2012 Applications must be submitted to SWANA no later than Friday, April 13, 2012

*** PLEASE NOTE THAT ENTRY REQUIREMENTS HAVE CHANGED ***

Application Checklist (Please make sure the following items are included in your submittal packet)

- Completed release statement (this page), to be scanned and included in digital submission
- Check (made payable to SWANA) or credit card payment for nomination fee (in U.S. dollars) via Excellence Award Nominations
- At least 2 pictures of your operation (may be included in nomination text)
- One copy of your award submittal uploaded using your purchased 2012 SWANA Excellence Awards Application Uploading Instructions
- If you would like to mail your submission, please contact Jesse Maxwell, Program Coordinator, at jmaxwell@swana.org or (240) 494-2237.

Release Statement: I certify that the information provided in this application is accurate and correct to the best of my knowledge. SWANA reserves the right to publish the enclosed information. Nominations become the property of SWANA. My signature gives SWANA the right to reprint or make available for purchase any portion of this submittal.

Signature: Christine Knapp Date: 4/13/12
SWANA 2012 Public Education Excellence Award Nomination Packet

The EcoChallenge Exhibit at the Discovery Science Center and the Regional Public Education and Outreach Program

Orange County, CA
OC Waste & Recycling: The EcoChallenge Exhibit at the Discovery Science Center and the Regional Public Education and Outreach Program

Executive Summary

OC Waste & Recycling manages one of the nation’s premiere solid waste disposal systems, which serves 34 cities and over three million residents. OC Waste & Recycling operates a network of three active County landfills and four household hazardous waste collection centers. Within a successful partnership, members combine individual talents and assets to achieve a shared mission. The driving force behind OC Waste & Recycling’s desire to collaborate with the Discovery Science Center was to develop the EcoChallenge exhibit – a multi-disciplinary approach designed to change public behavior through environmental education.

The Discovery Science Center is centrally located in Orange County on Main Street in Santa Ana, California.

The EcoChallenge is an interactive exhibit that combines OC Waste & Recycling’s mission to protect the environment and promote recycling with the Discovery Science Center’s ability to merge learning with fun. It features three hands-on, interactive areas: (1) The Discovery Market, where visitors master eco-friendly shopping skills, (2) the Eco Garage, which reveals the importance of identifying and properly disposing of household hazardous waste, and (3) Race to Recycling, an activity that teaches participants how to properly sort trash in order to minimize the amount of recyclable materials that wind up at Orange County’s landfills.
Statement of Intent

The goal of public education and outreach is to reduce the amount of waste being sent to Orange County landfills. In order to accelerate the increase in waste reduction, reuse and recycling, the residents of Orange County need to be educated and motivated to make small changes in daily behavior that will reduce waste. OC Waste & Recycling is pleased to present this nomination in the award category of Public Education for several reasons: all of the innovative program elements are now in motion, working together and gathering positive attention, participants are reporting that this program is successful, and there are measurable results that show children are learning new things and taking them home to their parents.

Regulatory Requirements

The County of Orange is required by law (the California Integrated Waste Management Act of 1989, also known as AB 939) to reduce the amount of waste disposed in landfills by 50% or potentially incur fines of up to $10,000 per day. The California Department of Resources Recycling and Recovery (CalRecycle) has identified public education and outreach programs related to waste reduction as critical to meeting diversion goals. In 2003, “self-hauled waste” was identified by Orange County haulers as a significant problem. “Self-hauled waste” is waste brought directly to landfills by any business (such as landscapers, carpet layers, roofers) without removing recyclable materials first. These self-haulers were circumventing the recycling processing systems implemented by haulers by taking their waste directly to the landfill, to avoid paying for the removal of recyclables. At that time, the gate rate was $27.00 per ton, as opposed to the Material Recovery Facility rate of $48.00 per ton.

In 2006, the Orange County Board of Supervisors approved a $19.00 per ton AB 939 Self-haul Surcharge to provide an economic disincentive to avoid recycling. Further, the Board gave clear direction to use the funds generated to employ regional programs to directly assist the County and our partner Cities achieve our joint recycling and waste diversion goals in compliance with the State mandates set forth in the Integrated Waste Management Act of 1989 (AB 939). Since the implementation of the AB 939 Surcharge, a total of $8.4 million in AB 939 Self-haul Surcharge monies has been expended on projects partnering with cities, special districts, schools, businesses, and County agencies to divert recyclable materials from Orange County landfills, and self-hauled waste has decreased by 84%.

Research and Preparation

Research

OC Waste & Recycling conducted market research with over 800 Orange County residents regarding waste and recycling to more closely examine what challenges exist with recycling in the home.

The market research included:
• One-on-one and focus group interviews.
• Previous recycling programs and participation.
• Identification of target audiences.

Interviews

In Orange County, approximately 84% have curbside recycling programs. It was found that while 51% of people were aware of recycling and remembered seeing a recycling message, most people were unaware of other ways to reduce waste, such as source reduction practices and reuse programs. Only 9% remembered seeing a waste reduction message. It was determined that the best way to bring the message into Orange County homes would be an educational program that children could bring home to their parents.

Previous Recycling Programs for Public Education and Outreach

OC Waste & Recycling participated in events that other groups offered such as the Orange County Fair, the Children’s Water Festival, and other cities’ community events such as: Pollution Prevention Week, America Recycles Day, and Earth Day. While upon occasion there might be some quiz or interactive activity (like sorting recyclables from other materials), the booths mostly consisted of a table, some flyers, and a few free items. Promotional materials covered a wide range of household items carrying generic messages that encouraged recycling; however, many of the smaller items like tape measures, rulers, cups and refrigerator magnets did not have enough space to carry sufficient information for taking action. Waste Free OC: Saving Room for Tomorrow has been developed as a branding message to help the public understand why waste reduction, reuse, and recycling are important activities.

