JAXA Space Education Center

Report on Its Activities in 2020-2021

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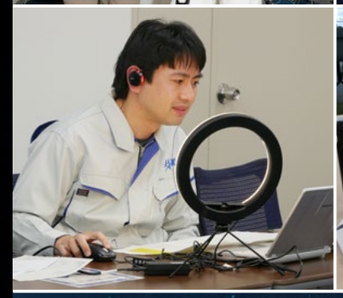

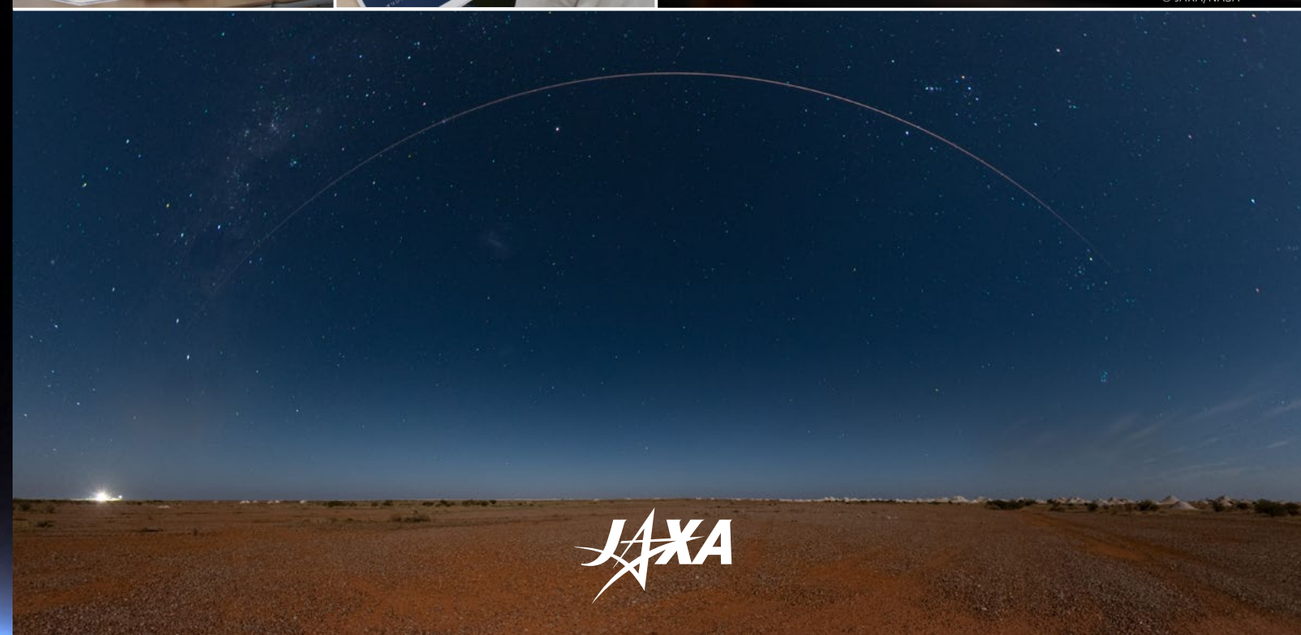

JAXA

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JAXA Space Education Center

Report on Its Activities in 2020-2021

(Information as of March 2021)

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From the Director

Kaori Sasaki
Director,
JAXA Space Education Center

Achieving autonomous, creative and co-creative learning through space education

Children's enthusiasm for objects and phenomena, motivation for experience and learning, struggle toward achievement, joy of success, and discovery of new horizons – JAXA aims to assist in such learning as well as physical and emotional growth and development, by considering space education as one of the pillar tasks of JAXA. The activities of the Center take advantage of diverse achievements in the fields of space and aeronautics, as one of its lead projects and carrying out projects in collaboration with teachers, who are directly involved in the education of children.

Today's society is characterized by changes in the environment that surrounds us, including innovations in information technology and shifts in the economic balance, which make it difficult to have a long-term outlook. Under such circumstances, the perspective required for children's education is also evolving. How do we foster the ability to identify and solve problems? In addition to enhancing individual performance based on the acquisition of knowledge, educators are expected to demonstrate teaching skills in fostering different abilities such as in collaboration, co-creation and continuous learning. At the same time, the importance of learning in partnership with families and local communities is being reevaluated. We take advantage of the synergy generated through networking with diverse parties concerned, including industries and nonprofit organizations, in the hope of achieving our ideal space education.

JAXA's activities are based on its missions to realize a world where JAXA's achievements are utilized by society, through which they become well-established, to pursue challenging research and development that opens up a new world, thereby leading the country and the world, and to actively invite new partners and adopt new technologies, and so create innovations. Similarly in the field of education through space, we strive toward growth of the children who will lead the next generation and evolution of the global community, and from a more advanced perspective, the society in the universe.

