Japanese Show Case: How to Promote ESD at schools
ESD practices in ASPnet Schools in Kesennuma City, Japan

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Former Supervisor of Kesennuma Board of Education
1-1 Kesennuma ESD in Greater Sendai RCE

Greater Sendai ESD/RCE Area Detailed Map
1-2 ESD of Kesennuma utilizing rich nature

「森は海の恋人運動」
Forest is Sweetheart of Ocean

国際水産文化都市
International Fishing Port

スローフード
Slow Food Movement
2-1 United Nations University
ESD/RCE
RCE Greater Sendai Area 2005,6
First Group of RCEs / Initial 7
3 UNESCO Associated Schools

List of ASPnet in Kesennuma - 26 schools, 2009

<table>
<thead>
<tr>
<th>No.</th>
<th>Schools</th>
<th>Approach to ESD</th>
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<td>1</td>
<td>Omose Elementary School</td>
<td>International Education Environmental Education</td>
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<td>2</td>
<td>Shishiori Elementary School</td>
<td>International Education</td>
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<td>Nakai Elementary School</td>
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<td>5</td>
<td>Hashikami Elementary School</td>
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<td>Hakusan Elementary School</td>
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<td>Oshima Elementary School</td>
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<td>8</td>
<td>Mizunashi Elementary School</td>
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<td>9</td>
<td>Shinjo Elementary School</td>
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<tr>
<td>10</td>
<td>Urashima Elementary School</td>
<td>International Education Disaster Reduction Education</td>
</tr>
<tr>
<td>11</td>
<td>Omose Junior High School</td>
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<td>12</td>
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<td>International Education Human Rights Education</td>
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<td>13</td>
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<td>Hashikami Junior High School</td>
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<td>15</td>
<td>Kesennuma High School</td>
<td>International Education Environmental Education</td>
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26 schools acknowledged, 7 Schools on application to ASP
4 ESD in Formal Education of Japan

ESD Practice at Omose ES in Kesennuma
5 Systematical Inquiry-based Learning Program in Omose Elementary School

1st - Nature & Festival
2nd - Vegetable Cultivation
3rd - BUGS Mapping
4th - Omose Sanctuary
5th - Ocean Museum
6th - Eco-Future City

Omose Project
6 Strategy for ESD/ASP in Kesennuma

1. Development of “Inquiry-based Learning Program”
2. “Joint-Learning” with schools in other regions and abroad
3. “Sharing of Learning” using ICT
4. Establishment of Collaborations with knowledge base
5. Practice through partnerships among elementary, junior high and high schools
6. Promotion of International Education for Better Communicative Skills
7-1 Development of Systematical “Inquiry-based Learning Program”
- Activities from ESD program of Omose ES, Kesennuma City

