura Institute of Technology)</td>
</tr>
<tr>
<td>May 21 (Thu.)</td>
<td>Visit Embassy of India in Japan (11 members of the India team only)</td>
</tr>
<tr>
<td></td>
<td>Visit Embassy of Malaysia in Japan (11 members of the Malaysia team only)</td>
</tr>
<tr>
<td></td>
<td>Attend a lecture by Dr. Jin Akiyama, discussion session</td>
</tr>
<tr>
<td></td>
<td>Interact with students from the Ibaraki Prefecture Ryugasaki-Daiichi High School</td>
</tr>
<tr>
<td>May 22 (Fri.)</td>
<td>Visit universities (Team 1: Tokyo University of Science Kagurazaka Campus, Team 2: Waseda University)</td>
</tr>
<tr>
<td></td>
<td>· Introduction to the university and international program, discussion with foreign students, visit to laboratories and campuses</td>
</tr>
<tr>
<td></td>
<td>Closing ceremony for the presentation of the Certificate of Achievement and farewell party (National Olympics Memorial Youth Center)</td>
</tr>
<tr>
<td>May 23 (Sat.)</td>
<td>Leave Japan</td>
</tr>
</tbody>
</table>

**Activity Report**

**May 16,17: Arrival, enjoying traditional culture in Kyoto**

The Group 2 students from India and Malaysia had an orientation on the Ritsumeikan University Biwako-Kusatsu Campus. After being introduced to the purpose and outline of this program, they departed to visit Kyoto City with the students of Ritsumeikan High School.

After viewing Nijo Castle and Heian Shrine from the bus, they arrived at Kinkakuji Temple. The students gasped in amazement at the brilliantly lit Shariden Pavilion.

**May 21: Visiting Embassy of Malaysia in Japan**

The day that the Malaysian students visited the Embassy of Malaysia coincided with a visit of the current and previous Prime Ministers of Malaysia to Japan, and the Embassy seemed quite busy. The students met with the young Secretary Mr. Fadil, who is in charge of the study abroad program and who explained the role of the Embassy; Japan-Malaysia relations; collaborative relations in the fields of science, technology, and culture; and the current situation regarding study abroad students from Malaysia.

The students received advice on studying abroad in the field of veterinary medicine, diplomats’ activities in foreign countries, and career paths to becoming Ambassadors.
May 21: Visiting Embassy of India in Japan

The students from India visited the Embassy of India in Japan, and were able to have a pleasant chat with Mr. Amit Kumar (Chief Minister) and Dr. Chadaram Sivaji (Counsellor, Embassy of India). After introducing themselves, the students were asked about their experiences since their arrival and their impressions of Japan and the Japanese, and each described their impressions in turn.

Mr. Kumar noted, “The Japanese are creative by nature, and are always trying to make their lives better. This has led to the rapid advancement of high technology. I would like you all to become the bridge between India and Japan, and help transform our country.”

Dr. Sivaji also encouraged the students by saying, “There are many exchanges occurring between Japan and India. For instance, branches of Japanese universities are opening in India and Japanese company branches are being built as well. There are many programs being prepared for study abroad in Japan, so we would like you to make use of these opportunities and return to Japan.”

May 21: Dr. Jin Akiyama entrances the students with his ‘Math Magic Show.’

Eighty-one students from India and Malaysia, along with 82 students from the Ibaraki Prefecture Ryugasaki-Daichi High School, participated in a mathematics class given by Dr. Jin Akiyama, professor at the Tokyo University of Science. Dr. Akiyama, an immensely popular mathematician among young people, appeared on stage in his usual style: “Welcome to the Spectacular Math Magic Show!” Students were enthralled as the show began with a fun atmosphere, quite unlike a normal math class.

Dr. Akiyama began by using scissors to cut a three-dimensional trigonal pyramid into a flat sheet, then unexpectedly forming it into a jigsaw puzzle. Next, he made a play on the Japanese proverb “throw a shrimp to catch a sea bream,” and cut a paper shrimp into five pieces, which he then turned into a sea bream. The next demonstration on reverse-transformation solids involved rotating a pig (a truncated octahedron) on a horizontal bar. After one rotation, the entire surface flipped inside-out and transformed into a ham (a rectangular parallelepiped). Dr. Akiyama continued performing interesting tricks one after another, and the class progressed like an actual magic show.

The students also used thin paper tape to make squares and two connected heart rings, and enjoyed learning about the world of topology. Dr. Akiyama concluded, “The important thing is to continue doing what you like, no matter what it is,” and ended by giving a song performance accompanied by an accordion. Everyone was greatly satisfied with the class, including an Indian student who exclaimed, “I have never had a math class this fun,” as well as a Japanese student who discovered the joys of mathematics: “I am more of a humanities person, but this made me want to study math.”

After the class, it was time for the high school students of Japan and Asia to interact. The Japanese students did their best to speak in English, and eventually they all felt comfortable enough to exchange email addresses and take photographs, filling the hall with energetic conversation.
May 22: Experiencing a science and engineering education unique to Waseda University

On the final day, the group divided into two and visited the Tokyo University of Science Kagurazaka Campus as well as Waseda University. At Waseda University, the students were introduced to an overview and history of the university and were then joined by eight students from India and Malaysia who were studying abroad at the time. They described their life on campus through a question-and-answer session.

A student from India, who was learning about nanotechnology at the graduate school, said, “I think the research facilities at Waseda are fantastic, and the instructors are very kind as well. I hope to pursue my PhD here.” A female student from Malaysia described her experiences, reassuring the students, “You have nothing to worry about, even if you can’t speak Japanese. There are many classes in English, and you can get by in daily life by using gestures.” In addition, the Muslim students seemed relieved to hear that “the dormitories also prepare vegetarian meals.”

In the afternoon, they visited the basic laboratories at the School of Science and Engineering. Associate Professor Sergey Mikhailenko explained, “We become familiar with theory by conducting experiments.” Through processing and polishing an actual lens, he demonstrated how they were learning about the joy of creating products and optics theory at the same time. This visit allowed the students to come into contact with unique aspects of science and engineering education.

May 22: Experiencing the joys of studying science through experiments at TUS

In Group 2, the other team visited the Kagurazaka Campus of Tokyo University of Science (TUS). They attended a class by President Akira Fujishima, which began with the topic of “How to Enjoy Science.” President Fujishima described the dramatic discovery of the principles of photocatalytic titanium dioxide, and the laws that allow water to be split into oxygen and hydrogen via titanium oxide electrodes. This photocatalyst is also water-repellent and able to kill viruses and bacteria, in addition to decomposing oil and preventing material such as glass and tiles from becoming soiled. The students nodded in understanding at a photograph that showed the effects of the photocatalyst, which has practical applications across the world. Finally, in a lecture and experiment that addressed the question of “why the sky looks blue,” the students seemed stunned by the gradual transformation of water mixed with photocatalyst particles in a bottle, which turned from yellow to blue after being hit by light.

The afternoon lecture was led by the famous Professor Jin Akiyama, who used colorful polyhedrons to demonstrate how cubes can be created through the principles of mathematics. The class proceeded like a magic show. This was followed by a visit to the “Math Exploratorium” at the Museum of Science, where the students directly interacted with various math experiment devices invented by Professor Akiyama and experienced the exciting world of mathematics.
Through participating in the SSP, the students were able to enjoy a dream experience in Japan. I believe that there are three types of people in the world. Those who spectate, those who muse on the things to come, and those who actively work to make things happen. In this week-long program, we were able to visit research facilities, meet with prominent scientists, and experience the cutting-edge scientific technology of Japan, witnessing how the Japanese people have been moving the world in various ways. In one word, it was simply “impressive.” I express my appreciation for those who helped us come to Japan.

In order to master the path of science, you must love science and, in order to love science, it is important that you nurture your curiosity and critical thinking.

We had many valuable experiences throughout this week, and were able to gain broad knowledge of the various fields of sciences. The network of students that was formed across national borders is the most valuable product of this program, as social networks will continue for a long time and are important and trustworthy. We must make use of our new networks, and continue making efforts towards creating a better world.

After arriving in Japan, those of us from India who participated seemed to have changed from being students who know nothing, to students who are thoughtful, full of curiosity, and passionate. Through this program, we were able to experience the beauty of Japan and learn the depth and richness of the material we must study. We are thankful for this valuable opportunity, and will return to our countries with backpacks full of unforgettable memories, which we will share with our friends back home.

I have been a fan of “Doraemon” since childhood, and dreamed of one day visiting his home. I am truly happy that this dream came true through participating in SSP.

Beginning with the experiment class by Dr. Shirakawa to the exploration of Asakusa, we had many learning opportunities during our stay, and I took copious amounts of photographs. We were able to acquire memories that can never be forgotten. I sincerely appreciate the Japanese Government and JST for helping make this program come to fruition.

Closing ceremony for the presentation of the Certificate of Achievement : May 22 (Fri.)

Guests

Dr. Chadaram Sivaji (Counsellor (Science and Technology), Embassy of India in Japan)

I trust that you were able to learn about diverse topics this week. Japan is a country that has many things to offer besides advanced technology, including its culture and societal systems. The other day, I invited students from India to the Embassy. Everyone was very talented and many seemed to feel attracted to Japan. The same goes for the students from Malaysia. I hope that you will all return to Japan in the future to continue your success.

Dr. Hong-Kean Ooi (Professor, Azabu University School of Veterinary Medicine, born in Malaysia)

I congratulate you all on your successful completion of this program. You were able to meet several famous scientists at this time, but behind their external success lies a long and winding road. I am certain that they became who they are today through overcoming many days of difficulty and challenges. Respectable scientists all tend to have their own philosophy. I hope that, from the stimulating experience of meeting these individuals, you will draw lessons that will assist you in your own futures.