The Year in Review

2020
Space Education Symposium

Jun **06**

The Space Education Center holds a participatory “Space Education Symposium” every year for the purpose of developing a better understanding of and expanding the audience base for space education pursued by the Center. In previous years, we have exchanged information through face-to-face lectures and discussions, but in 2020, due to the spread of COVID-19, we held the symposium online for the first time. Under the theme of “How to Make the Most of Space Education: Building the Fortitude to Live,” five lectures and five poster presentations were shared on a special Space Education Symposium website and questions were accepted and answered online. The website was open to the public from June 15 to August 14, 2020, and was accessed 6,335 times. A question-and-answer session was also held on the website. Considering that the number of participants during the two-day event is usually around 200 people, we believe that we were able to attract more people than in previous years.

Uchu no Gakko (The School of Space) Published

The book “The School of Space” supervised by the Space Education Center has been published.

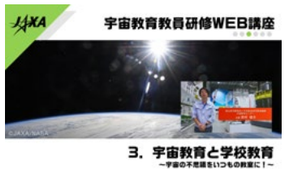
The main characters, elementary school students Sora and Hikari, who are on a school trip to space, learn about space, the Earth, and many other things at JAXA’s special “School of Space” lectures. “Which planet should we visit?” “What should we eat in space?” By learning about the characteristics of different planets, the differences in their environments and the wonders of the universe at the “School of Space,” Sora and Hikari find that what they are learning at the “School of Earth” is in fact connected to space. In addition to a special class given by Astronaut Kimiya Yui, the “School of Space” also has homerooms and recesses, making space fun and familiar to the students.

“Space Education Teacher Training Online Course” Launched

Jul **07**

The Space Education Center offers teacher training programs that consist of lectures and hands-on experiences with teaching materials for the purpose of communicating the fascination of space education. The training programs have been organized by local education boards or as part of subject committees and in-school workshops. However, depending on the time of year and the training location, some people may not have been able to participate even if they wanted to.

Therefore, we launched an online course so that more people can take the training and put into practice what they have learned. We hope that not only teachers but also anyone who is even slightly interested in space education make use of this course. We believe that the training will enrich the contents of classes and educational activities.



Programming Instructional Material “HTV-X Edition” Released

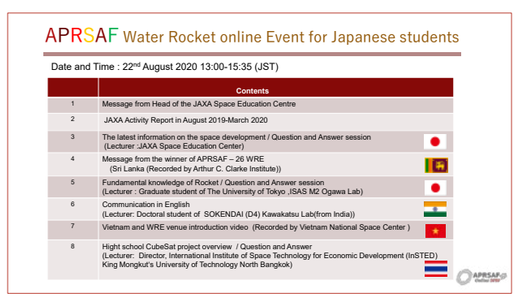
Aug **08**

In Japan, programming education will become a compulsory subject in elementary schools from the 2020 school year and in junior high schools from the 2021 school year. The Space Education Center has been developing and releasing instructional materials that incorporate space into programming education. The recently developed “HTV-X Edition” allows students to create a game in which they can control HTV-X, the new unmanned spacecraft now being developed by JAXA as the successor to the "Kounotori" (HTV). Students will be able to learn the basics of programming as if they were playing a role in space development.

Water Rocket Event Online Training

Due to the spread of COVID-19, the APRSAF-27 Water Rocket Event has been postponed and the selection of the Japanese National Team for 2020 has been cancelled. However, online training was conducted for the teams that applied. Taking advantage of the online setting, the varied program included messages from the previous WRE winner from Sri Lanka and the next WRE host agency VNSC Vietnam, as well as an English communication session with a graduate student from India, a lecture by a doctor from Thailand, and rocket- and space-related lectures.

Participants enjoyed it and were encouraged to continue learning during this challenging time.



Classroom Partnership: Saitama Prefectural Ina Gakuen Junior High School Let's Think about Disaster Food and Space Food

Oct 10

The Space Education Center held a class on "Disaster Food" in cooperation with the Saitama Prefectural Ina Gakuen Junior High School. Some may wonder, "What does disaster food have to do with space?" However, there are many similarities between the situations following a disaster and in space. For example, living in a closed space and securing water and food are issues also experienced in space, and we are trying to solve them through research and development. The class was successful in attracting students' attention by using space as a starting point for encouraging them to explore the question, "Could this idea also be useful in a disaster?"

APRSAF Poster Contest

Nov 11

The 15th contest was held as an online event for the first time with the theme of "Peace in Space." A total of 25 posters drawn by children aged 8–11 years from nine Asia-Pacific countries were submitted for consideration. Winners of a Best Poster Award and two Special Poster Awards were selected through voting by APRSAF website visitors (3,598 votes! 20 times more than a usual year held on-site).