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>Project Title</th>
<th>Objectives &amp; Focus</th>
<th>Related subjects</th>
<th>Summary of Activities</th>
<th>Collaborative Organizations and Activities</th>
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</thead>
</table>
| First Grade | Nature and Festival Project  
- "Let's experience the nature and festivals" | Through experiencing planting and cultivation, traditional festivals and events with people in the local community | Life Environmental Studies, Japanese, Manual Art, Music, PE, English | First grade students are engaged in activities to experience traditional events and festivals of Japan that have much to do with the natural environment. In addition, the students learn about festivals abroad from the American students at their partner elementary school as well as international residents in their region. Students also grow plants and vegetables on their own in this process. These activities provide our students with hands-on understanding of the relationship between the nature and the human activities. | - Japanese traditional festivals – grandparents  
- Teaching about and planning games of Halloween – Assistant English Teacher  
- Festivals and dances in the Philippines – The Little International Embassy of Kesennuma  
- Instruction on planting vegetables for festivals and events – Environment Education Center, Miyagi University of Education |
| Second Grade | Vegetable Growing Project  
- "Let's Grow Vegetables and Eat them!" | Through the growing of a variety of vegetables while cooking with people in the local community, students are expected to enjoy growing crops and appreciate harvesting while becoming interested in the food cycle. | Life Environmental Studies qualified, music, manual art, English, Japanese, PE | Through planting and cultivating a variety of vegetables in the school garden, the second grade students learn the sense of wonder in living things and their growth. After harvesting the vegetables, the students cook traditional Japanese as well as international cuisines with their parents to nurture the "mind to be thankful for the offerings from the nature." In addition, students are engaged in preparing composts for their farming using worms and remnants of vegetables so they can observe the circulation of the natural environment. | - Instruction and advice for vegetable growing – Environment Education Center, Miyagi University of Education  
- Instruction for traditional cooking with vegetables and food education – Matsumi Cooperative Culinary Center  
- Knowledge on vegetable growing and organic farming – local farmers |
| Third Grade | Bug Project  
- "Omose Bugs World!" | Through observing and raising dragonflies found around Omose Elementary School and near the Omose River, students are expected to gather knowledge and raising the aquatic organisms in the local Omose River. | Integrated Study, science, social studies, manual art, Japanese, and English activities | Third grade students observe water insects such as the dragonfly in local forests and ponds, and learn about the kinds and distributions of the insects using search engines. They summarize the results in observation journals and maps and figure out their best living environment for the dragonflies. Eventually, their accomplishments are shared in a cyber map for their understanding on ecology, diversity and seasonal transformations. | - Instruction for insect study programs – Environment Education Center, Miyagi University of Education  
- Environment Education Center, EEC of MUSE  
- Instruction and advice for insect observation and raising – Kesennuma Natura Nature School etc.  
- Technical assistance for cyber mapping – EEC of MUSE |
| Fourth Grade | Omose Sanctuary Project  
- "The Omose River that Nurtures Lives" | Comprehensive Objectives: To recognize the relationships between our own life and the environment as well as among living things through collecting and raising aquatic organisms in the local Omose River. | Integrated Studies, Japanese, science, social studies, manual art, and English activities | Fourth grade students study about fish unique to the Omose River located near the school. They collect some fish from the river to continuously raise and observe them in an "Omose Miniature Aquarium." Through this, the students learn about the conditions for the survival of these fish such as water quality, temperature, oxygen and food. In addition, by observing the fish’s environments such as other aquatic species and microorganisms, they can recognize the "connections" between living things in the water. This gives the students opportunities to have important perspectives on maintaining rich water environments, based upon empirical data gathered through problem-solving strategies. Eventually, the students create an "Omose Sanctuary" that summarizes the findings, while demonstrating the ecosystem of the river, and by extension learn to nurture care for waterfront environments. | - Instruction and advice for the study of aquatic living things – EEC of MUSE  
- Water quality analysis of the Omose River – Environment Education Center, EEC of MUSE  
- Instruction and advice for identification and raising fish – Marine Science Education Museum  
- Introduction of the past Omose River environment and the preservation activities – Omose River Humane Society |
| Fifth Grade | Maritime Museum Project  
- "A Wealth of Ocean – Seaside Environment and People’s Life" | Comprehensive Objectives: Utilizing the Rias coastal environment to study aquatic creatures and their ecology and visiting local maritime industries, the students realize the link between waterfront natural environment and human lives. Through this study, students learn that their lives in the community are dependent on the natural environment in both local and global scales. | Integrated Studies, social studies, Japanese, home economics, school activities | Fifth grade students first recognize difference between seaweeds creatures and intertidal living things and the biodiversity through the observation of local beach by the sea. Then, they engage in observation of beach forest in the base of Mt. Kurchikoma to deepen their understanding of the intertidal environment and the beach forest environment. In addition, they visit major industry sites such as a deep sea tuna fishing vessel and oyster farming. They also have a cooking seminar with their parents using tuna fish to learn about the relationship between the human and the ocean environment and the importance to conserve the environment. Ultimately, they express what they learn in their "Maritime Museum" to consider the ecology of forest, river and sea and its relationship with us. | - Observation of creature – Kesennuma Natura Nature School  
- Ocean environment and seaweed specimen seminar – Shiroyama Nature Center  
- Water activity at podo farm – Takeo Fishing Cooperative, local fishermen  
- Beach tourism and marine industry (Mt. Kurchikoma – Department of Regional Planning, Sendai University  
- Study trip to a fisheries and oyster farming seminar – Hakata Trading Company  
- Folklore and Seaweed culture of Kesennuma – Rize Art Museum of Art |
| Sixth Grade | Environmental Future City Project  
- "Waterfront Future City Omose" | Through the study of local and world environment students, are expected to express their own plans for Omose's future environment where people can peacefully coexist with the natural environment. | Integrated Study, Japanese, Social Studies, Science, Home Economics, Manual Art, School Activities, etc. | Sixth grade students engage in a future oriented project in Omose district to consider what the future of Omose ought to be while coexisting with the waterfront environment. First, they conduct field studies, such as a water quality analysis, to realize the link between changes in water quality and their lives. Meanwhile, the students gain a deep understanding of a recycle-based traditional lifestyle consisting with the environment in Japan by comparing it with the modern one based on mass production and mass consumption. Finally, they demonstrate the ideal sustainable urban future of Omose in a georama model and learn about sustainable living. | - Instruction and advice for conceptualizing the Future city project – EEC of MUSE  
- Water quality analysis and study on Future River in Omose – Environment Education Center, EEC of MUSE  
- Perspective on the environment-human relationship – UNESCO Association of Kesennuma  
- Technical assistance for the future city georama creation – Kesennuma Office, Miyagi Society of Architects and Building Engineers  
- Instruction on electric power generation and energy – Taihaku Electric Power Co. |
7-2 ESD Program Chart
– The model program for ESD
6th Grade – “Environmental Future City Project”