Mr. Shoichiro Sakaguchi (Director of International Science and Technology Affairs Division, Science and Technology Policy Bureau, Ministry of Education, Culture, Sports, Science and Technology of Japan)

It appears that you had a broad range of experiences during your stay in Japan. The program allowed you to experience Japanese culture, along with the science and technology of Japan. I believe that coming into contact with other cultures creates an opportunity for you to reflect on your own culture. I hope that you will continue to learn many things and return to Japan some day to form a bridge between Asian countries.

Student Representatives

Ms. Raveena Deshpande
People's High School (India)

I have been a fan of “Doraemon” since childhood, and dreamed of one day visiting his home. I am truly happy that this dream came true through participating in SSP.

Beginning with the experiment class by Dr. Shirakawa to the exploration of Asakusa, we had many learning opportunities during our stay, and I took copious amounts of photographs. We were able to acquire memories that can never be forgotten. I sincerely appreciate the Japanese Government and JST for helping make this program come to fruition.

Mr. Muhammad Azizi Haznal bin Samhudi
Kolej Yayasan Saad (Malaysia)

Supervisors

Mr. Allam Anthony Reddy
Little Flower High School (India)

Through participating in the SSP, the students were able to enjoy a dream experience in Japan. I believe that there are three types of people in the world. Those who spectate, those who muse on the things to come, and those who actively work to make things happen. In this week-long program, we were able to visit research facilities, meet with prominent scientists, and experience the cutting-edge scientific technology of Japan, witnessing how the Japanese people have been moving the world in various ways. In one word, it was simply “impressive.” I express my appreciation for those who helped us come to Japan.

Ms. Dharshene Rajayah
Academy of Sciences Malaysia (Malaysia)

In order to master the path of science, you must love science and, in order to love science, it is important that you nurture your curiosity and critical thinking.

We had many valuable experiences throughout this week, and were able to gain broad knowledge of the various fields of sciences. The network of students that was formed across national borders is the most valuable product of this program, as social networks will continue for a long time and are important and trustworthy. We must make use of our new networks, and continue making efforts towards creating a better world.
Group 3 Activity Report: July 4 (Sat.) – 11 (Sat.)
China: 50 students + 5 supervisors / Singapore: 10 students + 2 supervisors

| Schedule |
|-----------------|-------------------------------------------------|
| July 4 (Sat.)   | Arrive at Kansai Airport                        |
| July 5 (Sun.)   | Orientation, visit Kyoto City, interact with students of Ritsumeikan High School |
| July 6 (Mon.)   | Visit universities (Team 1: Kyoto University, Team 2: Ritsumeikan University)  
|                 | · Introduction to the university and international program, discussion with foreign students, visit to laboratories and campuses (travel to Tokyo by bullet train, “Shinkansen”) |
| July 7 (Tue.)   | Visit Japan Agency for Marine-Earth Science and Technology (JAMSTEC) (Yokohama and Yokosuka), visit Enoshima Aquarium  
|                 | Japanese cultural learning experience (wearing kimonos, traditional flower arrangement, etc.) |
| July 8 (Wed.)   | Visit National Museum of Emerging Science and Innovation (Miraikan) (meet with Chief Executive Director Dr. Mamoru Mohri, view the museum and ASIMO)  
|                 | Experiment class with Dr. Hideki Shirakawa at Shibaura Institute of Technology |
| July 9 (Thu.)   | Visit universities (Team 1: Keio University Yagami Campus, Team 2: Waseda University)  
|                 | · Introduction to the university and international program, discussion with foreign students, visit to laboratories and campuses  
|                 | Visit Embassy of the People’s Republic of China in Japan (11 members of the China team only)  
|                 | Visit Embassy of the Republic of Singapore in Japan (12 members of the Singapore team only) |
| July 10 (Fri.)  | Visit RIKEN (Wako/Yokohama)  
|                 | Visit Panasonic Center  
|                 | Closing ceremony for the presentation of the Certificate of Achievement and farewell party (National Olympics Memorial Youth Center) |
| July 11 (Sat.)  | Leave Japan |

Activity Report

**July 7: Visiting the Japan Agency for Marine-Earth Science and Technology (JAMSTEC)**

The day began with the Group 3 members visiting the Yokohama Institute for Earth Sciences and Yokosuka Headquarters of the Japan Agency for Marine-Earth Science and Technology (JAMSTEC). They first received an explanation of JAMSTEC at the Yokohama Institute for Earth Sciences, and moved on to view the “Earth Simulator,” a world-class high-performance supercomputer.

The supercomputer, “Earth Simulator,” is used to analyze climate change by studying the effects of global warming, as well as movements within the earth. The participants were taken aback by the global scale of the simulator. The students were further surprised by the use of a special material called “aramid fiber” in place of reinforced concrete and by the lightning rods that are used to protect the computer. These materials allow it to operate without being affected by temperature or vibration.

The students were then given an explanation of the deep-sea scientific drilling vessel “Chikyu” that was completed in 2005. It has the highest drilling capacity in the world. Upon hearing that the “Chikyu” was able to drill seven kilometers under the seabed, the students asked, “Why is there a need to drill into the earth’s mantle to make calculations?” The students nodded in understanding to the response that the mantle had been an unexplored frontier before then and, hence, it was necessary to drill down in order to uncover its mysteries.

Lunch took place at a popular tonkatsu restaurant, which is featured in the Michelin Guide and, after enjoying a wonderful meal, the group traveled to JAMSTEC’s Yokosuka Headquarters.

At the Yokosuka Headquarters, the group first visited the maintenance center.
for the autonomous underwater vehicle “Urashima.” The students, who all love science, seemed fascinated by the descriptions of how location information on the seabed is calculated as it is on land, using GPS, and how the “Urashima” operated unmanned. The students also seemed interested in a water pressure experiment involving a ramen cup, observing the process and experiencing the mysteries of the seabed through the compression of the cup by water pressure. They proceeded to receive an explanation of the Dense Oceanfloor Network System for Earthquakes and Tsunamis (DONET), and learned that the data measured by DONET was provided to institutions such as the Meteorological Agency to be used for earthquake predictions and tsunami information.

Upon arriving at the National Museum of Emerging Science and Innovation (Miraikan), the group first met with Chief Executive Director Dr. Mamoru Mohri. They received a lecture about his journey to becoming an astronaut and the role of science and technology. Dr. Mohri then asked questions such as “Do you know what this panel is used for?” while showing photographs of the International Space Station, further sparking the students’ curiosity in science and technology.

The students then went to view the ASIMO demonstration. As Japanese schools were not yet on summer vacation, the museum was relatively uncrowded, and the students were able to properly observe the movements of ASIMO. They were very impressed by the complicated motions of the ASIMO.

July 8: Visiting Miraikan and welcomed by Astronaut Dr. Mohri

Upon arriving at the National Museum of Emerging Science and Innovation (Miraikan), the group first met with Chief Executive Director Dr. Mamoru Mohri. They received a lecture about his journey to becoming an astronaut and the role of science and technology. Dr. Mohri then asked questions such as “Do you know what this panel is used for?” while showing photographs of the International Space Station, further sparking the students’ curiosity in science and technology.

The students then went to view the ASIMO demonstration. As Japanese schools were not yet on summer vacation, the museum was relatively uncrowded, and the students were able to properly observe the movements of ASIMO. They were very impressed by the complicated motions of the ASIMO.

July 9: Visiting Keio University and Waseda University

The Group 3 members divided into two teams to visit the Keio University Yagami Campus and Waseda University.

The first group visited Keio University. After viewing a DVD about the university and the Faculty of Science and Technology, Professor Aoyama, Dean of the Faculty of Science and Technology, gave a further detailed explanation. The students seemed particularly interested in his stories about the founder of Keio University, Yukichi Fukuzawa, who is featured on the 10,000-yen note, as well as the double-degree program conducted by prominent overseas universities in partnership with Keio University.

After interacting with the foreign students from Asia who are studying at the campus, the students visited the laboratories of the Faculty of Science and Technology. Seeing a demonstration of advanced metalworking machinery, the students seemed to comprehend the foundations of the precise and delicate manufacturing processes in Japan.

Similarly, the trip to Waseda University featured an introduction to the university, the schools of science and mathematics, and the international program, as well as interaction with the current foreign students, a visit to the laboratories, and a tour of the campus.

The group later divided into a team to visit the Embassy of the People’s Republic of China in Japan and the Embassy of the Republic of Singapore in Tokyo, as well as a team that experienced the newest Japanese culture and latest electronics at Akihabara.
When the 10 Chinese students and one supervisor from Group 3 arrived at the Embassy of the People’s Republic of China in Japan at Roppongi, Tokyo, they were welcomed by a smiling Mr. Yonghua Cheng, Ambassador Extraordinary and Plenipotentiary, as well as Minister-Counselor for Science and Technology Ruan Xiangping. 

Kazuki Okimura, Counselor to the President at JST and Director of the Japan-Asia Youth Exchange Program in Science Promotion Office, began by expressing his appreciation for Ambassador Cheng and his great efforts in making arrangements with the Ministries of China to realize this program. He then reported on the achievements of the SAKURA Exchange Program in Science or SSP in the past year of its implementation. Ambassador Cheng responded by giving his compliments on the efforts made two years ago during a time when China-Japan relations were tense, stating, “On over ten occasions, Mr. Okimura actively made efforts to visit institutions in China, and sought understanding about the value of youth exchanges in the fields of science and technology. I give my sincere thanks for your realization of the SSP exchange program against all the odds.” 

Ambassador Cheng also addressed the students, saying, “I would like you to physically experience Japan beyond merely using information from the Internet, and think about how you can learn from the country in terms of its “soft” aspects.