Award presentation video link:
https://player.vimeo.com/video/481545834

With support of Lockheed Martin, Lagrange, and KOKUSAI SOGO KIKAKU Co. Ltd., JAXA will launch all posters to the International Space Station and display them inside the ISS in 2021.

A 2021 calendar featuring all exhibited works can be downloaded from the following link.
https://www.aprsaf.org/working_groups/se/calendar.php#2021

Classroom Partnership: Kobe City Ueno Junior High School Theme: Weather Observation Satellite

At Ueno Junior High School in Kobe City, one of our strategic partners, we held a classroom partnership where teachers and the Space Education Center planned a class together. Based on the discussions with the teacher in charge, we decided to give a joint class in which students predict the path of a typhoon based on data obtained from satellites. After learning how satellites are used to observe the earth and how to visualize the data, the students were provided with satellite global precipitation maps (GSMaP: Global Satellite Mapping of Precipitation https://sharaku.eorc.jaxa.jp/GSMaP_CLM/index_j.htm) and data downloaded from NEXRA (NICAM-LETKF JAXA Research Analysis https://www.eorc.jaxa.jp/theme/NEXRA/index_j.htm) on typhoon wind direction and speed, sea level pressure and surface temperature, based on which they predicted the path of a typhoon in groups. The teacher helped the students understand the data by drawing coastlines on the whiteboard, on which the video data were projected, and guiding them in comparing the data. The active discussions among students were particularly memorable. At the end of the class, the students were provided with the precipitation data to check their answers on the typhoon path. Student feedback included that, by comparing and understanding different data, the class helped them understand the role of earth observation satellites in identifying problems and taking appropriate measures, as well as realize how space development is helping their daily lives.

Sora no Tobira (Portal to Space) and the Soratobi Science Pocketbook Published

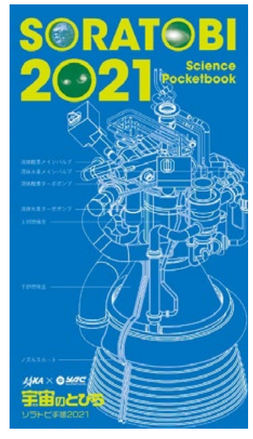
Dec 12

We published the 54th issue of Sora no Tobira (Portal to Space) and the Soratobi Science Pocketbook.

Popular children's character "Kaiketsu Zorori" appears on the "Yatte Mission" (Let's Try Mission) experiment and craft page, where the inventive genius Zorori invites readers to try fun experiments and crafts.

The Soratobi Science Pocketbook has a page introducing the world's manned spacecraft. From the Soviet Union's Vostok to the latest private manned spacecraft Crew Dragon, all the manned spacecraft that have been developed are summarized in an easy-to-understand format.

Sora no Tobira is available at libraries and science museums nationwide, as well as for home delivery. All published issues are also available online at https://edu.jaxa.jp/contents/soratobi/archive/index.html.



Classroom Partnership: Hiroshima Prefectural Saijyo Agricultural High School Theme: Space Agriculture

Dec 12

At Saijyo Agricultural High School, an exploratory learning initiative is underway on the theme of space agriculture. The Space Education Center collaborated with the school for some of the lessons, focusing on exploring the factors and technologies required to do farming on Mars.

We first held a workshop titled "Let's Think of an Ideal Planet" to motivate the students to learn. In this workshop, students are asked to envision an ideal planet if they were to move to a new one. They start by thinking in terms of what kinds of organisms they would bring, what kind of ecosystem can be created at the destination, and what they would eat there. At the end of the workshop, the students are asked to discuss about the ideal society to be achieved on the planet. In the course of envisioning their ideals from a clean slate, students are able to renew their awareness of the issues facing the Earth while thinking about food and agriculture in space.

The workshop was followed by a lecture on the basic knowledge needed to think about agriculture on Mars. To provide inspiration for the subsequent exploration, the lecture was given under the following themes according to the area of specialty of students: "Soil composition, microorganisms and breeding on Mars" for the Biotechnology and Animal Husbandry Courses, "Food and health in space" for the Food Science Course, and "Architectural conditions and energy in space" for the Agricultural Machinery Course.

Such exploratory learning has been adopted at Japanese high schools, and the Space Education Center provides educational support to schools that encourage such learning under the theme of space.