<table>
<thead>
<tr>
<th>Integrated Study</th>
<th>Related subjects</th>
<th>Major Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Let’s make Omose waterfront map</strong> June - August <del>Let’s study about water environment in Omose</del></td>
<td>Environmental Future City Project</td>
<td>1. Conduct study about it and make a map 2. Are expected to gain interest in water quality in Omose through aquatic living things study in the Omose River. 3. Listen to talks from local farmers on their accounts of the past Omose River, the relationship between the irrigation canals and rice farming and their lives, and raise incentives to study about the environment through the living things. 4. Learn about water environment through group activities to investigate major irrigations in Omose. 5. Make environmental map of Omose based on what they investigated by groups and give presentations to their class. 6. Create wall poster describing the results of the study, and 7. Create web-based Omose Waterfront Map (summer break)</td>
</tr>
<tr>
<td><strong>Let’s find energy, and make our energy</strong></td>
<td>Science</td>
<td>1. Making household environmental record 2. Using electric power and learn about it a. Generating electricity with bicycle b. Learning about generations mechanisms 3. Through visiting the power generation plant, learning about current state of energy 4. Through observing “igura” a traditional Japanese forest which serves as a wind brake, students learn about traditional lifestyle of which may apply as ideas for 21st century energy conservation.</td>
</tr>
<tr>
<td><strong>Let’s think about future of Omose</strong> November to February</td>
<td>Social Studies</td>
<td>1. Thinking about what nature-conserving Omose ought to be in the future a. Through talking to government officials, students gain knowledge for thinking about future of Omose b. Thinking on their own to figure out how to maintain biodiversity and for humans to maintain healthy living, and get advice from experts through video conference 2. Conducting group experiments and collections 3. Idea Presentation a. Based on the study, students present their ideas of what should remain and what to be improved in our lives, b. Final idea presentation, sharing ideas to be recognized and re-group the class</td>
</tr>
<tr>
<td><strong>Let’s present at Omose Festival</strong></td>
<td>Integrated Study</td>
<td>1. Group activity to summarize what the students have so far studied 2. Group presentation on Omose water environment and energy at Omose Festival</td>
</tr>
<tr>
<td><strong>Let’s make a candle from waste oil with a parent</strong></td>
<td>Social Studies</td>
<td>1.通过 mailing candles from waste oil, students are expected to think about living wastes, recycling and energy conservation.</td>
</tr>
</tbody>
</table>
7-3 Summary of ESD practice

① Omose Sanctuary Project - 4th Grade
Sea Museum Project - 5th Grade

- Observe Breech Forest
- Seaweed Craft
- Enjoy Tuna food
- Research Marine Life
- Explore Tuna Boat
③ Water front Future City Project - 6th Grade
7-4 Fostering Global Perspectives through “Joint-Learning” with schools abroad

Pair Project Theme (Kessennuma Omose Elementary School)

Interactions in Water Environments and Effects On Human Life: A study Omose and American School’s Students

Goals of the Project

Under the theme of water environment, which is a mutual interest in both Japan and the U.S., students are expected to nurture their senses of wonder for nature as well as their impulses for scientific discovery.

Through the utilization of Information and Communication Technology, mutual understanding of our environments is achieved jointly with an American elementary school, while overcoming the time, language, and geographical difference.

This project gives students opportunities to deepen their understanding of their local and global environments, nurture their global perspectives, and ultimately create a base for environmentally-friendly actions.