Target Audiences

Since the objective is to reach the children living in Orange County, OC Waste & Recycling has created partnerships to take these environmental programs into the schools and feature them at sixth grade level field trips, with public outreach and stage shows for all ages.

The Discovery Science Center’s EcoChallenge Program is targeted to three specific audiences: 1) a student program (a 2 hour field trip to the Discovery Science Center to interact with the Eco-Challenge exhibit and a 50-minute in-school, assembly style program, with a take home item, and a); 2) a teacher professional development section (designed to increase the understanding and delivery of the Reduce, Reuse, Recycle message; and 3) a public program, (a 15- minute interactive...
presentation about Reduce, Reuse, Recycle presented on the public stage at the Discovery Science Center for general guests, families, and community members).

Each of these programs gives the children different experiences with education about waste reduction, reuse, and recycling, and then sends age appropriate materials home. Children have pre- and post-testing surveys to measure the change in knowledge that has taken place as a result of the program.

**Goals of the Project**

The goals of the project were to develop a successful public education and outreach program to:

1. Positively increase awareness to enable action to increase waste reduction, material reuse, and recycling.
2. Positively change behaviors to increase waste reduction, material reuse, and recycling.
3. Create a sustainable educational outreach program that meets state standard environmental education criteria so that the schools in Orange County would be happy to participate.
4. Ensure that Orange County Landfills will have capacity to meet future generations’ disposal needs.

The main strategy for developing this public education and outreach program was to combine OC Waste & Recycling’s knowledge of the waste & recycling industry with the Discovery Science Center’s expertise in making interactive and fun learning opportunities for children and their families. The Discovery Science Center is the largest, most centrally located children’s museum in Orange County boasting more than 400,000 visitors annually, and it has been voted the best children’s museum by Parenting OC magazine for the past eight years. OC Waste & Recycling and the Discovery Science Center have partnered to create entertaining educational exhibits, assemblies and field trips for schools located in the County of Orange.

**Obstacles**

OC Waste & Recycling was aware that one of the largest obstacles to developing a program designed for students would be meeting the state-standard environmental education curriculum. Without that criterion, it is almost impossible to get a program into any Orange County school, because the time constraints keep students and teachers occupied through almost every moment of the day. Choosing to view this obstacle as an opportunity to serve our local communities and schools, OC Waste & Recycling required that all educational programming meet these standards to obtain funding.

Cuts in education funding have made some learning opportunities, especially field trips for children,
challenging to provide. This program funds not only the exhibit, but also provides for in-school assemblies, outreach materials and programs for teacher development. Even the transportation required to take the children from their schools to the exhibit is provided at no charge to the schools.

The economic climate over the past few years has presented obstacles to many projects, and this project also had funding challenges. Finding donors to sponsor these exhibits was more difficult than anticipated; since the County of Orange was contributing a great deal of money to build the exhibit, any company that participated as a partner could expect to receive a great deal of long term marketing visibility in return for its contribution.

This project experienced a few delays in the location of the exhibit, because the Discovery Science Center was considering placing this exhibit in the planned Environmental Pavilion. OC Waste & Recycling expressed concern with a long term delay because government is accountable for all the dollars spent on a project. When constituents see money go towards a cause, visible results are expected promptly. The second floor of the Discovery Science Center had to be modified in order to accommodate all three exhibits and their related activities.

Later in the development process, clarifying OC Waste & Recycling’s vision for the messages contained in each EcoChallenge exhibit and making each educational experience interactive took painstaking attention to detail. In the beginning, the Discovery Science Center brought drafts of scripts that discussed available recycling practices. While some of these practices may occur within the recycling industry, some practices were not yet occurring in Orange County. Examples of technologies existing but not yet widely available are Styrofoam and waxed paper carton recycling. Since there are five major haulers that work with the cities in Orange County, differences in processing recyclables exists, so OC Waste & Recycling negotiated with the Discovery Science Center to tailor the exhibit information for location accuracy and to meet needs of the County of Orange.

### Implementation and Execution

#### The Exhibit

On April 28, 2009, OC Waste & Recycling entered into this $3.6 million ten-year partnership with the Discovery Science Center to dedicate 3,000 square feet of museum space and build three environmental exhibits in order to educate children about waste reduction, reuse, and recycling.

In preparation for the opening of the exhibit, the Discovery Science Center and their marketing team produced a wide array of tools to advertise the upcoming event. These included: an animated commercial that played...
on local cable television stations, flyers, posters, and billboards. The Discovery Science Center negotiated wrapping an Orange County Transit Authority bus with the EcoChallenge message, and wrapped their own building for the month of August, which led up to the opening day.