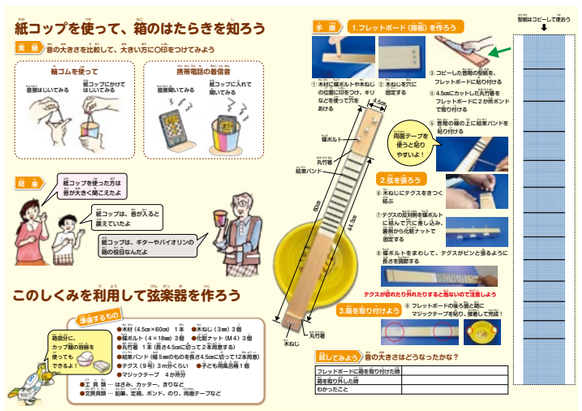
Space School for Families: Online Schooling and New Textbook Published

Space School for Families consists of schooling for gatherings of local participants and at-home learning where students and their parents learn together, using original textbooks that take advantage of familiar materials. Last year, we had to cancel the face-to-face schooling due to COVID-19, but some venues offered it online. Participants commented that the detailed instructions by the teachers made the material easy to understand, even online.

A new textbook has been added to the series of textbooks for Space School for Families.

"Discovering the functions of box structures such as guitars and violins"

This is an instructional material for investigating the functions of box structures by making stringed instruments using familiar materials such as wood, washbasins, and empty instant noodle containers to find out how they sound.

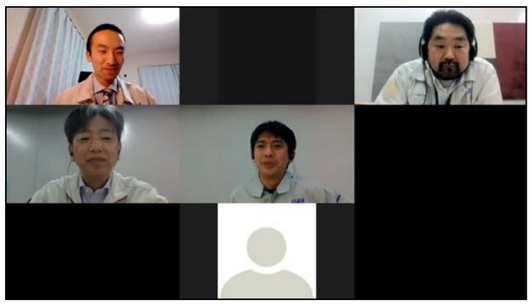


2021

Aerospace School

Jan 01

Four online sessions of Aerospace School were held at Kakuda Space Center, Tsukuba Space Center, and Chofu Aerospace Center, with 115 high school students participating from across the country. The sessions included lectures by JAXA staff, virtual tours of the facilities using 360-degree video, and career consultation from the participants to the staff, each incorporating the characteristics of the respective centers. Student feedback included the following: "I was happy to have my questions answered in real time, and had fun listening to the lecture, which incorporated the questions I asked in advance and helped answer my questions" and "I live in Hokkaido and it's not easy for me to participate in events held at the centers. So even if the current COVID-19 situation is resolved, it would be great if you could hold online events for people like me."



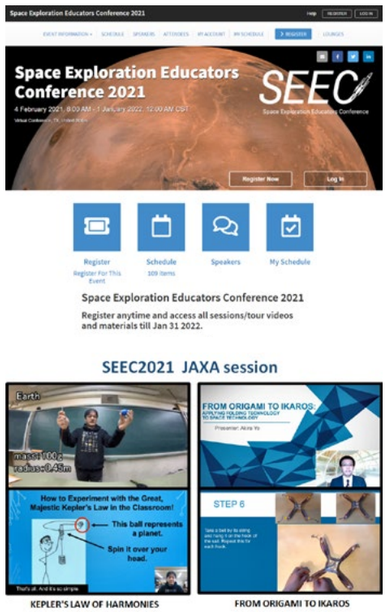
Workshop for incorporating space into education: Space Exploration Educators Conference (SEEC)

Feb 02

The SEEC is a workshop hosted by Space Center Houston, where more than 500 educators gather from around the world to present and share their teaching methods and materials to incorporate space into education. Every year, the Space Education Center sends schoolteachers to the SEEC to present teaching materials featuring space. SEEC 2021 was held entirely online due to COVID-19, and thus teachers participated remotely from Japan.

JAXA's session this year consisted of playing a video of presentations recorded in advance. The presenters were Mr. Akira Yo of Seikei Junior and Senior High School and Mr. Takuo Takarada of Osaka Prefectural Ikuno Senior High School. Mr. Yo and Mr. Takarada each gave a presentation and demonstration titled "From ORIGAMI to IKAROS: Applying folding technology to space technology" and "Kepler's Law of Harmonies," respectively.

Mr. Yo presented a lesson plan that allowed students to learn about linear symmetry and geometry through the crafting activity of building JAXA's spacecraft IKAROS. Mr. Takarada presented an innovative experiment that facilitated experience-based learning of Kepler's law of harmonies. Both lessons were designed to use space as a starting point to motivate students to learn mathematics and physics. We received many positive comments from the participants, such as "I want to try this!" Although the presentations were given online, both teachers communicated with the participants after the session.



KEPLER'S LAW OF HARMONIES　　FROM ORIGAMI TO IKAROS

JAXA × National Astronomical Observatory of Japan Cosmic College: "Exploring the Mysteries of Space with Radio Waves"

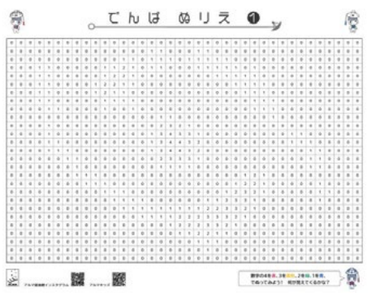
JAXA and the National Astronomical Observatory of Japan (NAOJ) jointly held an online session called "Cosmic College Astronomy Edition." A total of 41 elementary school students who applied from across the country participated. We received many questions prior to the session, including "How was the black hole photographed?" and "What is the difference between the parabolic antennas of JAXA and NAOJ?"