The 30 members of Team 1, Group 3 (20 from China, 10 from Singapore) visited RIKEN in Wako City. They first received an introduction to the overall institution, and the students seemed particularly impressed by the fact that 700 out of 3,000 researchers were foreigners, with the Chinese members forming the largest group at 150. 

The group then toured the “RI Beam Factory” at the Nishina Center. Dr. Wang, who has been conducting research at the center for five years, gave a careful and detailed explanation that was understandable to high schoolers about the structure of an atomic nucleus and the discovery of new elements. The time finally came to view the superconductivity Cyclotron SRC, which has the highest beam strength in history. The SRC was entirely covered in a shield of pure iron. With a gross weight of 8,300 tons, it was truly a “lump of iron” with world-record weight and size among structures of this type. 

At first, the students seemed overwhelmed by the sheer size, but began asking many questions after Dr. Wang gave his clear explanations. There were highly advanced questions about the principles of nuclear fusion, and the interest among these aspiring scientists never waned. The students, however, were not the only ones eager about the visit. Mr. Lim, an accompanying teacher who teaches physics at the Dunman High School in Singapore, could not hide his excitement: “I had read about this in books and articles, but actually viewing it gave me goosebumps.”
Closing ceremony for the presentation of the Certificate of Achievement: July 10 (Fri.)

**Guests**

**Mr. Ruan Xiangping** (Minister-Counselor, Embassy of the People's Republic of China in Japan)

We invited the high school students from China to the Embassy yesterday, where I learned that they were spending an important time here and enjoying many valuable experiences, despite their short stay. The SSP launched last year, but I hope the program will continue its great contribution amidst the tense relations between China and Japan.

**Mr. Ye Wenquan** (Assistant Officer, Embassy of the Republic of Singapore in Japan)

Thank you for your invitation to this closing ceremony. I would like you all to utilize what you have learned through SSP in your daily life. I express my heartfelt appreciation to those involved, including JST, which has made such a wonderful program possible.

**Mr. Naoto Ito** (Principal Deputy Director, Second China and Mongolia Division, Asian and Oceanian Affairs Bureau, Ministry of Foreign Affairs of Japan)

The first country I ever visited was China, followed by Singapore. I traveled to Beijing as a high schooler, and participated in an exchange program with local high school students. In Singapore, the modern cityscape and its integration of nature left a deep impression on me. I hope that your experiences in this program will be engraved in your heart as well, and that you will flourish as civilian ambassadors in the future.

**Ms. Yuko Nishiyama** (Deputy Head, International Strategy Division, Science and Technology Policy Bureau, Ministry of Education, Culture, Sports, Science and Technology of Japan)

I express my deepest appreciation to those from the Embassy of China and Singapore and all institutions involved in helping realize SSP. At the Ministry of Education, Culture, Sports, Science and Technology, we believe that this program will contribute greatly to the future development of science and technology in Asia. I would like you all to share what you have experienced about the science, technology, and culture of Japan with your friends.

**Student Representatives**

**Mr. Tseng Fan Shuen**

River Valley High School (Singapore)

During our stay, we had the opportunity to experience scientific concepts and technology that can rarely be seen in Singapore, which deepened our worldview and scientific knowledge. Meeting with the scientists, who guided us young people towards contributing to the global scientific community in the future, has been an irreplaceable experience. This program provided a platform for the students of the Asian nations to gather and exchange creative ideas with each other.

**Mr. Gao Xingjian**

Shanxi Experimental Secondary School (China)

After coming to Japan, I realized that the urban culture is built on careful consideration and an advanced mindset. Kyoto does not prioritize city expansion, and maintains the atmosphere of an ancient city. I thought it was wonderful that everything that is necessary for contemporary living lay hidden behind the traditional cityscape. I understood that to the observant eye, science is inseparable from our daily lives.

**Supervisors**

**Mr. Liu Quanming**

The High School Affiliated to Xi'an Jiaotong University (China)

I express my sincere appreciation to JST and all those who were involved in the program. It was a short trip, but we were able to visit prestigious Japanese universities and research institutions and experience the power of advanced science and technology in this country. We also had the opportunity to experience Japanese culture. Having spent a valuable time here, we will now return to our countries and continue working towards peace and friendship in Asia.

**Mr. Lim Jian Wei Mark**

Dunman High School (Singapore)

I would like to begin by thanking JST for inviting us to Japan. This program allowed us to not only view the science and technology of Japan, but to also exchange opinions with the participants from China, which became an invaluable experience. We learned many things in Japan, and will bring back this significant knowledge to our respective countries. I am positive that we will be able to make an impact on daily lives in our communities.
After arriving in Japan, the Group 4 high school students and supervisors from Beijing, China went to their lodgings at Epoch Ritsumei 21 (Kusatsu City, Shiga Prefecture). The group from Shanghai was unable to arrive on schedule because of Typhoon No. 9 and joined the group in Tokyo on the 13th.

Following orientation, the group went to Kyoto, where the weather forecast was for slightly cloudy 35-degree Celsius weather. The 11 high school student supporters from Ritsumeikan joined on their fourth session to act as guides, take roll call, and communicate messages. Ms. Sakaguchi, who had recently returned from a study abroad trip to the U.S., sprang into action while making good use of her English skills. Another familiar face, the math-lover Ms. Takayama, was among the supporters. Ms. Takayama had participated in Group 1, and said with a smile, “Participating as a supporter not only helps advance my skills in English, but also gives me the wonderful opportunity to communicate with foreign high school students who love math as much as I do.”

A current study abroad student at Ritsumeikan High School from Northeast Yucai School in China, Ms. Li Cai Wei, also participated twice in a row despite having to return home in a few days: “I hope that I can give as much support as possible to the students from China. My future dream is to return to Japan after graduation, and enter a medical school of a prestigious national university.” With the help of these supporters, the Chinese students were able to fully enjoy their time at the sightseeing spots and places of historical interest in Kyoto.

Later, the Chinese students went to visit Ritsumeikan Junior & Senior High School (Nagaokakyo), which had been newly constructed in 2014. The students from Japan and China divided
into small groups to chat excitedly about their school lives, club activities, and university admissions. Reflecting on the interaction, the Chinese students expressed envy of the Japanese schools, noting, “Our curriculum is built around university admissions, but the daily life at Japanese high schools is multifaceted with rich curricula.” After the exchange program ended, the group returned from Ritsumeikan High School to their accommodations. They seemed somewhat lonely without the students from Ritsumeikan and their smiling faces.

**July 13: Move from Kyoto and Osaka to Tokyo**

The Group 4 students divided into two groups to visit Osaka University and Ritsumeikan University. Both groups actively participated in the campus tour, discussion with current study abroad students, and laboratory visits.

At Ritsumeikan University, the students from China were delighted to be welcomed by a presentation with slides in Chinese. During their visit to the laboratories, they seemed entranced with the experiment apparatus and explanation of research topics, and were active in asking questions.

The Osaka University group visited the only Joining and Welding Research Institute in Japan. The students attended class, covering themes that ranged from the principles of joining and welding, to the application of these techniques to smartphones. After touring the facilities of the research institute, they left the Kansai area to go to Tokyo.

**July 14: Visiting JAXA Tsukuba Space Center and KEK**

On this day, the group visited the Japan Aerospace Exploration Agency (JAXA) Tsukuba Space Center. They were first welcomed with a video message from astronaut Soichi Noguchi, then toured the “Space Dome” exhibit and astronaut training area.

The Space Dome introduced the history of space development in Japan and JAXA, including a 1/20 scale model of historical rockets, from the pencil rocket to the latest Epsilon rocket, a full-scale satellite, a real rocket engine, and a full-scale model of the “Kibo” Japanese experimental module. The students seemed fascinated as they listened to the explanations while viewing these displays.

At the astronaut training area, the group viewed various apparatuses and facilities used for the astronaut basic training. They seemed particularly interested in the spacesuit for extravehicular activity, and all took out their cameras.

Next, the group viewed various facilities, such as the human centrifuge and closed environment adaptation training facility. The students’ interest seemed to deepen even further when they learned that these instruments and equipment were used for actual basic astronaut training. Asked about his impression of the Space Center after the visit, Mr. Liang Jingze (Beijing No. 12 Middle School) replied in English, “Fantastic!” Despite the short visit, the Chinese students were able to gain substantial knowledge about space development in Japan.

In the afternoon, the group stopped by the High Energy Accelerator Research Organization (KEK). After receiving an overview of the facilities, they toured the Photon Factory and listened to a description of the daily activities of particle research by Associate Professor Hyodo. The students had unending interest in these facilities, which were being used not only by Japanese institutions, but also by overseas universities and research institutions. The questions continued until the moment Dr. Hyodo exited the room, but he responded with great enthusiasm.
July 16: Visiting Tokyo Institute of Technology and Waseda University

On the morning of July 16, when a large-scale typhoon was nearing the Kanto region, the group went to visit the Tokyo Institute of Technology Ookayama Campus. After listening to an explanation of the organization and history of the university, the international program, and daily life on campus, they attended a lecture on black holes (BH) by Professor Akio Hosoya of the Department of Physics, Faculty of Science. The lecture on the mysteries of the universe began with a question: “Can a one-centimeter BH swallow an elephant?” The group was enthralled with the dynamic color and mystery of the BH photographs and moving images that he projected on the screen.

During the question-and-answer session after the lecture, there was an endless stream of questions from the students, including, “How is the BH energy discharged?” and “What happens when multiple BHs collide?” Professor Hosoya responded patiently and sincerely to each question.

The other group visited the Waseda University Nishiwaseda Campus. They were first introduced to the university and the Faculty of Science and Engineering; the students were especially interested in the international program that confers degrees to students who take courses only in English. They were enthusiastic in asking questions about the admissions procedures and scholarships.

Afterwards, two Waseda University students guided the group around the Nishiwaseda Campus and its education and research facilities, science and engineering basic laboratories, and nuclear magnetic resonance apparatus, conveying the history of the university and stories about student life on the way.