The EcoChallenge Exhibit opened on September 1, 2011 and contains the following interactive games and exhibits:

The **Discovery Market** is designed to help guests identify the different types of environmentally friendly packaging and products, to learn how to reduce waste before creating it, and to learn responsible, mindful, shopping choices and reuse behaviors. Using state-of-the art technology, the exhibit creates opportunities for children to explore their environment and experience “hands-on” learning. The Discovery Market features realistic looking food and packaging, shopping carts with flat screen monitors, a laser beam bar-scanning gun, and touch screen technology. As the children select a shopping list, and search for items in each section of the market (Dairy, Produce, Meat, Home and Garden, Snack food, Beverages, etc.) bar-scan technology allows the children to be able to select an item, which communicates their choice to the shopping cart, where the image of the item scanned graphically appears to be in their cart. The store also has a small area called the reuse café, which has touch screen tables where children can “build” craft products reusing materials virtually, such as soda can piggy banks or Styrofoam sail boats. At the market checkout, each shopper is provided with a code, and if more than four of the six items scanned are correct, the child’s digital picture is taken and appears automatically on the “Super EcoShopper” Wall.
collector coin with one of the EcoChallenge Characters is given as “change,” and children enjoy repeating the exhibit to collect different characters. The **Race to Recycle** educates guests as to which material items are recyclable, which materials are hazardous waste, which materials are green or yard waste and which materials go to the landfill, using a simulated sort line from a Material Recovery Facility. In order to fit a sort line into the museum, a luggage-return conveyor belt was used to re-create a material sort line. Each player is put in front of a “cart” that has a flat screen monitor that displays the type of items to search for, and the players pick up plastic representations of each type of item and scan the item over an electronic scanner on the top of the cart. When the correct items are chosen, this moves a small waste truck using the same technology as a carnival amusement park that has moving/racing vehicles.

The **Eco-Garage** shows which materials in a garage are household hazardous waste and which materials are solid waste or recyclable. Two garages stand side by side with an array of items typically kept in a garage. Pesticides, fertilizer, auto supplies, fluorescent light bulbs, paint, and many other items are shown to give visitors a selection. A monitor with an EcoChallenge Character explains the objective, and the children race against a clock using bar scan technology. Visitors can take the challenge to select which items they think are Household Hazardous Waste, and see if they know more than their friends or other visitors.

**The Educational Outreach Program**

Through a competitive grant process, the Orange County Board of Supervisors also awarded $250,000 of AB 939 surcharge funds (described below) to the Discovery Science Center as part of the Discovery Science Center’s “The EcoChallenge Educational Program.” This program was designed to target middle school students to improve their environmental habits, such as recycling, reuse, and waste reduction throughout Orange County. The Discovery Science Center aligned their environmental education program with the California state standards for the environmental teaching curriculum for 6th grade students.

“The EcoChallenge Educational Program” has reached an estimated 175,000 community members, students and teachers in the past six months and has four distinct elements:

- The first element is a sixth grade student program that includes a 50-minute in-school assembly and a take home assignment that requires students to survey their parents about home recycling practices.
• The second element includes a 2-hour field trip to the Discovery Science Center with the same students who were exposed to the 50-minute in-school assembly. This allows students to interact with the County-sponsored EcoChallenge exhibit at the Discovery Science Center.

• The third element is a 2-hour teachers’ professional development program, designed to increase the understanding and delivery of the County’s recycling message to students, through the inclusion of relevant activities throughout the teachers’ curriculum.

• The final element is the “Minute to Win It” EcoChallenge Stage Show,” designed to expose the general public to the County’s messages with a 15-minute interactive presentation on recycling activities that is presented on the public stage at the Discovery Science Center for all general guests, families, and community members. It reinforces the “Reduce, Reuse, Recycle” messaging through interactive play. The show runs on average 10 hours per week, and during the months of January and February the public show was presented to over 15,000 children and adults. The public show, “EcoChallenge Minute to Win It!” is a fast-paced, energetic and fun way to present the knowledge of reducing, reusing, and recycling. The audience is split into two teams that compete against each other doing different tasks within a minute timeframe. Each task teaches about a different area of reducing, reusing, and recycling, as well as the concept of household hazardous waste and the appropriate way to dispose of these objects. The “EcoChallenge Minute to Win It!” game is proving to be very engaging and popular to Discovery Science Center's general visitors.

Measureable results

The classroom teachers also have expressed an overwhelming appreciation for the combination of the assembly and fieldtrip for this program. They believe it increases students' comprehension and stresses the importance of the information provided in this program by OC Waste & Recycling and the Discovery Science Center. In addition, the use of an electronic keypad system allows for students to participate.
in a quick pre-test before the information is presented; then, during the classroom assemblies, the students are surveyed and data is collected by the keypad program. The responses are immediate and students seem to appreciate seeing everyone else’s responses appearing on-screen along with their own responses as they learn the material.

The teachers are also given materials for this program to implement a recycling program within their own classes, and are given a classroom set of waste and recycling bins and a household hazardous waste collection box. Each teacher commits and uses these bins in promoting environmentally aware habits in their classroom. Each take home aspect of the program has been created to enhance the understanding and practices provided by the assembly and fieldtrip classes.

At the end of each assembly, the students receive a booklet, home survey, household hazardous waste information sheet, and household hazardous waste collection box. The booklet contains a coupon that encourages students to locate and visit their local household hazardous waste collection center. The students are asked to bring the coupon completely filled out to the collection center in exchange for a ticket to Discovery Science Center and entry into a raffle to win an iPod touch. The purpose of the coupon is to increase awareness for children and their parents of the Household Hazardous Waste Collection Centers. In addition, the number of students that actually visit their
local Household Hazardous Waste Collection Center with their parents is a positive and measurable behavior change.