The lecturers were Ms. Kaori Sasaki, Director of the Space Education Center, and Dr. Masaaki Hiramatsu, Assistant Professor of the NAOJ ALMA Project. The participants first experienced the role of antennas and their differences using the "Satellite and Astronomical Cards," followed by an activity using the "Radio Coloring Book*" to learn how black holes and galaxies are photographed with a radio telescope.

NAOJ ALMA Telescope Website

ALMA　https://alma-telescope.jp/en/

ALMA Kids　https://kids.alma.cl/



*The Radio Coloring Book was developed and produced by the NAOJ ALMA Project.

Credit: ALMA (ESO/NAOJ/NRAO), A. Marinkovic/X-Cam

Space Education Center's English Website Renewed and Launched

Mar 03

We have renewed and launched the official English website of the Space Education Center.

The English website has the same layout as the Japanese website to maintain consistency, and the numbers of pages, photos and illustrations have been increased to introduce the activities of the JAXA Space Education Center in more detail and in an easy-to-understand manner. We also have a Twitter account in English. Although the amount of information released on this account does not yet compare to that on the Japanese account, we will continue to send out information so that people all over the world can learn about the activities of the Space Education Center.

JAXA-hosted Teacher Training

We hosted an online teacher training course for schoolteachers and university students enrolled in teacher training programs. We first gave an introduction to the Space Education Center's concept of "space education," that it aims to incorporate space as a learning material into education, thereby nurturing healthy youth with curiosity and sense of adventure and craftmanship, and that it greatly overlaps with the Course of Study published by the Ministry of Education, Culture, Sports, Science and Technology. We then had the participants work on the activity "Let's train our communication skills!" to gain experience with teaching materials for space education.

Video:　https://www.youtube.com/watch?v=d7ruzqkZNoU

Images:　https://edu.jaxa.jp/en/materialDB/contents/detail/#/id=50002

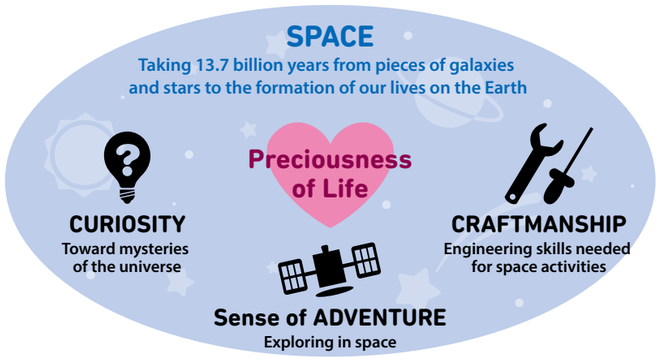
This activity focuses on communication skills that are essential for astronauts, and requires the participants to assemble differently shaped pieces into a composite graphic by following only verbal instructions. Using the Zoom breakout rooms, groups of four participants took turns to play the role of the controller, who gives instructions without observing the ongoing work, the astronaut, who assembles the pieces by listening only to the controller's voice, and the observer, who observes the controller's instructions and the astronaut's work. This activity is designed so that teachers can apply to their classes what they have learned through experiencing the difficulty of communicating only with words, and also encourages application by introducing examples of application in different subjects. After we introduced the practical examples of space education classes, the participants each developed their own lesson plans and shared them with the same group members as before. The groups were then shuffled, and the participants all shared their lesson ideas with other participants in a poster tour. This is an active learning method that ensures two-way communication and allows everyone to be more proactive in presenting their group's lesson plan. The online teacher training will continue in the future, and we plan to conduct follow-up surveys to refine the program.

Who We Are

Space is a unique source of interest and inspiration, and gives flight to the imagination. The Space Education Center of the Japan Aerospace Exploration Agency (JAXA) works with children and young people to nurture their inherent curiosity about the natural world, the universe, and all living things. Over the past 15 years, we have increased and expanded our program, bringing space-related topics and materials into schools and homes across the nation and around the globe. Our mission is to stimulate interest not only in science and technology, but also in human behavior.

THE HISTORY OF JAXA SPACE EDUCATION CENTER

Space education has long been a part of the Japanese space program's mission. The early years were marked by the Public Affairs Department's efforts to increase general awareness of space and gain the public's understanding of how society could benefit from space-related activities. One team involved in this outreach specialized in working with children and young people, using compelling, space-related educational materials to connect science to everyday life; the hope was that a greater interest in science would positively influence their intellectual growth. With the creation of JAXA in October 2003, it was increasingly recognized that education is fundamentally distinct from public relations. Combined with the foundation already laid by the student outreach team, this led to the establishment of the Space Education Center on May 1, 2005, by executive order of the then-president of JAXA. Since then, the Center has been a vibrant presence on JAXA's Sagamihara Campus.