Pair Project with US School

<table>
<thead>
<tr>
<th>Omose Elementary School</th>
<th>Callisburg &amp; Lincoln Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nature and Festival (1st Grade)</td>
<td>Halloween &amp; Thanksgiving</td>
</tr>
<tr>
<td>Vegetables Cultivation (2nd Grade)</td>
<td>School Garden &amp; Warm Compost</td>
</tr>
<tr>
<td>BUGS Cyber Map (3rd Grade)</td>
<td>BUGS - Dragonfly &amp; Soil Project</td>
</tr>
<tr>
<td>Omose Sanctuary (4th Grade)</td>
<td>Elm Fork River Project</td>
</tr>
<tr>
<td>Sea Museum (5th Grade)</td>
<td>Lake &amp; Pothole Study</td>
</tr>
<tr>
<td>Water Front Future City (6th Grade)</td>
<td>Future City - Box City Project</td>
</tr>
</tbody>
</table>

Field Trip to Pothole with Lincoln E.S. Kids

Presentation to US school in Internet Video Conference
7-5 Realization of the “Sharing of Learning” using ICT while overcoming the time and spatial differences

Realization of the “Sharing of Learning” using ICT while overcoming the time and spatial differences

Act Locally

Think Globally

Internet Video Conference

Sharing of Discoveries

11,000km

15 hour time difference

Callisburg & Lincoln Schools

Omose Elementary School
7-6 Texas State Legislature Prize Giving Resolution 2007,3
8-1 Knowledge Base of Omose
8-2 Establishment of Partnerships with Local Knowledge Base

Members of Kesennuma ESD/RCE Promotion Committee (28 organizations)

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<th>Specialized Knowledge Institutes</th>
<th>Local Government (Public Sector)</th>
<th>Local Industry &amp; Press Organizations</th>
<th>NPO and Volunteer</th>
<th>Educational Organizations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miyagi University of Education</td>
<td>Miyagi Prefectural Kesennuma Civil Engineering Office</td>
<td>Kesennuma Office of Tohoku Electric Power Co., Inc.</td>
<td>Kesennuma UNESCO Association</td>
<td>Omose Elementary School</td>
</tr>
<tr>
<td>Kesennuma City Library</td>
<td>Environmental and Health Division, Kesennuma City Planning and Policy Division. Kesennuma City</td>
<td>Kesennuma Chamber of Commerce</td>
<td>“Slow Food” Kesennuma Association</td>
<td>Hashikami Elementary School</td>
</tr>
<tr>
<td>Rias Ark Museum of Art</td>
<td>Kesennuma City</td>
<td>Sanriku-Shinpo Newspaper</td>
<td>Kesennuma Nature School</td>
<td>Shishiori Elementary School</td>
</tr>
<tr>
<td>Miyagi Architect Association</td>
<td>Kesennuma City Board of Education</td>
<td>Kahoku-Shinpo News paper</td>
<td>“I Love Oshima” Oshima Experience Station</td>
<td>Nakai Elementary School</td>
</tr>
</tbody>
</table>

Lecture of Ocean Environment at Nature Center

Research of Fish in Omose River supported by Specialist of Science Museum
8-3 Building 3 links of Sectors for the promotion of ESD

Coalition to Promote ESD in Kesennuma (RCE)

Formal education
- Miyagi University of Education
  - Kesennuma H.S.
  - Kesennuma West H.S.
  - Omose Junior H.S.
  - Shishiori Junior H.S.
  - Omose E.S.
  - Shishiori E.S.

Informal education
- Advanced learning institutions
  - Rias Ark Museum of Art
  - Kesennuma Nature School
  - City library
- City agencies
  - Slow food Kesennuma
  - Media
  - Public utility companies
  - Local businesses
  - Local NGOs

Vertical Links
- Kesennuma City Board of Education

Horizontal Links

Lateral Links
9 Organized Practices from Elementary to High Schools

Systematic ESD from Primary to High School

Realizing Sustainable Future through Positive Behavior for SD

High School
- Citizen Action Skills & Experience
- Critical Thinking
- Sharing the ESD Learning in the World

Middle School
- Knowledge of Environment
- Environmental Ethic
- Inquiry-Based Learning
- Communication

Elementary School
- Perceptual Awareness
- Respect for Life
- Hands on Learning Experience in Nature

Joint Observation of Lives on the Seashore with Elementary and High School Students

Joint Teacher Training of JP-US Teachers among Primary, middle and High School
10 Promotion of International Education for Better Communicative Skills
11 Expansion of ESD to Gain Knowledge of Local Experts

Food Education

Disaster Reduction Education

Regional Heritage Education
12-1 International Environmental Education
Open Seminar 02~05
UNESCO Asia Pacific Environmental Education Research Seminar 2003/05

Japan US Child Earth Forum (Video Conference)

Future City Project (6 graders) : Class

Key note - Vice Chair Man of the Central Education Council of Japan

International Environmental Education Forum
12-2 Good Practice ~ ESD Int’l Forum

International Environmental Education Program to Foster Global Perspectives, Collaborating with American Schools for Progressing ESD
(Omose Elementary School, Kesennuma-city, Miyagi Prefecture)

Outline
Omose Elementary School researched and developed an international collaborative environmental education program jointly with elementary schools in the U.S. in order to foster perceptual awareness and intelligence for developing sustainable future, linking with local and global institutions such as Miyagi University of Education and United Nation University to draw on expertise from environmental, cultural and educational specialists.