July 17: Special class with the Nobel Laureate for Physics, Dr. Maskawa

The special class led by Dr. Toshihide Maskawa, the 2008 Nobel Laureate for Physics, was held with the support of Tokai University Takanawadai Senior High School. One hundred and twenty Super Science High School (SSH) course students from the school also attended the lecture.

Dr. Maskawa began by describing the development of 20th century physics, tracing the history of how the rise of quantum mechanics and Einstein’s theory of relativity became the foundation for the natural laws of physics in the 20th century.

He also moved away from academic topics to touch on his own stories from childhood. The students were excited to hear anecdotes from Dr. Maskawa, such as “I disliked studying and did not do any homework;” “When preparing for the Nagoya University entrance exams, I made strategies to ensure that I would get in even if I got a zero in English, my worst subject;” and “I submitted my German exam completely blank for my graduate school entrance exams.”

After the lecture, Dr. Maskawa had lunch and chatted with the students in the cafeteria. A female student from Anhui Province represented the Chinese students to convey their appreciation: “I was happy to hear Dr. Maskawa’s words that even if you encounter adversity, you must remain optimistic. I learned the importance of seeing a project through to the end, once you find a topic you are interested in.”

In the afternoon, they enjoyed a dynamic performance by the brass band club.
Many young people have come from the Asian nations under the SAKURA Exchange Program in Science, and many exchanges have taken place. Whenever I participate in the closing ceremony of this High School Program, I am reminded of the wonderful talents of the students who have visited Japan, and how they have absorbed and learned many things during their stay here. I believe that having listened to the prominent scientists of Japan and experienced the cutting-edge science and technology will have an impact on your future, and motivate you to gain an international perspective. China and Japan have historically conducted scientific and technological exchanges, even before diplomatic relations were restored. I hope you can continue to become figures who will advance China–Japan relations, as well as global science and technology.

Mr. Ruan Xiangping (Minister-Counselor, Embassy of the People’s Republic of China in Japan)

I trust that you were able to have a meaningful experience through your participation in the SAKURA Science High School Program. It was a short stay, but during your time here, you experienced the latest technology by visiting prestigious universities and research facilities, as well as attending special courses by prominent scientists, including a Nobel Prize recipient. There were many other things to learn this week, such as the safety of Japan and the sincerity of the Japanese. It is extremely important to experience a different culture while you are young. I look forward to seeing you build on these experiences, and continue your contributions to Asia and the world.

Mr. Takehiro Shimada (Director, Second China and Mongolia Division, Asian and Oceanian Affairs Bureau, Ministry of Foreign Affairs of Japan)

I am involved in science and technology at the Ministry of Education, Culture, Sports, Science and Technology, and I have seen many scientific and technological exchanges take place between Japan and China. Science and technology have a great influence on the advancement of each country, but also go beyond national borders to resolve issues that are shared by mankind. By the time you enter the workforce, the world will need even more international cooperation, and Japan and China should work together to solve such challenges as population aging, energy issues, poverty, and food problems. I hope you will use what you have experienced in this program to become actively and internationally involved in the future.

Mr. Shoichiro Sakaguchi (Director of International Science and Technology Affairs Division, Science and Technology Policy Bureau, Ministry of Education, Culture, Sports, Science and Technology of Japan)

While we were only here for one week, we were able to learn many things. The experiment class by Dr. Shirakawa left the deepest impression on me, as I was able to physically experience the wonders of science by conducting the experiment with my own hands. Although Dr. Shirakawa is elderly, he is still making great efforts in the front line of science, while thoroughly and clearly answering the questions of high school students such as ourselves. Through his actions, Dr. Shirakawa taught us what it means to be a scientist. It was very moving to see someone who has mastered science and climbed to the top continue to maintain his sense of inquiry.

Ms. Jiang Yuhan
Beijing No. 12 Middle School (China)

I was surprised that even in a city such as Tokyo with high population density, there were no major traffic jams and the cars were proceeding smoothly. In addition, I felt that the culture was developed and the people were polite. When we went shopping, they helped us in a careful and respectful manner, making patient efforts to explain the products. China does not place importance on practical education or the process of obtaining knowledge. By visiting the university laboratories and participating in the experiment class by Dr. Shirakawa, I understood the meaning and value of conducting experiments on my own. Our stay in Japan will be a lifelong treasure, and continue to have an impact on our actions.

Mr. Xia Zizhe
The Attached Middle School to Jiangxi Normal University (China)

The dedication and thoughtfulness of JST allowed the students participating in this program to have many valuable experiences. They not only experienced science and technology, but also the atmosphere of the ancient city of Kyoto. Meeting the prominent scientists of Japan and visiting research institutions and universities allowed us to be exposed to the advanced level of science and technology in Japan, as well as learn about the education here. We were able to learn the joys and methods of scientific research. I also believe that student’s attitudes towards science became even more positive. I hope that our experiences of interacting with Japanese high school students will lead to the creation of a bright future together.

Ms. Yin Shumei
Beijing No. 18 Middle School (China)
Group 5 Activity Report: August 1 (Sat.) – 8 (Sat.)

Brunei: 10 students + 2 supervisors / Indonesia: 30 students + 3 supervisors / Taiwan: 30 students + 3 supervisors

### Schedule

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<th>Date</th>
<th>Activity</th>
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<td><strong>August 1</strong> (Sat.)</td>
<td>Arrive at Kansai Airport</td>
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<td><strong>August 2</strong> (Sun.)</td>
<td>Orientation, visit Kyoto City, interact with students of Ritsumeikan High School</td>
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| **August 3** (Mon.) | Visit a company and universities (Team 1: Murata Manufacturing, Osaka University, Team 2: Ritsumeikan University)  
  · Introduction to the university and international program, discussion with foreign students,  
  visit to laboratories and campus (travel to Tokyo by bullet train, “Shinkansen”) |
| **August 4** (Tue.) | Visit Japan Agency for Marine-Earth Science and Technology (JAMSTEC) (Yokosuka and Yokohama)     |
| **August 5** (Wed.) | Visit National Museum of Emerging Science and Innovation (Miraikan) (meet with Chief Executive Director Dr. Mamoru Mohri, view the museum and ASIMO) 
  Visit National Institute of Radiological Sciences 
  Visit Embassy of the Republic of Indonesia in Japan, Taipei Economic and Cultural Representative Office in Japan, and Embassy of Brunei Darussalam in Tokyo, Japan |
| **August 6** (Thu.) | Special class with Dr. Hiroshi Amano (at the Metropolitan Toyama High School) 
  Lunch with the Toyama High School students, experiment session, research presentation |
| **August 7** (Fri.) | Visit universities (Team 1: Keio University Yagami Campus, Team 2: Waseda University)  
  · Introduction to the university and international program, discussion with foreign students,  
  visit to laboratories and campus
  Closing ceremony for presentation of the Certificate of Achievement and farewell party  
  (National Olympics Memorial Youth Center) |
| **August 8** (Sat.) | Leave Japan                                                                                       |

### Activity Report

#### August 5: Visiting National Institute of Radiological Sciences

The first team of 40 students from Indonesia, Brunei, and Taiwan visited the National Institute of Radiological Sciences (NIRS) in Chiba City. NIRS is the first institution in the world to develop and construct a specialized heavy ion cancer treatment facility named the Heavy Ion Medical Accelerator in Chiba (HIMAC), and has contributed greatly to both advanced medicine and clinical testing.

The students were first introduced to the history of heavy ion beam cancer treatment, and the differences between the traditional methods of radiation therapy and ion beam treatment. While existing methods of radiation therapy are greatly damaging to normal cells as well as cancer cells, ion beams only come into effect when they stop at the cancerous lesion. The students learned that this was the most advanced method of cancer treatment, allowing less harmful treatment of areas in the body that are difficult to reach and operate on.

Then came the time to tour the HIMAC facility. As most of this facility is buried underground, the students seemed very surprised to hear that it is an enormous machine, with a gross area as large as a soccer field. It was an invaluable opportunity to experience an aspect of the cutting-edge cancer treatment that has received global attention.
Indonesia

During a period of extremely hot weather, the 10 students and one supervisor from Indonesia wore the same bright red batik shirt that they had prepared beforehand, and visited the Embassy of the Republic of Indonesia in Japan (Shinagawa, Tokyo).

Mr. Ricky Suhendar (Counselor) and Ms. Sayu Oka Widani (First Secretary) gave a warm welcome to the students from their home country, with the Counselor greeting them, “The Embassy of the Republic of Indonesia supports the SAKURA Exchange Program in Science. I hope that it will continue for a long time in the future.”

The students discussed their immediate impressions of Japan, saying, “It is very interesting that there is a mixture of western technology and eastern culture and manners,” “The Japanese are diligent, and no matter where you go, the cities are clean,” “I was surprised that the change gets returned to you so quickly at stores. I was taken aback when the shopkeeper handed me back the change as soon as I gave them my purchase and money.”

Taiwan

The 10 students and one supervisor from Taiwan went to visit the Taipei Economic and Cultural Representative Office in Japan at Shirokanedai, Tokyo, in the sweltering heat. Deputy Representative Mr. Kuo Chung-Shi greeted them, saying, “Taiwan and Japan have historically worked together in the exchange of science and technology, the humanities, and the economy. Japan is an extremely important partner for Taiwan.”

He addressed the students, noting, “I hope that you will contribute to the science and technology of Taiwan and Asia, through experiencing the advanced science and technology of Japan with your own eyes, and making use of that memory.”

Next, Kazuki Okimura, JST Counselor to the President, explained the outline of the project, “We have invited the most talented students to come to Japan, and have prepared the best program possible for them. However, this was not done to have them love Japan or study in this country, but rather for them to experience the research environment and minds of the best researchers here. We sincerely believe that this will become useful in the lives of the students, who will be supporting science and technology in the future.”