The students are also asked to fill out home surveys with their families and return them to their teachers, who in turn return them to the Discovery Science Center. With the reception of these surveys, the students are entered into a raffle for a Kindle Fire and the teachers are entered into a raffle for a $150 gift card. The surveys are collected and all the data is inputted into a datasheet. The results are consolidated and presented at the end of each school year. The recipients of the incentives will also be determined at the end of the school year. During the in-class portion of the EcoChallenge Education program, the teachers are asked to complete a program evaluation. So far, all of the evaluations have indicated that the teachers are pleased with the exhibit and intend to participate in future years.

**Timeline of Events for the EcoChallenge Exhibit**

OC Waste & Recycling and the Discovery Science Center worked closely as a team throughout the planning process and into the development phases:

- **Design:** During the design phase which lasted from September of 2009 to June of 2010, OC Waste & Recycling worked with Discovery Science Center to clarify the objectives of each exhibit. In other words, “What is it that we want the children to do, or what types of behaviors would we like them to display after experiencing this exhibit?” This section included designing the objective of each game and exploring the flow of traffic expected through each exhibit.

- **Fabrication/Installation:** From July 2010 through June 2011, OC Waste & Recycling worked with the Discovery Science Center, who contracted with Cinnabar to create the buildings, physical structures, and game equipment. Cinnabar contracted with Mindi Lipschultz, who along with her team, created, designed and built the six lifelike, three dimensional, animated fun and quirky characters called the EcoCrew, who are stationed at each department and interact with the children.

- **Site Preparation and Construction:** At the same time during the months from July 2010 through June 2011, the second floor of the Discovery Science Center had to be expanded and prepared in order to be able to accommodate all three pieces of the EcoChallenge Exhibit. Once ready, the exhibits were loaded into the predetermined area.

- **Testing, Adjustments, and Marketing:** After the exhibit pieces were installed, during the months of June and July 2011, the games were tested and adjusted.
to be ready for the Grand Opening on September 1, 2011. OC Waste & Recycling and the Discovery Science Center worked to compile the invitation lists for all the city representatives, all the sponsors, and the museum’s board of directors.

- The Educational Program and Sponsors: Throughout the project, OC Waste & Recycling and the Discovery Science Center have worked to ensure that the educational programs developed will obtain more sponsors to create an educational process that serves the community and reinforces the messages within the exhibit, and so that the experience and the learning continues.

In the future, the Discovery Science Center will be moving the EcoChallenge exhibit to their new environmental wing.

Budget

The exhibit cost of $3.6 million from OC Waste & Recycling ensures the EcoChallenge exhibit will reach more than 4 million visitors over the next ten years, representing public outreach costs of less than one dollar per visitor. On-going operation and maintenance costs for the EcoChallenge Exhibit have been offset by an endowment fund established by the Discovery Science Center through grants and donations from public and private sources. The grant award from OC Waste & Recycling for the EcoChallenge educational outreach program is $250,000 for this year.

Additional funding leverage included sponsored contributions from three of the waste haulers in Orange County, whose names are prominently displayed upon the Race to Recycle Exhibit, from Earth Friendly Products, and ECOS, who provided sponsorship and whose products are on display on the shelves in the Discovery Market.

For the EcoChallenge Exhibit, the budget was as follows:

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<th>Tasks</th>
<th>Budget</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design</td>
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<tr>
<td>Fabrication and Installation</td>
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<tr>
<td>Site Preparation and Construction</td>
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<tr>
<td>Test and Adjust</td>
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<tr>
<td>Move to the Environmental Pavilion</td>
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<td>10%</td>
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<tr>
<td><strong>Total Project Budget</strong></td>
<td><strong>$3,600,000</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

OC Waste & Recycling’s funding for the exhibit came from the self-haul surcharge fee, which was established in Fiscal Year 2005-06 to divert self-hauled waste (i.e. waste that is brought by landscapers, construction and demolition contactors without removing recyclables) from Orange County landfills and has been extremely effective. Since its implementation, self-hauled waste has
decreased by a cumulative total of 84% and those materials are now being recycled. OC Waste & Recycling believes the self-haul surcharge fee has been an important public policy, affecting a significant increase in recycling and diversion practices. This has allowed OC Waste & Recycling to develop new innovative diversion programs and provide additional environmental education grant funding opportunities to ensure that regional efforts continue even during economic downturns.

OC Waste & Recycling utilized the self-haul surcharge funds to create sustainable partnerships with measureable results, and the largest investment to date is the EcoChallenge Exhibit. OC Waste & Recycling worked closely with the Discovery Science Center and their subcontractors to create an accurate and durable exhibit that would serve to educate children and their parents into the next decade, without creating more governmental infrastructure. The partnership with the County of Orange requires the Discovery Science Center to find corporate and private sponsorships to fund the on-going operation and maintenance costs for the life of the EcoChallenge Exhibit, which is a cost-savings to the County.

The Public Education and Outreach Classes and Show

OC Waste & Recycling released applications and criteria for the Nonprofit Organization Environmental Education and Outreach Program on March 31, 2011 and closed the application period program on May 16, 2011. OC Waste & Recycling received the written grant applications. On June 15, 2011, an evaluation panel comprised of OC Waste & Recycling staff members reviewed the competitive grant proposals and interviewed the top grant proposals, which included the Discovery Science Center. Interviews were conducted on June 29, 2011. Each nonprofit organization was evaluated on its technical expertise in environmental education and outreach; key personnel; approach/understanding of the regional services required; program sustainability, cost control and schedule; effectiveness and past experience on similar public education and outreach programs; and, staff and resource availability to perform services. The Orange County Board of Supervisors approved the award for the Discovery Science Center on October 4, 2011.

