Overview of the Center for Science Education

The Center for Science Education

- Conducts surveys and research and provides guidance to improve science and technology education in schools and communities.
- Develops and implements programs to improve the teaching skills of school teachers.
- Works to develop facilities and equipment to achieve these goals.

History

Osaka Kyokai University, which can trace its roots back to a teacher training institution for teachers established in 1984, is an education-focused university that boasts a site and history holding its position as a prominent Japanese university. The main campus is located in the Kashiwara suburbs of Kashiwara, Osaka, in the

Importance of Connecting with Science Education Partners Overseas

Science Japan is a country of islands surrounded by the sea, it has been a significant challenge in the field of education to help students understand Japan’s position within world affairs and equip them with strong international understanding. Even in the field of science, there is an ever-increasing demand for their skills under various conditions both in Japan and abroad.

The Center for Science Education aims to cultivate individuals with an international perspective by promoting active exchanges with overseas science education professionals. It also supports overseas teachers and students who want to learn about science and education in Japan, and contribute to the international community through these efforts.

Organizational Structure

Core Members

- The core members of the Center for Science Education are constituted by Director and some professors. They oversee the planning and management of several activities including the foundation-related science education that receive funding from the Ministry of Education, Culture, Sports, Science and Technology (MEXT) or the Japan Science and Technology Agency (JST).

Supporting Members

- The supporting members of the Center for Science Education are constituted by about 30 professors in Osaka Kyokai University who engage in a wide range of academic fields. They support various activities related to their own fields.

- Tanabe Campus: (from 9:00-17:00, 20min. walk from Tanabe Station on the JR or Kansai Line, or from Tanabe Station, 20min. walk from JR Tanabe Station.)
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History
Osaka Kyoiku University, which can trace its roots back to a training center for teachers established in 1876, is an education-focused university that boasts a rich history and enjoys a position as a prominent Japanese university. The main campus is located in the heart of Osaka Prefecture, with a branch campus in the City of Osaka, an international commercial center. Established in 1967, the Center for Science Education functions as an organization committed to connecting university research with school and community science programs.

Importance of Connecting with Science Education / Partners Overseas
Because Japan is a country of islands surrounded by the sea, it has been a significant challenge in the field of education to help students understand Japan’s position within world affairs and equip them with strong international orientation. Even in the field of science, there is a growing emphasis on diverse conditions both in Japan and abroad.

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Organizational Chart
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Supporting Members
- The supporting members of the Center for Science Education are supported by about 40 professors in Osaka Kyoiku University who engage in a wide range of education-related activities. They support various activities related to their own fields.

Directions to the Center for Science Education
- Kashinae Campus
  - Center for School Teachers, Higashiyodogawa, Osaka Prefecture, 537-8577 Osaka, Japan

- Timetour Campus
  - From 10:00 to 16:00
  - Timetour: walk from Kansai Station on the JR or Kintetsu Line, or from Kansai International Airport Station, Kansai, to the Osaka Kyoiku University Center for Science Education.

- Timetour Campus
  - From 10:00 to 16:00
  - Timetour: walk from Kansai Station on the JR or Kintetsu Line, or from Kansai International Airport Station, Kansai, to the Osaka Kyoiku University Center for Science Education.
Activities of the Center for Science Education

Connecting Science Educators around the Globe
- Countries from which science teachers have visited us for training: Thailand, Afghanistan, Philippines, English-speaking countries of Sub-Saharan Africa (Kenya, Ethiopia, Malawi, South Africa, Ghana, Swaziland, Namibia, Nigeria, Uganda)
- Countries that have been partners in joint research: Bangladesh, Singapore, Australia, Germany, Russia
- Overseas training destinations for our affiliated high schools: US, Australia, Thailand

Cultivating Highly Skilled Science Teachers
- We are implementing special training programs designed for various participant groups, including selected undergraduate students and graduate students who want to become higher level science teachers.
- Science Education Using ICT
  - Research is being conducted in partnership with our affiliated schools on ways to incorporate tablets into the classroom.
  - Research is being conducted on training methods to improve the ICT skills of teachers.
- We are developing teaching materials, equipment management systems, software, and hardware.

Teacher Training
- We offer various training programs to help elementary, junior high, and high school science teachers improve their skills.
  - In addition to legally prescribed trainings, we offer voluntary teacher trainings of our own.
- The training content is developed based on the instructors' skills and goals, and emphasis is placed on laboratory work and research on teaching materials.