OUR GOALS & PRINCIPLES

Children love the natural world, and look at life with wonder. In particular, the mysteries of space tug on their curiosity and fire the imagination. Space exploration calls to their spirit of adventure. But alongside the spirit of **curiosity** and **adventure** is another spirit, just as important. Without hands-on perseverance to match the adventurousness, there can be no reaching what you seek. This is the spirit of creativity – **craftsmanship**. To ignite these three spirits within children is the core philosophy of the Center. Children will then expand their own knowledge and experience, driven by the joy of learning. With space as an effective educational material and the preciousness of life as the underlying message, we aim to use the wealth of knowledge and technology gained from space development to nurture young minds. The spirit of curiosity, adventure, and craftsmanship. By learning "with space" rather than learning "about space," children develop the capacity to learn continuously. That, we believe, is the key to raising people capable of creating knowledge and techniques on their own, and all their lives.

What We Do

The Space Education Center consists of teams that support educators, serve community learners, structure international actions, and share information with the public in a meaningful way.

FORMAL EDUCATION SUPPORT

TEACHER TRAINING & CLASSROOM PARTNERSHIP

Space is a great fit for classrooms, and not just in science, technology, engineering and mathematics (STEM) courses. There are many possibilities for application, including social studies, language learning, art, ethics, and even life skills. From lesson plans to educational materials, the Space Education Center is there to support teachers. We work with education boards and other groups to organize lectures and workshops targeting educators for all age levels throughout their career: preschool and kindergarten, primary, middle and high schools, education majors and seasoned teachers.

Number of Sessions and Participants in Teacher Training Programs

	FY2016	FY2017	FY2018	FY2019	FY2020
Sessions	34	50	29	28	13
Participants (Teachers)	1,550	1,545	1,413	1,198	392

NOTE: FY, fiscal year. The Japanese fiscal year runs from April 1 to March 31.

By bringing space into the classroom, we change perspectives and encourage observation. The classroom partnership program consists of thematic lesson activity, information about space-related educational materials, and lesson planning advice. In one example, students in a life skills class conducted a taste test of two instant curries, one for astronauts and one from the supermarket, discussing the noticed differences in ingredients and properties to build their analytical thinking skills.

Number of Schools Supported by the Center and Students who Benefited from the Program

	FY2016		FY2017		FY2018		FY2019		FY2020	
	Schools	Students	Schools	Students	Schools	Students	Schools	Students	Schools	Students
Kindergartens	4	284	3	188	3	245	5	220	1	122
Elementary Schools	69	5,400	75	6,194	79	6,253	84	6,930	34	2,950
Junior High Schools	31	6,549	31	3,278	34	3,118	22	2,085	23	2,332
High Schools	13	1,084	17	1,499	18	1,176	13	811	16	1,821
TOTAL	117	13,317	126	11,159	134	10,792	124	10,046	74	7,225

INFORMAL EDUCATION SUPPORT

EXTRACURRICULAR AND HOME ACTIVITIES

Weekends and holidays offer a wonderful opportunity for informal space education. The Space Education Center has a raft of cohort-specific programs that children of all ages, their parents and even grandparents can participate in.
For the youngest learners, **Space School for Families** represents an opportunity not only to gain early exposure to science but also to grow a stronger family unit and a closer-knit local community. Co-organized with the NPO Kodomo Uchu Mirai Association (KU-MA), the program consists of hands-on group sessions with "homework" in between and a final presentation by each family; to date, the Center has developed 109 homework texts in various subjects.

Number of Courses and Participants in Space Schools for Families

	FY2016	FY2017	FY2018	FY2019	FY2020
Courses	54	56	52	50	4
Participants	4,701	4,989	5,144	4,668	264

Cosmic College is an interactive program focused on fostering inspiration through hands-on experiences such as crafting and experiments featuring space. The program is designed to kindle children's curiosity and spirit of inquiry through experience of the fun and mystery of science, to help children grow up spiritually rich. The program is hosted by local teachers for children in the region in order to ensure sustainable learning, and the JAXA Space Education Center continues to support such local initiatives.

Number of Courses and Participants in Cosmic College

	FY2016	FY2017	FY2018	FY2019	FY2020
Courses	405	481	525	466	176
Participants	27,046	27,876	24,701	16,982	5,371

EXPERIENCE-BASED LEARNING OPPORTUNITIES

PROVIDING OPPORTUNITIES

The Space Education Center supports and creates learning opportunities for students and educators domestically and internationally.
In JAXA's **Aerospace School** program, high schoolers live and work as a team for several days in space center facilities across Japan. The program brings students into direct contact with scientists and engineers of the cutting-edge Japanese space program, state-of-the-art research facilities and aerospacecraft, and authentic experiences that emerge from working with other teens.