Partnerships and Collaborations

This ten-year partnership is expected to reach more than 4 million students, parents, teachers, and Orange County residents. To achieve this, OC Waste & Recycling worked closely with the Discovery Science Center to ensure that the public education and outreach messages accurately describe current waste practices in Orange County and teach effective behaviors for reducing waste in the environment.
The Discovery Science Center, in the execution of the exhibit, formed partnerships with:

- Cinnabar, the company that constructed the component parts of the three exhibits.
- Earth Friendly Products, a provider of environmentally friendly cleaning products.
- Ecos, a provider of environmentally friendly cleaning products.
- Waste Management Inc., a sponsor of the Race to Recycle.
- Rainbow Environmental Services, a sponsor of the Race to Recycle.
- Ware Disposal, a sponsor of the Race to Recycle.

In addition, the Discovery Science Center is partnering with:

- Rainbow Environmental Services, sponsor for environmental assemblies, classes and field trips for the City of Huntington Beach.
- The City of Irvine, sponsor for environmental assemblies, classes and field trips.
- The City of Mission Viejo, sponsor for environmental assemblies, classes and field trips.
- The City of Placentia, sponsor for environmental assemblies, classes and field trips.

The entire EcoChallenge Education program provides assets to many schools that are considered underserved based upon the percentage of district population that is on government-subsidized lunches, which is the socioeconomic indicator provided by school district reports for underserved students. School districts currently participating in the EcoChallenge Education Program are:

- Santa Ana Unified
- Garden Grove Unified
- Newport-Mesa Unified
- Ocean View Irvine Unified
- Orange Unified
- The City of Fullerton
- Magnolia
- Lowell Joint
- The City of Anaheim
- The City of Cypress
- The City of La Habra
- Saddleback Valley Capistrano Unified

The Discovery Science Center continues the on-going outreach to sustain the public education and outreach. Since the exhibit will be on display for a ten-year period, it is important to include
activities that bring the lessons from the exhibit into classrooms and homes in order to bring about behavioral changes.

**Grant Management/Sustainability**

OC Waste & Recycling designed the grant agreements to maximize both accountability and program sustainability. Grant payment disbursements are tied to specific milestones, demonstrating measurable results. Monthly reporting on project progress is required for three years beyond the two-year grant award cycle in order to demonstrate the sustained efforts each organization has achieved. The agreement also requires a multi-cultural component. OC Waste & Recycling also has proposed budget funding in a ten-year strategic plan to include public education and outreach marketing and monies to refresh the exhibit when needed.

The current funding partners for the environmental education and outreach that have been obtained by the Discovery Science Center include:

- The City of Irvine (550 students)
- The City of Placentia (250 students)
- The City of Mission Viejo (939 Students)

These cities have executed contracts to add the aforementioned number of students to the current year’s education program. Discovery Science Center has proactively reached out to every Orange County city and sanitary district to present information about the EcoChallenge education program. Personal meetings are held with each agency to brief them on the program in general, invite guests from the agency to view a program, and present the opportunity to partner with OC Waste & Recycling and the Discovery Science Center to expand the program in the current school year. The Discovery Science Center has on-going recruitment efforts that include public meetings, telephone outreach, and drafting new proposed contracts with interested cities. This opportunity is a great cost savings to the cities that participate, because the costs to create the exhibit have already been paid.

The California Department of Resources Recycling and Recovery has provided another on-going funding option for jurisdictions by approving the use of the California Beverage Container Grants. These grants may be used to fund the classes, assemblies, and field trips because all the educational elements include references to recycling bottles and cans.

**Elements in the Planning Phase**

OC Waste & Recycling and the Discovery Science Center were committed to making each element interactive and exciting in the hopes of making the lessons within the exhibit memorable. OC Waste & Recycling worked very closely with the Discovery Science Center throughout each element of the planning phase. The elements included: the development of the scope of work, the selection of the planning team, identifying the tasks and activities needed to complete the deliverables. These elements took countless hours of staff time from both entities and a commitment to turn a creative idea into an excellent exhibit. Many team members have children of the appropriate age for the exhibit, and would take home ideas for a “reality check,” i.e. “Does this sound fun to you?” to keep our customers in mind throughout the project.
Creating a state-of-the art exhibit requires the latest technologies be used to create opportunities for children to explore their environment and experience “hands-on” learning. The Discovery Market features realistic looking food and packaging. The shopping carts have touch screen monitors and a laser beam bar-scanning gun, and the combination allows children to select products while shopping. As the children select a shopping list, and search for items in each section of the market (Dairy, Produce, Meat, Home and Garden, Snacks, Beverages, etc.), the bar-scan technology communicates their choice to the shopping cart, where the image of the item scanned graphically appears to be in their cart. The carts were designed to be heavier than a regular shopping cart to ensure safe shopping speeds, and to prevent “bumper car” type activity. At the checkout, each shopper is provided with a code, and if more than four of the six items scanned are correct, the child’s digital picture is taken and appears automatically on the “Super EcoShopper” Wall. A collector coin with one of the EcoChallenge Characters is given as “change,” and children enjoy repeating the exhibit to collect different characters.

The Race to Recycle educates guests as to which material items are recyclable, which materials are hazardous waste, which materials are green or yard waste and which materials go to the landfill, using a simulated sort line from a Material Recovery Facility. In order to fit a sort line into the museum, a luggage return conveyor belt was used to re-create a material sort line. Each player is put in front of a “bin” that has a flat screen monitor that displays the type of items to search for, and the players pick up plastic representations of each type of item and scan the item over an electronic scanner on the top of the cart. When the correct items are chosen, this moves a small waste truck using the same technology as a carnival amusement park that has moving/racing vehicles.