Brunei

On the same day, the 10 students and two supervisors from Brunei Darussalam went to meet His Excellency Mr. Haji Mahamud bin Haji Ahmad, Ambassador Extraordinary and Plenipotentiary. The Ambassador welcomed the students, then offered lunch and snacks from Brunei cuisine. According to the Ambassador, after Ramadan in Islamic countries such as Brunei, it is customary to invite family and friends to each other’s homes, and have an “Open House” party with many dishes. Since Ramadan had only concluded two weeks earlier, they had made preparations in that style.

The Ambassador noted, “You can learn many things from Japan, including their systematic ways, the warmness of the people, and safety. I hope that you will continue your interactions with Japan. I would also like more students from Japan to visit Brunei to make our mutual exchanges more active and for this program to continue in the future.”
August 6: Special class with Dr. Amano, Nobel Laureate, at Metropolitan Toyama High School

Dr. Hiroshi Amano (Professor at Nagoya University Graduate School), recipient of the Nobel Prize for Physics in 2014, led a special class for the students at the Metropolitan Toyama High School. In addition to the 78 students who hailed from Indonesia, Brunei, and Taiwan, 100 students of the Super Science High School (SSH) class at Metropolitan Toyama High School participated. The lecture was entitled “Lighting the Earth by LEDs” and was conducted in English.

Dr. Amano first broke the ice for the nervous students by saying, “I think this will become useful to you when you all receive the Nobel Prize in the future.” He described how he had not known that he had won the prize, as he was on an airplane at the time. He also recounted the awards ceremony and related events using many slides.

Finally, it was time for the blue LED. He first became interested in blue LED, for which he received the Nobel Prize, when he focused on Professor Akasaki’s work on blue LED as a thesis topic. He realized that it would be possible to complete that work to change the world. In addition, he looked back on his own research and described how it took him over 1,500 experiments and failures to create a high quality gallium nitride crystal. They finally succeeded by inventing a low-temperature buffer layer, which quickly advanced the research on blue LED.

After the lecture, the students asked many questions such as, “What is necessary for success?” and “How do fantastic ideas come about?” Dr. Amano gave comprehensive replies to each question until the hour-long session ended, explaining, “It is important to have an ideal image of success,” and “You should become curious about many things, focus, and think logically.”

August 6: Experiments with the Metropolitan Toyama High School students

On the same afternoon, the Group 5 students took part in a science experiment with the students of the Super Science High School (SSH) class at Metropolitan Toyama High School. They began by dividing into three groups covering physics, biology, and chemistry, with 50 students from Asia and Japan in each group.

The experiment topics were: “Fly a paper airplane further using creativity” for physics, “Find and categorize organisms in the earth” for biology, and “Guess which salt water is more dense” for chemistry. The instructors prepared the necessary equipment, but this unique class called for the students to come up with experiment methods on their own. They further divided into teams of 5-6 students from Japan and Asia, to discuss the experimentation methods.

While some groups had trouble communicating in English, as science-minded students, they overcame the language barrier using numerical expressions and diagrams. The experiment began once all members of the group had given their approval. The paper airplane group checked the precision of the completed airplanes by flying them repeatedly in the hallway, and all students seemed to be truly enjoying the experiments, as if they were playing together.

After the 90-minute long experiment, the presentations took place. The students explained why they had chosen the particular experiment method and the results of their approach. It seemed very challenging for the high school students to present in English, but they extended serious effort.

This experiment class is a new endeavor for the SAKURA Science High School Program to begin this year, aiming to allow students from Asia and Japan to learn together and strengthen their exchanges. During the three hours, the students from Asia and Japan became united and were able to enjoy the experiments.
I offer my deepest thanks to JST and all others who made this program possible. I felt that along with the science and technology, the Japanese discipline and sense of responsibility towards work was impressive. Getting to know the kindness and peace of this nation became an unforgettable experience.

The institutions that we visited made creative, comprehensive, and detailed preparations for the students from different countries to quickly become familiar with each other, efficiently tour the facilities, and learn. This allowed us to spend a fulfilling time in Japan.

I was surprised at the heat in Japan when we arrived, but exciting days followed. We were very fortunate to be able to visit Japan, a world-leading pioneer in the fields of science and technology. The SAKURA Science Plan should become a good opportunity for young people of Asia to get to know Japan. Japan was even more attractive than I had imagined.

Mr. Alexandar bin Bangdang
Sekolah Menengah Sayyidina Hasan (Brunei)

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Ms. Lusi Apriyana
SMKN 2 Secondary School (Indonesia)

I thought that Japan was even hotter than Indonesia, but seeing the Japanese all work diligently despite the heat left a deep impression on me. The facilities that we visited were all wonderful, and the students were able to experience and learn about cutting-edge science and technology in Japan.

Ms. Chien Hsin
University of Science and Technology (Taiwan)

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Ms. Ni Made Adnya Suasti
SMA Negeri 4 Denpasar (Indonesia)

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Mr. Chang Hao-Chun
The Affiliated Senior High School of National Taiwan Normal University (Taiwan)

Experiencing cutting-edge science and technology and meeting with world-renowned scientists left a deep impression on me. When we worked in groups with students from other countries, I was conscious of the differences in culture and customs, but also realized the similarities—that we are all passionate about learning, and would like to share this passion with others.

Ms. Chua Yee Ling
Paduka Seri Begawan Sultan Science College (Brunei)

During our time in Japan, we were able to experience Japanese culture along with the latest science and technology. Japan is no longer alien to me, and now seems more familiar and attractive. When we visited the research institutions, I was also moved by the researchers and their contributions to mankind through vigorous efforts in their own research.

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The group traveled from their lodgings to Kyoto City to learn about Japanese history and culture. They toured Kinkakiji Temple and Kiyomizudera Temple, as well as their neighboring areas. Despite the intense summer heat, students from Ritsumeikan High School joined each group as tour guides, and introduced the culture of Kyoto using their English skills. There was some rain and lightning during the tour, but they took refuge from the rain and huddled under umbrellas to return safely to the bus.

In late afternoon, they visited Ritsumeikan High School and enjoyed the exchange session with Japanese students.

Activity Report

August 15: Arrival in Japan

The teams from China and Vietnam arrived safely at Kansai/Ishimi Airport and traveled to their respective accommodations at Nagai Youth Hostel and the Ritsumeikan University Biwako-Kusatsu campus.

The Vietnam team had their orientation on the day of arrival, while the China team waited for a group that arrived late at night before having their orientation the following morning.

August 16: Visiting Kyoto with Ritsumeikan students

The group traveled from their lodgings to Kyoto City to learn about Japanese history and culture. They toured Kinkakiji Temple and Kiyomizudera Temple, as well as their neighboring areas. Despite the intense summer heat, students from Ritsumeikan High School joined each group as tour guides, and introduced the culture of Kyoto using their English skills. There was some rain and lightning during the tour, but they took refuge from the rain and huddled under umbrellas to return safely to the bus.

In late afternoon, they visited Ritsumeikan High School and enjoyed the exchange session with Japanese students.
August 17: Visiting Osaka Prefecture University and Ritsumeikan University

The group divided into two teams and visited the Osaka Prefecture University Nakamozu Campus, and the Ritsumeikan University Biwako-Kusatsu Campus. At Osaka Prefecture University, the students received an introduction to the university, followed by a short lecture. They were also advised about student life and international programs by the university’s foreign students from China and Vietnam. Mr. Wu Yifan of China No. 63 High School expressed his appreciation, saying, “We are grateful to the university professors and foreign students for introducing us to the university and its laboratories, despite it being summer vacation, and for your warm words and encouragement.”

The group that visited Ritsumeikan University also received a description of the university and study abroad program. They then visited multiple laboratories, and had discussions with the foreign students from each country.

August 18: Visiting Japan Agency for Marine-Earth Science and Technology (JAMSTEC)

The group visited the JAMSTEC Yokosuka Headquarters and Yokohama Institute for Earth Sciences. They seemed fascinated by the experiments on water pressure in the deep seas, the pressure resistance of the underwater investigation vessel, and images generated from the analysis of the Earth Simulator.

Mr. Nguyen Thanh Hiep from Vietnam showed great interest, saying, “The research and facilities were all fantastic. I would like to work at JAMSTEC.”

August 19: Meeting with Dr. Mamoru Mohri at Miraikan

At the National Museum of Emerging Science and Innovation (Miraikan), the group listened attentively to a lecture by astronaut Dr. Mohri, Chief Executive Director, who explained topics such as the value of the earth environment while touching on the functions of the space station. Mr. Hong Shengnan from Hangzhou No. 2 High School seemed moved, reflecting, “Dr. Mohri is amazing. He said that if we all learn and collaborate with each other, we will be able to create a better future.”

August 19: Courtesy visit to Embassy of Vietnam

The 10 students and one supervisor from Vietnam visited the Embassy of the Socialist Republic of Vietnam in Tokyo, and the Minister, Ms. Nguyen Phuong Hong greeted them.

The Minister encouraged the students, saying, “I would like you to use your experiences in Japan to deepen your interest in science, and become successful scientists in the future.” The students seemed nervous in front of the Minister, but were unable to hide their excitement about the valuable experience.
After the closing ceremony, students from each country performed a song and dance at the farewell party. The students from China and Vietnam gradually got to know each other, and had a very exciting time singing and dancing.

**August 20: Attending a special class by Dr. Makoto Kobayashi, Nobel Laureate**

At Bunkyo Gakuin University Girls’ Senior High School, the students attended a special class taught by Dr. Makoto Kobayashi (Distinguished Emeritus Professor, High Energy Accelerator Research Organization or KEK), the 2008 Nobel Laureate for Physics. They received an explanation of matter and antimatter, as well as the past and future of theoretical and experimental research.

