Outreach Programs in Japan
--Space Life Science Research for Helping People on Earth--

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Introduction

Outreach programs are cornerstones in promoting space biomedical research.

In 1992, with the first Japanese astronaut going to space, the Japan Aerospace Exploration Agency (JAXA) commenced a series of education and outreach programs.

Outreach programs have helped educate and motivate people of all ages about the wonder of the microgravity environment and its effects on living organisms.
Education and Outreach in JAXA

- **Space Education Center**
  - Stimulating children’s curiosity toward the nature, universe and life

- **Human Space Systems & Utilization Mission Directorate**
  - ISS Utilization Center
    - Managing ISS resources
  - ISS PAO
    - Supporting educational events
  - J-SBRO
    - Promoting space biomedical research
    - Supporting space medicine
Promotion Structure in JAXA for ISS Educational Utilization

Human Space Systems & Utilization Mission Directorate
- ISS/Kibo operation
- Coordination with NASA
- Implementation of educational events
- Public relation
- Asia Office (newly opened)

Space Education Center

Request of Educational Events

Outputs from ISS

JAXA Space Education Material Development Committee
Secondary School teachers

Formal and Informal Education
Students, Teachers, and Education Volunteers

PRESIDENT
PRINCIPLES of Space Education Center

Use the attractive space materials, with positive influence on the minds of children to:

1. **Stimulate the curiosity of children,**
   **cultivate their challenging spirit,** and
   **inflame their passion to pursue craftsmanship.**
   -> “Spirit of Never Give-Up”

2. **Heighten the children’s awareness of the importance of life** and their responsibilities in the society.
   -> “Preciousness of Life”
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<th><strong>Formal Education Support</strong></th>
<th><strong>Informal Education Support</strong></th>
<th><strong>Home Education Support</strong></th>
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<td>Assist in developing teaching plans, teaching and learning materials in classrooms</td>
<td>Develop unique programs for various levels for primary and secondary school students to learn in a progressive manner</td>
<td>Develop education materials for parents and children to conduct simple experiments at home</td>
<td>Collaborations within the frameworks of ISEB and APRSAF and with UNESCO and other UN entities, ISU, etc.</td>
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OBJECTIVE: TO EXPAND SPACE EDUCATION ACTIVITIES USING THE EXISTING FRAMEWORK FOR SPACE COOPERATION

STRATEGIES:

- Focus on primary and secondary school teachers and children
- Support education initiatives taken within the framework of Asia-Pacific Regional Space Agency Forum (APRSAF)
- Support developing countries in other regions through initiatives by UNESCO and other UN entities and development agencies, e.g. JICA
- Maintain cooperation with space-faring nations in space education through International Space Education Board (ISEB)
- Contribute to send Japanese students to ISU every year
JAXA Try Zero G

- Water Gun
- Magic Carpet
- Newton’s Law
  Conservation of momentum
- Paper Plane
- How to use the Eyewash?
- Powerful women
Area of Research in JAXA Space Biomedical Research Office (J-SBRO)

Physiological Countermeasures
• Bone: Bisphosphonate
• Exercise, Nutrition
• Cardiovascular System
• Autonomic Nerve System
• Circadian Rhythms

Psychological Support
• Stress Management

Medical Systems
• Devices
• Onboard Diagnostic System
• Communication system

Cosmic Radiation
• Measurement
• Biological Effect

Environment of Spacecraft
• Off Gases monitoring system
• Micro-organisms Assessment

Moon Base Frontier Medicine
• Walking Behavior
• Dust
• Telemedicine

International Space Station (ISS)
J-SBRO Outreach Programs

J-SBRO outreach programs play an important role in enhancing and promoting biomedical research by:

- Explaining the contents of research to the public
- Developing educational materials for students
- Exchanging its ideas with other organizations

Vestibular Organ

Bone Density

Cardiovascular System

Mission X: Train Like an Astronaut

Exercise

Nutrition
Upcoming educational event using space flight
“Challenge of the Space Medicine”

Dr. Furukawa
● scheduled to fly in June 8 (JST), 2011
● will stay in ISS for 6 month

10 topics
1. Neutral posture in space
2. Two fingers point matching
3. Up and down sense
4. Nystagmus in space
5. Space adaptation syndrome
6. BP in arm and leg
7. Body size measurement
8. Height change and lumbago
9. No walk effect on sole’s skin
10. Light flash

The effects of space environments on a human body and the importance of its research will be explained.
If you can dream it, you can do it!

Education enables us to envision and pursue our dreams.