The Eco-Garage shows which materials in a garage are household hazardous waste and which materials are solid waste or recyclable. Again, a monitor with an EcoChallenge Character explains the objective, and the participants’ race against a clock using bar scan technology. The exhibit was designed to facilitate the recognition of hazardous products in the home; and to

Mom is surprised at how quickly the kids learn to recycle!

Kids aim bar code scanners to identify Household Hazardous Waste Products at the EcoGarage.
encourage attendance to the four Household Hazardous Waste Centers, whose services are offered free to Orange County residents.

Creativity

In planning the EcoChallenge Exhibit, OC Waste & Recycling and the Discovery Science Center discussed what the environmental educational needs were within Orange County. There were characters that had already been created, such as the California Department of Resources Recycling and Recovery’s “Recycle Rex” the Dinosaur, and other “Recycling Rangers,” and “Recycling Robots,” but all of these approaches seemed to be for a younger age group and have been in use for many years. A new approach was needed, and the desire was to create a compelling, motivational and fun exhibit.

Most of the children in Orange County today are familiar with computers, and touch screen technology. Children seem to learn best when they participate in projects that are interactive. The Discovery Science Center’s team developed the EcoChallenge Crew members: Zac, Sandra, Roxy, Justin, Susie, and Courtney to interact with the participants and assist them in completing the objectives. The EcoChallenge Crew members have been designed to have a contemporary look and sound in keeping with the styles of today. Each crew member handles an area of the Discovery Market, EcoGarage or Race to Recycle, but all are used on the educational materials. We encourage children to become “Green Superheroes.”

Perhaps the most creative aspect of this program is the scope and approach. While there are other entities within Orange County that offer environmental educational outreach and curriculum, and other programs that offer field trips and follow through on the implementation of recycling programs for classrooms, none of these programs have a ten-year partnership in place to promote environmental educational outreach or the high numbers of attendance as found at the Discovery Science Center. Meticulous attention to detail was paid to each aspect to ensure that the shopping experience was realistic and that the choices were varied. Substitutions were made on shopping list selections to ensure that the foods and products were familiar to children – foods they would eat or products the children might see their parents using in their homes.

In addition to reaching out to each community and district despite the socioeconomic status, the program provides materials in multiple languages. The handouts are printed in Spanish and Vietnamese. The purpose of printing in these languages is to provide all families with
the information and education and make this as accessible as possible. These handouts are available for each school and have been well received and appreciated in multiple languages.

Results and Evaluation

OC Waste & Recycling’s EcoChallenge Exhibit Environmental Education and Outreach Program was featured in a technical session at the Solid Waste Association of North America (SWANA) Western Regional Symposium on April 3, 2012. Promoting the County’s vision of environmental leadership and programs and sharing our innovative approaches to public education and outreach at this regional event may assist other jurisdictions and private entities who share sustainability goals.

The success of the program is also determined through pre- and post-testing data obtained in-part through surveys and scholarship programs. Total visitor interaction with the exhibit and other metrics will also be used. In addition to creating a public education program consistent with State mandates, the partnership will yield other benefits:

Regional Program: Centrally located in Santa Ana, the Discovery Science Center promotes science education to over 400,000 visitors per year, making it an ideal partner for a countywide, regional program.

Opportunity for Matching Funds: the Discovery Science Center received $7 million in matching funds from the State to finance additional environmental exhibits that focus on air quality, water quality, and pollution prevention.

Front-end Focused: Many waste reduction initiatives are focused on the end of the waste stream. This project shifts the emphasis to prevention and sustainability utilizing education to change perceptions and practices that lead to a reduction of waste at the beginning of the waste cycle.

Complementary to Public Outreach Campaign: The exhibit will incorporate branding and outreach elements of the countywide public education and outreach campaign currently under development.

On a broader scale, the exhibit will be a key component of an expanded environmental education program at the Discovery Science Center. The waste reduction message will complement other environmental messages (such as water and air quality) currently promoted by the County through various agencies and departments. Through this partnership with the Discovery Science Center, the County will advance a multi-disciplinary approach to environmental education.
and support responsible resource management through increased public awareness.

The EcoChallenge at the Discovery Science Center is remarkable for several reasons:

1. The EcoChallenge Exhibit fills a gap in the existing methods for educating students and their teachers about the “Reduce, Reuse, and Recycle” waste diversion techniques by allowing children to participate in selection practices.
2. The EcoChallenge Exhibit represents a public-private partnership that will be on-going for ten years, and will maximize resources because the Discovery Science Center continues to find new sponsorships and donors to pay for the exhibit’s continued maintenance and operations.
3. This exhibit increases the cost effectiveness of public education and outreach. With Discovery Science Center’s attendance of approximately 400,000 visitors a year, the EcoChallenge exhibit will reach 4 million visitors over the next ten years, representing public outreach costs of less than one dollar per visitor.
4. The EcoChallenge Exhibit is unique as it enhances the level of citizen participation in, or understanding of, recycling. There is no other interactive museum in the nation featuring a display that so exclusively and effectively educates the principles “Reduce, Reuse, and Recycle.”
5. The partnership created between the County of Orange and the Discovery Science Center makes this exhibit available to a wide array of schools across the County of Orange and allows for the dissemination of information if the laws pertaining to recycling should change.
6. By taking the steps to educate children, who take the message home to their parents, we are also creating more environmentally friendly choices in the future by addressing the shared problems associated with waste in the environment.
7. The Discovery Science Center plans to make the exhibit the cornerstone of their new Environmental Building, and has been fundraising to make this expansion a reality.