Though the talk seemed difficult for high school students, there was a stream of questions relevant to the topics. At the end of the class, a student representative expressed appreciation, saying, “We hope to become a member of KEK under Dr. Kobayashi in the future, and be respectable scientists.”

**August 20: Interacting with Japanese students**

Along with students from the Bunkyo Gakuin University Girls’ Senior High School, a Super Science High School (SSH), the students divided into 20 teams to hold an egg drop competition. Using A3-size Kent paper, they competed to find ways to prevent eggs (past their expiration date) from smashing seven meters below.

The teams had a mixture of Chinese, Japanese, and Vietnamese students, and each team seemed very excited to produce various ideas. In the end, two teams were successful in preventing the egg from cracking, and friendships grew among the students from different countries.

**August 21: Visiting Tokyo Institute of Technology and Tokyo University of Science**

The students divided into two teams to visit the Tokyo Institute of Technology Ookayama Campus and the Tokyo University of Science Noda Campus. At Tokyo Institute of Technology, the students attended a lecture, toured the laboratories, and interacted with students. There was an active and spirited question-and-answer session after an explanation of research life and career paths.

The group that visited Tokyo University of Science also stopped by the research center, and were welcomed by current study abroad students from their home countries. A friendly and intimate chat followed, discussing daily life as a study abroad student.

**August 21: Song and dance from each country at the farewell party**

After the closing ceremony, students from each country performed a song and dance at the farewell party. The students from China and Vietnam gradually got to know each other, and had a very exciting time singing and dancing.
Closing ceremony for the presentation of the Certificate of Achievement : August 21 (Fri.)

Guests

Mr. Ruan Xiangping (Minister-Counselor, Embassy of the People’s Republic of China in Japan)

It was a short visit, but you had the invaluable opportunity to learn about cutting-edge science and technology, and attend a lecture by a recipient of a Nobel Prize. I believe that you were also able to interact and nurture mutual understanding with students of your own age, including Japanese young people. I hope you make full use of your experiences for your further growth in the future.

Mr. Pham Quang Hung (First Secretary, Embassy of the Socialist Republic of Vietnam in Japan)

When I was your age, I had the experience of coming to Japan under a similar program, which inspired me to study abroad here. I believe that most of the students are overseas for the first time, but it was a very valuable opportunity for you to visit this country with its advanced science and technology. Please make this visit your own inspiration to select an interesting field in the sciences, and enter a reputable university.

Mr. Tsutomu Kawata (Area Coordinator, First China and Mongolia Division, Ministry of Foreign Affairs of Japan)

Science and technology open our way into the future, and it is very important for the future of mankind that young people who carry this future interact with their cohorts in this field. I trust you will bring home what you have felt and considered during your visit, nurture your dreams towards science and technology, and contribute to the development of your country as well as the world as a whole.

Ms. Yuka Miyahara (Deputy Head, International Strategy Division, Science and Technology Policy Bureau, Ministry of Education, Culture, Sports, Science and Technology of Japan)

The opportunity to interact with those from other countries when you are young is very beneficial to your future, and I am sure that you were able to broaden your perspectives and knowledge during your stay here. I hope you can continue to devote yourselves to your studies, and become international figures who will be able to lead the science and technology fields in your countries.

Student Representatives

Mr. Hong Shengnan
Hangzhou No. 2 High School of Zhejiang Province (China)

I am grateful for the opportunity to interact with Japanese high school students and experience Japanese culture. The attention to detail and precision of the Japanese left a deep impression on me. We experienced the cutting-edge technology of Japan, and learned about various topics such as physics, biology, and the environment. It was a very informative trip, and I was impressed by the atmosphere of the science and technology fields in Japan.

Mr. Nguyen Minh Tri
Quốc Hoc – Huế High School for the Gifted (Vietnam)

I realized that the diligence, patience, and systematic approach of the Japanese led to the flourishing of this country. By visiting the science and technology facilities, we were able to experience the advanced science and technology infrastructure here, and peek into a new world. Through interacting with Chinese and Japanese students in addition to fellow Vietnamese students, we were able to make many friends during this trip.

Supervisors

Mr. Zuo Tao
Guangzhou No. 2 High School (China)

The lecture by Dr. Makoto Kobayashi was particularly significant. It is fortunate that the students were able to directly hear a lecture from a recipient of a Nobel Prize and ask questions, and I believe they were able to set the goal of emulating Dr. Kobayashi. It is wonderful that the students from the three countries not only competed with each other, but also deepened their friendship. I hope they will continue to maintain these ties into the future.

Ms. Dang Thuy Chi
Ministry of Education and Training (Vietnam)

I believe the students gained interesting knowledge through the informative lectures and various visits, which stimulated their interest in science and nurtured their dreams of becoming scientists. Students who had not known each other previously became friends during these visits, and will likely look back nostalgically on these experiences. I hope that they will meet each other again in the future, and pave their futures from a global perspective.
The 35 students from China, Myanmar, and Mongolia in Group 7 visited Murata Manufacturing Co., Ltd. (headquarters in Nagaokakyo City, Kyoto Prefecture), a world-class manufacturer of electronic parts. After an overview of the company, the group was introduced to “Murata Seisaku-kun,” a bicycle-riding robot, and “Murata Seiko-chan,” a unicycle robot.

“Murata Seisaku-kun” did not fall even after he stopped pedaling, and “Murata Seiko-chan” maintained excellent balance while riding over a balance beam, going forwards and backwards with ease. The demonstration was met with great applause, and the students desperately tried to record it with their cameras and smartphones.

This was a valuable opportunity for the Asian students to directly experience the advanced robotics technology of Japan.
The students of Group 7 participated in a special class given by Dr. Akira Suzuki, Professor Emeritus of Hokkaido University and recipient of the 2010 Nobel Prize for Chemistry, at the Yokohama Science Frontier High School, a Super Science High School (SSH). Dr. Suzuki talked about how he had initially planned to study mathematics, but decided to pursue chemistry after encountering a certain book. He continued on to discuss the topic that had led to his Nobel Prize, the “cross-coupling reactions.”

Moreover, Dr. Suzuki addressed the future scientists and listed the most important points to follow as a researcher: 1. Originality, 2. Never giving up, and 3. Careful observation. The students nodded deeply in understanding.

In the afternoon, the group took part in exchange activities with the Yokohama Science Frontier High School students. The Japanese students paired with the Asian students, using English to introduce the facilities, conduct science experiments, and make observations with microscopes and X-ray analysis instruments.

After the activities, the group was welcomed at the cafeteria with delicious sweets and beverages. The students from Asia seemed to enjoy the dumplings and other snacks. Afterwards, the group returned to the hall for a closing ceremony.

The Japanese students sang the school song in harmony, and the students from Asia joined in with “We are the World” to end the exciting day.

Laos
Nine students and one supervisor from Laos visited the Embassy of Laos in Japan, where Minister-Counselor Vongsack and First Secretary Leuangtakoun received the students.

Mrs. Vongsack explained that a commemorative ceremony had been held this year to celebrate the 60-year anniversary of the establishment of Japan-Laos diplomatic relations, with Laos presenting four elephants, and Japan 200 cherry blossom trees. She welcomed the group, saying, “I am delighted that high school students from Laos are visiting Japan under the SAKURA Exchange Program in Science on such a joyous occasion. Science and technology are critical to Laos, and we hope you will learn much from Japan before returning.”

Cambodia
Ambassador Extraordinary and Plenipotentiary Chea Kimtha, and First Secretary Chhay Makara welcomed nine students and one supervisor from Cambodia. Ambassador Kimtha spoke warmly to the students to ease their nerves, saying, “SSP is a wonderful program, and this was a good opportunity that will lead to the development of both countries. The Royal Embassy of Cambodia hopes that this program will continue in the future.”

The students gave their frank impressions of their experiences after coming to Japan, saying, “The exchange program with Japanese high school students was amazing” and “After directly experiencing the cutting-edge marine technology at JAMSTEC, I was surprised at the innovation.”
August 27: Participating in an experiment with Nobel Laureate Dr. Hideki Shirakawa

Dr. Shirakawa, recipient of the Nobel Prize for Chemistry, held a demonstration on conductive plastic at the Shibaura Institute of Technology. This was the fifth time that this class was held this year, and the students seemed elated to be taught by Dr. Shirakawa, while enjoying the valuable lesson to the full. It is challenging to oversee an experiment with over 100 high school students, but each table cheered when the lamp lit up, indicating success in the experiment, and approached Dr. Shirakawa to report on their efforts.

After the class, the students from Laos, China, Myanmar, Mongolia, and Cambodia, along with the supporting staff, took a commemorative photograph with Dr. Shirakawa. It was a really exciting experience for high school students from Asia to perform a laboratory experiment with Nobel Laureate Dr. Shirakawa.

August 28: Visiting Keio University Shonan Fujisawa Campus

On this day, Group 7 students from China, Myanmar, Mongolia, Cambodia, and Laos visited the Keio University Shonan Fujisawa Campus (Fujisawa City, Kanagawa Prefecture). Upon arrival, the students and instructors of Keio University welcomed the group at the school gates.

First, they were given an overview of Keio University and its history, and introduced to the Shonan Fujisawa Campus. The students seemed relieved to hear that many courses could be taken in English, and that it would be fine to learn Japanese after arrival.

Afterwards, the group divided into smaller teams and participated in a workshop with Japanese students. Looking back on the program, they freely discussed topics such as “the most memorable experiences in Japan,” “how we will be involved with Japan in the future,” and other impressions and visions for the future.