Background
A reform in school education is on-going in Japan. In keeping up with a changing society, the government has recognized the need to train students to be rich in heart and become able to contribute to sustainable society, acquire the curious skills for educating themselves, and cultivate their “ zest for living” “ The New Course of Study”. In effect, April 2011, still requires schools to set aside time for integrated studies and promote ESD through subjects and integrated studies at each school level.

On the other hand, under the Master Teacher Program of the Japan Fulbright Memorial Fund (JFMF), Japan-U.S. Educational Commission, and Omose and American schools engaged in joint environmental education projects. In another words, the MTP enabled the collaboration program on Japan (Kesennuma) U.S. water environments to start.

Objectives and Goals
This hands-on, experience-based inquiry learning is an eye-opening experience for students who hunger for knowledge and discovery. Through web-based interactions, students develop a mutual understanding about each other’s environments. This in turn develops their understanding of the earth’s systems and opens up their eyes to the global world.

Implementation
This activity was implemented as a school curriculum of Omose Elementary School through mainly integrated study by linking with local and global institutions such as Miyagi Education University, JFMF and UNU-IAS.

Activities & Features
(1) Outline and Support of Grade Level Projects
Omose’s curriculum is an all school effort, incorporated at all grade levels. In developing our projects for each level, we carefully consider students’ developmental stages and circumstances and targeted abilities and perspectives. We select level-appropriate topics for each grade and develop and implement projects with the help of professional institutions that fit the needs of each grade project.

<table>
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<tr>
<th>Pair Project Omose &amp; Lincoln Elementary School in Wisconsin</th>
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<td>BUGS Map (3rd Grade)</td>
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<tr>
<td>Omose Sanctuary (4th Grade)</td>
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<tr>
<td>Sea Museums (5th Grade)</td>
</tr>
<tr>
<td>Water From Future City (6th Grade)</td>
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</table>

(2) Summary of Omose’s Main Project Design
① BUGS Map Project, 3rd Grade
Students observe and study insects around Omose River such as dragonfly, butterfly and so on. And they are going to share and compare information via the Internet by creating cyber maps based on their research.

② Omose Sanctuary Center Project, 4th Grade
Through gathering, observing, and cultivating Omose River aquatic life such as native fish, students learned the connections between living things and understood the conditions necessary to preserve an abundant environment. Students created “Miniature Aquarium” and “Sanctuary Center” to synthesize their awareness and discovery.

③ Sea and Lake Museum Project, 5th Grade
Through observing and experiencing shoreline marine life, students learned the connections between living things and the ecosystem. From then on, they compared their observations with Lincoln Elementary School students’ observations of a pohole, freshwater life. Also, they considered the connections between human life and the ocean environment and planned to make “Sea Museum” to recognize ecosystem including human

④ Waterfront Future City Project, 6th Grade
Students thought about how Kesennuma city, forest, river, and ocean can be co-exist with nature and planned a future Kesennuma City. The sixth grade students applied the results of water quality research and what they learned in previous years and contributed their individual ideas to planning a waterfront city of the future. Finally, the students designed and made a model of their Waterfront Future City.

⑤ Children Global Environmental Forum – Internet Video Conferencing beyond Boarder and Time
Omose and Lincoln connected via an online video conferencing system. U.S. and Japanese elementary students held an online forum on the global environment to exchange their activities and results of their learning and they are expected to broaden their perspectives and share environmental & cultural awareness. Through this communication, students of both sides could not only recognize the differences and similarities between their region and country abroad, but also progress mutual understanding beyond national boundaries.

問い合わせ先
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住所：〒 982-0844 宮城県気仙沼市○○○○
TEL：○○ FAX：○○
MAIL：○○
12-3 New Endeavors for ESD in Kesennuma through ASPnet

1 Establishing an ESD Network with Asia
12-4 The 4th World Teachers’ Day & UNESCO APEID in Bangkok 2009,3,
12-5 International Meeting on the UN DESD & Japan Report
2009,3-4 Bonn, Germany
by Interministrial Meeting on DESD Roundtable of Jap. Gov.
Conclusion: New Endeavors for ESD in Kesennuma through ASPnet
Think Globally, Act Locally in order to educate young people who develop Sustainable Future!

Thank you!