Conclusion

Working collaboratively, OC Waste & Recycling and the Discovery Science Center in Santa Ana have pursued this partnership opportunity to educate Orange County residents about the importance of waste reduction and practical actions for achieving the goals of AB 939. EcoChallenge is an interactive exhibit area that combines elements of OC Waste and Recycling’s mission to protect the environment and promote recycling with Discovery Science Center’s ability to merge learning with fun. The EcoChallenge program will serve as the cornerstone for our regional environmental education outreach program over the next ten years. The best benefit to this program is that over time, investing in our youth will yield changes in behavior that will improve the environment and extend the future life of landfills in Orange County.
Grand Opening Video Website Links:


KTLA News coverage:

http://www.ktla.com/videobeta/be66564e-4726-4685-952f-3e8f7f37284e/News/KTLA-Discovery-Science-Center-Eco-Challenge-7AM

http://www.ktla.com/videobeta/92a1905b-8af6-4ea9-a146-cc5121d08274/News/KTLA-Eco-Challenge-Eco-Garage-8AM

http://www.ktla.com/videobeta/27c8733d-fba6-4f93-88b0-4c5f951a4802/News/KTLA-Eco-Challenge-Race-to-Recycle-9AM

http://www.ktla.com/videobeta/2db608d5-ce97-4610-8ea7-69b57808dd06/News/KTLA-Eco-Challenge-Orange-County-Partnership-1PM
Susie
Job/Role: Butcher in the Discovery Market
Gender: Female
Age: 20ish
Personality: Soft Spoken, Energetic, Passionate

Located at the meat and seafood counter, Susie the “butcher” provides helpful hints on wasteful packaging, such as: “Avoid mixed materials like wax fused with paper. Mixed materials cannot be recycled.”

Justin
Job/Role: Works at the Eco Garage and the Discovery Market Home and Garden Department
Gender: Male
Age: Early 20’s
Personality: Friendly, Smart, Responsible, Helpful

At the Eco Garage, Justin helps guests understand how to organize and prep their household hazardous waste for delivery to the Household Hazardous Waste Center. In the Home and Garden department, Justin teaches guests how to understand packaging labels and symbols.

Sandra
Job/Role: Greeter in the Discovery Market
Gender: Female
Age: 20ish
Personality: Warm, Friendly, Energetic, Cool, Soulful

Sandra is the greeter at the Discovery Market for all guests. She provides a quick overview of how to play the game: grab a cart, access a shopping list, make a selection by scanning an item and have fun on the ultimate shopping experience!

Courtney
Job/Role: Produce Clerk in the Discovery Market
Gender: Female
Age: 19ish
Personality: Earthy, Spiritual, Mellow, Healthy

Courtney is a self-proclaimed “Produce Guru.” She is located near the apple bin in the produce department, and shares her eco-wisdom. “Buying California-grown produce is usually fresher, saves fuel, and reduces greenhouse gas emissions.”

Roxy
Job/Role: Baker in the Discovery Market
Gender: Female
Age: 30ish
Personality: Friendly, Kind, Creative, Sassy, Wholesome

Roxy is located at the Bakery Counter, as the store’s “Baker.” She is friendly and wholesome, and enjoys providing fresh baked items to guests. Roxy also provides hints for the Dairy Department, as nothing tastes as good as butter for your bread, or milk for your cookies!

Zac
Job/Role: Waste Hauler Technician
Gender: Male
Age: Mid 20’s
Personality: Friendly, Caring, Knowledgeable, Chill

Zac is the Waste Hauler Technician at the Race to Recycle exhibit. As the subject expert, Zac understands what is ecological, and that organizing trash can be a challenge. Can aluminum go into the landfill bin, green waste bin, recyclable bin or the hazardous waste box? Get your game face on and play “Race to Recycle” to find out!
HELPFUL HINTS TO “REDUCE, REUSE, AND RECYCLE”

› Make sure you buy products made from non-toxic plant materials instead of harsh chemicals. Look for ‘100% Biodegradable’ or the USA EPA ‘Design for the Environment’ seal on the label. These mean that the ingredients will typically break down safely in the environment!

› Partially full containers of motor oil, paints, or household chemicals must be taken to your local household hazardous waste center; however, completely empty aerosol cans and plastic spray bottles are recyclable.

› When it comes to packaging, less is best!

› Only buy what you will use. Did you know 50% of California’s landfill waste is from food scraps? Help extend the life of our landfills by shopping smart!

› Many pre-packaged items are shipped from far away. This means they use more energy and need extra packaging to keep them fresh. Unfortunately, this also means more waste that has to be recycled or even taken to the landfill.

› Think “reusable” instead of “disposable.”

› Seafood Watch: Your best choices include Pacific Halibut, Spiny U.S. Lobster, Alaskan Wild Salmon, U.S. farmed Tilapia, farmed Rainbow Trout. Make sure to avoid the Atlantic Cod, imported Mahi Mahi, farmed Salmon, all sharks, and Red Snapper.