After having lunch on campus, the students attended a lecture by foreign instructors from the U.S. and Singapore. They seemed absorbed in the talk, listening and actively asking questions as though they were already Keio students.
Guests

Mr. Chhau Gothira  
(Counselor, Royal Embassy of Cambodia in Japan)
I believe that you were able to become aware of your current state, and create a vision of your future through participation in this program. I hope you will share what you have gained here with the people around you.

Mrs. Somsanouk Vongsack  
(Counselor, Embassy of the Lao People’s Democratic Republic in Japan)
The advancement of science and technology is important in Laos as well. I would like the students who have visited Japan to return to their countries and make great contributions.

Ms. Khaimar Wint Zin Than  
(Second Secretary, Embassy of the Republic of the Union of Myanmar in Japan)
It is wonderful for youth to be able to gain new knowledge and experiences. I look forward to seeing you change our homes in Asia for the better through the power of science.

Mr. Yasuo Kishimoto  
(Senior Deputy Director-General, Science and Technology Policy Bureau, Ministry of Education, Culture, Sports, Science and Technology of Japan)
I am deeply grateful to the governments of each country and all those involved in the realization of this program. I hope that you will continue to work hard in your studies, and contribute to the development of science and technology in your home countries.

Student Representatives

Ms. Serey Polideth  
Bak Touk High School (Cambodia)
I plan to share our diverse experiences from this visit with others back home. I now have the dream of studying in Japan in the future, and I will work hard to realize it.

Mr. Huang He  
YK Pao School (China)
Nobel Laureate Dr. Suzuki taught us the importance of the spirit of “Never giving up.” I will remember these words when I encounter obstacles during my research in the future.

Mr. Sombath Yang  
The School for Gifted and Ethnic Students (Laos)
It is still rare for people in my country to visit other countries. It was very fortunate that I was able to visit Japan, meet with prominent scientists, and tour research institutions with the newest equipment.

Mr. Tugsbayar Turkhuu  
New Beginning State Bilingual High School (Mongolia)
A unique aspect of Japan is the co-existence of the latest science and technology, and ancient traditions. Japanese culture was particularly interesting, and my curiosity was sparked in every place we visited.

Ms. Khaing Su Yi Mon  
Basic Education High School No. 16 Mandalay (Myanmar)
I was very happy for the opportunity to interact with Japanese students and have their support. It has become a good memory. We forged new friendships despite our short stay, and will continue to treasure them.

Supervisors

Ms. Chet Sophorn  
Bak Touk High School (Cambodia)
The students from our country participated in this program and had many new experiences, which I am sure will have an impact on their future. I am grateful to those in Japan who gave us this opportunity.

Ms. Xia Wen Li  
Nanchang No. 2 High School (China)
I am honored to have been able to participate in this program. Japan has many cultural offerings in addition to its advanced science and technology. The students had a valuable experience during their stay here.

Ms. Sithphaxay Khamphoumy  
Ministry of Education and Sports (Laos)
We were not only able to learn about Japan through this program, but also about other Asian countries, including their cultures and people. This will become an unforgettable memory for the students who participated.

Ms. Gansukh Sukhbaatar  
Ministry of Education and Science (Mongolia)
In Mongolia, we have a proverb, “seeing is believing.” During this valuable week, I believe the students directly experienced new things and were able to broaden their world.

Ms. Aye Aye Mar  
No. 8 Basic Education High School Mawlamyine (Myanmar)
I am extremely grateful to have been given the opportunity to participate in this wonderful program. I give my heartfelt thanks to JST and all those involved.
The Republic of Korea team visited the Tokyo Institute of Technology Ookayama Campus. After arrival, Professor Masafumi Okada of the Department of Mechanical and Intelligent Systems Engineering, School of Engineering, gave an overview of the school and its international program. This was followed by the main theme of the day, a lecture on robotics.

The students had unending interest in the lecture on robot control, and many students crowded around Dr. Okada afterwards to continue asking questions.

Next, Professor Nobuyuki Iwatsuki of the same department delivered a lecture on “the link mechanism for moving quadrupedal robots.” After lunch came the long-awaited robot-making workshop.

During the workshop, students were each given robot construction kits and did their best to create original robots through trial and error in a limited amount of time. The process required an advanced level of specialized knowledge, and some students were unable to complete their work within the time limit.

At the end, a contest was held to test the walking speed of the completed robots. Many of the robots moved in unexpected ways, and the session was a source of much laughter and excitement.

Group 8 Activity Report: January 9 (Sat.) – 16 (Sat.)
Republic of Korea: 30 students + 3 supervisors

<table>
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<tr>
<th>Schedule</th>
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<tr>
<td>January 9 (Sat.)</td>
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<td>January 10 (Sun.)</td>
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<td>January 11 (Mon.)</td>
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<td>January 15 (Fri.)</td>
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<td>January 16 (Sat.)</td>
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Activity Report

January 11: Visiting Tokyo Institute of Technology

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At the end, a contest was held to test the walking speed of the completed robots. Many of the robots moved in unexpected ways, and the session was a source of much laughter and excitement.

[Focus on robot construction]
January 12: Visiting Nagoya University, interacting with the Meijo University Senior High School students

The group traveled to Nagoya from Tokyo by a bullet train “Shinkansen” and visited the Nagoya University Higashiyama Campus. They were first given an overview of the university and its international program by Professor Hideyo Kunieda, Trustee and Vice President of Nagoya University. The students listened intently as he described the large number of recipients of the Nobel Prize that had attended the university.

Afterwards came the time for students to interact with the study abroad students from Korea who were attending Nagoya University. Questions from the high school students ranged from the admissions process to club activities.

After lunch, the students of Meijo University Senior High School joined in to hear a lecture by Professor Toru Iijima, Particle Astrophysics, Graduate School of Science at Nagoya University, who conducted research alongside Dr. Toshihide Maskawa, recipient of the 2008 Nobel Prize for Physics. Professor Iijima was the scientist who proved Dr. Maskawa’s theory through experiments. He explained “symmetry breaking,” which forms the theoretical foundations of particle physics today, in language that was understandable to high school students.

After the lecture, the group divided into smaller teams and visited the Nobel Prize exhibit room, the Akasaki Research Center, the Fundamental Particle Physics Laboratory, and the Chubusat Instrument Development Project Laboratory that advances research and development on the small satellite, ChubuSat. Dr. Keisuke Tamura of the Graduate School of Science gave an explanation of the insulation material that prevents heat cracks in X-ray telescopes installed on satellites.

After the program at Nagoya University, it was time for the group of students from Korea and Meijo University Senior High School to say farewell. Reluctant to part ways, the students began a spontaneous session of interaction, song, and performances. The cold weather did not dampen the cheery mood of the students from these two countries, and they were full of energy and excitement.
January 13 : Visiting the Toyota Commemorative Museum of Industry and Technology

The students from Korea visited the Toyota Commemorative Museum of Industry and Technology in Nagoya City. This museum exhibits objects ranging from a weaving loom, the origin of the Toyota Group, to a historical line-up of Toyota vehicles. The most popular display seemed to be a demonstration of the latest weaving machinery model, which used computers to spin thread at a dazzling speed.

Afterwards, the students stopped by Meijo University Senior High School, where they were reunited with the Japanese students with whom they had already become friends on the previous day, and the meeting between the two schools quickly became lively. After having lunch together, they went to a lecture by Associate Professor Tetsuya Takeuchi of the Department of Materials Science and Engineering, Faculty of Science and Technology, Meijo University, entitled “LEDs: Changing the World.”

January 14 : Visiting University of Tsukuba and High Energy Accelerator Research Organization

After arriving at University of Tsukuba, the students from Korea were given an overview of the university and its study abroad system by Associate Professor Kang Seung Won (Faculty of Life and Environmental Sciences). He explained that University of Tsukuba is the base of the “Global 30” program by the Ministry of Education, Culture, Sports, Science and Technology, and is implementing various projects to internationalize the university. He also described in detail the “Tsukuba Scholarship” unique to the university, and received many questions from the students.

The students then divided into three courses: (1) Plasma, (2) Sleep Medicine, and (3) Life Sciences, and visited the respective laboratories. They then had lunch at the cafeteria, and had the opportunity to interact with the current study abroad students at the University of Tsukuba. Mr. Wen, a foreign student who came under the Japanese Government Scholarship program, advised, “It is important to receive scholarships to study abroad.”

At the High Energy Accelerator Research Organization (KEK), the students visited the memorial hall of Dr. Shinichiro Tomonaga, who received the Nobel Prize for Physics in 1965. The students were able to learn details about the achievements of Dr. Tomonaga, who made multiple contributions to the development of nuclear and particle physics in Japan, and has deep ties with the founding of KEK. They then visited the research facilities with the massive KEK accelerator.
Guests

Mr. Sun Hyang (Science and Technology/Information and Communication Officer, Embassy of the Republic of Korea in Japan)

When I came to Japan on the JSPS (Japan Society for the Promotion of Science) program around 20 years ago, I learned how advanced the country was, particularly in the fields of science and technology. The Republic of Korea and Japan are neighbors in terms of geography, but I am sure you have heard negative opinions about Japan in Korea. There may be some of you who have realized during this visit that there is much to learn from Japan. The development of science brings benefits to the nation, but further development will lead to contributions to mankind. As you continue following the path of science, I would like you all to display your talents for mankind and the world.

Mr. Ei Takeuchi (Director of Science and Technology Affairs Division, Science and Technology Policy Bureau, Ministry of Education, Culture, Sports, Science and Technology of Japan)

I would like to express my appreciation for those who are involved in the implementation of the SAKURA Science High School Program. We were able to receive many talented students from the Republic of Korea, and I hope that this experience will be useful to your career development. As a representative of the Japanese Government, I have had many opportunities to interact with the representatives from other countries, giving me a daily reminder of the importance of exchanging information with individuals from diverse countries. I was also able to become close with the representative of the Republic of Korea. I expect the cooperative relations between Japan and Korea to continue increasing in importance, and sincerely look forward to seeing you become a bridge between the two countries, and continue your success.