Partnering with Affiliated Schools
- Osaka Kyoiku University has 15 affiliated schools (three elementary schools, three junior high schools, three high schools, one kindergarten, and one special education school). The Center for Science Education engages in advanced science education research in partnership with its affiliated schools.
- We conduct surveys on student scientific awareness based on the items contained in the OECD Program for International Student Assessment (PISA). We support exchanges with advanced science education research in countries like the US, Australia, and Thailand.

Sharing the Excitement of Science with Everyone
- The supporting instructors of the Center for Science Education (professor volunteers in the sciences at Osaka Kyoiku University) assist with various science events in our local communities and schools.
- We offer roaming lessons to elementary, junior high, and high schools.
- We offer advisory services to boards of education and schools.

Advanced Science Equipment at the Kashiwara Campus
- Our campus is equipped with unique science labs that are useful for science experiments at elementary, junior high, and high schools.

Lab Equipment and Facilities

### Activities of the Center for Science Education

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### Lab Equipment and Facilities

#### Key Equipment Available
- Transmission electron microscope (TEM)
- Fourier Transform Nuclear Magnetic Resonance (NMR)
- X-ray fluorescence spectrometer
- Single crystal X-ray diffractometer
- UV and visible spectrophotometer
- Scanning electron microscope (SEM)
- FT-IR spectrometer
- CHN elemental analyzer
- Transmission electron microscope (TEM)
- Scanning electron microscope (SEM)

#### Tennoji Campus Science Lab
- About 800 items that are useful for science experiments at elementary, junior high, and high schools are equipped at the Tennoji Campus.
- Every teacher who wants to use them can borrow these items.

#### Tennoji Campus Science Lab
- Tennoji Campus Science Lab has two labs for teacher training and for students.

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*Image of a science lab at the Tennoji Campus*

*Image of a student's science lab at Tennoji Campus Science Lab*
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- Overseas training destinations for our affiliated high schools: US, Australia, Thailand

Cultivating Highly Skilled Science Teachers
- We are implementing special training programs designed for various participant groups, including selected undergraduate students and graduate students who want to become high level science teachers.
- In addition to legally prescribed trainings, we offer voluntary teacher trainings of our own.
- The training content is developed based on the instructors' skills and goals, and emphasis is placed on laboratory work and research on teaching materials.

Science Education Using ICT
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- We conduct surveys on student scientific awareness based on the items contained in the OECD's Programme for International Student Assessment (PISA).
- We support the efforts of Tennoji High School, which has received the SSH designation from the Japan Science and Technology Agency (JST). We support middle school students with advanced science education by providing hands on experiences in laboratories (in countries like the US, Australia, and Thailand).

Sharing the Excitement of Science with Everyone
- The supporting instructors of the Center for Science Education (professor volunteers in the sciences at Osaka Kyoiku University) assist with various science events in our local communities and schools.
- Help with hands-on science events designed for young children, students, and the general public.
- Provide teaching lessons to elementary, junior high and high schools.
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Activities of the Center for Science Education

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Advanced Science Equipment at the Kashiwara Campus
- Science instruments for advanced researches are equipped at the Kashiwara Campus.

Lab Equipment and Facilities
- Key Equipment Available:
  - Transmission electron microscope (TEM)
  - Fourier Transform Nuclear Magnetic Resonance (NMR)
  - Single crystal X-ray diffractometer
  - Ultraviolet and visible spectrophotometer
  - CHN elemental analyzer
  - Transmission electron microscope
  - FT-IR spectrometer etc.

Tennoji Campus Science Lab
- About 600 items that are useful for science experiments at elementary, junior high, and high schools are equipped at Tennoji Campus Science Lab. Every teacher who wants to use them can borrow these items.
- The Tennoji Campus Science Lab has two labs for teacher training and for students.

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- Key Equipment Available
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  - Single crystal X-ray diffractometer
  - UV and visible spectrophotometer
  - CHN elemental analyzer
  - X-ray fluorescence spectrometer
  - TGA analyzer

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Directions to the Center for Science Education
- Kashiwara Campus
  - Center for School Teachers, Holy CR Rd. 642-12
  - 20 min. walk from Osaka Kako Station or Osaka Kako Station on the Kintetsu Osaka Line.

- Tennoji Campus
  - Osaka Tennoji Tennoji Campus
  - Osaka Tennoji Tennoji Campus
  - 10 min. walk from Tennoji Station on the JR or subway line or from Kansai-Jo Station on the Kintetsu Osaka Line, 15 min. walk from Tennoji Station on the Kintetsu Osaka Line.