› Buy in bulk, and avoid “one-serving” size items.
DISCOVERY SCIENCE CENTER

BACKGROUND
Discovery Science Center (DSC), a 59,000-square-foot learning facility designed to spark children's natural curiosity, is Orange County's largest nonprofit educational resource. Since opening in December 1998, it has been dedicated to educating young minds, assisting teachers and increasing public understanding and appreciation of science, math and technology through interactive exhibits and programs. Within DSC there are approximately 120 interactive exhibits that encourage visitors to search for answers, think and explore. The center is divided into several themed areas where guests will explore Science of Hockey, Dino Quest, Boeing Rocket Lab, Planetary Research Station, Eco Challenge and other hands-on exhibits throughout the center. It is a community-wide resource where families come together to learn and have fun. The County's residents and school districts are served by this educational resource. Discovery Science Center, which welcomed its one-millionth visitor in 2003, now receives over 400,000 visitors each year.

LOCATION: Santa Ana, California
SIZE: 400,000 annual attendance

ACHIEVEMENTS
- Voted #1 children's museum in Orange County eight years in a row by Parenting OC magazine.
- Ranked first by Association of Science-Technology Centers based on attendance per square foot among science centers.
- Ranked third by the Association of Science-Technology Centers for the number of students experiencing its outreach programs annually.

FEATURED EXHIBIT — ECO CHALLENGE
Discovery Science Center and OC Waste and Recycling have partnered to bring an environmentally themed, eco-friendly exhibit to Orange County. Eco Challenge is an interactive exhibit area that combines elements of OC Waste and Recycling's mission to protect the environment and promote recycling with Discovery Science Center's ability to merge learning with fun.

ADMISSION PRICING
(These prices do not include the Southern California resident discount.)

- Adult (Ages 15+) $17.95
- Child (Ages 3-14) $12.95
- Senior (Ages 62+) $12.95
Green Superheroes Wanted

Our planet is calling on YOU to step up to the challenge! Join the Eco Crew and master the skills of a green superhero by learning how to reduce, reuse and recycle. Eco Challenge gives superheroes of all ages the chance to make their own Earth-friendly choices… are you up to the challenge?

**RACE TO RECYCLE**
Learn the difference between recyclables, household hazardous waste, green waste and landfill waste while you compete with your friends in this hands-on, highly interactive game!

**ECO GARAGE**
Take the challenge to identify household hazardous waste items such as paint, gardening pesticides, motor oil, and batteries. Use a scanner to select which items should be taken to your local household hazardous waste collection facility.

Present this coupon at any Discovery Science Center ticket window to purchase adult general admission tickets for $12.95. Valid any day Discovery Science Center is open to the public and regular tickets are on sale. Not valid for special events. Cannot be redeemed online or combined with any other offer or discount. Limit 6 discounts per coupon. Hours, prices, promotions and exhibit availability are subject to change without notice.

Coupon valid through 12/31/12

2500 North Main Street, Santa Ana, CA 92705. Exit Main St. off 5 fwy.
714-542-2823 • www.discoveryscience.org
What to bring to the Household Hazardous Waste Collection Center

E-WASTE
*REMOVE DATA BEFORE DISPOSAL*

- Digital thermometers
- Display boards on exercise equipment
- DVD players
- Hand-held electronic devices
- Home-use medical monitors
- IPods & MP3 players*
- Microwave ovens (home use)
- PDAs*
- Alarm clocks
- Blood glucose monitors (sterilized)
- Camcorders
- CD players
- Cell phones
- Computer monitors (CRTs & flat screens)
- Computers/CPUs/laptops*
- Copiers (home use, desktop)
- Digital cameras*
- Programmable kitchen appliances
- Pagers
- Printer/scanner/fax
- Radios of all types (car & home)
- Stereos (no speakers)
- Telephones & answering machines
- Televisions (CRTs & flat screens)
- VCRs
- Video game consoles & accessories
- Walkie-talkies

LAWN AND GARDEN PRODUCTS

- Fungicides/wood preservatives
- Herbicides
- Insecticides

OTHER FLAMMABLE PRODUCTS

- CO₂ cartridges (lecture bottle or smaller)
- Diesel fuel
- Fire Extinguishers under 40 lbs.
- Gas/oil mix
- Helium tanks
- Home heating oil
- Kerosene
- Lighter fluid
- Propane tanks (5-gallon or smaller)

CLEANING PRODUCTS

- Bleach (laundry)
- Drain cleaners
- Oven cleaners
- Pool chemicals
- Toilet cleaners
- Tub, tile, shower cleaners
- Wood and metal cleaners and polishes

AUTOMOTIVE PRODUCTS

- Air conditioning refrigerants
- Antifreeze
- Automotive batteries
- Carburetor and fuel injection cleaners
- Fuel additives
- Motor oil
- Starter fluids
- Transmission and brake fluid

WORKSHOP/PAINTING SUPPLIES

- Adhesives and glues
- Aerosol cans
- Fixatives and other solvents
- Furniture strippers
- Oil or enamel-based paint
- Paint strippers and removers
- Paint thinners and turpentine
- Photographic chemicals
- Stains and finishes

INDOOR PESTICIDES

- Ant sprays and baits
- Bug sprays
- Cockroach sprays and baits
- Flea repellents and shampoos
- Houseplant insecticides
- Moth repellents
- Mouse and rat poisons and baits

MISCELLANEOUS

- Batteries
- Compact Fluorescent Tubes
- Driveway sealer
- Fluorescent light bulbs
- Mercury thermostats or thermometers
- Sharps in puncture-proof containers (hypodermic needles, pen needles, intravenous needles, lancets)

More information about household hazardous waste disposal is available at 714-834-6752 and at www.oclandfills.com