Student Representatives

Mr. Woo Banseok
Jeju Science High School

During this week, I was able to have wonderful experiences. Among the events in this program, the school visits were particularly memorable for me. We were able to learn about particle physics at Nagoya University, and although physics has never been my strongest suit, the clear explanation from Dr. Iijima helped me to become interested in the subject. Our interactions with the students from Meijo University Senior High School became an unforgettable memory as well. They taught me about research being conducted by students of my age, and this became a good motivator.

Ms. Oh Yebin
Ulsan Science High School

I am glad that I was able to participate in the SAKURA Science High School Program. We learned about many things this week. In particular, the information on Japanese university curricula and international programs was very beneficial. Through valuable experiences such as constructing a robot at the Tokyo Institute of Technology, learning about the research by recipient of Nobel Prize Dr. Maskawa at Nagoya University, and hearing the lecture at the University of Tsukuba, Japanese universities started to become very familiar and approachable for me.

Supervisor

Mr. Park Heeone
Education for the Gifted Support Team Leader, Korea Foundation for the Advancement of Science and Creativity

The visit to Japan was delayed because of the impact of MERS but finally happened this year. This has allowed JST and the Korea Foundation for the Advancement of Science and Creativity to strengthen our relations more than ever. While visiting Daikin and creating robots at the Tokyo Institute of Technology were interesting experiences, learning about the research that received the Nobel Prize at Nagoya University inspired me to work even harder to help the Republic of Korea produce recipients of a Nobel Prize.

Learning about various research endeavors reminded me of the African proverb, “It takes a village to educate a child.” Similarly, it takes the entire world to advance science. I believe that this program will remain a positive experience that will continue to bring wonderful opportunities in our years ahead.
Participant Survey Results (partial)

<table>
<thead>
<tr>
<th>Survey subjects</th>
<th>SAKURA Science High School Program 2015 participants (including supervisors)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey method</td>
<td>Replies to questionnaires at the end of the program</td>
</tr>
<tr>
<td>Number of responses (Number of invitees)</td>
<td>623 (not including Group 8 from the Republic of Korea)</td>
</tr>
<tr>
<td>Number of valid responses</td>
<td>623</td>
</tr>
<tr>
<td>Average age</td>
<td>16.5</td>
</tr>
<tr>
<td>Gender</td>
<td>Male 51%, Female 49%</td>
</tr>
</tbody>
</table>

◇ Impressions of Japan

Q1: What were your impressions of Japan before your visit?

- Very good: 43.8%
- Good: 3.4%
- Not very good: 9.1%
- Poor: 0%

Q2: How did your impressions of Japan change after your visit?

- Improved: 19.9%
- Improved slightly: 9.1%
- Remained the same: 69.9%
- Worsened slightly: 0.9%
- Worsened: 0.2%

◇ Program satisfaction

Q3: Were you satisfied with the program?

- Very satisfied: 59.7%
- Fairly satisfied: 2.8%
- Average: 0.5%
- Dissatisfied: 2.6%

◇ Comments on Q3: Program satisfaction

Respondents who selected ① or ②:

- This was my first time in Japan, but I liked everything about the country. (Thailand, 16 y/o)
- I became interested in science and technology through this program. I would like to use this knowledge for the development of my home country. (Thailand, 17 y/o)
- Hospitality, perfection, the willingness to help others, and the students who were striving to make a difference left a deep impression on me. (India, 16 y/o)
- The program was very well prepared by the Japanese and ran smoothly. It gave me a good understanding of Japan as a country, beyond what it offers in science and technology. (China, 17 y/o)
- I was able to broaden my perspective and knowledge. It was an opportunity to understand Japan from many angles, and reflect on my own country. (China, 15 y/o)

Respondents who selected ③ or ④:

- I got a deeper understanding of our neighbor, Japan. There are many things that China can learn from Japan. I would like to make good use of what I learned here. (China, 16 y/o)
- Japan offers advanced science and technology. I also felt they are friendly and value peace. (Laos, 20 y/o)
- I enjoyed seeing the cutting-edge technology in Japan, and experiencing Japanese culture. I was impressed by the politeness of the people. (Mongolia, 21 y/o)
- The schedule was tight, and our lodging facilities were not good. However, we were given many good opportunities such as a lecture and experiments by a Nobel Laureate. (China, 17 y/o)
- Although the schedule was busy, it gave us many opportunities. (China, 17 y/o)
- I would have liked more free time. (Philippines, 16 y/o)
**Future plans**

Q4: Would you like to return to Japan?

![Pie chart showing percentages of responses for Q4](chart.png)

- **Strongly agree**: 78.2%
- **Agree**: 20.5%
- **Disagree**: 1.2%

Q5: (For respondents who selected ① or ② for Q4) How would you like to return to Japan?

![Pie chart showing percentages of responses for Q5](chart.png)

- **Students**: 44.0%
- **Researchers**: 15.6%
- **Company employees**: 7.2%
- **Other**: 33.2%

Q6: Would you like to continue receiving information about the science and technology and international programs in Japan?

![Pie chart showing percentages of responses for Q6](chart.png)

- **Yes**: 96.5%
- **No**: 3.5%

**Comments on Q5: Return to Japan**

1. **Return as students**
   - I would like to master my field, health sciences, and obtain a PhD because it is the best way to help people. (Cambodia, 16 y/o)
   - I would like to research deep-sea creatures through the “Shinkai 6500” that we saw at JAMSTEC. (Myanmar, 16 y/o)
   - I am personally interested in photocatalysts and would like to study and research them at a Japanese university. (China, 17 y/o)
   - Besides the opportunity to study science and technology, Japan would help me become more grounded and build character. (China, 17 y/o)
   - There are many opportunities at Japanese universities, their facilities are excellent, and there are great prospects for development. After graduating, I will be able to create something that can make people happy. (China, 17 y/o)
   - I would like to study in Japan. If I could study science and technology here, I think that I would be able to help transform my own country. (Indonesia, 17 y/o)

2. **Return as researchers**
   - The science and technology of Japan is very advanced. I would like to conduct better research under these superior conditions. (China, 16 y/o)
   - I will be able to contribute to the development of my country if I return home after studying technology and gaining knowledge in Japan. I would like to become a scientist that helps the advancement of my country. (Cambodia, 15 y/o)
   - The research program in Japan is the best in the world, and its facilities are in good order. (China, 17 y/o)
   - I would like to build a career in geology, and would like to interact with Japanese academics. (China, 16 y/o)
   - I would like to become an astronaut like Dr. Mohri. (Indonesia, 16 y/o)

**About the program**

(open-ended questions)

Q7: What improvements can be made in the program?

- I would have liked more time to mingle with the Japanese students and scientists, and the time of each visit was short. (Thailand, 16 y/o)
- We were offered familiar cuisine from our own country, but I would have liked to eat more Japanese food. (Malaysia, 17 y/o)
- I think that mixing students from different countries in the lodging room arrangements would help develop friendships. (China, 17 y/o)

Q8: What did you learn from the program activities?

- I learned to think about things from a different perspective than before. It also gave me innovative ways of thinking that could bring about new ideas and inspiration. (India, 18 y/o)
- To always open your heart and be intuitive. Observe others to improve yourself. I realized that I should never be self-satisfied, and always think that there is something to improve on. (Malaysia, 17 y/o)
- That Japan was different from what they say in China. Through our interactions, I learned of the serious and sincere work ethic of the Japanese. (China, 16 y/o)
- Science is tied closely to our daily lives, and with just a small dream to bring happiness to mankind, anyone can make a contribution to science. (China, 16 y/o)
- Technology is advancing at a faster rate than imagined. In order to become the leaders of Asia, we will need to quicken our steps. (Mongolia, 17 y/o)
Acknowledgements

Upon the planning and implementation of the SAKURA Science High School Program, JST would like to express deep appreciation to Dr. Jin Akiyama, Dr. Hiroshi Amano, Dr. Makoto Kobayashi, Dr. Hideki Shirakawa, Dr. Akira Suzuki, Dr. Toshihide Maskawa, and Dr. Mamoru Mohri for delivering their lectures and experiments.

In addition, we would like to thank the Ritsumeikan Trust, Shibaura Institute of Technology, and the National Museum of Emerging Science and Innovation (Miraikan) for their assistance with the overall program, as well as Osaka University, Osaka Prefecture University, Kyoto University, Keio University, The University of Tokyo, Tokyo Institute of Technology, Tokyo University of Science, Waseda University, University of Tsukuba, Japan Aerospace Exploration Agency (JAXA), Japan Agency for Marine-Earth Science and Technology (JAMSTEC), High Energy Accelerator Research Organization (KEK), National Institute of Advanced Industrial Science and Technology (AIST), Enoshima Aquarium, National Institute of Radiological Sciences (NIRS), RIKEN, Murata Manufacturing, Tokai University Takanawadai Junior and Senior High School, Metropolitan Toyama High School, Bunkyo Gakuin University Girls’ Junior & Senior High School, Yokohama Science Frontier High School, and Meijo University Senior High School for their support in receiving the students from Asia. We had the pleasure of having Ryugasaki-Daiichi High School, Ibaraki Prefecture join us in the lectures.

Finally, we were fortunate to receive the support of the Embassies and related organizations in Japan with Embassy visits and other activities, along with Japan International Cooperation Agency (JICA) and National Institution for Youth Education with providing the training facilities, as well as Japan International Cooperation Center (JICE), International Association for the Exchange of Students for Technical Experience (IAESTE), and Nichibu Oogino Kai with welcoming the students.

We would not have been able to successfully complete the SAKURA Science High School Program this year without the wonderful support of these many instructors, organizations, and institutions.

We express our sincere gratitude for your cooperation.

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