Number of Courses and Participants of Aerospace School

	FY2016	FY2017	FY2018	FY2019	FY2020
Courses	5	5	6	5	4
Participants	98	100	124	99	115

Making Your Own Space Mission (Kimission) is another program for high school students. Students team up and plan space missions from the ground up under the supervision of graduate students of the Institute of Space and Astronautical Science. The young mission planners spend five full days at JAXA Sagamihara campus, exploring their own ideas along with space. Their missions are presented to an audience of JAXA professionals on the fourth day, and the teams have the option to develop their mission further and give a presentation at the annual meeting of the Astronomical Society of Japan.

The Center also provides learning opportunities for students, teachers and educators in the Asia-Pacific region. In the **APRSAF[*1] Water Rocket Event**, junior high and high school students across the Asia-Pacific region gather and share water rocket-related skills and knowledge. Cultural exchange is also an important element to get to know each other. The **APRSAF Space Education Seminar** and the **Educator Workshop** are valuable opportunities for teachers and educators to gain experiences, insights and achievements from their own space education activities. The aim of these educator programs is to enhance the quality of teaching in order to nurture next-generation talent capable of true innovation.
The **ISEB[*2] Student Program** provides an opportunity for university and graduate school students to attend IAC sessions, present their research, network with space professionals and fellow students, and conduct outreach for local students. The Center sponsors Japanese students to attend the program every year.

INTERNATIONAL ENGAGEMENT

INVESTMENT IN A SHARED FUTURE

With the aim of contributing to human resource development for future generations, the Space Education Center has been actively collaborating with international partners under global and regional frameworks.

The **International Space Education Board (ISEB)[*2]** was founded by CSA, ESA, JAXA and NASA in October 2005. It has grown to nine space agencies (AEM, CSA, CNES, ESA, JAXA, KARI, NASA, SANSA and UAESA) and one space education entity (VSSEC). Every year, the heads of education of the ISEB member agencies meet and discuss cooperative space educational projects. Once action plans are agreed on by the ISEB HoE, working group representatives implement the plans throughout the year.

The **Asia-Pacific Regional Space Agency Forum (APRSAF)[*1]** is the largest space conference in the Asia-Pacific, with attendees from public, private, academic and non-governmental sectors representing more than 40 countries and regions. The APRSAF Space Education Working Group (SEWG), formerly the Space Education and Awareness Working Group, was established in 2001 for promoting space education activities including space topics and providing opportunities for space education. The Space Education Center serves as co-chair of the APRSAF Space Education Working group and assists in organizing the water rocket event, the themed poster contest and educator seminars.

Number of Agencies and Students who Attended the ISEB Program

	FY2016	FY2017	FY2018	FY2019	FY2020
Host Country	Mexico	Australia	Germany	United State of America	Canceled
Agencies/ Institutions	7	6	7	8	
Students	52	54	73	61	

Number of Countries/Regions that Attended APRSAF Space Education Working Group Programs

	FY2016	FY2017	FY2018	FY2019	FY2020
Host Country	Philippines	India	Singapore	Japan	Canceled
Water Rocket Event	13	12	12	13	
SEWG meeting	13	13	13	9	

CONTENT PUBLISHING

INFORMATION AND EDUCATIONAL MATERIALS IN PRINT AND ONLINE

Curating information about space, science and our own activities is also a major part of the Space Education Center's mission. We use a variety of media to deliver knowledge and learning to people of all ages.

Sora no Tobira (Portal to Space) is a quarterly magazine for children, edited jointly by the Young Astronauts Club and JAXA. It delivers the latest information on space exploration, interviews with space-related individuals, and information on interactive space education activities to young readers. Issues are available at libraries, science museums, and online (https://edu.jaxa.jp/contents/soratobi/), and can also be delivered to individual readers.

The Space Education Center also posts information on **Twitter** and **Instagram**. These are great ways to stay in touch with us regarding our many global outreach initiatives. We invite you to follow and like us.

Twitter: @spaceedu_info

Instagram: jaxaedu

Developing educational materials is an essential support for space education. Utilizing images and videos linked to JAXA's R&D achievements, we develop materials and tools that work with a variety of space education programs in collaboration with outside experts. The results are released online for anyone engaged in space education to use in their own learning activity. (https://edu.jaxa.jp/en/materialDB/)

The Center's series of **educational materials designed for the classroom** are linked to subjects mandated by the official curriculum, for easy implementation in classes such as social studies, science, and even ethics.

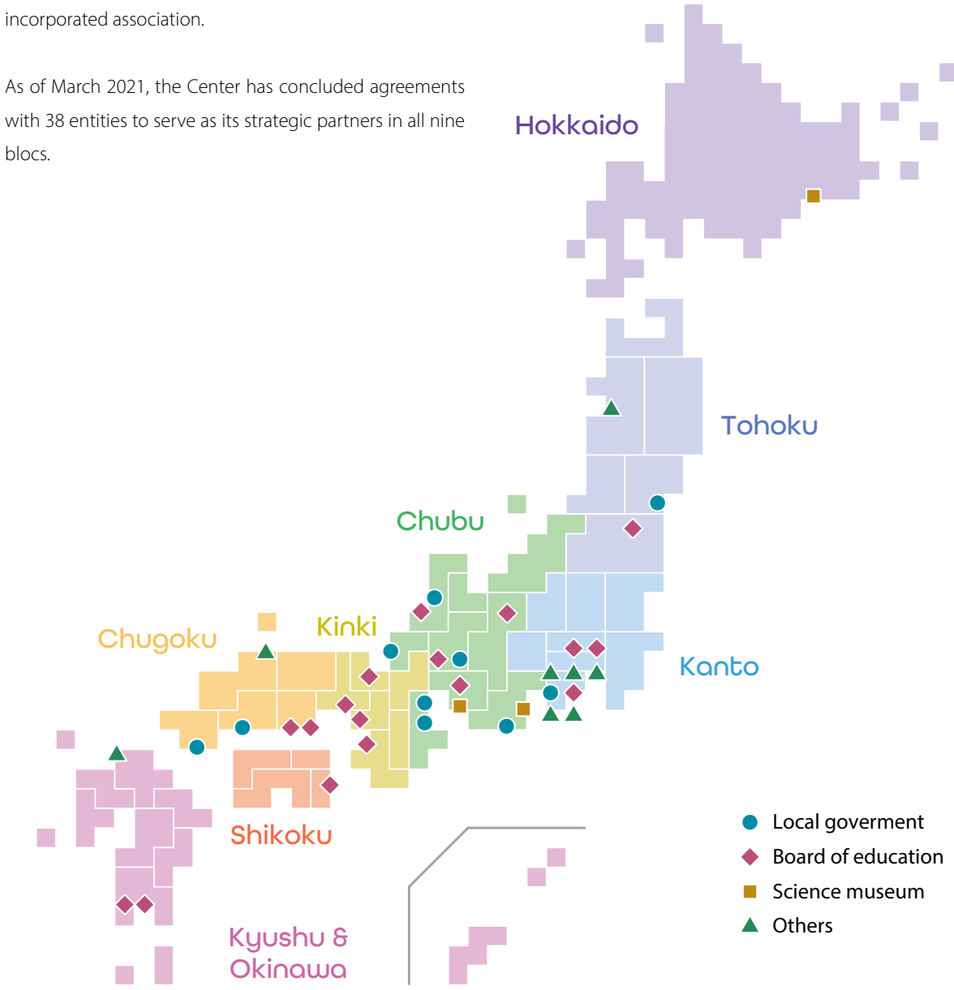
The **textbooks for Space School for Families** are designed to be provided in sets (of 30 over one year) for home learning. A total of 109 textbooks have been created to date, and we have been seeing expanding use of individual textbooks, including beyond the family home setting. We have translated 49 of them into English to date.

On a related note, our educational materials extend to recordings of simple **experiments conducted in the Kibo module** by JAXA astronauts during their multi-month stay on the International Space Station. The contrast with earthbound iterations of the same experiment brings home the mystery and allure of space.

ESTABLISHING STRATEGIC PARTNERSHIP

As part of the executive directions set by the management of JAXA, the Space Education Center has been tasked since fiscal 2008 to establish strategic partnerships in all nine regional blocs of Japan, i.e. Hokkaido, Tohoku, Kanto, Chubu, Kinki, Chugoku, Shikoku, Kyushu and Okinawa. This is to ensure that the kind of classroom support provided by the Center continues to be expanded and further enhanced in an effective manner to benefit each of the primary and secondary schools without requiring direct and intense support by the Center itself. While it does not need to be a school, and could be a science museum or a board of education in a local community, a strategic partner should endorse the goals and principles of the Center and should actively pursue the development of space education materials and teaching methods to be introduced to schools within the bloc under its responsibility. The Center was also tasked to ensure a steady increase in the number of schools that newly introduce aerospace subjects into their classroom teaching by using the materials or teaching methods developed by the strategic partners in their bloc. In May 2019, the Center signed a new strategic partnership agreement with the SEISA Group, a general incorporated association.

As of March 2021, the Center has concluded agreements with 38 entities to serve as its strategic partners in all nine blocs.



JAXA Space Education Center

Report on its Activities in 2020-2021

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